COMMITTEE ON PAYMENT AND SETTLEMENT SYSTEMS

BANK FOR INTERNATIONAL SETTLEMENTS

OICU-IOSCO

16 April 2012

Cover note to final report and two consultative documents

1 Publication of the final *Principles for financial market infrastructures* report

The Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) are publishing the final version of their new *Principles for financial market infrastructures* (PFMI report). The PFMI report replaces the CPSS and IOSCO's previous standards for systemically important payment systems, central securities depositories, securities settlement systems (SSSs), central counterparties (CCPs) and trade repositories (TRs) (collectively FMIs), namely:

- *Core principles for systemically important payment systems* (CPSIPS), issued in 2001;
- *Recommendations for securities settlement systems* (RSSS), also issued in 2001; and
- *Recommendations for central counterparties* (RCCP), issued in 2004.

In March 2011, CPSS and IOSCO published a draft version of the new principles in a consultative document. CPSS and IOSCO received 120 comment letters on the consultative document. The comments were detailed and constructive and were generally supportive of the principles. However some noted various areas for potential improvement, including greater clarity in some areas and more specificity on the application of the principles to certain types of FMI. CPSS and IOSCO paid careful consideration to the comments in finalising the PFMI report. The comments were also helpful in reaching a decision on the approach to be adopted for those aspects of the principles where the consultative document contained options (ie principles 4, 7 and 15).

Also published is a *Summary note* which provides an overview of the PFMI report.

The PFMI report harmonises and, where appropriate, strengthens the previous international standards. It also incorporates additional detailed guidance for over-the-counter (OTC) derivatives CCPs and TRs.[1] In general, these new standards are expressed as broad

[1] In May 2010, CPSS and IOSCO published *Guidance on the application of 2004 CPSS-IOSCO recommendations for central counterparties to OTC derivatives* and *Recommendations for trade repositories in OTC derivatives markets*.

principles in recognition of FMIs' differing organisations, functions and designs and the range of ways potentially available in relation to some issues to achieve a particular result. In some cases, however, the PFMI report does incorporate a specific quantitative minimum requirement (such as in the credit, liquidity and general business risk principles) to ensure a common base level of risk management across FMIs and countries. In addition to the new principles themselves, the PFMI report also outlines the general responsibilities of relevant authorities for FMIs in implementing these standards. CPSS and IOSCO members will strive to adopt the new principles by the end of 2012 and put them into effect as soon as possible. FMIs are expected to observe the principles as soon as possible.

2 Publication of an assessment methodology and disclosure framework for public consultation

CPSS and IOSCO are also publishing for public comment the *Assessment methodology for the principles for FMIs and the responsibilities of authorities* and the *Disclosure framework for financial market infrastructures*. CPSS and IOSCO request comments on the proposed assessment methodology and disclosure framework by 15 June 2012. After the consultation period, CPSS and IOSCO will review all comments received on the assessment methodology and disclosure framework and publish final versions of the documents later in 2012.

A Assessment methodology

(i) Objective of the assessment methodology

The assessment methodology's objective is to provide a framework for assessing an FMI's observance of each of the 24 principles and the relevant authorities' observance of each of the five responsibilities. The assessment methodology is therefore a tool to promote the implementation and ongoing observance of the principles and responsibilities and to help ensure objectivity and comparability across all relevant jurisdictions.

The assessment methodology is primarily intended for external assessors at the international level and, in particular, international financial institutions such as the World Bank and International Monetary Fund (IMF). It also provides a baseline for national authorities to assess FMIs under their oversight/supervision. National authorities should use the assessment methodology in its current format or develop an equally effective methodology for their national oversight/supervision processes.

(ii) Background

The assessment methodology draws from the methodologies that were developed for the CPSIPS, the RSSS and the RCCP, taking into account the lessons drawn from the use of the existing approaches. The assessment methodology was developed by a sub-group chaired by the World Bank and the IMF, the members of which were experienced experts who have collectively performed numerous assessments through the IMF-WB Financial Sector Assessment Programme (FSAP) and other diagnostics of FMIs as external assessors and as overseers of national and international systems. The assessment methodology was developed in parallel with and as an adjunct to the PFMI report. Accordingly, the assessment methodology and final principles should be taken as closely related and supporting documents. The assessment methodology therefore avoids repetition of the detail contained in the principles and responsibilities. Any elaborating commentary is intended to help explicate practical considerations that arise when performing assessments, not to amend or expand upon the principles and responsibilities.

(iii) Structure of the assessment methodology

The assessment methodology describes the five steps involved in an assessment against the PFMI report. These steps are: (1) determining the appropriate scope of an assessment; (2) gathering facts useful to evaluate the key considerations; (3) developing key conclusions by key considerations; (4) assigning a rating category to each principle or responsibility; and (5) indicating an appropriate timeframe for addressing each identified issue of concern, including a discussion on priorities.

The assessment methodology also provides assessment report templates for assessing an FMI against the 24 principles and authorities against the five responsibilities (Appendices 1 and 2, respectively) as well as supporting questions for assessing observance with the principles and responsibilities (Appendices 3 and 4, respectively).

(iv) Request for comments on the proposed assessment methodology

CPSS and IOSCO request comment on the proposed assessment methodology and in particular on the following points:

- Is the assessment methodology appropriately comprehensive? If not, how should the assessment methodology be improved?
- Is the assessment methodology sufficiently clear (including on the guidance provided to deal with different types of FMIs)? If not, how can the assessment methodology be improved to ensure it is clearer?
- Does the assessment methodology include an appropriate level of detail? If not, what changes should be made?

B Disclosure framework

(i) Objective of the disclosure framework

Principle 23, "Disclosure of rules and key procedures" requires an FMI to publicly disclose sufficient information to participants and prospective participants so that they can understand the system's design and operations, their rights and obligations, and the fees and risks from participating in the system. Information that should be publicly disclosed extends beyond all relevant rules and key procedures and includes other explanatory material to help promote a better understanding of the FMI's operations and its impact on participants and the market it serves.

The proposed disclosure framework is designed to assist FMIs in providing the consistent and comprehensive disclosure that is expected of them under Principle 23. FMIs are expected to provide responses that are thorough and at an appropriate level of detail to achieve the following broad objectives:

(1) improve the transparency of FMI governance and operating and risk management structure in order to inform market participants, current and prospective users and authorities (and facilitate comparisons among FMIs);

(2) provide the public with a comprehensive understanding of the FMI, its role in the market it serves and the range of its relationships, interdependencies and interactions (eg description of key links, key service providers, and participants); and

(3) provide substantive descriptions of key rules, risks, policies, procedures and controls on a principle-by-principle basis.

(ii) Background

The proposed disclosure framework draws on the requirements set out in the RSSS and RCCP where SSSs and CCPs were required to complete and disclose the answers to the key questions (or, for SSSs, to alternatively fill out the CPSS-IOSCO *Disclosure framework for securities settlement systems*) and to periodically review the accuracy and completeness of the information provided. With this background and taking into account the wider requirements set by the PFMI report, CPSS and IOSCO supported adapting the approach for disclosure to reconcile the trade-off between level of comparability and burden for the FMI. In this regard, instead of asking for a reply for each of the questions set in the assessment methodology, the proposed disclosure framework asks for a narrative description per key consideration covering the key elements identified by the assessment methodology to ensure a consistent approach across FMIs.

(iii) Suggested approach to the disclosure framework

A template for completing the disclosure framework is attached as an annex to the framework to help ensure that all FMIs disclose comprehensive and objective information in a similar structure, to further the reader's understanding of a particular FMI and facilitate comparability across FMIs. The disclosures should be complete and accurate on an on-going basis in order to be useful to participants and other stakeholders. FMIs should ensure that participants are provided with up-to-date information by regularly reviewing the information provided in the disclosure framework and updating answers as soon as possible after significant changes. A comprehensive review of the answers should be performed periodically (at least every two years) to ensure continued accuracy, except in case of a material change in an FMI's design and risk management in which case the update should be conducted before. To enable market participants to more easily detect changes and updates to the FMIs design and services, a specific section on changes since the last disclosure is part of the disclosure template.

In addition to the proposed disclosure framework, CPSS and IOSCO are developing a set of key quantitative information to be provided by FMIs to enable stakeholders, including the general public, to evaluate and facilitate cross-comparison of the systemic importance of FMIs in the market(s) they serve as well at the risks they might bring to these markets and the costs and risks associated with becoming a member. Given its nature, this information would need to be updated more frequently than that of the present disclosure framework to ensure it accurately reflects the situation of the FMIs.

(iv) Request for comments on the proposed disclosure framework

CPSS and IOSCO request comment on the proposed assessment methodology and in particular on the following points:

- Is the disclosure framework appropriately comprehensive? If not, how should the disclosure framework be improved?
- Is the disclosure framework sufficiently clear? If not, how can the disclosure framework be improved to ensure it is clearer?
- Does the disclosure framework include an appropriate level of detail concerning quantitative and qualitative disclosure requirements? If not, what changes should be made?

Committee on Payment and Settlement Systems

Technical Committee of the International Organization of Securities Commissions

Principles for financial market infrastructures

April 2012

BANK FOR INTERNATIONAL SETTLEMENTS

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Abbreviations

ACH	Automated clearing house
BCBS	Basel Committee on Banking Supervision
CCP	Central counterparty
CGFS	Committee on the Global Financial System
CPSIPS	Core principles for systemically important payment systems
CPSS	Committee on Payment and Settlement Systems
CSD	Central securities depository
DNS	Deferred net settlement
DvD	Delivery versus delivery
DvP	Delivery versus payment
FMI	Financial market infrastructure
FSB	Financial Stability Board
ICSD	International central securities depository
IOSCO	International Organization of Securities Commissions
IT	Information technology
Lamfalussy Report	Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries
LEI	Legal entity identifier
LVPS	Large-value payment system
OTC	Over the counter
PS	Payment system
PvP	Payment versus payment
RCCP	Recommendations for central counterparties
Repo	Repurchase agreement
RSSS	Recommendations for securities settlement systems
RTGS	Real-time gross settlement
SSS	Securities settlement system
TR	Trade repository

Overview of principles and responsibilities

Principles for financial market infrastructures

General organisation

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Credit and liquidity risk management

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Settlement

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

Central securities depositories and exchange-of-value settlement systems

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Default management

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant’s customers and the collateral provided to the CCP with respect to those positions.

General business and operational risk management

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Access

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Efficiency

Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Transparency

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Principle 24: Disclosure of market data by trade repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Responsibilities of central banks, market regulators, and other relevant authorities for financial market infrastructures

Responsibility A: Regulation, supervision, and oversight of FMIs

FMIs should be subject to appropriate and effective regulation, supervision, and oversight by a central bank, market regulator, or other relevant authority.

Responsibility B: Regulatory, supervisory, and oversight powers and resources

Central banks, market regulators, and other relevant authorities should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.

Responsibility C: Disclosure of policies with respect to FMIs

Central banks, market regulators, and other relevant authorities should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.

Responsibility D: Application of the principles for FMIs

Central banks, market regulators, and other relevant authorities should adopt the CPSS-IOSCO *Principles for financial market infrastructures* and apply them consistently.

Responsibility E: Cooperation with other authorities

Central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMIs.

1.0. Introduction

1.1. Financial market infrastructures (FMIs) that facilitate the clearing, settlement, and recording of monetary and other financial transactions can strengthen the markets they serve and play a critical role in fostering financial stability. However, if not properly managed, they can pose significant risks to the financial system and be a potential source of contagion, particularly in periods of market stress. Although FMIs performed well during the recent financial crisis, events highlighted important lessons for effective risk management. These lessons, along with the experience of implementing the existing international standards, led the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) to review and update the standards for FMIs.[1] This review was also conducted in support of the Financial Stability Board (FSB) initiative to strengthen core financial infrastructures and markets. All CPSS and IOSCO members intend to adopt and apply the updated standards to the relevant FMIs in their jurisdictions to the fullest extent possible.

1.2. The standards in this report harmonise and, where appropriate, strengthen the existing international standards for payment systems (PS) that are systemically important, central securities depositories (CSDs), securities settlement systems (SSSs), and central counterparties (CCPs). The revised standards also incorporate additional guidance for over-the-counter (OTC) derivatives CCPs and trade repositories (TRs). In general, these standards are expressed as broad principles in recognition of FMIs' differing organisations, functions, and designs, and the different ways to achieve a particular result. In some cases, the principles also incorporate a specific minimum requirement (such as in the credit, liquidity, and general business risk principles) to ensure a common base level of risk management across FMIs and countries. In addition to standards for FMIs, the report outlines the general responsibilities of central banks, market regulators, and other relevant authorities for FMIs in implementing these standards.

Background

1.3. FMIs play a critical role in the financial system and the broader economy. For the purposes of this report, the term FMI refers to systemically important payment systems, CSDs, SSSs, CCPs, and TRs.[2] These infrastructures facilitate the clearing, settlement, and recording of monetary and other financial transactions, such as payments, securities, and derivatives contracts (including derivatives contracts for commodities). While safe and efficient FMIs contribute to maintaining and promoting financial stability and economic growth, FMIs also concentrate risk. If not properly managed, FMIs can be sources of financial shocks, such as liquidity dislocations and credit losses, or a major channel through which these shocks are transmitted across domestic and international financial markets. To

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1 In this report, the term "standards" is used as a generic term to cover all normative statements such as standards, principles, recommendations, and responsibilities. The use of this term is consistent with the past practice of indicating that the principles and responsibilities set out in this report are, or are expected to be, part of the body of international standards and codes recognised by the Financial Stability Board (formerly called the Financial Stability Forum) and international financial institutions.

2 In some cases, exchanges or other market infrastructures may own or operate entities or functions that perform centralised clearing and settlement processes that are covered by the principles in the report. In general, however, the principles in this report are not addressed to market infrastructures such as trading exchanges, trade execution facilities, or multilateral trade-compression systems; nonetheless, relevant authorities may decide to apply some or all of these principles to types of infrastructures not formally covered by this report.

address these risks, the CPSS and the Technical Committee of IOSCO have established, over the years, international risk-management standards for payment systems that are systemically important, CSDs, SSSs, and CCPs.

1.4. The CPSS, in January 2001, published the *Core principles for systemically important payment systems* (CPSIPS), which provided 10 principles for the safe and efficient design and operation of systemically important payment systems. These principles drew extensively from the *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries* (also known as the Lamfalussy Report), which was published in November 1990. The CPSIPS were followed by the *Recommendations for securities settlement systems* (RSSS), which were published jointly by the CPSS and the Technical Committee of IOSCO in November 2001. This report identified 19 recommendations for promoting the safety and efficiency of SSSs.[3] The accompanying *Assessment methodology for 'Recommendations for securities settlement systems'* was subsequently published in November 2002.

1.5. In November 2004, building upon the recommendations established in the RSSS, the CPSS and the Technical Committee of IOSCO published the *Recommendations for central counterparties* (RCCP). The RCCP provided 15 recommendations that addressed the major types of risks faced by CCPs. A methodology for assessing a CCP's observance of each recommendation was included in the report. In January 2009, the CPSS and the Technical Committee of IOSCO established a working group to provide guidance on the application of these recommendations to CCPs that clear OTC derivatives products and to develop a set of considerations for TRs in designing and operating their systems. The reports of this working group, *Guidance on the application of 2004 CPSS-IOSCO recommendations for central counterparties to OTC derivatives CCPs* and *Considerations for trade repositories in OTC derivatives markets*, were issued as consultative reports in May 2010. The feedback received from the consultative process on these reports has been incorporated into this report.

1.6. In February 2010, the CPSS and the Technical Committee of IOSCO launched a comprehensive review of the three existing sets of standards for FMIs – the CPSIPS, RSSS, and RCCP – in support of the FSB's broader efforts to strengthen core financial infrastructures and markets by ensuring that gaps in international standards are identified and addressed.[4] The CPSS and the Technical Committee of IOSCO also identified the review as an opportunity to harmonise and, where appropriate, strengthen the three sets of standards. The lessons from the recent financial crisis, the experience of using the existing international standards, and recent policy and analytical work by the CPSS, the Technical Committee of IOSCO, the Basel Committee on Banking Supervision (BCBS), and others were incorporated into the review. This report, containing a unified set of standards, is the result of that review. The standards in Section 3 of this report replace the CPSIPS, RSSS, and RCCP standards insofar as they are directed specifically to FMIs. Mappings of the new standards to the CPSIPS, RSSS, and RCCP standards are provided in Annexes A and B.

1.7. A full reconsideration of the marketwide recommendations from the RSSS was not undertaken as part of this review. Those recommendations remain in effect. Specifically, RSSS Recommendation 2 on trade confirmation, RSSS Recommendation 3 on settlement cycles, RSSS Recommendation 4 on central counterparties, RSSS Recommendation 5 on

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[3] The definition of the term "securities settlement system" in the RSSS is the full set of institutional arrangements for confirmation, clearance, and settlement of securities trades and safekeeping of securities. This definition differs from the definition of SSS in this report, which is more narrowly defined (see paragraph 1.12).

[4] The CPSIPS, RSSS, and RCCP are currently included in the FSB's Key Standards for Sound Financial Systems.

securities lending, RSSS Recommendation 6 on central securities depositories, and RSSS Recommendation 12 on protection of customers' securities remain in effect. These recommendations are provided in Annex C for reference. In addition to keeping RSSS Recommendations 6 and 12, this report contains focused principles on the risk management of CSDs (see Principle 11) and on the segregation and portability of assets and positions held by a CCP (see Principle 14). The CPSS and Technical Committee of IOSCO may conduct a full review of the marketwide standards in the future.

FMIs: definition, organisation, and function

1.8. For the purposes of this report, an FMI is defined as a multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, derivatives, or other financial transactions.[5] FMIs typically establish a set of common rules and procedures for all participants, a technical infrastructure, and a specialised risk-management framework appropriate to the risks they incur. FMIs provide participants with centralised clearing, settlement, and recording of financial transactions among themselves or between each of them and a central party to allow for greater efficiency and reduced costs and risks. Through the centralisation of specific activities, FMIs also allow participants to manage their risks more efficiently and effectively, and, in some instances, eliminate certain risks. FMIs can also promote increased transparency in particular markets. Some FMIs are critical to helping central banks conduct monetary policy and maintain financial stability. [6]

1.9. FMIs can differ significantly in organisation, function, and design. FMIs can be legally organised in a variety of forms, including associations of financial institutions, non-bank clearing corporations, and specialised banking organisations. FMIs may be owned and operated by a central bank or by the private sector. FMIs may also operate as for-profit or not-for-profit entities. Depending on organisational form, FMIs can be subject to different licensing and regulatory schemes within and across jurisdictions. For example, bank and non-bank FMIs are often regulated differently. For the purposes of this report, the definition of an FMI includes five key types of FMIs: payment systems, CSDs, SSSs, CCPs, and TRs. There can be significant variation in design among FMIs with the same function. For example, some FMIs use real-time settlement, while others may use deferred settlement. Some FMIs settle individual transactions while others settle batches of transactions. Annex D provides greater detail on different designs for payment systems, SSSs, and CCPs.

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5 The general analytical approach of this report is to consider FMIs as multilateral systems, inclusive of their participants, as stated in the definition of FMI. In market parlance, however, the term FMI may be used to refer only to a legal or functional entity that is set up to carry out centralised, multilateral payment, clearing, settlement, or recording activities and, in some contexts, may exclude the participants that use the system. This difference in terminology or usage may introduce ambiguity at certain points in the report. To address this issue, the report may refer to an FMI *and* its participants, or to an FMI *including* its participants, to emphasize the coverage of a principle or other text where this is not clear from the context. The definition of FMIs excludes bilateral relationships between financial institutions and their customers, such as traditional correspondent banking.

6 Typically, the effective implementation of monetary policy depends on the orderly settlement of transactions and the efficient distribution of liquidity. For example, many central banks implement monetary policy by influencing short-term interest rates through the purchase and sale of certain financial instruments, such as government securities or foreign exchange, or through collateralised lending. It is important that FMIs be safe and efficient and allow for the reliable transfer of funds and securities between the central bank, its counterparties, and the other participants in the financial system so that the effect of monetary policy transactions can be spread widely and quickly throughout the economy.

Payment systems

1.10. A payment system is a set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement. Payment systems are typically based on an agreement between or among participants and the operator of the arrangement, and the transfer of funds is effected using an agreed-upon operational infrastructure. A payment system is generally categorised as either a retail payment system or a large-value payment system (LVPS). A retail payment system is a funds transfer system that typically handles a large volume of relatively low-value payments in such forms as cheques, credit transfers, direct debits, and card payment transactions. Retail payment systems may be operated either by the private sector or the public sector, using a multilateral deferred net settlement (DNS) or a real-time gross settlement (RTGS) mechanism.[7] An LVPS is a funds transfer system that typically handles large-value and high-priority payments. In contrast to retail systems, many LVPSs are operated by central banks, using an RTGS or equivalent mechanism.

Central securities depositories

1.11. A central securities depository provides securities accounts, central safekeeping services, and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues (that is, ensure that securities are not accidentally or fraudulently created or destroyed or their details changed). A CSD can hold securities either in physical form (but immobilised) or in dematerialised form (that is, they exist only as electronic records). The precise activities of a CSD vary based on jurisdiction and market practices. For example, the activities of a CSD may vary depending on whether it operates in a jurisdiction with a direct or indirect holding arrangement or a combination of both.[8] A CSD may maintain the definitive record of legal ownership for a security; in some cases, however, a separate securities registrar will serve this notary function.[9] In many countries, a CSD also operates a securities settlement system (as defined in paragraph 1.12), but unless otherwise specified, this report adopts a narrower definition of CSD that does not include securities settlement functions.[10]

Securities settlement systems

1.12. A securities settlement system enables securities to be transferred and settled by book entry according to a set of predetermined multilateral rules. Such systems allow transfers of securities either free of payment or against payment. When transfer is against payment, many systems provide delivery versus payment (DvP), where delivery of the security occurs if and only if payment occurs. An SSS may be organised to provide additional securities clearing and settlement functions, such as the confirmation of trade and settlement instructions. The definition of an SSS in this report is narrower than the one used in the RSSS, which defined an SSS broadly to include the full set of institutional arrangements for confirmation, clearance, and settlement of securities trades and safekeeping of securities

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[7] In some countries, these retail payment systems may be systemically important systems.

[8] In a direct holding system, each beneficial or direct owner of the security is known to the CSD or the issuer. In some countries, the use of direct holding systems is required by law. Alternatively, an indirect holding system employs a multi-tiered arrangement for the custody and transfer of ownership of securities (or the transfer of similar interests therein) in which investors are identified only at the level of their custodian or intermediary.

[9] A securities registrar is an entity that provides the service of preparing and recording accurate, current, and complete securities registers for securities issuers.

[10] In market practice, CSDs often perform SSS functions. See paragraph 1.22, which discusses the approach of this report for entities that perform combined functions of more than one type of FMI, as defined in this report.

across a securities market. For example, the RSSS definition for SSSs included CSDs and CCPs, as well as commercial bank functions involving securities transfers. In this report, CSDs and CCPs are treated as separate types of FMIs. As noted above, in many countries, CSDs also operate an SSS.

Central counterparties

1.13. A central counterparty interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the performance of open contracts.[11] A CCP becomes counterparty to trades with market participants through novation, an open-offer system, or through an analogous legally binding arrangement.[12] CCPs have the potential to reduce significantly risks to participants through the multilateral netting of trades and by imposing more-effective risk controls on all participants. For example, CCPs typically require participants to provide collateral (in the form of initial margin and other financial resources) to cover current and potential future exposures. CCPs may also mutualise certain risks through devices such as default funds. As a result of their potential to reduce risks to participants, CCPs also can reduce systemic risk in the markets they serve. The effectiveness of a CCP's risk controls and the adequacy of its financial resources are critical to achieving these risk-reduction benefits.

Trade repositories

1.14. A trade repository is an entity that maintains a centralised electronic record (database) of transaction data.[13] TRs have emerged as a new type of FMI and have recently grown in importance, particularly in the OTC derivatives market. By centralising the collection, storage, and dissemination of data, a well-designed TR that operates with effective risk controls can serve an important role in enhancing the transparency of transaction information to relevant authorities and the public, promoting financial stability, and supporting the detection and prevention of market abuse. An important function of a TR is to provide information that supports risk reduction, operational efficiency and effectiveness, and cost savings for both individual entities and the market as a whole. Such entities may include the principals to a trade, their agents, CCPs, and other service providers offering complementary services, including central settlement of payment obligations, electronic novation and affirmation, portfolio compression and reconciliation, and collateral

[11] In markets where a CCP does not exist, a guarantee arrangement may provide market participants with some degree of protection against losses from counterparty defaults. Such arrangements typically are organised and managed by the CSD or SSS for a market or by some other market operator. A guarantee typically is viewed as desirable or even necessary where market rules or other features make it practically impossible for market participants to manage their counterparty credit risks bilaterally. Guarantee arrangements vary greatly from simple insurance-based schemes to more-sophisticated structures comparable to a CCP.

[12] Through novation, the original contract between the buyer and seller is extinguished and replaced by two new contracts, one between the CCP and the buyer, and the other between the CCP and the seller. In an open-offer system, a CCP is automatically and immediately interposed in a transaction at the moment the buyer and seller agree on the terms.

[13] The functions of a TR may, where permitted by applicable law, also be performed by a payment system, CSD, or CCP in addition to its core functions. A TR may also provide or support ancillary services such as the management of trade life-cycle events and downstream trade-processing services based on the records it maintains.

management.[14] Because the data maintained by a TR may be used by a number of stakeholders, the continuous availability, reliability, and accuracy of such data are critical.

Box 1

Public policy benefits of trade repositories

The primary public policy benefits of a TR, which stem from the centralisation and quality of the data that a TR maintains, are improved market transparency and the provision of this data to relevant authorities and the public in line with their respective information needs. Timely and reliable access to data stored in a TR has the potential to improve significantly the ability of relevant authorities and the public to identify and evaluate the potential risks posed to the broader financial system (see Principle 24 on disclosure of market data by TRs). Relevant authorities, in particular, should have effective and practical access to data stored in a TR, including participant-level data, which such authorities require to carry out their respective regulatory mandates and legal responsibilities.

A TR may serve a number of stakeholders that depend on having effective access to TR services, both to submit and retrieve data. In addition to relevant authorities and the public, other stakeholders can include exchanges, electronic trading venues, confirmation or matching platforms, and third-party service providers that use TR data to offer complementary services. It is essential, therefore, for a TR to design its access policies and terms of use in a manner that supports fair and open access to its services and data (see Principle 18 on access and participation requirements). Another important benefit of a TR is its promotion of standardisation through the provision of a common technical platform that requires consistency in data formats and representations. The result is a centralised store of transaction data with greater usefulness and reliability than when the data are dispersed.

Central banks, market regulators, and other relevant authorities for TRs have a responsibility to mutually support each other's access to data in which they have a material interest as part of their regulatory, supervisory, and oversight responsibilities, consistent with the G20 Declaration at the 2010 Toronto Summit.[15] As market infrastructures continue to evolve, TRs may develop for a variety of products and asset classes both within and across particular jurisdictions, and cooperation among authorities will become increasingly important (see Responsibility E on cooperation with other authorities). Efforts should be made to remove any legal obstacles or restrictions to enable appropriate, effective, and practical access to data by relevant authorities, provided such authorities are subject to appropriate confidentiality safeguards.

Public policy objectives: safety and efficiency

1.15. The main public policy objectives of the CPSS and the Technical Committee of IOSCO in setting forth these principles for FMIs are to enhance safety and efficiency in payment, clearing, settlement, and recording arrangements, and more broadly, to limit

[14] For some TRs, participants may agree that an electronic transaction record maintained in the TR provides the official economic details of a legally binding contract. This enables trade details to be used for providing additional services.

[15] The Declaration of the G20, 2010 Toronto Summit, annex II, paragraph 25, provides: "We pledged to work in a coordinated manner to accelerate the implementation of over-the-counter (OTC) derivatives regulation and supervision and to increase transparency and standardization. We reaffirm our commitment to trade all standardised OTC derivatives contracts on exchanges or electronic trading platforms, where appropriate, and clear through central counterparties (CCPs) by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories (TRs). We will work toward the establishment of CCPs and TRs in line with global standards and ensure that national regulators and supervisors have access to all relevant information." The complete declaration is available at http://www.g20.org.

systemic risk and foster transparency and financial stability.[16] Poorly designed and operated FMIs can contribute to and exacerbate systemic crises if the risks of these systems are not adequately managed, and as a result, financial shocks could be passed from one participant or FMI to others. The effects of such a disruption could extend well beyond the FMIs and their participants, threatening the stability of domestic and international financial markets and the broader economy. In contrast, robust FMIs have been shown to be an important source of strength in financial markets, giving market participants the confidence to fulfil their obligations on time, even in periods of market stress. In relation to CCPs, the objectives of safety and efficiency are even more pertinent because national authorities have required or proposed the mandatory use of centralised clearing in an increasing number of financial markets.

Achieving the public policy objectives

1.16. Market forces alone will not necessarily achieve fully the public policy objectives of safety and efficiency because FMIs and their participants do not necessarily bear all the risks and costs associated with their payment, clearing, settlement, and recording activities. Moreover, the institutional structure of an FMI may not provide strong incentives or mechanisms for safe and efficient design and operation, fair and open access, or the protection of participant and customer assets. In addition, participants may not consider the full impact of their actions on other participants, such as the potential costs of delaying payments or settlements. Overall, an FMI and its participants may generate significant negative externalities for the entire financial system and real economy if they do not adequately manage their risks. In addition, factors such as economies of scale, barriers to entry, or even legal mandates, may limit competition and confer market power on an FMI, which could lead to lower levels of service, higher prices, or under-investment in risk-management systems. Caution is needed, however, as excessive competition between FMIs may lead to a competitive lowering of risk standards.

Safety as a public policy objective

1.17. To ensure their safety and promote financial stability more broadly, FMIs should robustly manage their risks. An FMI should first identify and understand the types of risks that arise in or are transmitted by the FMI and then determine the sources of these risks. Once these risks are properly assessed, appropriate and effective mechanisms should be developed to monitor and manage them. These risks, described in Section 2 of the report, include (but are not limited to) legal, credit, liquidity, general business, custody, investment, and operational risks. The principles for FMIs in this report provide guidance to FMIs and authorities on the identification, monitoring, mitigation, and management of the full range of these risks.

Efficiency as a public policy objective

1.18. An FMI should be not only safe, but also efficient. Efficiency refers generally to the use of resources by FMIs and their participants in performing their functions. Efficient FMIs contribute to well-functioning financial markets. An FMI that operates inefficiently may distort financial activity and the market structure, affecting not only its participants, but also its

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[16] These objectives are consistent with the public policy objectives of previous reports by the CPSS and the Technical Committee of IOSCO. Other objectives, which include anti-money laundering, antiterrorist financing, data privacy, promotion of competition policy, and specific types of investor and consumer protections, can play important roles in the design of such systems, but these issues are generally beyond the scope of this and previous reports.

participants' customers. These distortions may lead to lower aggregate levels of efficiency and safety, as well as increased risks within the broader financial system. In making choices about design and operation, however, FMIs ultimately should not let other considerations take precedence over the establishment of prudent risk-management practices.

Scope of the principles for FMIs

1.19. The principles in this report provide guidance for addressing risks and efficiency in FMIs. With a few exceptions, the principles do not prescribe a specific tool or arrangement to achieve their requirements and allow for different means to satisfy a particular principle. Where appropriate, some principles establish a minimum requirement to help contain risks and provide for a level playing field. The principles are designed to be applied holistically because of the significant interaction between principles; principles should be applied as a set and not on a stand-alone basis. Some principles build upon others and some complement each other.[17] In other instances, the principles reference an important, common theme.[18] A few principles, such as those on governance and operational risk, include references to best practices for FMIs, which may evolve and improve over time. FMIs and their authorities should consider such best practices, as appropriate. In addition, authorities have the flexibility to consider imposing higher requirements for FMIs in their jurisdiction either on the basis of specific risks posed by an FMI or as a general policy.

General applicability of the principles

1.20. The principles in this report are broadly designed to apply to all systemically important payment systems, CSDs, SSSs, CCPs, and TRs. FMIs that are determined by national authorities to be systemically important are expected to observe these principles. Where they exist, statutory definitions of systemic importance may vary somewhat across jurisdictions, but in general a payment system is systemically important if it has the potential to trigger or transmit systemic disruptions; this includes, among other things, systems that are the sole payment system in a country or the principal system in terms of the aggregate value of payments; systems that mainly handle time-critical, high-value payments; and systems that settle payments used to effect settlement in other systemically important FMIs.[19] The presumption is that all CSDs, SSSs, CCPs, and TRs are systemically important, at least in the jurisdiction where they are located, typically because of their critical roles in the markets they serve. If an authority determines that a CSD, SSS, CCP or TR in its jurisdiction is not systemically important and, therefore, not subject to the principles, the authority should disclose the name of the FMI and a clear and comprehensive rationale for the determination. Conversely, an authority may disclose the criteria used to identify which FMIs are considered as systemically important and may disclose which FMIs it regards as systemically important against these criteria. These principles are designed to apply to domestic, cross-border, and multicurrency FMIs. All FMIs are encouraged to observe these principles.

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[17] For example, in managing financial risk, FMIs should refer to, among other things, the principles on the framework for the comprehensive management of risks, credit risk, collateral, margin, liquidity risk, money settlements, and exchange-of-value settlement systems. Other relevant principles include legal basis, governance, participant-default rules and procedures, general business risk, custody and investment risks, and operational risk. Failure to apply all of these principles as a set may result in less-than-robust overall risk management by an FMI.

[18] For example, the roles of governance and transparency in managing risk and supporting sound public policy are addressed in Principles 2 and 23, respectively. Because of the general importance and relevance of governance and transparency, they are also referred to in several other principles.

[19] These criteria for systemic importance mirror those outlined in the CPSIPS.

Specific applicability of principles to different types of FMIs

1.21. Most principles in this report are applicable to all types of FMIs covered by the report. However, a few principles are only relevant to specific types of FMIs (see Table 1 for general applicability of principles to specific types of FMIs and Annex E for applicability of key considerations to specific types of FMIs). For example, because TRs do not face credit or liquidity risks, the principles on credit and liquidity risks are not applicable to them, while Principle 24 on disclosure of market data by TRs applies only to TRs. In addition, where a principle applies in a specific way to a particular type of FMI, the report tries to provide appropriate direction. For example, Principle 4 on credit risk provides specific guidance to payment systems, SSSs, and CCPs.

1.22. The applicability of the principles and key considerations to specific types of FMIs, as shown in Table 1, is based on the functional definitions of each type of FMI, provided in paragraphs 1.10 to 1.14. In certain cases, however, the same legal entity may perform the functions of more than one type of FMI. For example, many CSDs also operate an SSS, and some payment systems perform certain functions similar to a CCP. In other cases, the definition of a particular type of FMI in a particular jurisdiction may differ from the definition of that type of FMI in this report. In all cases, the set of principles applicable to an FMI are those that address the functions performed by the particular entity.

1.23. In general, the principles are applicable to FMIs operated by central banks, as well as those operated by the private sector. Central banks should apply the same standards to their FMIs as those that are applicable to similar private-sector FMIs. However, there are exceptional cases where the principles are applied differently to FMIs operated by central banks due to requirements in relevant law, regulation, or policy. For example, central banks may have separate public policy objectives and responsibilities for monetary and liquidity policies that take precedence. Such exceptional cases are referenced in (a) Principle 2 on governance, (b) Principle 4 on credit risk, (c) Principle 5 on collateral, (d) Principle 15 on general business risk, and (e) Principle 18 on access and participation requirements. In some cases, FMIs operated by central banks may be required by the relevant legislative framework or by a central bank's public policy objectives to exceed the requirements of one or more principles.

Table 1[1]

General applicability of principles to specific types of FMIs

Principle	PSs	CSDs	SSSs	CCPs	TRs
1. Legal basis	●	●	●	●	●
2. Governance	●	●	●	●	●
3. Framework for the comprehensive management of risks	●	●	●	●	●
4. Credit risk	●		●	●	
5. Collateral	●		●	●	
6. Margin				●	
7. Liquidity risk	●		●	●	
8. Settlement finality	●		●	●	
9. Money settlements	●		●	●	
10. Physical deliveries		●	●	●	
11. Central securities depositories		●			
12. Exchange-of-value settlement systems	●		●	●	
13. Participant-default rules and procedures	●	●	●	●	
14. Segregation and portability				●	
15. General business risk	●	●	●	●	●
16. Custody and investment risks	●	●	●	●	
17. Operational risk	●	●	●	●	●
18. Access and participation requirements	●	●	●	●	●
19. Tiered participation arrangements	●	●	●	●	●
20. FMI links		●	●	●	●
21. Efficiency and effectiveness	●	●	●	●	●
22. Communication procedures and standards	●	●	●	●	●
23. Disclosure of rules, key procedures, and market data	●	●	●	●	●
24. Disclosure of market data by trade repositories					●

[1] This table depicts the applicability of the principles to each type of FMI as defined in paragraphs 1.10-1.14. If an FMI performs the functions of more than one type of FMI, all of the principles that address the actual functions performed by the particular FMI will apply in practice.

FMI recovery and resolution

1.24. The focus of this report and its principles is on ensuring that FMIs operate as smoothly as possible in normal circumstances and in times of market stress. Nonetheless, it is possible that in certain extreme circumstances, and all preventive measures notwithstanding, an FMI may become non-viable as a going concern or insolvent. Given the systemic importance of the FMIs to which the principles in this report are addressed, the disorderly failure of an FMI would likely lead to systemic disruptions to the institutions and markets supported by the FMI, to any other FMIs to which the failing FMI is linked, and to the financial system more broadly. The negative implications would be particularly severe in situations in which no other FMI could promptly and effectively provide a substitute for the critical operations and services of the failing FMI.

1.25. In the event that an FMI becomes non-viable as a going concern or insolvent, it is important that appropriate actions be taken that allow (a) the recovery of the FMI so that its critical operations and services may be sustained, or (b) the winding down of the non-viable FMI in an orderly manner, for instance by transferring the FMI's critical operations and services to an alternate entity. Depending on the specific situation and the powers and tools available to authorities in relevant jurisdictions, these actions may be implemented by the FMI itself, by the relevant authorities, or by a combination of both. The principles in this report identify a number of measures that FMIs should take to prepare for and facilitate the implementation of their own recovery or orderly wind-down plans, if needed. Issues and analysis related to the potential necessity, design, and implementation of additional official resolution regimes for FMIs, including the resolution powers and tools that may be useful for relevant authorities in such regimes, will be the focus of separate CPSS-IOSCO work, which will build, as far as possible, on the previous work by the FSB on effective resolution regimes for financial institutions.[20]

Access to FMIs

1.26. Access to an FMI is typically important because of the critical role many FMIs play in the markets they serve. In general, an FMI should establish appropriate access policies that provide fair and open access, while ensuring its own safety and efficiency. Access to CCPs in particular is even more important in light of the 2009 G20 commitment to centrally clear all standardised OTC derivatives by the end of 2012.[21] In its November 2011 report, the Committee on the Global Financial System (CGFS) considered potential implications of alternative access arrangements, such as access through direct participation in global CCPs, tiered participation arrangements, establishment of local CCPs, and links between CCPs.[22] The principles in this current report focus on the identification, monitoring, mitigation, and management of risks posed to the FMI by such arrangements and provides guidance on access and participation requirements (see Principle 18), the management of tiered participation arrangements (see Principle 19), and FMI links (see Principle 20).

Tiered participation arrangements

1.27. Tiered participation arrangements occur when some firms (indirect participants) rely on the services provided by other firms (direct participants) to use the FMI's central payment, clearing, settlement, or recording facilities. Tiered participation arrangements may allow wider access to the services of an FMI. The dependencies and risk exposures (including credit, liquidity, and operational risks) inherent in these tiered arrangements can, however, present risks to the FMI and its smooth functioning, as well as to the participants themselves and the broader financial markets. These risks may be particularly acute for systems with a high degree of tiering. Principle 19 provides guidance on how an FMI should address risks to itself arising from tiered participation arrangements. Additional issues relating to indirect participants are addressed in (a) Principle 1 on legal basis, (b) Principle 2 on governance, (c) Principle 3 on the framework for the comprehensive management of risks, (d) Principle 13 on participant-default rules and procedures, (e) Principle 14 on segregation and portability, (f) Principle 18 on access and participation requirements, and (g) Principle 23 on disclosure of rules, key procedures, and market data.

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[20] See FSB, *Key attributes of effective resolution regimes for financial institutions*, October 2011.

[21] See The Declaration of the G20, 2009 Pittsburgh Summit, which is available at http://www.g20.org.

[22] See CGFS, *The macrofinancial implications of alternative configurations for access to central counterparties in OTC derivatives markets*, November 2011.

Interdependencies and interoperability

1.28. The different forms of interdependencies, including interoperability, are addressed in this report in various principles, including Principle 20 which explicitly addresses FMI links and their risk management. In addition, interdependencies are covered in (a) Principle 2 on governance, which states that FMIs should consider the interests of the broader markets; (b) Principle 3 on the framework for the comprehensive management of risks, which states that FMIs should consider the relevant risks that they bear from and pose to other entities; (c) Principle 17 on operational risk which states that an FMI should identify, monitor, and manage the risks that other FMIs pose to its operations and the risks its operations pose to other FMIs; (d) Principle 18 on access and participation requirements, which states that FMIs should provide fair and open access, including to other FMIs; (e) Principle 21 on efficiency and effectiveness, which states that FMIs should be designed to meet the needs of their participants; and (f) Principle 22 on communication procedures and standards, which states that FMIs should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards. The combination of these principles should achieve a strong and balanced approach to interoperability.

Scope of the responsibilities of central banks, market regulators, and other relevant authorities for financial market infrastructures

1.29. Section 4 of this report outlines five responsibilities for central banks, market regulators, and other relevant authorities for FMIs and provides guidance for consistent and effective regulation, supervision, and oversight of FMIs. Authorities for FMIs should accept and be guided by the responsibilities in this report, consistent with relevant national law. While each individual FMI is responsible for observing these principles, effective regulation, supervision, and oversight are necessary to ensure observance and induce change. Authorities should cooperate with each other both domestically and internationally to strengthen official oversight and supervision and to minimise the potential duplication of effort and reduce the burden on the FMI and the relevant authorities. These responsibilities are consistent with international best practices. Other CPSS and IOSCO guidance to authorities on the regulation, supervision, and oversight of FMIs also may be relevant.

Implementation, use, and assessments of observance of the principles and responsibilities

1.30. Relevant authorities should strive to incorporate the principles and the responsibilities in this report in their legal and regulatory framework by the end of 2012. To the fullest extent permissible under national statutory regimes, these authorities should seek to incorporate the principles into their respective activities as soon as possible. FMIs that are subject to the principles are expected to take appropriate and swift action in order to observe the principles.

1.31. FMIs should apply the principles on an ongoing basis in the operation of their business, including when reviewing their own performance, assessing or proposing new services, or proposing changes to risk controls. FMIs should communicate the outcome of their findings as part of their regular dialogue with relevant authorities. FMIs are also expected to complete the CPSS-IOSCO *Disclosure framework for financial market infrastructures* (see also Principle 23 on disclosure of rules, key procedures, and market data).

1.32. Central banks, market regulators, and other relevant authorities, consistent with their respective responsibilities for regulation, supervision, and oversight of an FMI, are expected to perform their own assessments of the FMI. If an FMI does not fully observe the principles, actions should be taken to promote full observance. The summary of the authorities' assessments should be publicly disclosed, where and to the extent consistent with national law and practice.

1.33. International financial institutions, such as the International Monetary Fund and the World Bank, may also use these principles and responsibilities in promoting the stability of the financial sector when carrying out assessment programmes for FMIs and relevant authorities and in providing technical assistance to particular countries.

1.34. The CPSS-IOSCO *Assessment methodology for the principles for FMIs and the responsibilities of authorities* provides guidance for assessing and monitoring observance of the principles and responsibilities. This assessment methodology is primarily intended for external assessors at the international level, in particular the international financial institutions. It also provides a baseline for national authorities to assess observance of the principles by the FMIs under their oversight or supervision or to self-assess the way they discharge their own responsibilities as regulators, supervisors, and overseers. National authorities may use this assessment methodology as written or consider it in the development of equally effective methodologies for their national oversight or supervision processes.

1.35. The CPSS-IOSCO *Disclosure framework for financial market infrastructures* and the CPSS-IOSCO *Assessment methodology for the principles for FMIs and the responsibilities of authorities* are published separately.

Organisation of the report

1.36. This report has four sections. Following this introduction (Section 1), the report provides an overview of the key risks in FMIs (Section 2). The principles for FMIs are then discussed in detail (Section 3) followed by the responsibilities of central banks, market regulators, and other relevant authorities for FMIs (Section 4). For each standard, there is a list of key considerations that further explain the headline standard. An accompanying explanatory note discusses the objective and rationale of the standard and provides guidance on how the standard can be implemented. Where appropriate, annexes provide additional information or guidance. In addition, compendium notes, which provide more detailed notes and additional information on specific topics, are published separately; these notes, however, do not represent additional requirements.

2.0. Overview of key risks in financial market infrastructures

2.1. FMIs are generally sophisticated multilateral systems that handle significant transaction volumes and sizable monetary values. Through the centralisation of certain activities, FMIs allow participants to manage their risks more effectively and efficiently, and, in some instances, reduce or eliminate certain risks. By performing centralised activities, however, FMIs concentrate risks and create interdependencies between and among FMIs and participating institutions. In addition to discussing systemic risk, this section of the report provides an overview of specific key risks faced by FMIs. These include legal, credit, liquidity, general business, custody, investment, and operational risks. Whether an FMI, its participants, or both face a particular form of risk, as well as the degree of risk, will depend on the type of FMI and its design.

Systemic risk

2.2. Safe and efficient FMIs mitigate systemic risk. FMIs may themselves face systemic risk, however, because the inability of one or more participants to perform as expected could cause other participants to be unable to meet their obligations when due. In such circumstances, a variety of "knock-on" effects are possible, and an FMI's inability to complete settlement could have significant adverse effects on the markets it serves and the broader economy. These adverse effects, for example, could arise from unwinding or reversing payments or deliveries; delaying the settlement or close out of guaranteed transactions; or immediately liquidating collateral, margin, or other assets at fire sale prices. If an FMI were to take such steps, its participants could suddenly be faced with significant and unexpected credit and liquidity exposures that might be extremely difficult to manage at the time. This, in turn, might lead to further disruptions in the financial system and undermine public confidence in the safety, soundness, and reliability of the financial infrastructure.

2.3. More broadly, FMIs may be linked to or dependent upon one another, may have common participants, and may serve interconnected institutions and markets. Complex interdependencies may be a normal part of an FMI's structure or operations. In many cases, interdependencies have facilitated significant improvements in the safety and efficiency of FMIs' activities and processes. Interdependencies, however, can also present an important source of systemic risk.[23] For example, these interdependencies raise the potential for disruptions to spread quickly and widely across markets. If an FMI depends on the smooth functioning of one or more FMIs for its payment, clearing, settlement, and recording processes, a disruption in one FMI can disrupt other FMIs simultaneously. These interdependencies, consequently, can transmit disruptions beyond a specific FMI and its participants and affect the broader economy.

Legal risk

2.4. For the purposes of this report, legal risk is the risk of the unexpected application of a law or regulation, usually resulting in a loss. Legal risk can also arise if the application of relevant laws and regulations is uncertain. For example, legal risk encompasses the risk that a counterparty faces from an unexpected application of a law that renders contracts illegal or unenforceable. Legal risk also includes the risk of loss resulting from a delay in the recovery of financial assets or a freezing of positions resulting from a legal procedure. In cross-border as well as some national contexts, different bodies of law can apply to a single transaction,

[23] See also CPSS, *The interdependencies of payment and settlement systems*, June 2008.

activity, or participant. In such instances, an FMI and its participants may face losses resulting from the unexpected application of a law, or the application of a law different from that specified in a contract, by a court in a relevant jurisdiction.

Credit risk

2.5. FMIs and their participants may face various types of credit risk, which is the risk that a counterparty, whether a participant or other entity, will be unable to meet fully its financial obligations when due, or at any time in the future. FMIs and their participants may face replacement-cost risk (often associated with pre-settlement risk) and principal risk (often associated with settlement risk). Replacement-cost risk is the risk of loss of unrealised gains on unsettled transactions with a counterparty (for example, the unsettled transactions of a CCP). The resulting exposure is the cost of replacing the original transaction at current market prices. Principal risk is the risk that a counterparty will lose the full value involved in a transaction, for example, the risk that a seller of a financial asset will irrevocably deliver the asset but not receive payment. Credit risk can also arise from other sources, such as the failure of settlement banks, custodians, or linked FMIs to meet their financial obligations.

Liquidity risk

2.6. FMIs and their participants may face liquidity risk, which is the risk that a counterparty, whether a participant or other entity, will have insufficient funds to meet its financial obligations as and when expected, although it may be able to do so in the future. Liquidity risk includes the risk that a seller of an asset will not receive payment when due, and the seller may have to borrow or liquidate assets to complete other payments. It also includes the risk that a buyer of an asset will not receive delivery when due, and the buyer may have to borrow the asset in order to complete its own delivery obligation. Thus, both parties to a financial transaction are potentially exposed to liquidity risk on the settlement date. Liquidity problems have the potential to create systemic problems, particularly if they occur when markets are closed or illiquid or when asset prices are changing rapidly, or if they create concerns about solvency. Liquidity risk can also arise from other sources, such as the failure or the inability of settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs to perform as expected.

General business risk

2.7. In addition, FMIs face general business risks, which are the risks related to the administration and operation of an FMI as a business enterprise, excluding those related to the default of a participant or another entity, such as a settlement bank, global custodian, or another FMI. General business risk refers to any potential impairment of the financial condition (as a business concern) of an FMI due to declines in its revenues or growth in its expenses, resulting in expenses exceeding revenues and a loss that must be charged against capital. Such impairment may be a result of adverse reputational effects, poor execution of business strategy, ineffective response to competition, losses in other business lines of the FMI or its parent, or other business factors. Business-related losses also may arise from risks covered by other principles, for example, legal or operational risk. A failure to manage general business risk could result in a disruption of an FMI's business operations.

Custody and investment risks

2.8. FMIs may also face custody and investment risks on the assets that they own and those they hold on behalf of their participants. Custody risk is the risk of loss on assets held in custody in the event of a custodian's (or sub-custodian's) insolvency, negligence, fraud, poor administration, or inadequate recordkeeping. Investment risk is the risk of loss faced by an FMI when it invests its own or its participants' resources, such as collateral. These risks can be relevant not only to the costs of holding and investing resources but also to the safety and reliability of an FMI's risk-management systems. The failure of an FMI to properly safeguard its assets could result in credit, liquidity, and reputational problems for the FMI itself.

Operational risk

2.9. All FMIs face operational risk, which is the risk that deficiencies in information systems or internal processes, human errors, management failures, or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by an FMI. These operational failures may lead to consequent delays, losses, liquidity problems, and in some cases systemic risks. Operational deficiencies also can reduce the effectiveness of measures that FMIs may take to manage risk, for example, by impairing their ability to complete settlement, or by hampering their ability to monitor and manage their credit exposures. In the case of TRs, operational deficiencies could limit the usefulness of the transaction data maintained by a TR. Possible operational failures include errors or delays in processing, system outages, insufficient capacity, fraud, and data loss and leakage. Operational risk can stem from both internal and external sources. For example, participants can generate operational risk for FMIs and other participants, which could result in liquidity or operational problems within the broader financial system.

Box 2

Risk considerations for trade repositories

TRs face risks that, if not controlled effectively, could have a material negative impact on the markets they serve. The primary risk to a TR is operational risk, although other risks may hamper its safe and efficient functioning. As part of its core recordkeeping function, a TR must ensure that the data it maintains is accurate and current in order to serve as a reliable central data source. The continuous availability of data stored in a TR is also essential. Specific operational risks that a TR must manage include risks to data integrity, data security, and business continuity. Because the data recorded by a TR may be used as inputs to the activities of the TR's participants, relevant authorities, and other parties, including other FMIs and service providers, all trade data collected, stored, and disseminated by a TR should be protected from corruption, loss, leakage, unauthorised access, and other processing risks. In addition, a TR may be part of a network linking various entities (such as CCPs, dealers, custodians, and service providers) and could transmit risk or cause processing delays to such linked entities in the event of an operational disruption.

3.0. Principles for financial market infrastructures

General organisation

The foundation of an FMI's risk-management framework includes its authority, structure, rights, and responsibilities. The following set of principles provides guidance on (a) the legal basis for the FMI's activities, (b) the governance structure of the FMI, and (c) the framework for the comprehensive management of risks, to help establish a strong foundation for the risk management of an FMI.

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Key considerations

1. *The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.*
2. *An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.*
3. *An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.*
4. *An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.*
5. *An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.*

Explanatory note

3.1.1. A robust legal basis for an FMI's activities in all relevant jurisdictions is critical to an FMI's overall soundness. The legal basis defines, or provides the foundation for relevant parties to define, the rights and obligations of the FMI, its participants, and other relevant parties, such as its participants' customers, custodians, settlement banks, and service providers. Most risk-management mechanisms are based on assumptions about the manner and time at which these rights and obligations arise through the FMI. Therefore, if risk management is to be sound and effective, the enforceability of rights and obligations relating to an FMI and its risk management should be established with a high degree of certainty. If the legal basis for an FMI's activities and operations is inadequate, uncertain, or opaque, then the FMI, its participants, and their customers may face unintended, uncertain, or unmanageable credit or liquidity risks, which may also create or amplify systemic risks.

Legal basis

3.1.2. The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.[24] The legal basis consists of the legal framework and the FMI's rules, procedures, and contracts. The legal framework includes general laws and regulations that govern, among other things, property, contracts, insolvency, corporations, securities, banking, secured interests, and liability. In some cases, the legal framework that governs competition and consumer and investor protection may also be relevant. Laws and regulations specific to an FMI's activities include those governing its authorization and its regulation, supervision, and oversight; rights and interests in financial instruments; settlement finality; netting; immobilisation and dematerialisation of securities; arrangements for DvP, PvP, or DvD; collateral arrangements (including margin arrangements); default procedures; and the resolution of an FMI. An FMI should establish rules, procedures, and contracts that are clear, understandable, and consistent with the legal framework and provide a high degree of legal certainty. An FMI also should consider whether the rights and obligations of the FMI, its participants, and as appropriate, other parties, as set forth in its rules, procedures, and contracts are consistent with relevant industry standards and market protocols.

3.1.3. An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers in a clear and understandable way. One recommended approach to articulating the legal basis for each material aspect of an FMI's activities is to obtain well-reasoned and independent legal opinions or analyses. A legal opinion or analysis should, to the extent practicable, confirm the enforceability of the FMI's rules and procedures and must provide reasoned support for its conclusions. An FMI should consider sharing these legal opinions and analyses with its participants in an effort to promote confidence among participants and transparency in the system. In addition, an FMI should seek to ensure that its activities are consistent with the legal basis in all relevant jurisdictions. These jurisdictions could include (a) those where an FMI is conducting business (including through linked FMIs); (b) those where its participants are incorporated, located, or otherwise conducting business for the purposes of participation; (c) those where collateral is located or held; and (d) those indicated in relevant contracts.

3.1.4. A TR's rules, procedures, and contracts should be clear about the legal status of the transaction records that it stores. Most TRs store transaction data that do not represent legally enforceable trade records. For some TRs, however, participants may agree that the TR's electronic transaction record provides the official economic details of a legally binding contract, which enables trade details to be used for the calculation of payment obligations and other events that may occur during the life of the transaction. A TR should identify and mitigate any legal risks associated with any such ancillary services that it may provide. Further, the legal basis should also determine the rules and procedures for providing access and disclosing data to participants, relevant authorities, and the public to meet their respective information needs, as well as data protection and confidentiality issues (see also Principle 24 on disclosure of market data by TRs).

[24] The materiality of an aspect of an FMI´s activity has to be determined in light of this report's objectives – enhancing safety and efficiency – and underlying principles. Therefore, an aspect of an FMI's activities is or becomes material if it can be a source of a material risk, especially, but not limited to, credit, liquidity, general business, custody, investment, or operational risks. In addition, parts of the activity that have a significant effect on the FMI's efficiency may also qualify as material aspects of the activity covered by the principle on legal basis.

Rights and interests

3.1.5. The legal basis should clearly define the rights and interests of an FMI, its participants, and, where relevant, its participants' customers in the financial instruments, such as cash and securities, or other relevant assets held in custody, directly or indirectly, by the FMI. The legal basis should fully protect both a participant's assets held in custody by the FMI and, where appropriate, a participant's customer's assets held by or through the FMI from the insolvency of relevant parties and other relevant risks. It should also protect these assets when held at a custodian or linked FMI. In particular, consistent with Principle 11 on CSDs and Principle 14 on segregation and portability, the legal basis should protect the assets and positions of a participant's customers in a CSD and CCP. In addition, the legal basis should provide certainty, where applicable, with respect to an FMI's interests in, and rights to use and dispose of, collateral; an FMI's authority to transfer ownership rights or property interests; and an FMI's rights to make and receive payments, in all cases, notwithstanding the bankruptcy or insolvency of its participants, participants' customers, or custodian bank.[25] Also, the FMI should structure its operations so that its claims against collateral provided to it by a participant should have priority over all other claims, and the claims of the participant to that same collateral should have priority over the claims of third-party creditors. For TRs, the legal basis also should specifically define the rights and interests of participants and other relevant stakeholders with respect to the data stored in the TR's systems.

Settlement finality

3.1.6. There should be a clear legal basis regarding when settlement finality occurs in an FMI in order to define when key financial risks are transferred in the system, including the point at which transactions are irrevocable. Settlement finality is an important building block for risk-management systems (see also Principle 8). An FMI should consider, in particular, the actions that would need to be taken in the event of a participant's insolvency. A key question is whether transactions of an insolvent participant would be honoured as final, or could be considered void or voidable by liquidators and relevant authorities. In some countries, for example, so-called "zero-hour rules" in insolvency law can have the effect of reversing a payment that appears to have been settled in a payment system.[26] Because this possibility can lead to credit and liquidity risks, zero-hour rules that undermine settlement finality should be eliminated. An FMI also should consider the legal basis for the external settlement mechanisms it uses, such as funds transfer or securities transfer systems. The laws of the relevant jurisdictions should support the provisions of the FMI's legal agreements with its participants and settlement banks relating to finality.

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[25] Collateral arrangements may involve either a pledge or a title transfer, including transfer of full ownership. If an FMI accepts a pledge, it should have a high degree of certainty that the pledge has been validly created in the relevant jurisdiction and validly perfected, if necessary. If an FMI relies on a title transfer, including transfer of full ownership, it should have a high degree of certainty that the transfer is validly created in the relevant jurisdiction and will be enforced as agreed and not recharacterised, for example, as an invalid or unperfected pledge or some other unintended category of transaction. An FMI should also have a high degree of certainty that the transfer itself is not voidable as an unlawful preference under insolvency law. See also Principle 5 on collateral, Principle 6 on margin, and Principle 13 on participant-default rules and procedures.

[26] In the context of payment systems, "zero-hour rules" make all transactions by a bankrupt participant void from the start ("zero hour") of the day of the bankruptcy (or similar event). In an RTGS system, for example, the effect could be to reverse payments that have apparently already been settled and were thought to be final. In a DNS system, such a rule could cause the netting of all transactions to be unwound. This could entail a recalculation of all net positions and could cause significant changes to participants' balances.

Netting arrangements

3.1.7. If an FMI has a netting arrangement, the enforceability of the netting arrangement should have a sound and transparent legal basis.[27] In general, netting offsets obligations between or among participants in the netting arrangement, thereby reducing the number and value of payments or deliveries needed to settle a set of transactions. Netting can reduce potential losses in the event of a participant default and may reduce the probability of a default.[28] Netting arrangements should be designed to be explicitly recognised and supported under the law and enforceable against an FMI and an FMI's failed participants in bankruptcy. Without such legal underpinnings, net obligations may be challenged in judicial or administrative insolvency proceedings. If these challenges are successful, the FMI and its participants could be liable for gross settlement amounts that could drastically increase obligations because gross obligations could be many multiples of net obligations.

3.1.8. Novation, open offer, and other similar legal devices that enable an FMI to act as a CCP should be founded on a sound legal basis.[29] In novation (and substitution), the original contract between the buyer and seller is discharged and two new contracts are created, one between the CCP and the buyer and the other between the CCP and the seller. The CCP thereby assumes the original parties' contractual obligations to each other. In an open-offer system, the CCP extends an open offer to act as a counterparty to market participants and thereby is interposed between participants at the time a trade is executed. If all pre-agreed conditions are met, there is never a contractual relationship between the buyer and seller. Where supported by the legal framework, novation, open offer, and other similar legal devices give market participants legal certainty that a CCP is supporting the transaction.

Enforceability

3.1.9. The rules, procedures, and contracts related to an FMI's operation should be enforceable in all relevant jurisdictions. In particular, the legal basis should support the enforceability of the participant-default rules and procedures that an FMI uses to handle a defaulting or insolvent participant, especially any transfers and close-outs of a direct or indirect participant's assets or positions (see also Principle 13 on participant-default rules and procedures). An FMI should have a high degree of certainty that such actions taken under such rules and procedures will not be voided, reversed, or subject to stays, including with respect to the resolution regimes applicable to its participants.[30] Ambiguity about the enforceability of procedures could delay and possibly prevent an FMI from taking actions to fulfil its obligations to non-defaulting participants or to minimise its potential losses. Insolvency law should support isolating risk and retaining and using collateral and cash payments previously paid into an FMI, notwithstanding a participant default or the commencement of an insolvency proceeding against a participant.

3.1.10. An FMI should establish rules, procedures, and contracts related to its operations that are enforceable when the FMI is implementing its plans for recovery or orderly wind-

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[27] There are several types of netting arrangements used in the market that may be relevant to an FMI. Some types of arrangements net payments or other contractual obligations resulting from market trades (or both) on an ongoing basis, while others close-out payments or obligations when an event such as insolvency occurs. There are a number of legal structures for these types of netting arrangements.

[28] An FMI may bilaterally net its obligations with each participant, facilitate the bilateral netting of obligations between participants, or provide for the multilateral netting of obligations.

[29] In some countries, for example, assumption of obligation may be used instead of arrangements to replace the original contract between the buyer and seller with the two new contracts.

[30] However, rights triggered only because of entry into resolution or the exercise of resolution powers may be subject to stays. See for example FSB, *Key attributes of effective resolution regimes for financial institutions*, KA 4.2, 4.3, and Annex IV, paragraph 1.3.

down. Where relevant, they should adequately address issues and associated risks resulting from (a) cross-border participation and interoperability of FMIs and (b) foreign participants in the case of an FMI which is being wound down. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays. Ambiguity about the enforceability of procedures that facilitate the implementation of the FMI's plans for recovery or orderly wind-down, or the resolution of the FMI, could delay and possibly prevent the FMI or the relevant authorities from taking appropriate actions and hence increase the risk of a disruption to its critical services or a disorderly wind-down of the FMI. In the case that an FMI is being wound down or resolved, the legal basis should support decisions or actions concerning termination, close-out netting, the transfer of cash and securities positions of an FMI, or the transfer of all or parts of the rights and obligations provided in a link arrangement to a new entity.

Conflict-of-laws issues

3.1.11 Legal risk due to conflict of laws may arise if an FMI is, or reasonably may become, subject to the laws of various other jurisdictions (for example, when it accepts participants established in those jurisdictions, when assets are held in multiple jurisdictions, or when business is conducted in multiple jurisdictions). In such cases, an FMI should identify and analyse potential conflict-of-laws issues and develop rules and procedures to mitigate this risk. For example, the rules governing its activities should clearly indicate the law that is intended to apply to each aspect of an FMI's operations. The FMI and its participants should be aware of applicable constraints on their abilities to choose the law that will govern the FMI's activities when there is a difference in the substantive laws of the relevant jurisdictions. For example, such constraints may exist because of jurisdictions' differing laws on insolvency and irrevocability. A jurisdiction ordinarily does not permit contractual choices of law that would circumvent that jurisdiction's fundamental public policy. Thus, when uncertainty exists regarding the enforceability of an FMI's choice of law in relevant jurisdictions, the FMI should obtain reasoned and independent legal opinions and analysis in order to address properly such uncertainty.

Mitigating legal risk

3.1.12. In general, there is no substitute for a sound legal basis and full legal certainty. In some practical situations, however, full legal certainty may not be achievable. In this case, the authorities may need to take steps to address the legal framework. Pending this resolution, an FMI should investigate steps to mitigate its legal risk through the selective use of alternative risk-management tools that do not suffer from the legal uncertainty identified. These could include, in appropriate circumstances and if legally enforceable, participant requirements, exposure limits, collateral requirements, and prefunded default arrangements. The use of such tools may limit an FMI's exposure if its activities are found to be not supported by relevant laws and regulations. If such controls are insufficient or not feasible, an FMI could apply activity limits and, in extreme circumstances, restrict access or not perform the problematic activity until the legal situation is addressed.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Key considerations

1. An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

2. An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.

3. The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

4. The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

5. The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.

6. The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.

7. The board should ensure that the FMI's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

Explanatory note

3.2.1. Governance is the set of relationships between an FMI's owners, board of directors (or equivalent), management, and other relevant parties, including participants, authorities, and other stakeholders (such as participants' customers, other interdependent FMIs, and the broader market). Governance provides the processes through which an organisation sets its objectives, determines the means for achieving those objectives, and monitors performance against those objectives. Good governance provides the proper incentives for an FMI's board and management to pursue objectives that are in the interest of its stakeholders and that support relevant public interest considerations.

FMI objectives

3.2.2. Given the importance of FMIs and the fact that their decisions can have widespread impact, affecting multiple financial institutions, markets, and jurisdictions, it is essential for each FMI to place a high priority on the safety and efficiency of its operations and explicitly support financial stability and other relevant public interests. Supporting the public interest is a broad concept that includes, for example, fostering fair and efficient markets. For example, in certain OTC derivatives markets, industry standards and market protocols have been developed to increase certainty, transparency, and stability in the market. If a CCP in such markets were to diverge from these practices, it could, in some cases, undermine the market's efforts to develop common processes to help reduce uncertainty. An FMI's governance arrangements should also include appropriate consideration of the interests of participants, participants' customers, relevant authorities, and other stakeholders. A TR, for example, should have objectives, policies, and procedures that support the effective and appropriate disclosure of market data to relevant authorities and the public (see Principle 24). For all types of FMIs, governance arrangements should provide for fair and open access (see Principle 18 on access and participation requirements) and for effective implementation of recovery or wind-down plans, or resolution.

Governance arrangements

3.2.3. Governance arrangements, which define the structure under which the board and management operate, should be clearly and thoroughly documented. These arrangements should include certain key components such as the (a) role and composition of the board and any board committees, (b) senior management structure, (c) reporting lines between management and the board, (d) ownership structure, (e) internal governance policy, (f) design of risk management and internal controls, (g) procedures for the appointment of board members and senior management, and (h) processes for ensuring performance accountability. Governance arrangements should provide clear and direct lines of responsibility and accountability, particularly between management and the board, and ensure sufficient independence for key functions such as risk management, internal control, and audit. These arrangements should be disclosed to owners, the authorities, participants, and, at a more general level, the public.

3.2.4. No single set of governance arrangements is appropriate for all FMIs and all market jurisdictions. Arrangements may differ significantly because of national law, ownership structure, or organisational form. For example, national law may require an FMI to maintain a two-tier board system in which the supervisory board (all non-executive directors) is separated from the management board (all executive directors). Further, an FMI may be owned by its participants or by another organisation, may be operated as a for-profit or not-for-profit enterprise, or may be organised as a bank or non-bank entity. While specific arrangements vary, this principle is intended to be generally applicable to all ownership and organisational structures.

3.2.5. Depending on its ownership structure and organisational form, an FMI may need to focus particular attention on certain aspects of its governance arrangements. An FMI that is part of a larger organisation, for example, should place particular emphasis on the clarity of its governance arrangements, including in relation to any conflicts of interests and outsourcing issues that may arise because of the parent or other affiliated organisation's structure. The FMI's governance arrangements should also be adequate to ensure that decisions of affiliated organisations are not detrimental to the FMI.[31] An FMI that is, or is part

[31] If an FMI is wholly owned or controlled by another entity, authorities should also review the governance arrangements of that entity to see that they do not have adverse effects on the FMI's observance of this principle.

of, a for-profit entity may need to place particular emphasis on managing any conflicts between income generation and safety. For example, a TR should ensure that it effectively identifies and manages conflicts of interests that may arise between its public role as a centralised data repository and its own commercial interests, particularly if it offers services other than recordkeeping. Where relevant, cross-border issues should be appropriately identified, assessed, and dealt with in the governance arrangements, both at the FMI level and at the level(s) of its parent entity(ies).

3.2.6. An FMI may also need to focus particular attention on certain aspects of its risk-management arrangements as a result of its ownership structure or organisational form. If an FMI provides services that present a distinct risk profile from, and potentially pose significant additional risks to, its payment, clearing, settlement, or recording function, the FMI needs to manage those additional risks adequately. This may include separating the additional services that the FMI provides from its payment, clearing, settlement, and recording function legally, or taking equivalent action. The ownership structure and organisational form may also need to be considered in the preparation and implementation of the FMI's recovery or wind-down plans or in assessments of the FMI's resolvability.

3.2.7. Central bank-operated systems may need to tailor the application of this principle in light of the central bank's own governance requirements and specific policy mandates. If a central bank is an operator of an FMI, as well as the overseer of private-sector FMIs, it needs to consider how to best address any possible or perceived conflicts of interest that may arise between those functions. Except when explicitly required by law, regulation, or policy mandates, a central bank should avoid using its oversight authority to disadvantage private-sector FMIs relative to an FMI the central bank owns or operates. This can be facilitated by separating the operator and oversight functions into different organisational units within the central bank that are managed by different personnel. Where there is competition with private-sector systems, a central bank should also be careful to protect confidential information about external systems collected in its role as overseer and avoid its misuse.

Roles, responsibilities, and composition of the board of directors

3.2.8. An FMI's board has multiple roles and responsibilities that should be clearly specified. These roles and responsibilities should include (a) establishing clear strategic aims for the entity; (b) ensuring effective monitoring of senior management (including selecting its senior managers, setting their objectives, evaluating their performance, and, where appropriate, removing them); (c) establishing appropriate compensation policies (which should be consistent with best practices and based on long-term achievements, in particular, the safety and efficiency of the FMI); (d) establishing and overseeing the risk-management function and material risk decisions; (e) overseeing internal control functions (including ensuring independence and adequate resources); (f) ensuring compliance with all supervisory and oversight requirements; (g) ensuring consideration of financial stability and other relevant public interests; and (h) providing accountability to the owners, participants, and other relevant stakeholders.[32]

3.2.9. Policies and procedures related to the functioning of the board should be clear and documented. These policies include the responsibilities and functioning of board committees. A board would normally be expected to have, among others, a risk committee, an audit committee, and a compensation committee, or equivalents. All such committees should have clearly assigned responsibilities and procedures.[33] Board policies and procedures should

[32] See Financial Stability Forum, *FSF principles for sound compensation practices*, April 2009, for additional guidance in establishing appropriate compensation policies.

[33] Such committees would normally be composed mainly of, and, if possible, led by, non-executive or independent directors (see also paragraph 3.2.10).

include processes to identify, address, and manage potential conflicts of interest of board members. Conflicts of interest include, for example, circumstances in which a board member has material competing business interests with the FMI. Further, policies and procedures should also include regular reviews of the board's performance and the performance of each individual member, as well as, potentially, periodic independent assessments of performance.

3.2.10. Governance policies related to board composition, appointment, and term should also be clear and documented. The board should be composed of suitable members with an appropriate mix of skills (including strategic and relevant technical skills), experience, and knowledge of the entity (including an understanding of the FMI's interconnectedness with other parts of the financial system). Members should also have a clear understanding of their roles in corporate governance, be able to devote sufficient time to their roles, ensure that their skills remain up-to-date, and have appropriate incentives to fulfil their roles. Members should be able to exercise objective and independent judgment. Independence from the views of management typically requires the inclusion of non-executive board members, including independent board members, as appropriate.[34] Definitions of an independent board member vary and often are determined by local laws and regulations, but the key characteristic of independence is the ability to exercise objective, independent judgment after fair consideration of all relevant information and views and without undue influence from executives or from inappropriate external parties or interests.[35] The precise definition of independence used by an FMI should be specified and publicly disclosed, and should exclude parties with significant business relationships with the FMI, cross-directorships, or controlling shareholdings, as well as employees of the organisation. Further, an FMI should publicly disclose which board members it regards as independent. An FMI may also need to consider setting a limit on the duration of board members' terms.

Roles and responsibilities of management

3.2.11. An FMI should have clear and direct reporting lines between its management and board in order to promote accountability, and the roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI. Under board direction, management should ensure that the FMI's activities are consistent with the objectives, strategy, and risk tolerance of the FMI, as determined by the board. Management should ensure that internal controls and related procedures are appropriately designed and executed in order to promote the FMI's objectives, and that these procedures include a sufficient level of management oversight. Internal controls and related procedures should be subject to regular review and testing by well-trained and staffed risk-management and internal-audit functions. Additionally, senior management should be actively involved in the risk-control process and should ensure that significant resources are devoted to its risk-management framework.

Risk-management governance

3.2.12. Because the board is ultimately responsible for managing an FMI's risks, it should establish a clear, documented risk-management framework that includes the FMI's risk-

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[34] Having non-executive members included on a board, for example, may (depending on local corporate law) help in balancing considerations of safety and efficiency with competitiveness and, where applicable, profitability.

[35] An FMI organised in a jurisdiction with national laws on board structure or composition that do not facilitate the use of independent members should use alternative means to enhance its board's ability to exercise independent judgment, such as advisory or supervisory boards with appropriate members.

tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. The board should regularly monitor the FMI's risk profile to ensure that it is consistent with the FMI's business strategy and risk-tolerance policy. In addition, the board should ensure that the FMI has an effective system of controls and oversight, including adequate governance and project management processes, over the models used to quantify, aggregate, and manage the FMI's risks. Board approval should be required for material decisions that would have a significant impact on the risk profile of the entity, such as the limits for total credit exposure and large individual credit exposures. Other material decisions that may require board approval include the introduction of new products, implementation of new links, use of new crisis-management frameworks, adoption of processes and templates for reporting significant risk exposures, and adoption of processes for considering adherence to relevant market protocols. In the OTC derivatives markets, CCPs are expected to adhere to practices or arrangements that have become established market conventions or to act in a manner that does not conflict with such terms, unless the CCP has reasonable grounds not to do so and that does not conflict with the market's wider interest. In this regard, where a CCP supports a market and is expected to fully adhere to marketwide protocols and related decisions, the CCP should be involved in the development and establishment of such standards. It is critical that market governance processes fully reflect the role of the CCP in the market. The arrangements adopted by a CCP should be transparent to its participants and regulators.

3.2.13. The board and governance arrangements, generally, should support the use of clear and comprehensive rules and key procedures, including detailed and effective participant-default rules and procedures (see Principle 13). The board should have procedures in place to support its capacity to act appropriately and immediately if any risks arise that threaten the FMI's viability as a going concern. The governance arrangements should also provide for effective decision making in a crisis and support any procedures and rules designed to facilitate the recovery or orderly wind-down of the FMI.

3.2.14. In addition, the governance of the risk-management function is particularly important. It is essential that an FMI's risk-management personnel have sufficient independence, authority, resources, and access to the board to ensure that the operations of the FMI are consistent with the risk-management framework set by the board. The reporting lines for risk management should be clear and separate from those for other operations of the FMI, and there should be an additional direct reporting line to a non-executive director on the board via a chief risk officer (or equivalent). To help the board discharge its risk-related responsibilities, an FMI should consider the case for a risk committee, responsible for advising the board on the FMI's overall current and future risk tolerance and strategy. A CCP, however, should have such a risk committee or its equivalent. An FMI's risk committee should be chaired by a sufficiently knowledgeable individual who is independent of the FMI's executive management and be composed of a majority of members who are non-executive members. The committee should have a clear and public mandate and operating procedures and, where appropriate, have access to external expert advice.

3.2.15. Where an FMI, in accordance with applicable law, maintains a two-tier board system, the roles and responsibilities of the board and senior management will be allocated to the supervisory board and the management board, as appropriate. The reporting lines of the risk and other committees need to reflect this allocation, as well as the legal responsibilities of the management and supervisory boards. Therefore a direct reporting line for the risk-management function may involve members of the management board. In addition, the establishment of a risk committee has to take into account the legally founded responsibility of the management board for managing the risks of the FMI.

Model validation

3.2.16. The board should ensure that there is adequate governance surrounding the adoption and use of models, such as for credit, collateral, margining, and liquidity risk-management systems. An FMI should validate, on an ongoing basis, the models and their methodologies used to quantify, aggregate, and manage the FMI's risks. The validation process should be independent of the development, implementation, and operation of the models and their methodologies, and the validation process should be subjected to an independent review of its adequacy and effectiveness. Validation should include (a) an evaluation of the conceptual soundness of (including developmental evidence supporting) the models, (b) an ongoing monitoring process that includes verification of processes and benchmarking, and (c) an analysis of outcomes that includes backtesting.

Internal controls and audit

3.2.17. The board is responsible for establishing and overseeing internal controls and audit. An FMI should have sound internal control policies and procedures to help manage its risks. For example, as part of a variety of risk controls, the board should ensure that there are adequate internal controls to protect against the misuse of confidential information. An FMI should also have an effective internal audit function, with sufficient resources and independence from management to provide, among other activities, a rigorous and independent assessment of the effectiveness of an FMI's risk-management and control processes (see also Principle 3 on the framework for the comprehensive management of risks). The board will typically establish an audit committee to oversee the internal audit function. In addition to reporting to senior management, the audit function should have regular access to the board through an additional reporting line.

Stakeholder input

3.2.18. An FMI's board should consider all relevant stakeholders' interests, including those of its direct and indirect participants, in making major decisions, including those relating to the system's design, rules, and overall business strategy. An FMI with cross-border operations, in particular, should ensure that the full range of views across the jurisdictions in which it operates is appropriately considered in the decision-making process. Mechanisms for involving stakeholders in the board's decision-making process may include stakeholder representation on the board (including direct and indirect participants), user committees, and public consultation processes. As opinions among interested parties are likely to differ, the FMI should have clear processes for identifying and appropriately managing the diversity of stakeholder views and any conflicts of interest between stakeholders and the FMI. Without prejudice to local requirements on confidentiality and disclosure, the FMI should clearly and promptly inform its owners, participants, other users, and, where appropriate, the broader public, of the outcome of major decisions, and consider providing summary explanations for decisions to enhance transparency where it would not endanger candid board debate or commercial confidentiality.

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Key considerations

1. *An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.*
2. *An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.*
3. *An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.*
4. *An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.*

Explanatory note

3.3.1. An FMI should take an integrated and comprehensive view of its risks, including the risks it bears from and poses to its participants and their customers, as well as the risks it bears from and poses to other entities, such as other FMIs, settlement banks, liquidity providers, and service providers (for example, matching and portfolio compression service providers). An FMI should consider how various risks relate to, and interact with, each other. The FMI should have a sound risk-management framework (including policies, procedures, and systems) that enable it to identify, measure, monitor, and manage effectively the range of risks that arise in or are borne by the FMI. An FMI's framework should include the identification and management of interdependencies. An FMI should also provide appropriate incentives and the relevant information for its participants and other entities to manage and contain their risks vis-à-vis the FMI. As discussed in Principle 2 on governance, the board of directors plays a critical role in establishing and maintaining a sound risk-management framework.

Identification of risks

3.3.2. To establish a sound risk-management framework, an FMI should first identify the range of risks that arise within the FMI and the risks it directly bears from or poses to its participants, its participants' customers, and other entities. It should identify those risks that could materially affect its ability to perform or to provide services as expected. Typically these include legal, credit, liquidity, and operational risks. An FMI should also consider other relevant and material risks, such as market (or price), concentration, and general business risks, as well as risks that do not appear to be significant in isolation, but when combined with other risks become material. The consequences of these risks may have significant reputational effects on the FMI and may undermine an FMI's financial soundness as well as the stability of the broader financial markets. In identifying risks, an FMI should take a broad perspective and identify the risks that it bears from other entities, such as other FMIs, settlement banks, liquidity providers, service providers, and any entities that could be materially affected by the FMI's inability to provide services. For example, the relationship between an SSS and an LVPS to achieve DvP settlement can create system-based interdependencies.

Comprehensive risk policies, procedures, and controls

3.3.3. An FMI's board and senior management are ultimately responsible for managing the FMI's risks (see Principle 2 on governance). The board should determine an appropriate level of aggregate risk tolerance and capacity for the FMI. The board and senior management should establish policies, procedures, and controls that are consistent with the FMI's risk tolerance and capacity. The FMI's policies, procedures, and controls serve as the basis for identifying, measuring, monitoring, and managing the FMI's risks and should cover routine and non-routine events, including the potential inability of a participant, or the FMI itself, to meet its obligations. An FMI's policies, procedures, and controls should address all relevant risks, including legal, credit, liquidity, general business, and operational risks. These policies, procedures, and controls should be part of a coherent and consistent framework that is reviewed and updated periodically and shared with the relevant authorities.

Information and control systems

3.3.4. In addition, an FMI should employ robust information and risk-control systems to provide the FMI with the capacity to obtain timely information necessary to apply risk-management policies and procedures. In particular, these systems should allow for the accurate and timely measurement and aggregation of risk exposures across the FMI, the management of individual risk exposures and the interdependencies between them, and the assessment of the impact of various economic and financial shocks that could affect the FMI. Information systems should also enable the FMI to monitor its credit and liquidity exposures, overall credit and liquidity limits, and the relationship between these exposures and limits.[36]

3.3.5. Where appropriate, an FMI should also provide its participants and its participants' customers with the relevant information to manage and contain their credit and liquidity risks. An FMI may consider it beneficial to provide its participants and its participants' customers with information necessary to monitor their credit and liquidity exposures, overall credit and liquidity limits, and the relationship between these exposures and limits. For example, where the FMI permits participants' customers to create exposures in the FMI that are borne by the participants, the FMI should provide participants with the capacity to limit such risks.

Incentives to manage risks

3.3.6. In establishing risk-management policies, procedures, and systems, an FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI. There are several ways in which an FMI may provide incentives. For example, an FMI could apply financial penalties to participants that fail to settle securities in a timely manner or to repay intraday credit by the end of the operating day. Another example is the use of loss-sharing arrangements proportionate to the exposures brought to the FMI. Such approaches can help reduce the moral hazard that may arise from formulas in which losses are shared equally among participants or other formulas where losses are not shared proportionally to risk.

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[36] These information systems should permit, where practicable, the provision of real time information to enable participants to manage risks. If an FMI does not provide real time information, it should provide clear, full, updated information to participants throughout the day (as frequently as possible) and consider appropriate enhancements to its systems.

Interdependencies

3.3.7. An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, or service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks (see also Principle 20 on FMI links). In particular, an FMI should have effective risk-management tools to manage all relevant risks, including the legal, credit, liquidity, general business, and operational risks that it bears from and poses to other entities, in order to limit the effects of disruptions from and to such entities as well as disruptions from and to the broader financial markets. These tools should include business continuity arrangements that allow for rapid recovery and resumption of critical operations and services in the event of operational disruptions (see Principle 17 on operational risk), liquidity risk-management techniques (see Principle 7 on liquidity risk), and recovery or orderly wind-down plans should the FMI become non-viable.[37] Because of the interdependencies between and among systems, an FMI should ensure that its crisis-management arrangements allow for effective coordination among the affected entities, including cases in which its own viability or the viability of an interdependent entity is in question.

Recovery and orderly wind-down plans

3.3.8. An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. These scenarios should take into account the various independent and related risks to which the FMI is exposed. Using this analysis (and taking into account any constraints potentially imposed by domestic legislation), the FMI should prepare appropriate plans for its recovery or orderly wind-down. The plan should contain, among other elements, a substantive summary of the key recovery or orderly wind-down strategies, the identification of the FMI's critical operations and services, and a description of the measures needed to implement the key strategies. An FMI should have the capacity to identify and provide to related entities the information needed to implement the plan on a timely basis during stress scenarios. In addition, these plans should be reviewed and updated regularly. Where applicable, an FMI should provide relevant authorities with the information, including strategy and scenario analysis, needed for purposes of resolution planning.

Internal controls

3.3.9. An FMI also should have comprehensive internal processes to help the board and senior management monitor and assess the adequacy and effectiveness of an FMI's risk-management policies, procedures, systems, and controls. While business-line management serves as the first "line of defence," the adequacy of and adherence to control mechanisms should be assessed regularly through independent compliance programmes and independent audits.[38] A robust internal audit function can provide an independent assessment of the effectiveness of an FMI's risk-management and control processes. An emphasis on the adequacy of controls by senior management and the board as well as internal audit can also help counterbalance a business-management culture that may favour business interests over establishing and adhering to appropriate controls. In addition,

[37] Although TRs are typically not exposed to financial risks from their recordkeeping activities, they may be a part of a network linking various entities that could include CCPs, dealers, custodians, and service providers, and therefore should ensure that they effectively manage and minimise their own risks to reduce the potential for systemic risk to spread to such linked entities.

[38] Audits should be performed by qualified and independent individuals who did not participate in the creation of the control mechanisms. At times the FMI may find it necessary to engage a team of external auditors.

proactive engagement of audit and internal control functions when changes are under consideration can also be beneficial. Specifically, FMIs that involve their internal audit function in pre-implementation reviews will often reduce their need to expend additional resources to retrofit processes and systems with critical controls that had been overlooked during initial design phases and construction efforts.

Credit and liquidity risk management

An FMI or its participants may face credit and liquidity risks arising from the FMI's payment, clearing, and settlement processes. Credit risk is the risk that a counterparty will be unable to meet fully its financial obligations when due or at any time in the future. These counterparties may include the FMI's participants (see Principle 4 on credit risk), settlement banks (see Principle 9 on money settlements), and custodians (see Principle 16 on custody and investment risks). Liquidity risk is the risk that a counterparty will have insufficient funds to meet its financial obligations when due, but may be able to do so at some time in the future. Although credit and liquidity risks are distinct concepts, there is often significant interaction between these risks. For example, a participant default in an FMI would likely result in the FMI facing both credit and liquidity risk, potentially requiring the FMI to draw on its liquidity resources to meet its immediate obligations. An FMI has a range of risk-management tools to mitigate and manage these risks.

The following set of principles on (a) credit risk management, (b) collateral, (c) margin, and (d) liquidity risk management form the core of the standards for financial risk management and financial resources. These principles contain extensive cross references because of the interaction among the four standards. For example, the margin principle builds on the credit risk principle as applied to CCPs. The margin principle is also related to the collateral principle, which establishes the form and attributes of collateral that a CCP should hold. Taken together, these four principles are designed to provide a high degree of confidence that an FMI will continue operating and serve as a source of financial stability even in extreme market conditions. These principles are not applicable to CSDs or TRs to the extent that they do not face credit and liquidity risks.

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.

Key considerations

1. *An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.*

2. *An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.*

3. *A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using*

collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

4. *A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.*

5. *A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.*

6. *In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.*

7. *An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.*

Explanatory note

3.4.1. Credit risk is broadly defined as the risk that a counterparty will be unable to meet fully its financial obligations when due or at any time in the future. The default of a participant (and its affiliates) has the potential to cause severe disruptions to an FMI, its other participants, and the financial markets more broadly.[39] Therefore, an FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes (see also Principle 3 on the framework for the comprehensive management of risks, Principle 9 on money settlements, and Principle 16 on custody and investment risks). Credit exposure may arise in the form of current exposures, potential future exposures, or both.[40] Current exposure, in this context, is defined as the loss that an FMI (or in some cases, its participants) would face immediately if a participant were to default.[41] Potential future exposure is broadly defined as any potential credit exposure that an FMI could face at a future point in time.[42] The type and level of credit exposure faced by an FMI will vary based on its design and the credit risk of the counterparties concerned.[43]

Credit risk in payment systems

3.4.2. *Sources of credit risk.* A payment system may face credit risk from its participants, its payment and settlement processes, or both. This credit risk is driven mainly by current exposures from extending intraday credit to participants.[44] For example, a central bank that operates a payment system and provides intraday credit will face current exposures. A payment system can avoid carrying over current exposures to the next day by requiring its participants to refund any credit extensions before the end of the day. Intraday credit can lead to potential future exposures even when the FMI accepts collateral to secure the credit. A payment system would face potential future exposure if the value of collateral posted by a participant to cover intraday credit were to fall below the amount of credit extended to the participant by the FMI, leaving a residual exposure.

3.4.3. *Sources of credit risk in deferred net settlement systems.* A payment system that employs a DNS mechanism may face financial exposures arising from its relationship with its participants or its payment and settlement processes. A DNS payment system may explicitly guarantee settlement, whether the guarantee is provided by the FMI itself or its participants. In such systems, the guarantor of the arrangement would face current exposure if a

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39 An affiliate is defined as a company that controls, is controlled by, or is under common control with the participant. Control of a company is defined as (a) ownership, control, or holding with power to vote 20 percent or more of a class of voting securities of the company; or (b) consolidation of the company for financial reporting purposes.

40 See also BCBS, *The application of Basel II to trading activities and the treatment of double default effects*, April 2005, p 4 (joint paper with IOSCO). See also BCBS*, International convergence of capital measurement and capital standards*, June 2006, annex 4, pp 254-257 (various definitions of transactions and risks; see especially, definitions of "current exposure" and "peak exposure").

41 Current exposure is technically defined as the larger of zero or the market value (or replacement cost) of a transaction or portfolio of transactions within a netting set with a counterparty that would be lost upon the default of the counterparty.

42 Potential future exposure is technically defined as the maximum exposure estimated to occur at a future point in time at a high level of statistical confidence. Potential future exposure arises from potential fluctuations in the market value of a participant's open positions between the time they are incurred or reset to the current market price and the time they are liquidated or effectively hedged.

43 In considering its credit exposure to a central bank, on a case-by-case basis an FMI may take into account the special characteristics of the central bank.

44 Many payment systems do not face credit risk from their participants or payment and settlement processes, although they may face significant liquidity risk.

participant were not to meet its payment or settlement obligations. Even in a DNS system that does not have an explicit guarantee, participants in the payment system may still face settlement risk vis-à-vis each other. Whether this risk involves credit exposures or liquidity exposures, or a combination of both, will depend on the type and scope of obligations, including any contingent obligations, the participants bear. The type of obligations will, in turn, depend on factors such as the payment system's design, rules, and legal framework.

3.4.4. *Measuring and monitoring credit risk.* A payment system should frequently and regularly measure and monitor its credit risks, throughout the day using timely information. A payment system should ensure it has access to adequate information, such as appropriate collateral valuations, to allow it to measure and monitor its current exposures and degree of collateral coverage. In a DNS payment system without a settlement guarantee, the FMI should provide the capacity to its participants to measure and monitor their current exposures to each other in the system or adopt rules that require participants to provide relevant exposure information. Current exposure is relatively straightforward to measure and monitor; however, potential future exposure may require modelling or estimation. In order to monitor its risks associated with current exposure, a payment system should monitor market conditions for developments that could affect these risks, such as collateral values. In order to estimate its potential future exposure and associated risk, a payment system should model possible changes in collateral values and market conditions over an appropriate liquidation period. A payment system, where appropriate, needs to monitor the existence of large exposures to its participants and their customers. Additionally, it should monitor any changes in the creditworthiness of its participants.

3.4.5. *Mitigating and managing credit risk.* A payment system should mitigate its credit risks to the extent possible. A payment system can, for example, eliminate some of its or its participants' credit risks associated with the settlement process by employing an RTGS mechanism. In addition, a payment system should limit its current exposures by limiting intraday credit extensions and, where relevant, avoid carrying over these exposures to the next day by requiring participants to refund any credit extensions before the end of the day.[45] Such limits should balance the usefulness of credit to facilitate settlement within the system against the payment system's credit exposures.

3.4.6. In order to manage the risk from a participant default, a payment system should consider the impact of participant defaults and robust techniques for managing collateral. A payment system should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (equity can be used after deduction of the amount dedicated to cover general business risk) (see Principle 5 on collateral and Principle 15 on general business risk).[46] By requiring collateral to cover the credit exposures, a payment system mitigates, and in some cases eliminates, its current exposure and may provide participants with an incentive to manage credit risks they pose to the payment system or other participants. Further, this collateralisation reduces the need in a DNS payment system to unwind payments should a participant default on its obligations. Collateral or other equivalent financial resources can fluctuate in value, however, so the payment system should establish prudent haircuts to mitigate the resulting potential future exposure.

3.4.7. A DNS payment system that explicitly guarantees settlement, whether the guarantee is from the FMI itself or from its participants, should maintain sufficient financial resources to

[45] A central bank often avoids using limits on a participant's credit because of its role as a monetary authority and liquidity provider.

[46] Equity may only be used up to the amount held in sufficiently liquid net assets. Such use of equity should be strictly limited to avoiding disruptions in settlement when collateral is not available in a timely manner.

cover fully all current and potential future exposures using collateral and other equivalent financial resources. A DNS payment system in which there is no settlement guarantee, but where its participants face credit exposures arising from its payment and settlement processes, should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.[47] A higher level of coverage should be considered for a payment system that creates large exposures or that could have a significant systemic impact if more than two participants and their affiliates were to default.

Credit risk in SSSs

3.4.8. *Sources of credit risk.* An SSS may face a number of credit risks from its participants or its settlement processes. An SSS faces counterparty credit risk when it extends intraday or overnight credit to participants. This extension of credit creates current exposures and can lead to potential future exposures, even when the SSS accepts collateral to secure the credit. An SSS would face potential future exposure if the value of collateral posted by a participant to cover this credit might fall below the amount of credit extended to the participant by the SSS, leaving a residual exposure. In addition, an SSS that explicitly guarantees settlement would face current exposures if a participant were not to fund its net debit position or meet its obligations to deliver financial instruments. Further, if an SSS does not use a DvP settlement mechanism, the SSS or its participants face principal risk, which is the risk of loss of securities or payments made to the defaulting participant prior to the detection of the default (see Principle 12 on exchange-of-value settlement systems).

3.4.9. *Sources of credit risk in deferred net settlement systems.* An SSS may settle securities on a gross basis and funds on a net basis (DvP model 2) or settle both securities and funds on a net basis (DvP model 3). Further, an SSS that uses a DvP model 2 or 3 settlement mechanism may explicitly guarantee settlement, whether the guarantee is by the FMI itself or by its participants. In such systems, this guarantee represents an extension of intraday credit from the guarantor. In an SSS that does not provide an explicit settlement guarantee, participants may face settlement risk vis-à-vis each other if a participant defaults on its obligations. Whether this settlement risk involves credit exposures, liquidity exposures, or a combination of both will depend on the type and scope of the obligations, including any contingent obligations, the participants bear. The type of obligations will, in turn, depend on factors such as the SSS's design, rules, and legal framework.

3.4.10. *Measuring and monitoring credit risk.* An SSS should frequently and regularly measure and monitor its credit risks throughout the day using timely information. An SSS should ensure it has access to adequate information, such as appropriate collateral valuations, to allow it to measure and monitor its current exposures and degree of collateral coverage. If credit risk exists between participants, the SSS should provide the capacity to participants to measure and monitor their current exposures to each other in the system or adopt rules that require participants to provide relevant exposure information. Current exposure should be relatively straightforward to measure and monitor; however, potential future exposure may require modelling or estimation. In order to monitor its risks associated with current exposure, an SSS should monitor market conditions for developments that could affect these risks, such as collateral values. In order to estimate its potential future exposure and associated risk, an SSS should model possible changes in collateral values and market conditions over an appropriate liquidation period. An SSS, where appropriate, needs to monitor the existence of large exposures to its participants and their customers. Additionally, it should monitor any changes in the creditworthiness of its participants.

[47] If the financial exposure faced by the DNS payment system is a liquidity exposure, then Principle 7 would apply.

3.4.11. *Mitigating and managing credit risk.* An SSS should mitigate its credit risks to the extent possible. An SSS should, for example, eliminate its or its participants' principal risk associated with the settlement process by employing an exchange-of-value settlement system (see Principle 12 on exchange-of-value settlement systems). The use of a system that settles securities and funds on a gross, obligation-by-obligation basis (DvP model 1) would further reduce credit and liquidity exposures among participants and between participants and the SSS. In addition, an SSS should limit its current exposures by limiting intraday credit extensions and, where relevant, overnight credit extensions.[48] Such limits should balance the usefulness of credit to facilitate settlement within the system against the SSS's credit exposures.

3.4.12. In order to manage the risk from a participant default, an SSS should consider the impact of participant defaults and use robust techniques for managing collateral. An SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (equity can be used after deduction of the amount dedicated to cover general business risk) (see Principle 5 on collateral and Principle 15 on general business risk).[49] By requiring collateral to cover the credit exposures, an SSS mitigates, and in some cases eliminates, its current exposures and may provide participants with an incentive to manage the credit risks they pose to the SSS or other participants. Further, this collateralisation allows an SSS that employs a DvP model 2 or 3 mechanism to avoid unwinding transactions or to mitigate the effect of an unwind should a participant default on its obligations. Collateral and other equivalent financial resources can fluctuate in value, however, so the SSS needs to establish prudent haircuts to mitigate the resulting potential future exposures.

3.4.13. An SSS that uses a DvP model 2 or 3 mechanism and explicitly guarantees settlement, whether the guarantee is from the FMI itself or from its participants, should maintain sufficient financial resources to cover fully, with a high degree of confidence, all current and potential future exposures using collateral and other equivalent financial resources. An SSS that uses a DvP model 2 or 3 mechanism and does not explicitly guarantee settlement, but where its participants face credit exposures arising from its payment, clearing, and settlement processes, should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.[50] A higher level of coverage should be considered for an SSS that has large exposures or that could have a significant systemic impact if more than two participants and their affiliates were to default.

Credit risk in CCPs

3.4.14. *Sources of credit risk.* A CCP typically faces both current and potential future exposures because it typically holds open positions with its participants. Current exposure arises from fluctuations in the market value of open positions between the CCP and its participants.[51] Potential future exposure arises from potential fluctuations in the market value of a defaulting participant's open positions until the positions are closed out, fully hedged, or

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48 A central bank often avoids using limits on a participant's credit because of its role as a monetary authority and liquidity provider.

49 Equity may only be used up to the amount held in sufficiently liquid net assets. Such use of equity should be strictly limited to avoiding disruptions in settlement when collateral is not available in a timely manner.

50 If the financial exposure faced by the DNS SSS is a liquidity exposure, then principle 7 would apply.

51 For example, for a CCP that pays and collects variation margin (after marking positions to market and then, upon completion of the variation cycle, resetting the value of positions to zero daily), the current exposure is the difference between the current (that is, at the moment) value of open positions and the value of the positions when the CCP last marked them to market for the purpose of collecting variation margin.

transferred by the CCP following an event of default.[52] For example, during the period in which a CCP neutralises or closes out a position following the default of a participant, the market value of the position or asset being cleared may change, which could increase the CCP's credit exposure, potentially significantly.[53] A CCP can also face potential future exposure due to the potential for collateral (initial margin) to decline significantly in value over the close-out period.

3.4.15. *Measuring and monitoring credit risk.* A CCP should frequently and regularly measure and monitor its credit risks throughout the day using timely information. A CCP should ensure that it has access to adequate information to allow it to measure and monitor its current and potential future exposures. Current exposure is relatively straightforward to measure and monitor when relevant market prices are readily available. Potential future exposure is typically more challenging to measure and monitor and usually requires modelling and estimation of possible future market price developments and other variables and conditions, as well as specifying an appropriate time horizon for the close out of defaulted positions. In order to estimate the potential future exposures that could result from participant defaults, a CCP should identify risk factors and monitor potential market developments and conditions that could affect the size and likelihood of its losses in the close out of a defaulting participant's positions. A CCP should monitor the existence of large exposures to its participants and, where appropriate, their customers. Additionally, it should monitor any changes in the creditworthiness of its participants.

3.4.16. *Mitigating and managing credit risk.* A CCP should mitigate its credit risk to the extent possible. For example, to control the build-up of current exposures, a CCP should require that open positions be marked to market and that each participant pay funds, typically in the form of variation margin, to cover any loss in its positions' net value at least daily; such a requirement limits the accumulation of current exposures and therefore mitigates potential future exposures. In addition, a CCP should have the authority and operational capacity to make intraday margin calls, both scheduled and unscheduled, from participants. Further, a CCP may choose to place limits on credit exposures in some cases, even if collateralised. Limits on concentrations of positions or additional collateral requirements may also be warranted.

3.4.17. A CCP typically uses a sequence of prefunded financial resources, often referred to as a "waterfall," to manage its losses caused by participant defaults. The waterfall may include a defaulter's initial margin, the defaulter's contribution to a prefunded default arrangement, a specified portion of the CCP's own funds, and other participants' contributions to a prefunded default arrangement.[54] Initial margin is used to cover a CCP's

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[52] For positions that are marked to market and settled daily, potential future exposure is typically related to the interval between the last daily mark-to-market and the point the position is closed out. That is, potential future exposure includes uncovered current exposure stemming from the price development from the last mark-to-market to the time of close out, full hedging, or transfer.

[53] A CCP may close out a defaulting participant's positions by entering the market to buy or sell contracts identical but opposite to the net positions held by the defaulting participant at current market prices (see Principle 13 on participant-default rules and procedures). (The CCP may alternatively auction the defaulting participant's positions to other participants, whether in whole or in parts). During the liquidation period, market prices on the open positions can change, exposing the CCP to additional liquidation costs until the point of close out. To mitigate this risk, a CCP may also temporarily hedge the defaulter's positions by entering into positions with values that are negatively correlated with the values of the positions held by the defaulting participant. The CCP's liquidation cost therefore not only includes the uncovered current exposure that would exist at the time of default but also the potential future exposure associated with relevant changes in market prices during the liquidation period.

[54] Prefunded default arrangements for loss mutualisation and other pooling-of-resources arrangements involve trade-offs that a CCP should carefully assess and balance. For example, a CCP may be able to protect itself against defaults in extreme conditions more efficiently using pooled resources, as the costs are shared among

potential future exposures, as well as current exposures not covered by variation margin, to each participant with a high degree of confidence.[55] However, a CCP generally remains exposed to residual risk (or tail risk) if a participant defaults and market conditions concurrently change more drastically than is anticipated in the margin calculations. In such scenarios, a CCP's losses may exceed the defaulting participant's posted margin. Although it is not feasible to cover all such tail risks given the unknown scope of potential losses due to price changes, a CCP should maintain additional financial resources, such as additional collateral or a prefunded default arrangement, to cover a portion of the tail risk.

3.4.18. A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources. As discussed more fully in Principle 6 on margin, a CCP should establish initial margin requirements that are commensurate with the risks of each product and portfolio. Initial margin should meet an established single-tailed confidence level of at least 99 percent of the estimated distribution of future exposure.[56] For a CCP that calculates margin at the portfolio level, this standard applies to the distribution of future exposure of each portfolio. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or product level, the standard must be met for the corresponding distributions of future exposure.

3.4.19. In addition to fully covering its current and potential future exposures, a CCP should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios involving extreme but plausible market conditions. Specifically, a CCP that is involved in activities with a more-complex risk profile (such as clearing financial instruments that are characterised by discrete jump-to-default price changes or that are highly correlated with potential participant defaults) or that is systemically important in multiple jurisdictions, should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. Determinations of whether a CCP is systemically important in multiple jurisdictions should include consideration of, among other factors, (a) the location of the CCP's participants, (b) the aggregate volume and value of transactions that originate in each jurisdiction in which it operates, (c) the proportion of its total volume and value of transactions that originate in each jurisdiction in which it operates, (d) the range of currencies in which the instruments it clears are cleared or settled, (e) any links it has with FMIs located in other jurisdictions, and (f) the extent to which it clears instruments that are subject to mandatory clearing obligations in multiple jurisdictions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to (see Principle 2 on governance), the amount of total financial resources it maintains.

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participants. The lower cost provides an incentive to increase the available financial resources so that the CCP is more financially secure. The pooling of resources, however, also increases the interdependencies among participants. The proportion of assets used to absorb a default that is pooled across participants versus the proportion that is segregated, such as margins, should balance the safety and soundness of the CCP against the increased interdependencies among participants in order to minimise systemic risk.

[55] Other resources may be used in place of initial margin; however, these resources should be prefunded and of equivalent or stronger quality in comparison to prudently designed margin arrangements.

[56] This concept parallels the technical definition of potential future exposure as a risk measure. See footnote 42.

Testing the sufficiency of a CCP's total financial resources

3.4.20. A CCP should determine the amount and regularly test the sufficiency of its total financial resources through stress testing. A CCP should also conduct reverse stress tests, as appropriate, to test how severe stress conditions would be covered by its total financial resources. Because initial margin is a key component of a CCP's total financial resources, a CCP should also test the adequacy of its initial margin requirements and model through backtesting and sensitivity analysis, respectively (see Principle 6 for further discussion on testing of the initial margin requirements and model).

3.4.21. *Stress testing.* A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress-testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.[57]

3.4.22. In conducting stress testing, a CCP should consider a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods.[58] Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.[59] Extreme but plausible conditions should not be considered a fixed set of conditions, but rather, conditions that evolve. Stress tests should quickly incorporate emerging risks and changes in market assumptions (for example, departures from usual patterns of co-movements in prices among the products a CCP clears).[60] A CCP proposing to clear new products should consider movements in prices of any relevant related products.

3.4.23. *Reverse stress tests.* A CCP should conduct, as appropriate, reverse stress tests aimed at identifying the extreme scenarios and market conditions in which its total financial resources would not provide sufficient coverage of tail risk. Reverse stress tests require a

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[57] Although a CCP may use the results of stress testing to assess the validity of the stress scenarios, models, and underlying parameters and assumptions, these aspects should not be arbitrarily adjusted to control the adequacy of total financial resources. Stress scenarios, models, and underlying parameters and assumptions should be examined based on historical data of prices of cleared products and participants' positions and potential developments of these factors under extreme but plausible market conditions in the markets that the CCP serves. See paragraph 3.4.22.

[58] The risk-management methods of some CCPs may integrate the management of risk from participant positions with risks from price developments. If this integrated risk-management approach is well implemented, stress scenarios can take into account appropriate combinations in defaulting positions and price changes.

[59] See BCBS, *Principles for sound stress testing practices and supervision*, May 2009.

[60] Dependence among exposures as well as between participants and exposures should be considered. If an FMI calculates exposures on a portfolio basis, then the dependence of the instruments within participants' portfolios needs to be stressed.

CCP to model hypothetical positions and extreme market conditions that may go beyond what are considered extreme but plausible market conditions in order to help understand margin calculations and the sufficiency of financial resources given the underlying assumptions modelled. Modelling extreme market conditions can help a CCP determine the limits of its current model and resources; however, it requires the CCP to exercise judgment when modelling different markets and products. A CCP should develop hypothetical extreme scenarios and market conditions tailored to the specific risks of the markets and of the products it serves. Reverse stress testing should be considered a helpful management tool but need not, necessarily, drive the CCP's determination of the appropriate level of financial resources.

Use of financial resources

3.4.24. The rules of an FMI should expressly set out the waterfall, including the circumstances in which specific resources of the FMI can be used in a participant default (see Principle 13 on participant-default rules and procedures and Principle 23 on disclosure of rules, key procedures, and market data). For the purposes of this principle, an FMI should not include as "available" to cover credit losses from participant defaults those resources that are needed to cover current operating expenses, potential general business losses, or other losses from other activities in which the FMI is engaged (see Principle 15 on general business risk). In addition, if an FMI serves multiple markets (either in the same jurisdiction or multiple jurisdictions), its ability to use resources supplied by participants in one market to cover losses from a participant default in another market should have a sound legal basis, be clear to all participants, and avoid significant levels of contagion risk between markets and participants. The design of an FMI's stress tests should take into account the extent to which resources are pooled across markets in scenarios involving one or more participant defaults across several markets.

Contingency planning for uncovered credit losses

3.4.25. In certain extreme circumstances, the post-liquidation value of the collateral and other financial resources that secure an FMI's credit exposures may not be sufficient to cover credit losses resulting from those exposures fully. An FMI should analyse and plan for how it would address any uncovered credit losses. An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers.[61] An FMI's rules and procedures should also indicate its process to replenish any financial resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

[61] For instance, an FMI's rules and procedures might provide the possibility to allocate uncovered credit losses by writing down potentially unrealised gains by non-defaulting participants and the possibility of calling for additional contributions from participants based on the relative size and risk of their portfolios.

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Key considerations

1. An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

2. An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

3. In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

4. An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

5. An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

6. An FMI should use a collateral management system that is well-designed and operationally flexible.

Explanatory note

3.5.1. Collateralising credit exposures protects an FMI and, where relevant, its participants against potential losses in the event of a participant default (see Principle 4 on credit risk). Besides mitigating an FMI's own credit risk, the use of collateral can provide participants with incentives to manage the risks they pose to the FMI or other participants. An FMI should apply prudent haircuts to the value of the collateral to achieve a high degree of confidence that the liquidation value of the collateral will be greater than or equal to the obligation that the collateral secures in extreme but plausible market conditions.[62] Additionally, an FMI should have the capacity to use the collateral promptly when needed.

Acceptable collateral

3.5.2. An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks. In the normal course of business, an FMI may be exposed to risk from certain types of collateral that are not considered to have low credit, liquidity, and market risks. However, in some instances, these assets may be acceptable collateral for credit purposes if an appropriate haircut is applied. An FMI must be confident of the collateral's value in the event of liquidation and of its capacity to use that collateral quickly, especially in stressed market conditions. An FMI that accepts collateral with credit, liquidity, and market risks above minimum levels should demonstrate that it sets and enforces appropriately conservative haircuts and concentration limits.[63]

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[62] The risk-management methods of some FMIs may integrate the management of risk from participant positions with the risk from fluctuations in the value of collateral provided by participants.

[63] In general, guarantees are not acceptable collateral. However, in rare circumstances and subject to regulatory approval, a guarantee fully backed by collateral that is realisable on a same-day basis may serve as acceptable collateral. An explicit guarantee from the relevant central bank of issue would constitute acceptable collateral providing it is supported by the legal framework applicable to and the policies of the central bank.

3.5.3. Further, an FMI should regularly adjust its requirements for acceptable collateral in accordance with changes in underlying risks. When evaluating types of collateral, an FMI should consider potential delays in accessing the collateral due to the settlement conventions for transfers of the asset. In addition, participants should not be allowed to post their own debt or equity securities, or debt or equity of companies closely linked to them, as collateral.[64] More generally, an FMI should mitigate specific wrong-way risk by limiting the acceptance of collateral that would likely lose value in the event that the participant providing the collateral defaults.[65] The FMI should measure and monitor the correlation between a counterparty's creditworthiness and the collateral posted and take measures to mitigate the risks, for instance by setting more-conservative haircuts.

3.5.4. If an FMI plans to use assets held as collateral to secure liquidity facilities in the event of a participant default, the FMI will also need to consider, in determining acceptable collateral, what will be acceptable as security to lenders offering liquidity facilities (see Principle 7).

Valuing collateral

3.5.5. To have adequate assurance of the collateral's value in the event of liquidation, an FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions. An FMI should, at a minimum, mark its collateral to market daily. Haircuts should reflect the potential for asset values and liquidity to decline over the interval between their last revaluation and the time by which an FMI can reasonably assume that the assets can be liquidated. Haircuts also should incorporate assumptions about collateral value during stressed market conditions and reflect regular stress testing that takes into account extreme price moves, as well as changes in market liquidity for the asset. If market prices do not fairly represent the true value of the assets, an FMI should have the authority to exercise discretion in valuing assets according to predefined and transparent methods. An FMI's haircut procedures should be independently validated at least annually.[66]

Limiting procyclicality

3.5.6. An FMI should appropriately address procyclicality in its collateral arrangements. To the extent practicable and prudent, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions in order to reduce the need for procyclical adjustments. In this context, procyclicality typically refers to changes in risk-management practices that are positively correlated with market, business, or credit cycle fluctuations and that may cause or exacerbate financial instability.[67] While changes in collateral values tend to be procyclical, collateral arrangements can increase procyclicality if haircut levels fall during periods of low market stress and increase during periods of high market stress. For example, in a stressed market, an FMI may require the posting of additional collateral both because of the decline of asset prices and because of an increase

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[64] Covered bonds issued by a participant or a closely linked company may be accepted as collateral, provided the underlying collateral of these covered bonds would be appropriately segregated by the issuer from its own assets and considered as acceptable under this principle.

[65] Specific wrong-way risk is defined as the risk that an exposure to a counterparty is highly likely to increase when the creditworthiness of that counterparty is deteriorating.

[66] Validation of the FMI's haircut procedures should be performed by personnel of sufficient expertise who are independent of the personnel that created and applied the haircut procedures. These expert personnel could be drawn from within the FMI. However, a review by personnel external to the FMI may also be necessary at times.

[67] See also CGFS, *The role of margin requirements and haircuts in procyclicality*, March 2010.

in haircut levels. Such actions could exacerbate market stress and contribute to driving down asset prices further, resulting in additional collateral requirements. This cycle could exert further downward pressure on asset prices. Addressing issues of procyclicality may create additional costs for FMIs and their participants in periods of low market stress because of higher collateral requirements, but result in additional protection and potentially less-costly and less-disruptive adjustments in periods of high market stress.

Avoiding concentrations of collateral

3.5.7. An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects. High concentrations within holdings can be avoided by establishing concentration limits or imposing concentration charges. Concentration limits restrict participants' ability to provide certain collateral assets above a specified threshold as established by the FMI. Concentration charges penalise participants for maintaining holdings of certain assets beyond a specified threshold as established by the FMI. Further, concentration limits and charges should be constructed to prevent participants from covering a large share of their collateral requirements with the most risky assets acceptable. Concentration limits and charges should be periodically reviewed by the FMI to determine their adequacy.

Cross-border collateral

3.5.8. If an FMI accepts cross-border (or foreign) collateral, it should identify and mitigate any additional risks associated with its use and ensure that it can be used in a timely manner.[68] A cross-border collateral arrangement can provide an efficient liquidity bridge across markets, help relax collateral constraints for some participants, and contribute to the efficiency of some asset markets. These linkages, however, can also create significant interdependencies and risks to FMIs that need to be evaluated and managed by the affected FMIs (see also Principle 17 on operational risk and Principle 20 on FMI links). For example, an FMI should have appropriate legal and operational safeguards to ensure that it can use the cross-border collateral in a timely manner and should identify and address any significant liquidity effects. An FMI also should consider foreign-exchange risk where collateral is denominated in a currency different from that in which the exposure arises, and set haircuts to address the additional risk to a high level of confidence. The FMI should have the capacity to address potential operational challenges of operating across borders, such as differences in time zones or operating hours of foreign CSDs or custodians.

Collateral management systems

3.5.9. An FMI should use a well-designed and operationally flexible collateral management system. Such a system should accommodate changes in the ongoing monitoring and management of collateral. Where appropriate, the system should allow for the timely calculation and execution of margin calls, the management of margin call disputes, and the accurate daily reporting of levels of initial and variation margin. Further, a collateral management system should track the extent of reuse of collateral (both cash and non-cash) and the rights of an FMI to the collateral provided to it by its counterparties. An FMI's collateral management system should also have functionality to accommodate the timely deposit, withdrawal, substitution, and liquidation of collateral. An FMI should allocate sufficient resources to its collateral management system to ensure an appropriate level of operational performance, efficiency, and effectiveness. Senior management should ensure that the FMI's collateral management function is adequately staffed to ensure smooth

[68] Cross-border collateral has at least one of the following foreign attributes: (a) the currency of denomination, (b) the jurisdiction in which the assets are located, or (c) the jurisdiction in which the issuer is established.

operations, especially during times of market stress, and that all activities are tracked and reported, as appropriate, to senior management.[69]

Reuse of collateral

3.5.10. Reuse of collateral refers to the FMI's subsequent use of collateral that has been provided by participants in the normal course of business. This differs from the FMI's use of collateral in a default scenario during which the defaulter's collateral, which has become the property of the FMI, can be used to access liquidity facilities or can be liquidated to cover losses (see Principle 13 on participant-default rules and procedures). An FMI should have clear and transparent rules regarding the reuse of collateral (see Principle 23 on disclosure of rules, key procedures, and market data). In particular, the rules should clearly specify when an FMI may reuse its participant collateral and the process for returning that collateral to participants. In general, an FMI should not rely on the reuse of collateral as an instrument for increasing or maintaining its profitability. However, an FMI may invest any cash collateral received from participants on their behalf (see Principle 16 on custody and investment risks).

[69] Information included in summary reports should incorporate information on the reuse of collateral and the terms of such reuse, including instrument, credit quality, and maturity. These reports should also track concentration of individual collateral asset classes.

Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

Key considerations

1. *A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.*
2. *A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.*
3. *A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.*
4. *A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.*
5. *In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems.*
6. *A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.*
7. *A CCP should regularly review and validate its margin system.*

Explanatory note

3.6.1. An effective margining system is a key risk-management tool for a CCP to manage the credit exposures posed by its participants' open positions (see also Principle 4 on credit risk). A CCP should collect margin, which is a deposit of collateral in the form of money, securities, or other financial instruments to assure performance and to mitigate its credit exposures for all products that it clears if a participant defaults (see also Principle 5 on collateral). Margin systems typically differentiate between initial margin and variation margin.[70] Initial margin is typically collected to cover potential changes in the value of each participant's position (that is, potential future exposure) over the appropriate close-out period in the event the participant defaults. Calculating potential future exposure requires modelling potential price movements and other relevant factors, as well as specifying the target degree of confidence and length of the close-out period. Variation margin is collected and paid out to reflect current exposures resulting from actual changes in market prices. To calculate variation margin, open positions are marked to current market prices and funds are typically collected from (or paid to) a counterparty to settle any losses (or gains) on those positions.

Margin requirements

3.6.2. One of the most common risk-management tools used by CCPs to limit their credit exposure is a requirement that each participant provide collateral to protect the CCP against a high percentile of the distribution of future exposure. In this report, such requirements are described as margin requirements. Margining, however, is not the only risk-management tool available to a CCP (see also Principle 4 on credit risk). In the case of some CCPs for cash markets, the CCP may require each participant to provide collateral to cover credit exposures; they may call these requirements margin, or they may hold this collateral in a pool known as a clearing fund.[71]

3.6.3. When setting margin requirements, a CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves. Product risk characteristics can include, but are not limited to, price volatility and correlation, non-linear price characteristics, jump-to-default risk, market liquidity, possible liquidation procedures (for example, tender by or commission to market-makers), and correlation between price and position such as wrong-way risk.[72] Margin requirements need to account for the complexity of the underlying instruments and the availability of timely, high-quality pricing data. For example, OTC derivatives require more-conservative margin models because of their complexity and the greater uncertainty of the reliability of price quotes. Furthermore, the appropriate close-out period may vary among products and markets depending upon the product's liquidity, price, and other characteristics. Additionally, a CCP for cash markets (or physically deliverable derivatives products) should take into account the risk of "fails to deliver" of securities (or other relevant instruments) in its margin methodology. In a fails-to-deliver scenario, the CCP should continue to margin positions for which a participant fails to deliver the required security (or other relevant instrument) on the settlement date.

Price information

3.6.4. A CCP should have a reliable source of timely price data because such data is critical for a CCP's margin system to operate accurately and effectively. In most cases, a CCP should rely on market prices from continuous, transparent, and liquid markets. If a CCP acquires pricing data from third-party pricing services, the CCP should continually evaluate the data's reliability and accuracy. A CCP should also have procedures and sound valuation

[70] Variation margin may also be called mark-to-market margin or variation settlement in some jurisdictions.

[71] For the purposes of this report, a clearing fund is a prefunded default arrangement.

[72] Correlation should not be understood to be limited to linear correlation, but rather to encompass a broad range of co-dependence or co-movement in relevant economic variables.

models for addressing circumstances in which pricing data from markets or third-party sources are not readily available or reliable. A CCP should have its valuation models validated under a variety of market scenarios at least annually by a qualified and independent party to ensure that its model accurately produces appropriate prices, and where appropriate, the CCP should adjust its calculation of initial margin to reflect any identified model risk.[73] A CCP should address all pricing and market liquidity concerns on an ongoing basis in order to conduct daily measurement of its risks.

3.6.5. For some markets, such as OTC markets, prices may not be reliable because of the lack of a continuous liquid market. In contrast to an exchange-traded market, there may not be a steady stream of live transactions from which to determine current market prices.[74] Although independent third-party sources would be preferable, in some cases, participants may be an appropriate source of price data, as long as the CCP has a system that ensures that prices submitted by participants are reliable and accurately reflect the value of cleared products. Moreover, even when quotes are available, bid-ask spreads may be volatile and widen, particularly during times of market stress, thereby constraining the CCP's ability to measure accurately and promptly its exposure. In cases where price data is not available or reliable, a CCP should analyse historical information about actual trades submitted for clearing and indicative prices, such as bid-ask spreads, as well as the reliability of price data, especially in volatile and stressed markets, to determine appropriate prices. When prices are estimated, the systems and models used for this purpose must be subject to annual validation and testing.

Initial margin methodology

3.6.6. A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements that are sufficient to cover its potential future exposures to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure.[75] For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure at a stage prior to margining among subportfolios or products. The method selected by the CCP to estimate its potential future exposure should be capable of measuring and incorporating the effects of price volatility and other relevant product factors and portfolio effects over a close-out period that reflects the market size and dynamics for each product cleared by the CCP.[76] The estimation may account for the CCP's ability to implement effectively the hedging of future exposure. The method selected by the CCP should take into account correlations across product prices, market liquidity for close out or hedging, and the potential for non-linear risk exposures posed by certain products, including jump-to-default risks. A CCP should have the authority

[73] Validation of the FMI's valuation procedures should be performed by personnel with sufficient expertise who are independent of the personnel that created and use the valuation procedures. These expert personnel could be drawn from within the FMI. However, a review by personnel external to the FMI may also be necessary at times.

[74] As of the date of this report's publication, regulatory requirements regarding trading in OTC markets are continuing to evolve.

[75] This concept parallels the technical definition of potential future exposure as a risk measure. See footnote 42.

[76] CCPs often calculate exposures for a shorter period, commonly one day, and, when necessary, scale up to cover the liquidation period. A CCP should be cautious when scaling because the standard square-root of time heuristic is not appropriate for prices that are serially correlated or exhibit non-linear dynamics.

and operational capacity to make intraday initial margin calls, both scheduled and unscheduled, to its participants.

3.6.7. *Close-out period.* A CCP should select an appropriate close-out period for each product that it clears and document the close-out periods and related analysis for each product type. A CCP should base its determination of the close-out periods for its initial margin model upon historical price and liquidity data, as well as reasonably foreseeable events in a default scenario. The close-out period should account for the impact of a participant's default on prevailing market conditions. Inferences about the potential impact of a default on the close-out period should be based on historical adverse events in the product cleared, such as significant reductions in trading or other market dislocations. The close-out period should be based on anticipated close-out times in stressed market conditions but may also take into account a CCP's ability to hedge effectively the defaulter's portfolio. Further, close-out periods should be set on a product-specific basis because less-liquid products might require significantly longer close-out periods. A CCP should also consider and address position concentrations, which can lengthen close-out timeframes and add to price volatility during close outs.

3.6.8. *Sample period for historical data used in the margin model.* A CCP should select an appropriate sample period for its margin model to calculate required initial margin for each product that it clears and should document the period and related analysis for each product type. The amount of margin may be very sensitive to the sample period and the margin model. Selection of the period should be carefully examined based on the theoretical properties of the margin model and empirical tests on these properties using historical data. In certain instances, a CCP may need to determine margin levels using a shorter historical period to reflect new or current volatility in the market more effectively. Conversely, a CCP may need to determine margin levels based on a longer historical period in order to reflect past volatility. A CCP should also consider simulated data projections that would capture plausible events outside of the historical data especially for new products without enough history to cover stressed market conditions.

3.6.9. *Specific wrong-way risk.* A CCP should identify and mitigate any credit exposure that may give rise to specific wrong-way risk. Specific wrong-way risk arises where an exposure to a counterparty is highly likely to increase when the creditworthiness of that counterparty is deteriorating. For example, participants in a CCP clearing credit-default swaps should not be allowed to clear single-name credit-default swaps on their own names or on the names of their legal affiliates. A CCP is expected to review its portfolio regularly in order to identify, monitor, and mitigate promptly any exposures that give rise to specific wrong-way risk.

3.6.10. *Limiting procyclicality.* A CCP should appropriately address procyclicality in its margin arrangements. In this context, procyclicality typically refers to changes in risk-management practices that are positively correlated with market, business, or credit cycle fluctuations and that may cause or exacerbate financial instability. For example, in a period of rising price volatility or credit risk of participants, a CCP may require additional initial margin for a given portfolio beyond the amount required by the current margin model. This could exacerbate market stress and volatility further, resulting in additional margin requirements. These adverse effects may occur without any arbitrary change in risk-management practices. To the extent practicable and prudent, a CCP should adopt forward-looking and relatively stable and conservative margin requirements that are specifically designed to limit the need for destabilising, procyclical changes. To support this objective, a CCP could consider increasing the size of its prefunded default arrangements to limit the need and likelihood of large or unexpected margin calls in times of market stress.[77] These

[77] See also CGFS, *The role of margin requirements and haircuts in procyclicality*, March 2010.

procedures may create additional costs for CCPs and their participants in periods of low market volatility due to higher margin or prefunded default arrangement contributions, but they may also result in additional protection and potentially less costly and less disruptive adjustments in periods of high market volatility. In addition, transparency regarding margin practices when market volatility increases may help mitigate the effects of procyclicality. Nevertheless, it may be impractical and even imprudent for a CCP to establish margin requirements that are independent of significant or cyclical changes in price volatility.

Variation margin

3.6.11. A CCP faces the risk that its exposure to its participants can change rapidly as a result of changes in prices, positions, or both. Adverse price movements, as well as participants building larger positions through new trading, can rapidly increase a CCP's exposures to its participants (although some markets may impose trading limits or position limits that reduce this risk). A CCP can ascertain its current exposure to each participant by marking each participant's outstanding positions to current market prices. To the extent permitted by a CCP's rules and supported by law, the CCP should net any gains against any losses and require frequent (at least daily) settlement of gains and losses. This settlement should involve the daily (and, when appropriate, intraday) collection of variation margin from participants whose positions have lost value and can include payments to participants whose positions have gained value. The regular collection of variation margin prevents current exposures from accumulating and mitigates the potential future exposures a CCP might face. A CCP should also have the authority and operational capacity to make intraday variation margin calls and payments, both scheduled and unscheduled, to its participants. A CCP should consider the potential impact of its intraday variation margin collections and payments on the liquidity position of its participants and should have the operational capacity to make intraday variation margin payments.

Portfolio margining

3.6.12. In calculating margin requirements, a CCP may allow offsets or reductions in required margin amounts between products for which it is the counterparty if the risk of one product is significantly and reliably correlated with the risk of another product.[78] A CCP should base such offsets on an economically meaningful methodology that reflects the degree of price dependence between the products. Often, price dependence is modelled through correlations, but more complete or robust measures of dependence should be considered, particularly for non-linear products. In any case, the CCP should consider how price dependence can vary with overall market conditions, including in stressed market conditions. Following the application of offsets, the CCP needs to ensure that the margin meets or exceeds the single-tailed confidence level of at least 99 percent with respect to the estimated distribution of the future exposure of the portfolio. If a CCP uses portfolio margining, it should continuously review and test offsets among products. It should test the robustness of its portfolio method on both actual and appropriate hypothetical portfolios. It is especially important to test how correlations perform during periods of actual and simulated market stress to assess whether the correlations break down or otherwise behave erratically. Prudent assumptions informed by these tests should be made about product offsets.

Cross-margining

3.6.13. Two or more CCPs may enter into a cross-margining arrangement, which is an agreement among the CCPs to consider positions and supporting collateral at their

[78] Effects on the value of positions in the two products will also depend on whether these positions are long or short positions.

respective organisations as a common portfolio for participants that are members of two or more of the organisations (see also Principle 20 on FMI links). The aggregate collateral requirements for positions held in cross-margined accounts may be reduced if the value of the positions held at the separate CCPs move inversely in a significant and reliable fashion. In the event of a participant default under a cross-margining arrangement, participating CCPs may be allowed to use any excess collateral in the cross-margined accounts to cover losses.

3.6.14. CCPs that participate in cross-margining arrangements must share information frequently and ensure that they have appropriate safeguards, such as joint monitoring of positions, margin collections, and price information. Each CCP must thoroughly understand the others' respective risk-management practices and financial resources. The CCPs should also have harmonised overall risk-management systems and should regularly monitor possible discrepancies in the calculation of their exposures, especially with regard to monitoring how price correlations perform over time. This harmonisation is especially relevant in terms of selecting an initial margin methodology, setting margin parameters, segregating accounts and collateral, and establishing default-management arrangements. All of the precautions with regard to portfolio margining discussed above would apply to cross-margining regimes between or among CCPs. CCPs operating a cross-margining arrangement should also analyse fully the impact of cross-margining on prefunded default arrangements and on the adequacy of overall financial resources. The CCPs must have in place arrangements that are legally robust and operationally viable to govern the cross-margining arrangement.

Testing margin coverage

3.6.15. A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent as appropriate, sensitivity analysis. A CCP also should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In order to validate its margin models and parameters, a CCP should have a backtesting programme that tests its initial margin models against identified targets. Backtesting is an ex-post comparison of observed outcomes with the outputs of the margin models. A CCP should also conduct sensitivity analysis to assess the coverage of the margin methodology under various market conditions using historical data from realised stressed market conditions and hypothetical data for unrealised stressed market conditions. Sensitivity analysis should also be used to determine the impact of varying important model parameters. Sensitivity analysis is an effective tool to explore hidden shortcomings that cannot be discovered through backtesting. The results of both the backtesting and sensitivity analyses should be disclosed to participants.

3.6.16. *Backtesting.* A CCP should backtest its margin coverage using participant positions from each day in order to evaluate whether there are any exceptions to its initial margin coverage. This assessment of margin coverage should be considered an integral part of the evaluation of the model's performance. Coverage should be evaluated across products and participants and take into account portfolio effects across asset classes within the CCP. The initial margin model's actual coverage, along with projected measures of its performance, should meet at least the established single-tailed confidence level of 99 percent with respect to the estimated distribution of future exposure over an appropriate close-out period.[79] In case backtesting indicates that the model did not perform as expected (that is, the model did not identify the appropriate amount of initial margin necessary to achieve the intended

[79] This period should be appropriate to capture the risk characteristics of the specific instrument in order to allow the CCP to estimate the magnitude of the price changes expected to occur in the interval between the last margin collection and the time the CCP estimates it will be able to close out the relevant positions.

coverage), a CCP should have clear procedures for recalibrating its margining system, such as by making adjustments to parameters and sampling periods. In addition, a CCP should evaluate the source of backtesting exceedances to determine if a fundamental change to the margin methodology is warranted or if only the recalibration of current parameters is necessary. Backtesting procedures alone are not sufficient to evaluate the effectiveness of models and adequacy of financial resources against forward-looking risks.

3.6.17. *Sensitivity analysis.* A CCP should test the sensitivity of its margin model coverage using a wide range of parameters and assumptions that reflect possible market conditions in order to understand how the level of margin coverage might be affected by highly stressed market conditions. The FMI should ensure that the range of parameters and assumptions captures a variety of historical and hypothetical conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices. The CCP should conduct sensitivity analysis on its margin model coverage at least monthly using the results of these sensitivity tests and conduct a thorough analysis of the potential losses it could suffer. A CCP should evaluate the potential losses in individual participants' positions and, where appropriate, their customers' positions. Furthermore, for a CCP clearing credit instruments, parameters reflective of the simultaneous default of both participants and the underlying credit instruments should be considered. Sensitivity analysis should be performed on both actual and simulated positions. Rigorous sensitivity analysis of margin requirements may take on increased importance when markets are illiquid or volatile. This analysis should be conducted more frequently when markets are unusually volatile or less liquid or when the size or concentration of positions held by its participants increases significantly.

Validation of the margin methodology

3.6.18. A CCP should regularly review and validate its margin system. A CCP's margin methodology should be reviewed and validated by a qualified and independent party at least annually, or more frequently if there are material market developments. Any material revisions or adjustments to the methodology or parameters should be subject to appropriate governance processes (see also Principle 2 on governance) and validated prior to implementation. CCPs operating a cross-margining arrangement should also analyse the impact of cross-margining on prefunded default arrangements and evaluate the adequacy of overall financial resources. Also, the margin methodology, including the initial margin models and parameters used by a CCP, should be made as transparent as possible. At a minimum, the basic assumptions of the analytical method selected and the key data inputs should be disclosed to participants. Ideally, a CCP would make details of its margin methodology available to its participants for use in their individual risk-management efforts.

Timeliness and possession of margin payments

3.6.19. A CCP should establish and rigorously enforce timelines for margin collections and payments and set appropriate consequences for failure to pay on time. A CCP with participants in a range of time zones may need to adjust its procedures for margining (including the times at which it makes margin calls) to take into account the liquidity of a participant's local funding market and the operating hours of relevant payment and settlement systems. Margin should be held by the CCP until the exposure has been extinguished; that is, margin should not be returned before settlement is successfully concluded.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Key considerations

1. *An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.*
2. *An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.*
3. *A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.*
4. *A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.*
5. *For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.*
6. *An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI*

does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.

7. *An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.*

8. *An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.*

9. *An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.*

10. *An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.*

Explanatory note

3.7.1. Liquidity risk arises in an FMI when it, its participants, or other entities cannot settle their payment obligations when due as part of the clearing or settlement process. Depending on the design of an FMI, liquidity risk can arise between the FMI and its participants, between the FMI and other entities (such as its settlement banks, nostro agents, custodian banks, and liquidity providers), or between participants in an FMI (such as in a DNS payment system or SSS). It is particularly important for an FMI to manage carefully its liquidity risk if, as is typical in many systems, the FMI relies on incoming payments from participants or other entities during the settlement process in order to make payments to other participants. If a participant or another entity fails to pay the FMI, the FMI may not have sufficient funds to meet its payment obligations to other participants. In such an event, the FMI would need to rely on its own liquidity resources (that is, liquid assets and prearranged funding arrangements) to cover the funds shortfall and complete settlement. An FMI should have a robust framework to manage its liquidity risks from the full range of participants and other entities. In some cases, a participant may play other roles within the FMI, such as a settlement or custodian bank or liquidity provider. These other roles should be considered in determining an FMI's liquidity needs.

Sources of liquidity risk

3.7.2. An FMI should clearly identify its sources of liquidity risk and assess its current and potential future liquidity needs on a daily basis. An FMI can face liquidity risk from the default of a participant. For example, if an FMI extends intraday credit, implicitly or explicitly, to participants, such credit, even when fully collateralised, may create liquidity pressure in the event of a participant default. The FMI might not be able to convert quickly the defaulting participant's collateral into cash at short notice. If an FMI does not have sufficient cash to meet all of its payment obligations to participants, there will be a settlement failure. An FMI can also face liquidity risk from its settlement banks, nostro agents, custodian banks, and liquidity providers, as well as linked FMIs and service providers, if they fail to perform as expected. Moreover, as noted above, an FMI may face additional risk from entities that have multiple roles within the FMI (for example, a participant that also serves as the FMI's settlement bank or liquidity provider). These interdependencies and the multiple roles that an entity may serve within an FMI should be taken into account by the FMI.

3.7.3. An FMI that employs a DNS mechanism may create direct liquidity exposures between participants. For example, in a payment system that uses a multilateral net settlement mechanism, participants may face liquidity exposures to each other if one of the participants fails to meet its obligations. Similarly, in an SSS that uses a DvP model 2 or 3 settlement mechanism and does not guarantee settlement, participants may face liquidity exposures to each other if one of the participants fails to meet its obligations.[80] A long-standing concern is that these types of systems may address a potential settlement failure by unwinding transfers involving the defaulting participant.[81] An unwind imposes liquidity pressures (and, potentially, replacement costs) on the non-defaulting participants. If all such transfers must be deleted, and if the unwind occurs at a time when money markets and securities lending markets are illiquid (for example, at or near the end of the day), the remaining participants could be confronted with shortfalls of funds or securities that would be extremely difficult to cover. The potential total liquidity pressure of unwinding could be equal to the gross value of the netted transactions.

Measuring and monitoring liquidity risk

3.7.4. An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity. In particular, an FMI should understand and assess the value and concentration of its daily settlement and funding flows through its settlement banks, nostro agents, and other intermediaries. An FMI also should be able to monitor on a daily basis the level of liquid assets (such as cash, securities, other assets held in custody, and investments) that it holds. An FMI should be able to determine the value of its available liquid

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[80] See also Annex D on summary of designs of payment systems, SSSs, and CCPs, and CPSS, *Delivery versus payment in securities settlement systems*, September 1992.

[81] Unwinding involves deleting some or all of the defaulting participant's provisional funds transfers and, in an SSS, securities transfers and then recalculating the settlement obligations of the other participants.

assets, taking into account the appropriate haircuts on those assets (see Principle 5 on collateral and Principle 6 on margin). In a DNS system, the FMI should provide sufficient information and analytical tools to help its participants measure and monitor their liquidity risks in the FMI.

3.7.5. If an FMI maintains prearranged funding arrangements, the FMI should also identify, measure, and monitor its liquidity risk from the liquidity providers of those arrangements. An FMI should obtain a high degree of confidence through rigorous due diligence that each liquidity provider, whether or not it is a participant in the FMI, would have the capacity to perform as required under the liquidity arrangement and is subject to commensurate regulation, supervision, or oversight of its liquidity risk-management requirements. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, the liquidity provider's potential access to credit from the relevant central bank may be taken into account.

Managing liquidity risk

3.7.6. An FMI should also regularly assess its design and operations to manage liquidity risk in the system. An FMI that employs a DNS mechanism may be able to reduce its or its participants' liquidity risk by using alternative settlement designs, such as new RTGS designs with liquidity-saving features or a continuous or extremely frequent batch settlement system. In addition, it could reduce the liquidity demands of its participants by providing participants with sufficient information or control systems to help them manage their liquidity needs and risks. Furthermore, an FMI should ensure that it is operationally ready to manage the liquidity risk caused by participants' or other entities' financial or operational problems. Among other things, the FMI should have the operational capacity to reroute payments, where feasible, on a timely basis in case of problems with a correspondent bank.

3.7.7. An FMI has other risk-management tools that it can use to manage its or, where relevant, its participants' liquidity risk. To mitigate and manage liquidity risk stemming from a participant default, an FMI could use, either individually or in combination, exposure limits, collateral requirements, and prefunded default arrangements. To mitigate and manage liquidity risks from the late-day submission of payments or other transactions, an FMI could adopt rules or financial incentives for timely submission. To mitigate and manage liquidity risk stemming from a service provider or a linked FMI, an FMI could use, individually or in combination, selection criteria, concentration or exposure limits, and collateral requirements. For example, an FMI should seek to manage or diversify its settlement flows and liquid resources to avoid excessive intraday or overnight exposure to one entity. This, however, may involve trade-offs between the efficiency of relying on an entity and the risks of being overly dependent on that entity. These tools are often also used by an FMI to manage its credit risk.

Maintaining sufficient liquid resources for payment systems and SSSs

3.7.8. An FMI should ensure that it has sufficient liquid resources, as determined by regular and rigorous stress testing, to effect settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios. A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday or multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions. In some instances, a payment system or SSS may need to have sufficient liquid resources to effect settlement of payment obligations over multiple days to account for any potential liquidation of collateral that is outlined in the FMI's participant-default procedures.

Maintaining sufficient liquid resources for CCPs

3.7.9. Similarly, a CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payment obligations, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. The CCP should carefully analyse its liquidity needs, and the analysis is expected to be reviewed by the relevant authorities. In many cases, a CCP may need to maintain sufficient liquid resources to meet payments to settle required margin and other payment obligations over multiple days to account for multiday hedging and close-out activities as directed by the CCP's participant-default procedures.

Liquid resources for meeting the minimum requirement

3.7.10. For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed. However, such access does not eliminate the need for sound risk-management practices and adequate access to private-sector liquidity resources.[82]

Other liquid resources

3.7.11. An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. An FMI may consider using such resources within its liquidity risk management framework in advance of, or in addition to, using its qualifying liquid resources. This may be particularly beneficial where liquidity needs exceed qualifying liquid resources, where qualifying liquid resources can be preserved to cover a future default, or where using other liquid resources would cause less liquidity dislocation to the FMI's participants and the financial system as a whole. Even if an FMI does not have access to routine central bank credit, it should take account of what collateral is typically accepted by the relevant central bank of issue, as such assets may be more likely to be liquid in stressed circumstances. In any case, an FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.

[82] The authority or authorities with primary responsibility for an FMI will assess the adequacy of an FMI's liquidity risk-management procedures, considering the views of the central banks of issue in accordance with Responsibility E.

Assessing liquidity providers

3.7.12. If an FMI has prearranged funding arrangements, the FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. Additionally, an FMI should adequately plan for the renewal of prearranged funding arrangements with liquidity providers in advance of their expiration.

Procedures regarding the use of liquid resources

3.7.13. An FMI should have detailed procedures for using its liquid resources to complete settlement during a liquidity shortfall. An FMI's procedures should clearly document the sequence for using each type of liquid resource (for example, the use of certain assets before prearranged funding arrangements). These procedures may include instructions for accessing cash deposits or overnight investments of cash deposits, executing same-day market transactions, or drawing on prearranged liquidity lines. In addition, an FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider, including by activating and drawing down test amounts from committed credit facilities and by testing operational procedures for conducting same-day repos.

Central bank services[83]

3.7.14. If an FMI has access to central bank accounts, payment services, securities services, or collateral management services, it should use these services, where practical, to enhance its management of liquidity risk. Cash balances at the central bank of issue, for example, offer the highest liquidity (see Principle 9 on money settlements).

Stress testing of liquidity needs and resources

3.7.15. An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.[84] Scenarios should also consider the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. An FMI should also consider any strong inter-linkages or similar exposures between its participants, as well as the multiple roles that participants may play with respect to the risk management of the FMI, and assess the probability of multiple failures and the contagion effect among its participants that such failures may cause.

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[83] The use of central bank services or credit is subject to the relevant legal framework and the policies and discretion of the relevant central bank.

[84] See BCBS, *Principles for sound stress testing practices and supervision*, May 2009.

3.7.16. *Reverse stress tests.* An FMI should conduct, as appropriate, reverse stress tests aimed at identifying the extreme default scenarios and extreme market conditions for which the FMI's liquid resources would be insufficient. In other words, these tests identify how severe stress conditions would be covered by the FMI's liquid resources. An FMI should judge whether it would be prudent to prepare for these severe conditions and various combinations of factors influencing these conditions. Reverse stress tests require an FMI to model extreme market conditions that may go beyond what are considered extreme but plausible market conditions in order to help understand the sufficiency of liquid resources given the underlying assumptions modelled. Modelling extreme market conditions can help an FMI determine the limits of its current model and resources; however, it requires the FMI to exercise judgment when modelling different markets and products. An FMI should develop hypothetical extreme scenarios and market conditions tailored to the specific risks of the markets and of the products it serves. Reverse stress tests should be considered a helpful risk-management tool but they need not, necessarily, drive an FMI's determination of the appropriate level of liquid resources.

3.7.17. *Frequency of stress testing.* Liquidity stress testing should be performed on a daily basis using standard and predetermined parameters and assumptions. In addition, on at least a monthly basis, an FMI should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for achieving the FMI's identified liquidity needs and resources in light of current and evolving market conditions. An FMI should perform stress testing more frequently when markets are unusually volatile, when they are less liquid, or when the size or concentration of positions held by its participants increases significantly. A full validation of an FMI's liquidity risk-management model should be performed at least annually.

Contingency planning for uncovered liquidity shortfalls

3.7.18. In certain extreme circumstances, the liquid resources of an FMI or its participants may not be sufficient to meet the payment obligations of the FMI to its participants or the payment obligations of participants to each other within the FMI.[85] In a stressed environment, for example, normally liquid assets held by an FMI may not be sufficiently liquid to obtain same-day funding, or the liquidation period may be longer than expected. An FMI should establish explicit rules and procedures that enable the FMI to effect same-day, and where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

3.7.19. If an FMI allocates potentially uncovered liquidity shortfalls to its participants, the FMI should have clear and transparent rules and procedures for the allocation of shortfalls. These procedures could involve a funding arrangement between the FMI and its participants, the mutualisation of shortfalls among participants according to a clear and transparent formula, or the use of liquidity rationing (for example, reductions in payouts to participants). Any allocation rule or procedure must be discussed thoroughly with and communicated clearly to participants, as well as be consistent with participants' respective regulatory liquidity risk-management requirements. Furthermore, an FMI should consider and validate, through simulations and other techniques and through discussions with each participant, the potential impact on each participant of any such same-day allocation of liquidity risk and each participant's ability to bear proposed liquidity allocations.

[85] These exceptional circumstances could arise from unforeseen operational problems or unanticipated rapid changes in market conditions.

Settlement

A key risk that an FMI faces is settlement risk, which is the risk that settlement will not take place as expected. An FMI faces this risk whether settlement of a transaction occurs on the FMI's books, on the books of another FMI, or on the books of an external party (for example, a central bank or a commercial bank). The following set of principles provides guidance on (a) settlement finality, (b) money settlements, and (c) physical deliveries.

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Key considerations

1. An FMI's rules and procedures should clearly define the point at which settlement is final.

2. An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.

3. An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

Explanatory note

3.8.1. An FMI should be designed to provide clear and certain final settlement of payments, transfer instructions, or other obligations. Final settlement is defined as the irrevocable and unconditional transfer of an asset or financial instrument, or the discharge of an obligation by the FMI or its participants in accordance with the terms of the underlying contract.[86] A payment, transfer instruction, or other obligation that an FMI accepts for settlement in accordance with its rules and procedures should be settled with finality on the intended value date.[87] The value date is the day on which the payment, transfer instruction, or other obligation is due and the associated funds and securities are typically available to the receiving participant.[88] Completing final settlement by the end of the value date is important because deferring final settlement to the next-business day can create both credit and liquidity pressures for an FMI's participants and other stakeholders, and potentially be a source of systemic risk. Where necessary or preferable, an FMI should provide intraday or real-time settlement finality to reduce settlement risk.

3.8.2. Although some FMIs guarantee settlement, this principle does not necessarily require an FMI to provide such a guarantee. Instead, this principle requires FMIs to clearly define the point at which the settlement of a payment, transfer instruction, or other obligation is final, and to complete the settlement process no later than the end of the value date, and

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86 Final settlement (or settlement finality) is a legally defined moment. See also Principle 1 on legal basis.

87 The value date of an FMI's settlement activity might not necessarily coincide with the exact calendar date if the FMI introduces night-time settlement.

88 This principle is not intended to discourage an FMI from offering a facility for entering transaction details in advance of the value date.

preferably earlier in the value date. Similarly, this principle is not intended to eliminate fails to deliver in securities trades.[89] The occurrence of non-systemic amounts of such failures, although potentially undesirable, should not by itself be interpreted as a failure to satisfy this principle.[90] However, an FMI should take steps to mitigate both the risks and the implications of such failures to deliver securities (see Principle 4 on credit risk, Principle 7 on liquidity risk, and other relevant principles).

Final settlement

3.8.3. An FMI's rules and procedures should clearly define the point at which settlement is final. A clear definition of when settlements are final also greatly assists in a resolution scenario such that the positions of the participant in resolution and other affected parties can be quickly ascertained.

3.8.4. An FMI's legal framework and rules generally determine finality. The legal basis governing the FMI, including the insolvency law, must acknowledge the discharge of a payment, transfer instruction, or other obligation between the FMI and system participants, or between or among participants, for the transaction to be considered final. An FMI should take reasonable steps to confirm the effectiveness of cross-border recognition and protection of cross-system settlement finality, especially when it is developing plans for recovery or orderly wind-down or providing relevant authorities information relating to its resolvability. Because of the complexity of legal frameworks and system rules, particularly in the context of cross-border settlement where legal frameworks are not harmonised, a well-reasoned legal opinion is generally necessary to establish the point at which finality takes place (see also Principle 1 on legal basis).

Same-day settlement

3.8.5. An FMI's processes should be designed to complete final settlement, at a minimum no later than the end of the value date. This means that any payment, transfer instruction, or other obligation that has been submitted to and accepted by an FMI in accordance with its risk management and other relevant acceptance criteria should be settled on the intended value date. An FMI that is not designed to provide final settlement on the value date (or same-day settlement) would not satisfy this principle, even if the transaction's settlement date is adjusted back to the value date after settlement. This is because, in most of such arrangements, there is no certainty that final settlement will occur on the value date as expected. Further, deferral of final settlement to the next-business day can entail overnight risk exposures. For example, if an SSS or CCP conducts its money settlements using instruments or arrangements that involve next-day settlement, a participant's default on its settlement obligations between the initiation and finality of settlement could pose significant credit and liquidity risks to the FMI and its other participants.[91]

Intraday settlement

3.8.6. Depending on the type of obligations that an FMI settles, the use of intraday settlement, either in multiple batches or in real time, may be necessary or desirable to reduce

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[89] These fails typically occur because of miscommunication between the counterparties, operational problems in the delivery of securities, or failure to acquire a specific security associated with the trade by a specific point in time.

[90] In certain markets, participants may have adopted the convention of rescheduling delivery until the trade finally settles.

[91] In most cases, next-day settlements over weekend periods involve multi-day settlement risk.

settlement risk.[92] As such, some types of FMIs, such as LVPSs and SSSs, should consider adopting RTGS or multiple-batch settlement to complete final settlement intraday. RTGS is the real-time settlement of payments, transfer instructions, or other obligations individually on a transaction-by-transaction basis. Batch settlement is the settlement of groups of payments, transfer instructions, or other obligations together at one or more discrete, often pre-specified times during the processing day. With batch settlement, the time between the acceptance and final settlement of transactions should be kept short.[93] To speed up settlements, an FMI should encourage its participants to submit transactions promptly. To validate the finality of settlement, an FMI also should inform its participants of their final account balances and, where practical, settlement date and time as quickly as possible, preferably in real time.[94]

3.8.7. The use of multiple-batch settlement and RTGS involves different trade-offs. Multiple-batch settlement based on a DNS mechanism, for example, may expose participants to settlement risks for the period during which settlement is deferred. These risks, if not sufficiently controlled, could result in the inability of one or more participants to meet their financial obligations. Conversely, while an RTGS system can mitigate or eliminate these settlement risks, it requires participants to have sufficient liquidity to cover all their outgoing payments and can therefore require relatively large amounts of intraday liquidity. This liquidity can come from various sources, including balances at a central bank or commercial bank, incoming payments, and intraday credit. An RTGS system may be able to reduce its liquidity needs by implementing a queuing facility or other liquidity-saving mechanisms.[95]

Revocation of unsettled payments, transfer instructions, or other obligations

3.8.8. An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant. In general, an FMI should prohibit the unilateral revocation of accepted and unsettled payments, transfer instructions, or other obligations after a certain point or time in the settlement day, so as to avoid creating liquidity risks. In all cases, cutoff times and materiality rules for exceptions should be clearly defined. The rules should make clear that changes to operating hours are exceptional and require individual justifications. For example, an FMI may want to permit extensions for reasons connected with the implementation of monetary policy or widespread financial market disruption. If extensions are allowed for participants with operating problems to complete processing, the rules governing the approval and duration of such extensions should be clear to participants.

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[92] For example, intraday or real-time finality is sometimes necessary for monetary policy or payments operations, settlement of back-to-back transactions, intraday margin calls by CCPs, or safe and efficient cross-border links between CSDs that perform settlement functions.

[93] Transactions, in certain circumstances, may be settled on a gross basis although through multiple batches during the operating day.

[94] Nominal value date might not necessarily coincide with local settlement date.

[95] See also CPSS, *New developments in large value payment systems*, May 2005.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Key considerations

1. *An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.*
2. *If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.*
3. *If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.*
4. *If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.*
5. *An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.*

Explanatory note

3.9.1. An FMI typically needs to conduct money settlements with or between its participants for a variety of purposes, such as the settlement of individual payment obligations, funding and defunding activities, and the collection and distribution of margin payments.[96] To conduct such money settlements, an FMI can use central bank money or commercial bank money. Central bank money is a liability of a central bank, in this case in the form of deposits held at the central bank, which can be used for settlement purposes. Settlement in central bank money typically involves the discharge of settlement obligations on the books of the central bank of issue. Commercial bank money is a liability of a commercial bank, in the form of deposits held at the commercial bank, which can be used for settlement purposes. Settlement in commercial bank money typically occurs on the books of a commercial bank. In this model, an FMI typically establishes an account with one or more commercial settlement banks and requires each of its participants to establish an account with one of them. In some cases, the FMI itself can serve as the settlement bank. Money settlements are then effected through accounts on the books of the FMI, which may need to be funded and defunded. An FMI may also use a combination of central bank and commercial bank monies to conduct settlements, for example, by using central bank money for funding and defunding activities and using commercial bank money for the settlement of individual payment obligations.

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[96] It should be noted, however, that the settlement of payment obligations does not always require a transfer of monies; in some cases, an offsetting process can discharge obligations.

Credit and liquidity risk in money settlements

3.9.2. An FMI and its participants may face credit and liquidity risks from money settlements. Credit risk may arise when a settlement bank has the potential to default on its obligations (for example, if the settlement bank becomes insolvent). When an FMI settles on its own books, participants face credit risk from the FMI itself. Liquidity risk may arise in money settlements if, after a payment obligation has been settled, participants or the FMI itself are unable to transfer readily their assets at the settlement bank into other liquid assets, such as claims on a central bank.

Central bank money

3.9.3. An FMI should conduct its money settlements using central bank money, where practical and available, to avoid credit and liquidity risks. With the use of central bank money, a payment obligation is typically discharged by providing the FMI or its participants with a direct claim on the central bank, that is, the settlement asset is central bank money. Central banks have the lowest credit risk and are the source of liquidity with regard to their currency of issue. Indeed, one of the fundamental purposes of central banks is to provide a safe and liquid settlement asset. The use of central bank money, however, may not always be practical or available. For example, an FMI or its participants may not have direct access to all relevant central bank accounts and payment services. A multicurrency FMI that has access to all relevant central bank accounts and payment services may find that some central bank payment services do not operate, or provide finality, at the times when it needs to make money settlements.

Commercial bank money

3.9.4. If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk. An alternative to the use of central bank money is commercial bank money. When settling in commercial bank money, a payment obligation is typically discharged by providing the FMI or its participants with a direct claim on the relevant commercial bank. To conduct settlements in commercial bank money, an FMI and its participants need to establish accounts with at least one commercial bank, and likely hold intraday or overnight balances, or both. The use of commercial bank money to settle payment obligations, however, can create additional credit and liquidity risks for the FMI and its participants. For example, if the commercial bank conducting settlement becomes insolvent, the FMI and its participants may not have immediate access to their settlement funds or ultimately receive the full value of their funds.

3.9.5. If an FMI uses a commercial bank for its money settlements, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement bank. For example, an FMI should limit both the probability of being exposed to a commercial settlement bank's failure and limit the potential losses and liquidity pressures to which it would be exposed in the event of such a failure. An FMI should establish and monitor adherence to strict criteria for its commercial settlement banks that take into account, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. A commercial settlement bank should be subject to effective banking regulation and supervision. It should also be creditworthy, be well capitalised, and have ample liquidity from the marketplace or the central bank of issue.

3.9.6. In addition, an FMI should take further steps to limit its credit exposures and liquidity pressures by diversifying the risk of a commercial settlement bank failure, where reasonable, through use of multiple commercial settlement banks. In some jurisdictions, however, there may be only one commercial settlement bank that meets appropriate criteria for creditworthiness and operational reliability. Additionally, even with multiple commercial settlement banks, the extent to which risk is actually diversified depends upon the distribution or concentration of participants using different commercial settlement banks and the amounts owed by those participants.[97] An FMI should monitor and manage the full range and concentration of exposures to its commercial settlement banks and assess its potential losses and liquidity pressures as well as those of its participants in the event that the commercial settlement bank with the largest share of activity were to fail.

Settlement on the books of an FMI

3.9.7. If money settlement does not occur in central bank money and the FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks. In such an arrangement, an FMI offers cash accounts to its participants, and a payment or settlement obligation is discharged by providing an FMI's participants with a direct claim on the FMI itself. The credit and liquidity risks associated with a claim on an FMI are therefore directly related to the FMI's overall credit and liquidity risks. One way an FMI could minimise these risks is to limit its activities and operations to clearing and settlement and closely related processes. Further, to settle payment obligations, the FMI could be established as a supervised special-purpose financial institution and limit the provision of cash accounts to only participants.[98] In some cases, an FMI can further mitigate risk by having participants fund and defund their cash accounts at the FMI using central bank money. In such an arrangement, an FMI is able to back the settlements conducted on its own books with balances that it holds in its account at the central bank.

Finality of funds transfers between settlement accounts

3.9.8. In settlements involving either central bank or commercial bank money, a critical issue is the timing of the finality of funds transfers. These transfers should be final when effected (see also Principle 1 on legal basis and Principle 8 on settlement finality). To this end, an FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks. If an FMI conducts intraday money settlements (for example, to collect intraday margin), the arrangement should provide real-time finality or intraday finality at the times when an FMI wishes to effect money settlement.

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[97] The concentration of an FMI's exposure to a commercial settlement bank can be further exacerbated if the commercial settlement bank has multiple roles with respect to the FMI. For example, an FMI may use a particular commercial settlement bank that is also a participant in the FMI for depositing and investing funds, for depositing and transferring securities, and for back-up liquidity resources. See Principle 7 on liquidity risk.

[98] Depending on local laws, these special-purpose institutions would generally be required to have banking licenses and be subject to prudential supervision.

Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

Key considerations

1. *An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.*
2. *An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.*

Explanatory note

3.10.1. An FMI may settle transactions using physical delivery, which is the delivery of an asset, such as an instrument or a commodity, in physical form.[99] For example, the settlement of futures contracts cleared by a CCP may allow or require the physical delivery of an underlying financial instrument or commodity. An FMI that provides physical settlement should have rules that clearly state its obligations with respect to the delivery of physical instruments or commodities.[100] In addition, an FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of such physical instruments and commodities.

Rules that state the FMI's obligations

3.10.2. An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities. The obligations that an FMI may assume with respect to physical deliveries vary based on the types of assets that the FMI settles. An FMI should clearly state which asset classes it accepts for physical delivery and the procedures surrounding the delivery of each. An FMI also should clearly state whether its obligation is to make or receive physical deliveries or to indemnify participants for losses incurred in the delivery process. Clear rules on physical deliveries enable the FMI and its participants to take the appropriate steps to mitigate the risks posed by such physical deliveries. An FMI should engage with its participants to ensure that they have an understanding of their obligations and the procedures for effecting physical delivery.

Risk of storage and delivery

3.10.3. An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities. Issues relating to delivery may arise, for example, when a derivatives contract requires physical delivery of an underlying instrument or commodity. An FMI should plan for and manage physical deliveries by establishing definitions for acceptable physical instruments or commodities, the appropriateness of alternative delivery locations or assets, rules for warehouse operations, and the timing of delivery, when relevant. If an FMI is responsible for the warehousing and

[99] Examples of physical instruments that may be covered under this principle include securities, commercial paper, and other debt instruments that are issued in paper form.

[100] The term "physical delivery" in the credit-default swap market typically refers to the process by which the protection buyer of a credit-default swap contract "delivers" an instrument to the protection seller after a credit event but does not necessarily involve the delivery of an instrument in paper form. This type of "physical delivery" is outside the scope of this principle. Immobilised and dematerialised securities, which represent the normal market practice, are covered in Principle 11 on CSDs.

transportation of a commodity, it should make arrangements that take into account the commodity's particular characteristics (for example, storage under specific conditions, such as an appropriate temperature and humidity for perishables).

3.10.4. An FMI should have appropriate processes, procedures, and controls to manage the risks of storing and delivering physical assets, such as the risk of theft, loss, counterfeiting, or deterioration of assets. An FMI's policies and procedures should ensure that the FMI's record of physical assets accurately reflects its holdings of assets, for example, by separating duties between handling physical assets and maintaining records. An FMI also should have appropriate employment policies and procedures for personnel that handle physical assets and should include appropriate pre-employment checks and training. In addition, an FMI should consider other measures, such as insurance coverage and random storage facility audits, to mitigate its storage and delivery risks (other than principal risk).

Matching participants for delivery and receipt

3.10.5. In some instances, an FMI serving a commodity market can reduce its risks associated with the physical storage and delivery of commodities by matching participants that have delivery obligations with those due to receive the commodities, thereby removing itself from direct involvement in the storage and delivery process. In such instances, the legal obligations for delivery should be clearly expressed in the rules, including default rules, and any related agreements. In particular, an FMI should be clear whether the receiving participant should seek compensation from the FMI or the delivering participant in the event of a loss. Additionally, an FMI holding margin should not release the margin of the matched participants until it confirms that both have fulfilled their respective obligations. An FMI should also monitor its participants' performance and, to the extent practicable, ensure that its participants have the necessary systems and resources to be able to fulfil their physical delivery obligations.

Central securities depositories and exchange-of-value settlement systems

CSDs and exchange-of-value settlement systems have unique risks associated with their function and design. While the nature and scope of activities performed by CSDs vary based on jurisdiction and market practices, CSDs play a critical role in the protection of securities and help ensure the integrity of securities transactions. Similarly, exchange-of-value settlement systems play a critical role in mitigating principle risk by linking the final settlement of one obligation to the final settlement of another. The following two principles provide specific guidance to CSDs and exchange-of-value settlement systems.

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

Key considerations

1. *A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.*
2. *A CSD should prohibit overdrafts and debit balances in securities accounts.*
3. *A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.*
4. *A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.*
5. *A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.*
6. *A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.*

Explanatory note

3.11.1. A CSD is an entity that provides securities accounts and, in many countries, operates an SSS. A CSD also provides central safekeeping and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues.[101] Securities can be held at the CSD

[101] Where an entity legally defined as a CSD or an SSS does not hold or facilitate the holding of assets or collateral owned by their participants, the CSD or SSS in general would not be required to have arrangements to manage the safekeeping of such assets or collateral.

either in physical (but immobilised) form or in dematerialised form (that is, as electronic records). The precise activities of a CSD vary based on its jurisdiction and market practices. A CSD, for example, may be the official securities registrar and maintain the definitive record of legal ownership for a security; however, in some cases, another entity may serve as the official securities registrar. Further, the activities of a CSD may vary depending on whether it operates in a jurisdiction with a direct or indirect holding arrangement or a combination of both.[102] A CSD should have clear and comprehensive rules and procedures to ensure that the securities it holds on behalf of its participants are appropriately accounted for on its books and protected from risks associated with the other services that the CSD may provide.

Rules, procedures, and controls to safeguard the integrity of securities issues

3.11.2. The preservation of the rights of issuers and holders of securities is essential for the orderly functioning of a securities market. Therefore, a CSD should employ appropriate rules, procedures, and controls to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of the securities issues that it maintains. A CSD should, in particular, maintain robust accounting practices and perform end-to-end auditing to verify that its records are accurate and provide a complete accounting of its securities issues. If a CSD records the issuance of securities (alone or in conjunction with other entities), it should verify and account for the initial issuance of securities and ensure that newly issued securities are delivered in a timely manner. To further safeguard the integrity of the securities issues, a CSD should conduct periodic and at least daily reconciliation of the totals of securities issues in the CSD for each issuer (or its issuing agent), and ensure that the total number of securities recorded in the CSD for a particular issue is equal to the amount of securities of that issue held on the CSD's books. Reconciliation may require coordination with other entities if the CSD does not (or does not exclusively) record the issuance of the security or is not the official registrar of the security. For instance, if the issuer (or its issuing agent) is the only entity that can verify the total amount of an individual issue, it is important that the CSD and the issuer cooperate closely to ensure that the securities in circulation in a system correspond to the volume issued into that system. If the CSD is not the official securities registrar for the securities issuer, reconciliation with the official securities registrar should be required.

Overdrafts and debit balances in securities accounts

3.11.3. A CSD should prohibit overdrafts and debit balances in securities accounts to avoid credit risk and reduce the potential for the creation of securities. If a CSD were to allow overdrafts or a debit balance in a participant's securities account in order to credit another participant's securities account, a CSD would effectively be creating securities and would affect the integrity of the securities issue.

Immobilisation and dematerialisation

3.11.4. A CSD can maintain securities in physical form or dematerialised form.[103] Securities held in physical form may be transferred via physical delivery or immobilised and transferred

[102] In a direct holding system, each beneficial or direct owner of the security is known to the CSD or the issuer. In some countries, the use of direct holding systems is required by law. Alternatively, an indirect holding system employs a multi-tiered arrangement for the custody and transfer of ownership of securities (or the transfer of similar interests therein) in which investors are identified only at the level of their custodian or intermediary. In either system, the shareholder list may be maintained by the issuer, CSD, securities registrar, or transfer agent.

[103] Dematerialisation involves the elimination of physical certificates or documents of title that represent ownership of securities so that securities exist only as accounting records.

via book entry.[104] The safekeeping and transferring of securities in physical form, however, creates additional risks and costs, such as the risk of destruction or theft of certificates, increased processing costs, and increased time to clear and settle securities transactions. By immobilising securities and transferring them via book entry, a CSD can improve efficiency through increased automation and reduce the risk of errors and delays in processing.[105] Dematerialising securities also eliminates the risk of destruction or theft of certificates. A CSD should therefore maintain securities in an immobilised or dematerialised form and transfer securities via book entry.[106] To facilitate the immobilisation of all physical securities of a particular issue, a global note representing the whole issue can be issued. In certain cases, however, immobilisation or dematerialisation within a CSD may not be legally possible or practicable. Legal requirements, for example, may limit the possible implementation or extent of immobilisation and dematerialisation. In such cases, a CSD should provide incentives to immobilise or dematerialise securities.[107]

Protection of assets

3.11.5. A CSD should protect assets against custody risk, including the risk of loss because of the CSD's negligence, misuse of assets, fraud, poor administration, inadequate recordkeeping, or failure to protect a participant's interests in securities or because of the CSD's insolvency or claims by the CSD's creditors. A CSD should have rules and procedures consistent with its legal framework and robust internal controls to achieve these objectives.[108] Where appropriate, a CSD should consider insurance or other compensation schemes to protect participants against misappropriation, destruction, and theft of securities.

3.11.6. A CSD should employ a robust system that ensures the segregation of assets belonging to the CSD from the securities belonging to its participants. In addition, the CSD should segregate participants' securities from those of other participants through the provision of separate accounts. While the title to securities is typically held in a CSD, often the beneficial owner, or the owner depending on the legal framework, of the securities does not participate directly in the system. Rather, the owner establishes relationships with CSD participants (or other intermediaries) that provide safekeeping and administrative services related to the holding and transfer of securities on behalf of customers. Where supported by the legal framework, a CSD also should support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings to another participant.[109] Where relevant, the segregation of accounts typically helps provide appropriate protection against the claims of a CSD's creditors or the claims of the creditors of a participant in the event of its insolvency.

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[104] Immobilisation involves concentrating the location of securities in a depository and transferring ownership by book entry.

[105] Improved efficiency through book-entry settlement also may support the development of more-liquid securities markets.

[106] Book-entry transfers also facilitate the settlement of securities through a DvP mechanism, thereby reducing or eliminating principal risk in settlement (see also Principle 12 on exchange-of-value settlement systems).

[107] In addition, the relevant authorities will have a role in providing the necessary framework to support immobilisation or dematerialisation.

[108] The relevant authorities will have a role in providing the necessary framework to protect the CSD's participants' and their customers' assets.

[109] The customer's rights and interests to the securities held by the participant or the CSD will depend upon the applicable legal framework. In some jurisdictions, a CSD may be required to maintain records that would facilitate the identification of customer securities regardless of the type of holding system in effect.

Other activities

3.11.7. If a CSD provides services other than central safekeeping and administration of securities, it should identify, measure, monitor, and manage the risks associated with those activities, particularly credit and liquidity risks, consistent with the respective principles in this report. Additional tools may be necessary to address these risks, including the need for the FMI to separate legally the other activities. For example, a CSD that operates an SSS may provide a centralised securities lending facility to help facilitate timely settlement and reduce settlement fails or may otherwise offer services that support the bilateral securities lending market. If the CSD acts as a principal in a securities lending transaction, it should identify, monitor, and manage its risks, including potential credit and liquidity risks, under the conditions set in Principles 4 and 7. For example, the securities lent by the CSD may not be returned when needed because of a counterparty default, operational failure, or legal challenge. The CSD would then need to acquire the lent securities in the market, perhaps at a cost, thus exposing the CSD to credit and liquidity risks.[110]

[110] See also CPSS, *Strengthening repo clearing and settlement arrangements*, September 2010.

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Key consideration

1. An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.

Explanatory note

3.12.1. The settlement of a financial transaction by an FMI may involve the settlement of two linked obligations, such as the delivery of securities against payment of cash or securities or the delivery of one currency against delivery of another currency.[111] In this context, principal risk may be created when one obligation is settled, but the other obligation is not (for example, the securities are delivered but no cash payment is received). Because this principal risk involves the full value of the transaction, substantial credit losses as well as substantial liquidity pressures may result from the default of a counterparty or, more generally, the failure to complete the settlement of both linked obligations. Further, a settlement default could result in high replacement costs (that is, the unrealised gain on the unsettled contract or the cost of replacing the original contract at market prices that may be changing rapidly during periods of stress). An FMI should eliminate or mitigate these risks through the use of a DvP, DvD, or PvP settlement mechanism.[112]

Linking final settlement of obligations

3.12.2. An FMI that is an exchange-of-value settlement system should eliminate principal risk by linking the final settlement of one obligation to the final settlement of the other through an appropriate DvP, DvD, or PvP settlement mechanism (see also Principle 4 on credit risk, Principle 7 on liquidity risk, and Principle 8 on settlement finality). DvP, DvD, and PvP settlement mechanisms eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation occurs. If an FMI effects settlements using a DvP, DvD, or PvP settlement mechanism, it should settle a high percentage of obligations through that mechanism. In the securities market, for example, a DvP settlement mechanism is a mechanism that links a securities transfer and a funds transfer in such a way as to ensure that delivery occurs if and only if the corresponding payment occurs.[113] DvP can and should be achieved for both the primary and secondary

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[111] In some cases, the settlement of a transaction can be free of payment, for example, for the purposes of pledging collateral and repositioning securities. The settlement of a transaction may also involve more than two linked obligations, for example, for the purposes of some collateral substitutions where there are multiple securities or for premium payments related to securities lending in two currencies. These cases are not inconsistent with this principle.

[112] While DvP, DvD, and PvP settlement mechanisms eliminate principal risk, they do not eliminate the risk that the failure of a participant could result in systemic disruptions, including liquidity dislocations.

[113] Similarly, a PvP settlement mechanism is a mechanism which ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place. A DvD settlement mechanism is a securities settlement mechanism which links two or more securities transfers in such a way as to ensure that delivery of one security occurs if and only if the corresponding delivery of the other security or securities occurs.

markets. The settlement of two obligations can be achieved in several ways and varies by how trades or obligations are settled, either on a gross basis (trade-by-trade) or on a net basis, and the timing of when finality occurs.

Models of gross or net settlement of obligations

3.12.3. The final settlement of two linked obligations can be achieved either on a gross basis or on a net basis.[114] For example, an SSS can settle the transfers of both securities and funds on a gross basis throughout the settlement day. Alternatively, an SSS can settle securities transfers on a gross basis throughout the day but settle funds transfers on a net basis at the end of the day or at certain times during the day. An SSS can also settle both securities and funds transfers on a net basis at the end of the day or at certain times during the day. Regardless of whether an FMI settles on a gross or net basis, the legal, contractual, technical, and risk-management framework should ensure that the settlement of an obligation is final if and only if the settlement of the corresponding obligation is final.

Timing of settlement

3.12.4. DvP, DvD, and PvP can be achieved through different timing arrangements. Strictly speaking, DvP, DvD, and PvP do not require a simultaneous settlement of obligations. In some cases, settlement of one obligation could follow the settlement of the other. For example, when an SSS does not itself provide cash accounts for settlement, it may first block the underlying securities in the account of the seller.[115] The SSS may then request a transfer of funds from the buyer to the seller at the settlement bank for funds transfers. The securities are delivered to the buyer or its custodian if and only if the SSS receives confirmation of settlement of the cash leg from the settlement bank. In such DvP arrangements, however, the length of time between the blocking of securities, the settling of cash, and the subsequent release and delivery of the blocked securities should be minimised.[116] Further, blocked securities must not be subject to a claim by a third party (for example, other creditors, tax authorities, or even the SSS itself) because these claims would give rise to principal risk.

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[114] For a discussion of stylised models of DvP settlement, see CPSS, *Delivery versus payment in securities systems*, September 1992.

[115] In this context, DvP could be achieved through a link between an SSS and a payment system. The SSS settles the securities leg of the transaction while the payment system settles the cash leg. However, in the context of these principles this arrangement is not considered an FMI link, but a DvP system.

[116] An SSS that settles securities transactions on a net basis with an end-of-day finality arrangement could meet this requirement by providing a mechanism that allows intraday finality.

Default management

An FMI should have appropriate policies and procedures to handle participant defaults. A participant default, if not properly managed, can have serious implications for the FMI, other participants, and the broader financial markets. Further, a CCP needs an appropriate segregation and portability regime to protect customer positions in the event of a participant default or insolvency. The following two principles provide guidance on (a) participant-default rules and procedures for all FMIs and (b) segregation and portability issues for CCPs.

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Key considerations

1. *An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.*
2. *An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.*
3. *An FMI should publicly disclose key aspects of its default rules and procedures.*
4. *An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.*

Explanatory note

3.13.1. Participant-default rules and procedures facilitate the continued functioning of an FMI in the event that a participant fails to meet its obligations. These rules and procedures help limit the potential for the effects of a participant's failure to spread to other participants and undermine the viability of the FMI. Key objectives of default rules and procedures should include (a) ensuring timely completion of settlement, even in extreme but plausible market conditions; (b) minimising losses for the FMI and for non-defaulting participants; (c) limiting disruptions to the market; (d) providing a clear framework for accessing FMI liquidity facilities as needed; and (e) managing and closing out the defaulting participant's positions and liquidating any applicable collateral in a prudent and orderly manner. In some instances, managing a participant default may involve hedging open positions, funding collateral so that the positions can be closed out over time, or both. An FMI may also decide to auction or allocate open positions to its participants.[117] To the extent consistent with these objectives, an FMI should allow non-defaulting participants to continue to manage their positions as normal.

[117] An OTC derivatives CCP may need to consider requiring participants to agree in advance to bid on the defaulting participant's portfolio and, should the auction fail, accept an allocation of the portfolio. Where used, such procedures should include consideration of the risk profile and portfolio of each receiving participant before allocating positions so as to minimise additional risk for the non-defaulting participants.

Rules and procedures

3.13.2. An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations to non-defaulting participants in the event of a participant default. An FMI should explain clearly in its rules and procedures what circumstances constitute a participant default, addressing both financial and operational defaults.[118] An FMI should describe the method for identifying a default. In particular, an FMI should specify whether a declaration of default is automatic or discretionary, and if discretionary, which person or group shall exercise that discretion. Key aspects to be considered in designing the rules and procedures include (a) the actions that an FMI can take when a default is declared; (b) the extent to which such actions are automatic or discretionary; (c) potential changes to the normal settlement practices, should these changes be necessary in extreme circumstances, to ensure timely settlement; (d) the management of transactions at different stages of processing; (e) the expected treatment of proprietary and customer transactions and accounts; (f) the probable sequencing of actions; (g) the roles, obligations, and responsibilities of the various parties, including non-defaulting participants; and (h) the existence of other mechanisms that may be activated to contain the impact of a default. An FMI should involve its participants, authorities, and other relevant stakeholders in developing its default rules and procedures (see Principle 2 on governance).

Use and sequencing of financial resources

3.13.3. An FMI's default rules and procedures should enable the FMI to take timely action to contain losses and liquidity pressures, before, at, and after the point of participant default (see also Principle 4 on credit risk and Principle 7 on liquidity risk). Specifically, an FMI's rules and procedures should allow the FMI to use promptly any financial resources that it maintains for covering losses and containing liquidity pressures arising from default, including liquidity facilities. The rules of the FMI should specify the order in which different types of resources will be used. This information enables participants to assess their potential future exposures from using the FMI's services. Typically, an FMI should first use assets provided by the defaulting participant, such as margin or other collateral, to provide incentives for participants to manage prudently the risks, particularly credit risk, they pose to an FMI.[119] The application of previously provided collateral should not be subject to prevention, stay, or reversal under applicable law and the rules of the FMI. An FMI should also have a credible and explicit plan for replenishing its resources over an appropriate time horizon following a participant default so that it can continue to operate in a safe and sound manner. In particular, the FMI's rules and procedures should define the obligations of the non-defaulting participants to replenish the financial resources depleted during a default so that the time horizon of such replenishment is anticipated by non-defaulting participants without any disruptive effects.

Proprietary and customer positions

3.13.4. A CCP should have rules and procedures to facilitate the prompt close out or transfer of a defaulting participant's proprietary and customer positions. Typically, the longer these positions remain open on the books of the CCP, the larger the CCP's potential credit exposures resulting from changes in market prices or other factors will be. A CCP should have the ability to apply the proceeds of liquidation, along with other funds and assets of the

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[118] An operational default occurs when a participant is not able to meet its obligations due to an operational problem, such as a failure in information technology systems.

[119] The defaulting participant's assets do not include segregated customer collateral; such segregated collateral should not be used to cover losses resulting from a participant default, except in the case of a potential close out of segregated customer positions. See Principle 14 on segregation and portability.

defaulting participant, to meet the defaulting participant's obligations. It is critical that a CCP has the authority to act promptly to contain its exposure, while having regard for overall market effects, such as sharp declines in market prices. A CCP should have the information, resources, and tools to close out positions promptly. In circumstances where prompt close out is not practicable, a CCP should have the tools to hedge positions as an interim risk-management technique. In some cases, a CCP may use seconded personnel from non-defaulting participants to assist in the close-out or hedging process. The CCP's rules and procedures should clearly state the scope of duties and term of service expected from seconded personnel. In other cases, the CCP may elect to auction positions or portfolios to the market. The CCP's rules and procedures should clearly state the scope for such action, and any participant obligations with regard to such auctions should be clearly set out. The close out of positions should not be subject to prevention, stay, or reversal under applicable law and the rules of the FMI.

Management discretion

3.13.5. An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in the rules. Management should ensure that the FMI has the operational capacity, including sufficient well-trained personnel, to implement its procedures in a timely manner. An FMI's rules and procedures should outline examples of when management discretion may be appropriate and should include arrangements to minimise any potential conflicts of interests. Management should also have internal plans that clearly delineate the roles and responsibilities for addressing a default and provide training and guidance to its personnel on how the procedures should be implemented. These plans should address documentation, information needs, and coordination when more than one FMI or authority is involved. In addition, timely communication with stakeholders, in particular with relevant authorities, is of critical importance. The FMI, to the extent permitted, should clearly convey to affected stakeholders information that would help them to manage their own risks. The internal plan should be reviewed by management and the relevant board committees at least annually or after any significant changes to the FMI's arrangements.

Public disclosure of key aspects of default rules and procedures

3.13.6. To provide certainty and predictability regarding the measures that an FMI may take in a default event, an FMI should publicly disclose key aspects of its default rules and procedures, including: (a) the circumstances in which action may be taken; (b) who may take those actions; (c) the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds, and other assets; (d) the mechanisms to address an FMI's obligations to non-defaulting participants; and (e) where direct relationships exist with participants' customers, the mechanisms to help address the defaulting participant's obligations to its customers. This transparency fosters the orderly handling of defaults, enables participants to understand their obligations to the FMI and to their customers, and gives market participants the information they need to make informed decisions about their activities in the market. An FMI should ensure that its participants and their customers, as well as the public, have appropriate access to the FMI's default rules and procedures and should promote their understanding of those procedures in order to foster confidence in the market in the event of a participant default.

Periodic testing and review of default procedures

3.13.7. An FMI should involve its participants and other stakeholders in the testing and review of its default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective. The periodic testing and review of default procedures is important to help the FMI and its participants understand fully the procedures and to identify any lack of clarity in, or discretion allowed by, the rules and procedures. Such tests should include all relevant parties, or an appropriate subset, that would likely be involved in the default procedures, such as members of the appropriate board committees, participants, linked or interdependent FMIs, relevant authorities, and any related service providers. This is particularly important where an FMI relies on non-defaulting participants or third parties to assist in the close-out process and where the default procedures have never been tested by an actual default. The results of these tests and reviews should be shared with the FMI's board of directors, risk committee, and relevant authorities.

3.13.8. Furthermore, part of an FMI's participant-default testing should include the implementation of the resolution regime for an FMI's participants, as relevant. An FMI should be able to take all appropriate steps to address the resolution of a participant. Specifically, the FMI, or if applicable a resolution authority, should be able to transfer a defaulting participant's open positions and customer accounts to a receiver, third party, or bridge financial company.

Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

Key considerations

1. A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective.

2. A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.

3. A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.

4. A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.

Explanatory note

3.14.1. Segregation of customers' positions and collateral plays an important part in the safe and effective holding and transfer of customers' positions and collateral, especially in the event of a participant's default or insolvency. Segregation refers to a method of protecting customer collateral and contractual positions by holding or accounting for them separately. Customer collateral should be segregated from the assets of the participant through which the customers clear. In addition, individual customer collateral may be held separately from the collateral of other customers of the same participant to protect customers from each other's default. Where offered by the CCP, such positions and collateral should be protected effectively from the concurrent default or insolvency of both a customer and the participant.

3.14.2 Effective segregation arrangements can reduce the impact of a participant's insolvency on its customers by providing for clear and reliable identification of a participant's customer's positions and related collateral. Segregation also protects a customer's collateral from becoming lost to a participant's other creditors. In addition, segregation facilitates the transfer of customers' positions and collateral. Even if no transfers take place, segregation can improve a customer's ability to identify and recover its collateral (or the value thereof), which, at least to some extent, contributes to retaining customers' confidence in their clearing participants and may reduce the potential for "counterparty runs" on a deteriorating clearing participant.

3.14.3. Portability refers to the operational aspects of the transfer of contractual positions, funds, or securities from one party to another party. By facilitating transfers from one participant to another, effective portability arrangements lessen the need for closing out positions, including during times of market stress. Portability thus minimises the costs and potential market disruption associated with closing out positions and reduces the possible impact on customers' ability to continue to obtain access to central clearing.

3.14.4. Effective segregation and portability of a participant's customers' positions and collateral depend not only on the measures taken by a CCP itself but also on applicable legal frameworks, including those in foreign jurisdictions in the case of remote participants. Effective segregation and portability also depend on measures taken by other parties, for example, where customers post additional collateral to the participant.[120]

Legal framework

3.14.5. In order to achieve fully the benefits of segregation and portability, the legal framework applicable to the CCP should support its arrangements to protect and transfer the positions and collateral of a participant's customers.[121] The legal framework will influence how the segregation and portability arrangements are designed and what benefits can be achieved. The relevant legal framework will vary depending upon many factors, including the participant's legal form of organisation, the manner in which collateral is provided (for example, security interest, title transfer, or full ownership right), and the types of assets (for example, cash or securities) provided as collateral. Therefore, it is not possible to design a single model appropriate for all CCPs across all jurisdictions. However, a CCP should structure its segregation and portability arrangements (including applicable rules) in a manner that protects the interests of a participant's customers and achieves a high degree of legal certainty under applicable law. A CCP should also consider potential conflict of laws when designing its arrangements. In particular, the CCP's rules and procedures that set out its segregation and portability arrangements should avoid any potential conflict with applicable legal or regulatory requirements.

Alternate approach for CCPs serving certain cash markets

3.14.6 In certain jurisdictions, cash market CCPs operate in legal regimes that facilitate segregation and portability to achieve protection of customer assets by alternate means that offer the same degree of protection as the approach required by this principle. Features of these regimes are that if a participant fails, (a) the customer positions can be identified timely, (b) customers will be protected by an investor protection scheme designed to move customer accounts from the failed or failing participant to another participant in a timely manner, and (c) customer assets can be restored.[122] In these cases, the CCP and relevant authorities for these particular cash markets should evaluate whether the applicable legal or regulatory framework achieves the same degree of protection and efficiency (see Principle 21 on efficiency and effectiveness) for customers that would otherwise be achieved by segregation and portability arrangements at the CCP level described in Principle 14.

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[120] Participants may collect excess collateral from their customers, beyond that which is required by and provided to the CCP. This excess collateral may be held by the participant or its custodian and outside of the segregation and portability regime in effect at the CCP.

[121] For example, portability arrangements could be undermined if applicable insolvency laws do not protect the transfer of customer positions and collateral from avoidance ("clawback") by the participant's insolvency officer. Also, in some jurisdictions, it may not be possible to segregate cash.

[122] For example, domestic law subjects participants to explicit and comprehensive financial responsibility or customer protection requirements that obligate participants to make frequent determinations (for example, daily) that they maintain possession and control of all customers' fully paid and excess margin securities and to segregate their proprietary activities from those of their customers. Under these regimes, pending securities purchases do not belong to the customer; thus, there is no customer trade or position entered into the CCP. As a result, participants provide collateral to the CCP on behalf of their customers regardless of whether they are acting on a principal or agent basis, and the CCP is not able to identify positions or possess the assets of its participants' customers.

Customer account structures

3.14.7. The segregation and portability principle is particularly relevant for CCPs that clear positions and hold collateral belonging to customers of a participant. This clearing structure allows customers (such as buy-side firms) that are not direct participants of a CCP to obtain access to central clearing where direct access is either not possible (for example, due to an inability to meet membership criteria) or not considered commercially appropriate (for example, due to the cost of establishing and maintaining the infrastructure necessary to perform as a clearing member or contributing to a CCP's default resources). A CCP should employ an account structure that enables it readily to identify positions belonging to a participant's customers and to segregate related collateral. Segregation of customer collateral by a CCP can be achieved in different ways, including through individual or omnibus accounts.

3.14.8 The degree of protection achievable for customer collateral will depend on whether customers are protected on an individual or omnibus basis and the way initial margin is collected (gross or net basis) by the CCP.[123] Each of these decisions will have implications for the risks the CCP faces from its participants and, in some cases, their customers. The CCP should understand, monitor, and manage these risks.[124] Similarly, there are advantages and disadvantages to each type of account structure that the CCP should consider when designing its segregation regime.

Individual account structure

3.14.9. The individual account structure provides a high degree of protection to the clearing level collateral of customers of participants in a CCP, even in the case where the losses associated with another customer's default exceed the resources of the participant (see paragraph 3.14.10). Under this approach, each customer's collateral is held in a separate, segregated individual account at the CCP, and depending on the legal framework applicable to the CCP, a customer's collateral may only be used to cover losses associated with the default of that customer (that is, customer collateral is protected on an individual basis). This account structure facilitates the clear and reliable identification of a customer's collateral, which supports full portability of an individual customer's positions and collateral or, alternatively, can expedite the return of collateral to the customer. Since all collateral maintained in the individual customer's account is used to margin that customer's positions only, the CCP should be able to transfer these positions from the customer account of a defaulting participant to that of another participant with sufficient collateral to cover the exposures. The use of individual accounts and the collection of margin on a gross basis provide flexibility in how a customer's portfolio may be ported to another participant or group of participants.[125] Maintaining individual accounts, however, can be operationally and resource intensive for the CCP in settling transactions and ensuring accurate bookkeeping. This approach could impact the overall efficiency of the CCP's operations. Finally, effectively achieving the advantages of maintaining individual accounts may depend upon the legal framework applicable to the insolvency of the participant.

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[123] Collecting margin on a gross basis means that the amount of margin a participant must post to the CCP on behalf of its customers is the sum of the amounts of margin required for each such customer. Collecting margin on a net basis means that the participant may, in calculating the amount of margin it must post to the CCP on behalf of its customers, offset the amounts of margin associated with the portfolios of different customers.

[124] See also Principle 19 on tiered participation arrangements.

[125] As a practical matter, an individual account structure is inconsistent with net collection of margin, since under such netting, it is impractical for the CCP to allocate the net margin to individual customers.

Omnibus account structure

3.14.10. Another approach would be to use an omnibus account structure where all collateral belonging to all customers of a particular participant is commingled and held in a single account segregated from that of the participant. This approach can be less operationally intensive, can be more efficient when porting positions and collateral for a group of customers of a defaulting participant (where there has been no customer default or where customer collateral is legally protected on an individual basis), and can be structured to protect customers' collateral from being used to cover a default by the direct participant.

3.14.11. However, depending on the legal framework and the CCP's rules, omnibus accounts where the customer collateral is protected on an omnibus basis may expose a customer to "fellow-customer risk" – the risk that another customer of the same participant will default and create a loss that exceeds both the amount of available collateral supporting the defaulting customer's positions and the available resources of the participant.[126] As a result, the remaining commingled collateral of the participant's non-defaulting customers is exposed to the loss. Fellow-customer risk is of particular concern because customers have limited, if any, ability to monitor or to manage the risk of their fellow customers.

3.14.12. One potential solution is for omnibus account structures to be designed in a manner that operationally commingles collateral related to customer positions while protecting customers legally on an individual basis – that is, protecting them from fellow-customer risk. Such individual protection does require the CCP to maintain accurate books sufficient to promptly ascertain an individual customer's interest in a portion of the collateral. A failure to do so can lead to delays or even losses in returning margin and other collateral that has been provided to the CCP to individual customers in the event a participant becomes insolvent.[127]

3.14.13. The degree to which portability is fostered for a customer whose assets are held in an omnibus account also varies depending on whether the CCP collects margin on a gross or net basis. As with account structure, there are advantages and disadvantages to the alternative ways in which margin may be collected by the CCP that employs an omnibus account structure. Margin calculated on a gross basis to support individual customer portfolios results in less netting efficiency at the participant level; however, it is likely to preclude the possibility of under-margined customer positions when ported. As a result, CCPs can port a participant's customers' positions and related margin in bulk or piecemeal.[128] Gross margining enhances the feasibility of portability, which is desirable since porting avoids the transactions costs, including bid-offer spreads associated with terminating and replacing a participant's customers' positions. When margin is collected on a gross basis, it is more likely that there will be sufficient collateral in the omnibus account to cover all positions of a participant's customers.

3.14.14. When margin is collected by the CCP on a net basis but held in an omnibus account structure, there is a risk that full portability cannot be achieved.[129] Since the collateral

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[126] In some jurisdictions, customers in an omnibus account can include affiliates of the direct participant.

[127] Ascertaining each customer's interest in the omnibus account may require reliance on the participant's records containing the sub-accounting for individual customers. Under some legal frameworks, the collateral in the omnibus account is distributed to customers proportionately, based on their net customer claims, and participants may be required to provide certain customer information to the CCP.

[128] Although portability on a portfolio basis has historically been feasible in the absence of a customer default, it is possible that such portability may not be achievable due to a lack of willing and able transferees. Such lack may occur due to stressed market conditions, the complexity or size of the portfolio, or lack of information on the individual constituents.

[129] Collateral exceeding the amount required by the CCP to cover the net positions is often maintained by the participant.

maintained in the omnibus account covers the net positions across all customers of a particular participant, upon a participant default, any excess collateral maintained by the defaulting participant may not be readily available for porting to another participant to collateralise a customer's positions on a going-forward basis. Moreover, other than a bulk transfer of all customer positions of the defaulting participant, along with the aggregate of the customer collateral held at the CCP and at the participant, any transfer of a customer's positions to another participant would depend on the ability and willingness of customers to provide additional collateral. Otherwise, porting individual customer portfolios, with their pro rata share of net margin, to multiple transferee clearing members is likely to result in under-margined customer positions. Transferee clearing members are unlikely to accept such positions unless the margin shortfall is remedied by the customer.

Factors to consider in choosing the level of protection

3.14.15. In considering whether to offer individual customer collateral protection at the clearing level, the CCP should take into account all relevant circumstances. Such circumstances include applicable insolvency regimes, costs of implementation, and risk-management challenges associated with the use of individual customer accounts, as well as the important benefits of individual customer protection. If the CCP determines that individual customer accounts should be offered, then the CCP should endeavour to offer them at reasonable cost and in an unrestrictive manner and encourage direct participants to offer those accounts to their customers at a reasonable cost and in an unrestrictive manner.

Transfer of positions and collateral

3.14.16. Efficient and complete portability of a participant's customers' positions and related collateral is important in both pre-default and post-default scenarios but is particularly critical when a participant defaults or is undergoing insolvency proceedings.[130] A CCP's ability to transfer customers' positions and related collateral in a timely manner may depend on such factors as market conditions, sufficiency of information on the individual constituents, and the complexity or sheer size of the portfolio. A CCP should therefore structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be effectively transferred to one or more other participants, taking into account all relevant circumstances. In order to achieve a high likelihood of portability, a CCP will need to have the ability to identify positions that belong to customers, identify and assert its rights to related collateral held by or through the CCP, transfer positions and related collateral to one or more other participants, identify potential participants to accept the positions, disclose relevant information to such participants so that they can evaluate the counterparty credit and market risk associated with the customers and positions, respectively, and facilitate the CCP's ability to carry out its default management procedures in an orderly manner. A CCP's rules and procedures should require participants to facilitate the transfer of a participant's customers' positions and collateral upon the customer's request, subject to any notice or other contractual requirements. The CCP should obtain the consent of the direct participant to which positions and collateral are ported. If there are circumstances where this would not be the case, they should be set out in the CCP's rules, policies, or procedures. A CCP's policies and procedures also should provide for the proper handling of positions and collateral of customers of a defaulting participant.[131]

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[130] A customer should also be able to transfer its positions and collateral to another participant in the normal course of business (for example, in the case of a relationship with a new clearing firm or merger of entities), subject to applicable laws and contractual terms. In addition, portability arrangements can also facilitate an orderly wind down of a participant.

[131] See also Principle 13 on participant-default rules and procedures.

Disclosure

3.14.17. A CCP should state its segregation and portability arrangements, including the method for determining the value at which customer positions will be transferred, in its rules, policies, and procedures.[132] A CCP's disclosure should be adequate such that customers can understand how much customer protection is provided, how segregation and portability are achieved, and any risks or uncertainties associated with such arrangements. Disclosure helps customers to assess the related risks and conduct due diligence when entering into transactions that are cleared or settled through a direct participant in the CCP. Customers should have sufficient information about which of its positions and collateral held at or through a CCP are segregated from positions and collateral of the participant and the CCP. Disclosure regarding segregation should include (a) whether the segregated assets are reflected on the books and records at the CCP or unaffiliated third-party custodians that hold assets for the CCP; (b) who holds the customer collateral (for example, CCP or third-party custodian); and (c) under what circumstances customer collateral may be used by the CCP. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis.

[132] See Principle 23 on disclosure of rules, key procedures, and market data.

General business and operational risk management

In addition to the credit, liquidity, and other related risks that it faces from its payment, clearing, and settlement activities, an FMI also faces general business and operational risks. The inability of an FMI to continue as a going concern could have systemic risk implications for its participants and the broader financial markets. The following set of principles provides guidance on managing (a) general business risk, (b) custody and investment risks, and (c) operational risk.

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Key considerations

1. *An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.*
2. *An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.*
3. *An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.*
4. *Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.*
5. *An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.*

Explanatory note

3.15.1. An FMI should have robust management and control systems to identify, monitor, and manage general business risk. General business risk refers to the risks and potential losses arising from an FMI's administration and operation as a business enterprise that are neither related to participant default nor separately covered by financial resources under the credit or liquidity risk principles. General business risk includes any potential impairment of the FMI's financial position (as a business concern) as a consequence of a decline in its revenues or an increase in its expenses, such that expenses exceed revenues and result in a loss that must be charged against capital. Such impairment can be caused by a variety of business factors, including poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses. Business-related losses also may arise from risks covered by other principles, for example, legal risk (in the case of legal actions challenging the FMI's custody arrangements), investment risk affecting the FMI's resources, and operational risk (in the case of fraud, theft, or loss).[133] In these cases, general business risk may cause an FMI to experience an extraordinary one-time loss as opposed to recurring losses.

Identifying business risk

3.15.2. An FMI should identify and assess the sources of business risk and their potential impact on its operations and services, taking into account past loss events and financial projections. An FMI should assess and thoroughly understand its business risk and the potential effect that this risk could have on its cash flows, liquidity, and capital positions. In doing so, an FMI should consider a combination of tools, such as risk management and internal control assessments, scenario analysis, and sensitivity analysis. Internal control assessments should identify key risks and controls and assess the impact and probability of the risks and the effectiveness of the controls. Scenario analysis should examine how specific scenarios would affect the FMI. Sensitivity analysis should test how changes in one risk affect the FMI's financial standing, for example, conducting the analysis of how the loss of a key customer or service provider might impact the FMI's existing business activities. In some cases, an FMI may want to consider an independent assessment of specific business risks.

3.15.3. An FMI should clearly understand its general business risk profile so that it is able to assess its ability either (a) to avoid, reduce, or transfer specific business risks or (b) to accept and manage those risks. This requires the ongoing identification of risk-mitigation options that the FMI may use in response to changes in its business environment. When planning an expansion of activity, an FMI should conduct a comprehensive enterprise risk assessment. In particular, when considering any major new product, service, or project, the FMI should project potential revenues and expenses as well as identify and plan how it will cover any additional capital requirements. Further, an FMI may eliminate or mitigate some risks by instituting appropriate internal controls or by obtaining insurance or indemnity from a third party.

Measuring and monitoring business risk

3.15.4. Once an FMI has identified and assessed its business risk, it should measure and monitor these risks on an ongoing basis and develop appropriate information systems as part of a robust enterprise risk-management program. Key components of a robust enterprise risk-management program include establishing strong financial and internal control systems so that the FMI can monitor, manage, and control its cash flows and operating expenses and mitigate any business-related losses (see Principle 3 on framework for the comprehensive management of risks). In particular, an FMI should minimise and mitigate the probability of business-related losses and their impact on its operations across a range of adverse business and market conditions, including the scenario that its viability as a going concern is questioned. An FMI should also ensure that it has rigorous and appropriate investment guidelines and monitoring procedures (see Principle 16 on custody and investment risks).

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[133] See also Principle 1 on legal basis, Principle 16 on custody and investment risks, and Principle 17 on operational risk.

Determining sufficient liquid net assets

3.15.5. An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses.[134] Equity allows an FMI to absorb losses on an ongoing basis and should be permanently available for this purpose. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.[135] Accordingly, an FMI should maintain a viable plan to achieve recovery and orderly wind-down and should hold sufficient liquid net assets funded by equity to implement this plan.[136] The appropriate amount of liquid net assets funded by equity will depend on the content of the plan and, specifically, on the size of the FMI, the scope of its activities, the types of actions included in the plan, and the length of time needed to implement them. An FMI should also take into consideration the operational, technological, and legal requirements for participants to establish and move to an alternative arrangement in the event of an orderly wind-down. At a minimum, however, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses.[137]

3.15.6. In order to estimate the amount of liquid net assets funded by equity that a particular FMI would need, the FMI should regularly analyse and understand how its revenue and operating expenses may change under a variety of adverse business scenarios as well as how it might be affected by extraordinary one-time losses. This analysis should also be performed when a material change to the assumptions underlying the model occurs, either because of changes to the FMI's business model or because of external changes. An FMI needs to consider not only possible decreases in revenues but also possible increases in operating expenses, as well as the possibility of extraordinary one-time losses, when deciding on the amount of liquid net assets to hold to cover general business risk.

3.15.7. Assets held by an FMI to cover risks or losses other than business risk (for example, the financial resources required under the credit and liquidity risk principles) or to cover losses from other business lines that are unrelated to its activities as an FMI should not be included when accounting for liquid net assets available to cover business risk.[138] However, equity held under international risk-based capital standards should be included where relevant and appropriate to avoid duplicate capital requirements.

3.15.8. Assets held to cover general business risk should be of high quality and sufficiently liquid, such as cash, cash equivalents, or liquid securities, to allow the FMI to meet its current and projected operating expenses under a range of scenarios including in adverse market conditions. To ensure the adequacy of its own resources, an FMI should regularly assess

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[134] If the FMI's corporate structure is such that it cannot legally or institutionally raise equity (for example under certain structures of mutual ownership or when the FMI is run by a central bank) or if the FMI is a new start-up and cannot initially raise the required level of equity, it should ensure an equal amount of equivalent loss absorbing financial resources is available.

[135] Recovery could include recapitalising, replacing management, merging with another FMI, revising business strategies (including cost or fee structures), or restructuring services provided.

[136] For the purposes of this principle, the requirement for liquid net assets funded by equity ensures that the assets held for the purposes of this principle are sufficiently liquid to be available to mitigate any potential business risks in a timely manner, can only be used for business risk purposes, and are funded by equity rather than long term liabilities.

[137] Operating expenses may exclude depreciation and amortization expenses for purposes of this calculation.

[138] Depending on the rules of the particular FMI and the insolvency law of the jurisdiction in which it is established, the equity of an FMI may ultimately be used if the resources that form the default backing are insufficient to cover the losses generated in the event of a participant default.

and report its liquid net assets funded by equity relative to its potential business risks to its regulators.

Maintaining sufficient equity

3.15.9. An FMI should provide a viable capital plan for maintaining an appropriate level of equity. The capital plan should specify how an FMI would raise new capital if its equity capital were to fall close to or below the amount needed. This plan should be approved by the board of directors (or an appropriate board committee) and updated regularly. An FMI may also need to consult its participants and others during the development of its plan.

3.15.10. In developing a capital plan, an FMI should consider a number of factors, including its ownership structure and any insured business risks. For example, an FMI should determine if and to what extent specific business risks are covered by (a) explicit insurance from a third party or (b) explicit indemnity agreements from a parent, owners, or participants (for example, general loss-allocation provisions and parent guarantees), which would be realisable within the recovery or orderly wind-down time frame. Given the contingent nature of these resources, an FMI should use conservative assumptions when taking them into account for its capital plan. Furthermore, these resources should not be taken into account when assessing the FMI's capital adequacy.

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Key considerations

1. *An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.*
2. *An FMI should have prompt access to its assets and the assets provided by participants, when required.*
3. *An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.*
4. *An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.*

Explanatory note

3.16.1. An FMI has the responsibility to safeguard its assets, such as cash and securities, as well as the assets that its participants have provided to the FMI. Custody risk is the risk of loss on assets held in custody in the event of a custodian's (or subcustodian's) insolvency, negligence, fraud, poor administration, or inadequate recordkeeping. Assets that are used by an FMI to support its operating funds or capital funds or that have been provided by participants to secure their obligations to the FMI should be held at supervised or regulated entities that have strong processes, systems, and credit profiles, including other FMIs (for example, CSDs). In addition, assets should generally be held in a manner that assures the FMI of prompt access to those assets in the event that the FMI needs to draw on them. Investment risk refers to the risk of loss faced by an FMI when it invests its own or its participants' assets.

Use of custodians

3.16.2. An FMI should mitigate its custody risk by using only supervised and regulated entities with robust accounting practices, safekeeping procedures, and internal controls that fully protect its own and its participants' assets. It is particularly important that assets held in custody are protected against claims of a custodian's creditors. The custodian should have a sound legal basis supporting its activities, including the segregation of assets (see also Principle 1 on legal basis and Principle 11 on CSDs). The custodian also should have a strong financial position to be able to sustain losses from operational problems or non-custodial activities. An FMI should confirm that its interest or ownership rights in the assets can be enforced and that it can have prompt access to its assets and the assets provided by participants, when required. Timely availability and access should be ensured even if these securities are held in another time zone or jurisdiction. Furthermore, the FMI should confirm it has prompt access to the assets in the event of a default of a participant.

3.16.3. An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each custodian bank. For example, a financial institution may serve as a custodian bank to an FMI as well as a settlement bank and liquidity provider to the FMI. The custodian bank also might be a participant in the FMI and offer clearing services to other participants. An FMI should carefully consider all of its relationships with a particular custodian bank to ensure that its overall risk exposure to an individual custodian remains within acceptable concentration limits. Where feasible, an FMI could consider using multiple custodians for the safekeeping of its assets to diversify its exposure to any single custodian. For example, a CCP may want to use one custodian for its margin assets and another custodian for its prefunded default arrangement. Such a CCP, however, may need to balance the benefits of risk diversification against the benefits of pooling resources at one or a small number of custodians. In any event, an FMI should monitor the concentration of risk exposures to, and financial condition of, its custodian banks on an ongoing basis.

Investment strategy

3.16.4. An FMI's strategy for investing its own and its participants' assets should be consistent with its overall risk-management strategy and fully disclosed to its participants. When making its investment choices, the FMI should not allow pursuit of profit to compromise its financial soundness and liquidity risk management. Investments should be secured by, or be claims on, high-quality obligors to mitigate the credit risk to which the FMI is exposed. Also, because the value of an FMI's investments may need to be realised quickly, investments should allow for quick liquidation with little, if any, adverse price effect. For example, an FMI could invest in overnight reverse repo agreements backed by liquid securities with low credit risk. An FMI should carefully consider its overall credit risk exposures to individual obligors, including other relationships with the obligor that create additional exposures such as an obligor that is also a participant or an affiliate of a participant in the FMI. In addition, an FMI should not invest participant assets in the participant's own securities or those of its affiliates. If an FMI's own resources can be used to cover losses and liquidity pressures resulting from a participant default, the investment of those resources should not compromise the FMI's ability to use them when needed.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Key considerations

1. *An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.*
2. *An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.*
3. *An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.*
4. *An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.*
5. *An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.*
6. *An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.*
7. *An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.*

Explanatory note

3.17.1. Operational risk is the risk that deficiencies in information systems, internal processes, and personnel or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by an FMI. Operational failures can damage an FMI's reputation or perceived reliability, lead to legal consequences, and result in financial losses incurred by the FMI, participants, and other parties. In certain cases, operational failures can also be a source of systemic risk. An FMI should establish a robust framework to manage its operational risks with appropriate systems, policies, procedures, and controls. As part of an FMI's operational risk-management framework, the FMI should identify the plausible sources of operational risk; deploy appropriate systems; establish appropriate policies, procedures, and controls; set operational reliability objectives; and develop a business continuity plan. An FMI should take a holistic approach when establishing its operational risk-management framework.

Identifying sources of operational risk

3.17.2. An FMI should actively identify, monitor, and manage the plausible sources of operational risk and establish clear policies and procedures to address them. Operational risk can stem from both internal and external sources. Internal sources of operational risk include inadequate identification or understanding of risks and the controls and procedures needed to limit and manage them, inadequate control of systems and processes, inadequate screening of personnel, and, more generally, inadequate management. External sources of operational risk include the failure of critical service providers or utilities or events affecting a wide metropolitan area such as natural disasters, terrorism, and pandemics. Both internal and external sources of operational risk can lead to a variety of operational failures that include (a) errors or delays in message handling, (b) miscommunication, (c) service degradation or interruption, (d) fraudulent activities by staff, and (e) disclosure of confidential information to unauthorised entities. If an FMI provides services in multiple time zones, it may face increased operational risk due to longer operational hours and less downtime for maintenance. An FMI should identify all potential single points of failure in its operations.[139] Additionally, an FMI should assess the evolving nature of the operational risk it faces on an ongoing basis (for example, pandemics and cyber-attacks), so that it can analyse its potential vulnerabilities and implement appropriate defence mechanisms.

3.17.3. A TR typically serves as a single source of information for a particular market, and it may be the central registry for certain trades. Therefore, a TR's failure to perform as expected could cause significant disruption. The key risk of a TR is operational. Deficiencies in business continuity management, data integrity, and the safeguarding of data are a particular concern. Inadequate disclosure or faulty delivery of data by a TR to relevant authorities or the public could undermine the primary purpose of the TR. Access to timely and reliable data provides greater insights into the derivatives market and improves the ability of relevant authorities to oversee the markets it serves and its participants. Data recorded by a TR may also be used as inputs by the TR's participants and potentially by other relevant infrastructures and service providers. Therefore, continuous availability of data stored in a TR is critical.[140] Also, a TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources. Where a TR provides access to another type of FMI, such as a CCP, the linked FMIs may be exposed to additional risks if the interface is not properly designed. FMIs establishing a link to a TR should ensure that the system and communication arrangements between the linked entities are reliable and secure such that the operation of the link does not pose significant reliability and security risks.

Operational risk management

3.17.4. An FMI should establish clear policies, procedures, and controls that mitigate and manage its sources of operational risk. Overall, operational risk management is a continuous process encompassing risk assessment, defining an acceptable tolerance for risk, and implementing risk controls. This process results in an FMI accepting, mitigating, or avoiding risks consistent with its operational reliability objectives. An FMI's governance arrangements are pertinent to its operational risk-management framework (see also Principle 2 on governance). In particular, an FMI's board should explicitly define the roles and

[139] A single point of failure is any point in a system, whether a service, activity, or process, that, if it fails to work correctly, leads to the failure of the entire system.

[140] The mitigation of operational risk is particularly important because the information maintained by a TR can support bilateral netting and be used to provide services directly to market participants or other providers (for example, portfolio compression), including other linked FMIs.

responsibilities for addressing operational risk and endorse the FMI's operational risk-management framework.

3.17.5. To ensure the proper functioning of its risk controls, an FMI should have sound internal controls. For example, an FMI should have adequate management controls, such as setting operational standards, measuring and reviewing performance, and correcting deficiencies. There are many relevant international, national, and industry-level standards, guidelines, or recommendations that an FMI may use in designing its operational risk-management framework. Conformity with commercial standards can help an FMI reach its operational objectives. For example, commercial standards exist for information security, business continuity, and project management. An FMI should regularly assess the need to integrate the applicable commercial standards into its operational risk-management framework. In addition, an FMI should seek to comply with relevant commercial standards in a manner commensurate with the FMI's importance and level of interconnectedness.

3.17.6. An FMI's arrangements with participants, operational policies, and operational procedures should be periodically, and whenever necessary, tested and reviewed, especially after significant changes occur to the system or a major incident occurs. In order to minimise any effects of the testing on operations, tests should be carried out in a "testing environment." This testing environment should, to the extent possible, replicate the production environment (including the implemented security provisions, in particular, those regarding data confidentiality). Additionally, key elements of an FMI's operational risk-management framework should be audited periodically and whenever necessary. In addition to periodic internal audits, external audits may be necessary, depending on the FMI's importance and level of interconnectedness. Consistent with the evolving nature of operational risk management, an FMI's operational objectives should be periodically reviewed to incorporate new technological and business developments.

3.17.7. Because the proper performance of an FMI's employees is a core aspect of any operational risk-management framework, an FMI should employ sufficient, well-qualified personnel. An FMI's personnel should be able to operate the system safely and efficiently and consistently follow operational and risk-management procedures during normal and abnormal circumstances. An FMI should implement appropriate human resources policies to hire, train, and retain qualified personnel, thereby mitigating the effects of high rates of personnel turnover or key-person risk. Additionally, an FMI should have appropriate human resources and risk-management policies to address fraud prevention.

3.17.8. The FMI's operational risk-management framework should include formal change-management and project-management processes to mitigate operational risk arising from modifications to operations, policies, procedures, and controls. Change-management processes should provide mechanisms for preparing, approving, tracking, testing, and implementing all changes to the system. Project-management processes, in the form of policies and procedures, should mitigate the risk of any inadvertent effects on an FMI's current or future activities due to an upgrade, expansion, or alteration to its service offerings, especially for major projects. In particular, these policies and procedures should guide the management, documentation, governance, communication, and testing of projects, regardless of whether projects are outsourced or executed in-house.

Operational reliability

3.17.9. An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives. These objectives serve as benchmarks for an FMI to evaluate its efficiency and effectiveness and evaluate its performance against expectations. These objectives should be designed to promote confidence among the FMI's participants. Operational reliability objectives should include the FMI's operational performance objectives and committed service-level targets. Operational performance objectives and service-level targets should define both qualitative and quantitative measures of operational performance and should explicitly state the performance standards the FMI is intending to meet. The FMI should monitor and assess regularly whether the system is meeting its established objectives and service-level targets. The system's performance should be reported regularly to senior management, relevant board committees, participants, and authorities. In addition, an FMI's operational objectives should be periodically reviewed to incorporate new technological and business developments.

Incident management

3.17.10. An FMI should have comprehensive and well-documented procedures in place to record, report, analyse, and resolve all operational incidents. After every significant disruption, an FMI should undertake a "post-incident" review to identify the causes and any required improvement to the normal operations or business continuity arrangements. Such reviews should, where relevant, include the FMI's participants.

Operational capacity

3.17.11. An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives, such as the required processing speed. A TR, in particular, should have scalable capacity adequate to maintain historical data as required. Capacity management requires that the FMI monitor, review, and test (including stress test) the actual capacity and performance of the system on an ongoing basis. The FMI should carefully forecast demand and make appropriate plans to adapt to any plausible change in the volume of business or technical requirements. These plans should be based on a sound, comprehensive methodology so that the required service levels and performance can be achieved and maintained. As part of its capacity planning, an FMI should determine a required level of redundant capacity, taking into account the FMI's level of importance and interconnectedness, so that if an operational outage occurs, the system is able to resume operations and process all remaining transactions before the end of the day.

Physical and information security

3.17.12. An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats. In particular, an FMI should have policies effective in assessing and mitigating vulnerabilities in its physical sites from attacks, intrusions, and natural disasters. An FMI also should have sound and robust information security policies, standards, practices, and controls to ensure an appropriate level of confidence and trust in the FMI by all stakeholders. These policies, standards, practices, and controls should include the identification, assessment, and management of security threats and vulnerabilities for the purpose of implementing appropriate safeguards into its systems. Data should be protected from loss and leakage, unauthorised access, and other processing risks, such as negligence, fraud, poor administration, and inadequate recordkeeping. An FMI's information security objectives and policies should conform to commercially reasonable standards for confidentiality, integrity, authentication, authorisation, non-repudiation, availability, and auditability (or accountability).

Business continuity management

3.17.13. Business continuity management is a key component of an FMI's operational risk-management framework. A business continuity plan should have clearly stated objectives and should include policies and procedures that allow for the rapid recovery and timely resumption of critical operations following a disruption to a service, including in the event of a wide-scale or major disruption. An FMI should explicitly assign responsibility for business continuity planning and devote adequate resources to this planning. The plan should identify and address events that pose a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption, and should focus on the impact on the operation of critical infrastructures and services. An FMI's business continuity plan should ensure that the FMI can continue to meet agreed-upon service levels in such events. Both internal and external threats should be considered in the business continuity plan, and the impact of each threat should be identified and assessed. In addition to reactive measures, an FMI's business continuity plan may need to include measures that prevent disruptions of critical operations. All aspects of the business continuity plan should be clearly and fully documented.

3.17.14. The objectives of an FMI's business continuity plan should include the system's recovery time and recovery point. An FMI should aim to be able to resume operations within two hours following disruptive events; however, backup systems ideally should commence processing immediately. The plan should be designed to enable the FMI to complete settlement by the end of the day even in case of extreme circumstances. Depending on their recovery-time objectives and designs, some FMIs may be able to resume operations with some data loss; however, contingency plans for all FMIs should ensure that the status of all transactions at the time of the disruption can be identified with certainty in a timely manner.

3.17.15. An FMI should set up a secondary site with sufficient resources, capabilities, and functionalities and appropriate staffing arrangements that would not be affected by a wide-scale disruption and would allow the secondary site to take over operations if needed.[141] The secondary site should provide the level of critical services necessary to perform the functions consistent with the recovery time objective and should be located at a geographical distance from the primary site that is sufficient to have a distinct risk profile.[142] Depending on the FMI's importance and level of interconnectedness, the need and possibilities for a third site could be considered, in particular to provide sufficient confidence that the FMI's business continuity objectives will be met in all scenarios. An FMI should also consider alternative arrangements (for example, manual paper-based procedures) to allow for the processing of time-critical transactions in extreme circumstances.

3.17.16. An FMI's business continuity plan should also include clearly defined procedures for crisis and event management. The plan, for example, should address the need for rapid deployment of a multi-skilled crisis and event-management team as well as procedures to consult and inform participants, interdependent FMIs, authorities, and others (such as service providers and, where relevant, the media) quickly. Communication with regulators, supervisors, and overseers is critical in case of a major disruption to an FMI's operations or a wider market distress that affects the FMI, particularly where relevant authorities might rely on data held by the FMI for crisis management. Depending on the nature of the problem, communication channels with local civil authorities (for physical attacks or natural disasters) or computer experts (for software malfunctions or cyber-attacks) may also need to be activated. If an FMI has global importance or critical linkages to one or more interdependent FMIs, it should set up, test, and review appropriate cross-system or cross-border crisis-management arrangements.

3.17.17. An FMI's business continuity plan and its associated arrangements should be subject to periodic review and testing. Tests should address various scenarios that simulate wide-scale disasters and intersite switchovers. An FMI's employees should be thoroughly trained to execute the business continuity plan and participants, critical service providers, and linked FMIs should be regularly involved in the testing and be provided with a general

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[141] A particular site may be primary for certain functions and secondary for others. It is not intended that an FMI would be required to have numerous separate secondary sites for each of its essential functions.

[142] An FMI should conduct a comparative risk analysis of the secondary site. The secondary site should in principle not be affected by an event that affects the primary site, with the exception of some very specific threats, such as a coordinated attack. Each site should have robust resilience based on the duplication of software and hardware, and the technology in place to replicate data between the various sites should be consistent with the chosen recovery-point objectives.

summary of the testing results. The FMI should also consider the need to participate in industry-wide tests. An FMI should make appropriate adjustments to its business continuity plans and associated arrangements based on the results of the testing exercises.

Interdependencies

3.17.18. An FMI is connected directly and indirectly to its participants, other FMIs, and its service and utility providers. Accordingly, the FMI should identify both direct and indirect effects on its ability to process and settle transactions in the normal course of business and manage risks that stem from an external operational failure of connected entities. These effects include those transmitted through its participants, which may participate in multiple FMIs. In addition, an FMI should also identify, monitor, and manage the risks it faces from and poses to other FMIs (see Principle 20 on FMI links). To the extent possible, interdependent FMIs should coordinate business continuity arrangements. An FMI also should consider the risks associated with its service and utility providers and the operational effect on the FMI if service or utility providers fail to perform as expected. An FMI should provide reliable service, not only for the benefit of its direct participants, but also for all entities that would be affected by its ability to process transactions.

3.17.19. To manage the operational risks associated with its participants, an FMI should consider establishing minimum operational requirements for its participants (see also Principle 18 on access and participation requirements). For example, an FMI may want to define operational and business continuity requirements for participants in accordance with the participant's role and importance to the system. In some cases, an FMI may want to identify critical participants based on the consideration of transaction volumes and values, services provided to the FMI and other interdependent systems, and, more generally, the potential impact on other participants and the system as a whole in the event of a significant operational problem. Critical participants may need to meet some of the same operational risk-management requirements as the FMI itself. An FMI should have clear and transparent criteria, methodologies, or standards for critical participants to ensure that their operational risks are managed appropriately.

3.17.20. An FMI that relies upon or outsources some of its operations to another FMI or a third-party service provider (for example, data processing and information systems management) should ensure that those operations meet the same requirements they would need to meet if they were provided internally. The FMI should have robust arrangements for the selection and substitution of such providers, timely access to all necessary information, and the proper controls and monitoring tools. Some service providers may be critical, such as those that generate environmental interdependencies, because several FMIs or some of their key participants rely upon their services.[143] A contractual relationship should be in place between the FMI and the critical service provider allowing the FMI and relevant authorities to have full access to necessary information. The contract should ensure that the FMI's approval is mandatory before the critical service provider can itself outsource material elements of the service provided to the FMI, and that in the event of such an arrangement, full access to the necessary information is preserved. Clear lines of communication should be established between the outsourcing FMI and the critical service provider to facilitate the flow of functions and information between parties in both ordinary and exceptional circumstances.

[143] Environmental interdependencies result from indirect relationships between two or more systems that arise from broader factors, including a common reliance on a service provider or financial market. Examples include common third-party IT or network providers, common elements of the physical infrastructure (power, water, etc.), common financial markets, or even common risk management procedures. See CPSS, *The interdependencies of payment and settlement systems*, June 2008.

3.17.21. An FMI that outsources operations to critical service providers should disclose the nature and scope of this dependency to its participants. In addition to these service providers (such as financial messaging providers), an FMI is also typically dependent on the adequate functioning of utilities (such as power and telecommunication companies). As a result, an FMI should identify the risks from its critical service providers and utilities and take appropriate actions to manage these dependencies through appropriate contractual and organisational arrangements. An FMI should inform its relevant authorities about any such dependencies on critical service providers and utilities and take measures to allow these authorities to be informed about the performance of these critical service providers and utilities. To that end, the FMI can contractually provide for direct contacts between the critical service provider and the relevant authority, contractually ensure that the relevant authority can obtain specific reports from the critical service provider, or the FMI may provide full information to the authority.

3.17.22. The relevant authority of the FMI may establish expectations specifically targeted at critical service providers, as presented in Annex F. Adherence to these expectations can be achieved in one of two ways, at the discretion of the authority: (a) the authority monitors adherence to the expectations itself in a direct relationship with the critical service provider or (b) the authority communicates the standards to the FMI, which obtains assurances from its critical service providers that they comply with the expectations. These expectations may also be relevant to an FMI as it reviews its contracts with critical service providers.

Access

Fair and open access to an FMI by direct participants, indirect participants, and other FMIs is important because of the critical role many FMIs play in the markets they serve. The following set of principles provides guidance on (a) access and participation requirements, (b) the management of tiered participation arrangements, and (c) the management of FMI links.

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Key considerations

1. *An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.*
2. *An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.*
3. *An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.*

Explanatory note

3.18.1. Access refers to the ability to use an FMI's services and includes the direct use of the FMI's services by participants, including other market infrastructures (for example, trading platforms) and, where relevant, service providers (for example, matching and portfolio compression service providers). In some cases, this includes the rules governing indirect participation. An FMI should allow for fair and open access to its services.[144] It should control the risks to which it is exposed by its participants by setting reasonable risk-related requirements for participation in its services. An FMI should ensure that its participants and any linked FMIs have the requisite operational capacity, financial resources, legal powers, and risk-management expertise to prevent unacceptable risk exposure for the FMI and other participants. An FMI's participation requirements should be clearly stated and publicly disclosed so as to eliminate ambiguity and promote transparency.

Fair and open access to payment systems, CSDs, SSSs, and CCPs

3.18.2. Fair and open access to FMI services encourages competition among market participants and promotes efficient and low-cost payment, clearing, and settlement. Because an FMI often benefits from economies of scale, there is typically only one FMI, or a small

[144] Central banks, however, may exclude certain categories of financial institutions (such as non-deposit-taking institutions) from the FMIs that they operate, such as LVPS, because of legislative constraints or broader policy objectives.

number of FMIs, for a particular market. As a result, participation in an FMI may significantly affect the competitive balance among market participants. In particular, limiting access to an FMI's services may disadvantage some market participants (and their customers), other FMIs (for example, a CCP that needs access to a CSD), and service providers that do not have access to the FMI's services. Further, access to one or more FMIs may play an important role in a marketwide plan or policy for the safe and efficient clearing of certain classes of financial instruments and the promotion of efficient financial markets (including the reporting and recording of transaction data). An FMI's participation requirements should therefore allow for fair and open access, in all relevant jurisdictions, based on reasonable risk-related participation requirements. Moreover, open access may reduce the concentrations of risk that may result from highly tiered arrangements for payment, clearing, and settlement.

Fair and open access to TRs

3.18.3. For a TR, ensuring fair and open access may be essential because a wide set of stakeholders may need, or be required by law to have, access to the TR's data warehousing services, both to store and retrieve data. This may be even more relevant when one TR is serving a particular market and serves multiple jurisdictions. Access is critical for participants reporting trade information to the TR and for platforms that may submit transaction data on behalf of participants, including exchanges, electronic trading venues, and confirmation or matching service providers. In addition, other FMIs or platforms that offer ancillary services may need to obtain trade information from the TR to use as an input to these services.

3.18.4. In addition, a TR should provide terms of use that are commercially reasonable and are designed to support interconnectivity with other FMIs and service providers, where requested, so that competition and innovation in post-trade processing are not impaired as a result of centralising recordkeeping activity. A TR should not engage in anti-competitive practices such as product or service tying, setting overly restrictive terms of use, or anti-competitive price discrimination. A TR also should not develop closed, proprietary interfaces that result in vendor lock-in or barriers to entry with respect to competing service providers that rely on the data maintained by the TR.

Risk-related participation requirements

3.18.5. An FMI should always consider the risks that an actual or prospective participant may pose to the FMI and other participants. Accordingly, an FMI should establish risk-related participation requirements adequate to ensure that its participants meet appropriate operational, financial, and legal requirements to allow them to fulfil their obligations to the FMI, including the other participants, on a timely basis. Where participants act for other entities (indirect participants), it may be appropriate for the FMI to impose additional requirements to ensure that the direct participants have the capacity to do so (see also Principle 19 on tiered participation arrangements). Operational requirements may include reasonable criteria relating to the participant's ability and readiness (for example, its IT capabilities) to use an FMI's services. Financial requirements may include reasonable risk-related capital requirements, contributions to prefunded default arrangements, and appropriate indicators of creditworthiness. Legal requirements may include appropriate licences and authorisations to conduct relevant activities as well as legal opinions or other arrangements that demonstrate that possible conflict of laws issues would not impede the ability of an applicant (for example, a foreign entity) to meet its obligations to the FMI. An FMI also may require participants to have appropriate risk-management expertise. If an FMI admits non-regulated entities, it should take into account any additional risks that may arise from their participation and design its participation requirements and risk-management controls accordingly.

3.18.6. An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to the FMI's specific risks, be imposed in a manner commensurate with such risks, and be publicly disclosed.[145] The requirements should be objective and should not unnecessarily discriminate against particular classes of participants or introduce competitive distortions. For example, participation requirements based solely on a participant's size are typically insufficiently related to risk and deserve careful scrutiny. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit. While restrictions on access should generally be based on reasonable risk-related criteria, such restrictions may also be subject to the constraints of local laws and policies of the jurisdiction in which the FMI operates.[146] Requirements should also reflect the risk profile of the activity; an FMI may have different categories of participation based on the type of activity. For example, a participant in the clearing services of a CCP may be subject to a different set of requirements than a participant in the auctioning process of the same CCP.

3.18.7. To help address the balance between open access and risk, an FMI should manage its participant-related risks through the use of risk-management controls, risk-sharing arrangements, and other operational arrangements that have the least-restrictive impact on access and competition that circumstances permit. For example, an FMI can use credit limits or collateral requirements to help it manage its credit exposure to a particular participant. The permitted level of participation may be different for participants maintaining different levels of capital. Where other factors are equal, participants holding greater levels of capital may be permitted less-restrictive risk limits or be able to participate in more functions within the FMI. The effectiveness of such risk-management controls may mitigate the need for an FMI to impose onerous participation requirements that limit access. An FMI could also differentiate its services to provide different levels of access at varying levels of cost and complexity. For example, an FMI may want to limit direct participation to certain types of entities and provide indirect access to others.[147] Participation requirements (and other risk controls) can be tailored to each tier of participants based on the risks each tier poses to the FMI and its participants.

Monitoring

3.18.8. An FMI should monitor compliance with its participation requirements on an ongoing basis through the receipt of timely and accurate information. Participants should be obligated to report any developments that may affect their ability to comply with an FMI's participation requirements. An FMI should have the authority to impose more-stringent restrictions or other risk controls on a participant in situations where the FMI determines the participant poses heightened risk to the FMI. For example, if a participant's creditworthiness declines, the FMI may require the participant to provide additional collateral or reduce the participant's credit limit. An FMI should consider additional reporting requirements for non-regulated

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[145] Efficiency considerations may affect open access. For example, in some instances, factors such as minimum transaction volumes are relevant to operational efficiency. However, considerations based solely on efficiency should not be used to justify participation requirements that in fact act as unjustifiable barriers to entry.

[146] For example, certain categories of financial institutions (such as non-deposit-taking institutions) may be excluded from certain FMIs, such as LVPS, because of local banking laws or policies. Conversely, some local laws, such as securities and antitrust laws, may require broader inclusion of classes of participants in certain types of FMIs, such as CCPs.

[147] For example, an FMI may accept direct receipt of settlement instructions from indirect participants, which settle on the books of a direct participant. Indirect participants may or may not be explicitly recognised in an FMI's rules and subject to risk controls. In all cases, an indirect participant has a bilateral agreement with a direct participant.

institutions. An FMI should also have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements of the FMI.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Key considerations

1. *An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.*
2. *An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.*
3. *An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.*
4. *An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.*

Explanatory note

3.19.1. Tiered participation arrangements occur when some firms (indirect participants) rely on the services provided by other firms (direct participants) to use the FMI's central payment, clearing, settlement, or recording facilities.[148]

3.19.2. The dependencies and risk exposures (including credit, liquidity, and operational risks) inherent in these tiered arrangements can present risks to the FMI and its smooth functioning as well as to the participants themselves and the broader financial markets.[149] For example, if an FMI has few direct participants but many indirect participants with large values or volumes of transactions, it is likely that a large proportion of the transactions processed by the FMI depend on a few direct participants. This will increase the severity of the effect on the FMI of a default of a direct participant or an operational disruption at a direct participant. The credit exposures in tiered relationships can also affect the FMI. If the value of an indirect participant's transactions is large relative to the direct participant's capacity to manage the risks, this may increase the direct participant's default risk. In some cases, for example, CCPs offering indirect clearing will face credit exposures to indirect participants or arising from indirect participants' positions if a direct participant defaults. There may also be legal or operational risk to the FMI if there is uncertainty about the liability for indirect participant transactions and how these transactions will be handled in the event of a default.[150]

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[148] For the purposes of this principle, an FMI can have two types of relationships that affect tiered participation arrangements. The first type of relationship is with participants in the FMI that are bound by the FMI's rules and agreements. Such "direct participants" and the management of the risks they present should be fully covered by the rules and agreements of the FMI and are generally dealt with in other principles in this report. The second type of relationship is with entities that are not bound by the rules of the FMI, but whose transactions are cleared, settled, or recorded by or through the FMI. These entities are defined as "indirect participants" in the FMI in this principle.

[149] The risk issues will vary depending on the type of FMI. For TRs, only operational risk will be relevant.

[150] See Principle 1 on legal basis.

3.19.3. The nature of these risks is such that they are most likely to be material where there are indirect participants whose business through the FMI is a significant proportion of the FMI's overall business or is large relative to that of the direct participant through which they access the FMI's services. Normally, the identification, monitoring, and management of risks from tiered participation will therefore be focused on financial institutions that are the immediate customers of direct participants and depend on the direct participant for access to an FMI's services.[151] In exceptional cases, however, tiered participation arrangements may involve a complex series of financial intermediaries or agents, which may require the FMI to look beyond the direct participant and its immediate customer.

3.19.4. There are limits on the extent to which an FMI can, in practice, observe or influence direct participants' commercial relationships with their customers. However, an FMI will often have access to information on transactions undertaken on behalf of indirect participants and can set direct participation requirements that may include criteria relating to how direct participants manage relationships with their customers in-so-far as these criteria are relevant for the safe and efficient operation of the FMI. At a minimum, an FMI should identify the types of risk that could arise from tiered participation and should monitor concentrations of such risk. If an FMI or its smooth operation is exposed to material risk from tiered participation arrangements, the FMI should seek to manage and limit such risk.

Gathering and assessing information on risks arising from tiered participation arrangements

3.19.5. An FMI may be able to obtain information relating to tiered participation through its own systems or by collecting it from direct participants. An FMI should ensure that its procedures, rules, and agreements with direct participants allow it to gather basic information about indirect participants in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements. This information should enable the FMI, at a minimum, to identify (a) the proportion of activity that direct participants conduct on behalf of indirect participants, (b) direct participants that act on behalf of a material number of indirect participants, (c) indirect participants with significant volumes or values of transactions in the system, and (d) indirect participants whose transaction volumes or values are large relative to those of the direct participants through which they access the FMI.[152]

Understanding material dependencies in tiered participation arrangements

3.19.6. An FMI should identify material dependencies between direct and indirect participants that can affect the FMI. Indirect participants will often have some degree of dependency on the direct participant through which they access the FMI. In the case of an FMI with few direct participants but many indirect participants, it is likely that a large proportion of the transactions processed by the FMI would depend on the operational performance of those few direct participants. Disruption to the services provided by the direct participants – whether for operational reasons or because of a participant's default – could therefore present a risk to the smooth functioning of the system as a whole. The FMI should identify and monitor material dependencies of indirect participants on direct participants so that the FMI has readily available information on which significant indirect participants may be affected by problems at a particular direct participant.

3.19.7. In some cases, issues at an indirect participant could affect the FMI. This is most likely to occur where a large indirect participant accesses an FMI's facilities through a

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[151] CCPs that face credit exposures arising from the positions of indirect participants in the event of a direct participant's default, should identify, monitor, and manage material exposures to non-financial institutions.

[152] If satisfying this key consideration requires the collection of sensitive information that may advantage one party over another, the FMI should ensure that the sensitive information is appropriately protected and used only for risk purposes rather than commercial purposes.

relatively small direct participant. Failure of this significant indirect participant to perform as expected, such as by failing to meet its payment obligations, or stress at the indirect participant, such as that which causes others to delay payments to the indirect participant, may affect the direct participant's ability to meet its obligations to the FMI. FMIs should therefore identify and monitor the material dependencies of direct participants on indirect participants so that the FMI has readily available information on how the FMI may be affected by problems at an indirect participant, including which direct participants may be affected.

Credit and liquidity risks in tiered participation arrangements

3.19.8. Tiered participation arrangements typically create credit and liquidity exposures between direct and indirect participants. The management of these exposures is the responsibility of the participants and, where appropriate, subject to supervision by their regulators. An FMI is not expected to manage the credit and liquidity exposures between direct and indirect participants, although the FMI may have a role in applying credit or position limits in agreement with the direct participant. An FMI should, however, have access to information on concentrations of risk arising from tiered participation arrangements that may affect the FMI, allowing it to identify indirect participants responsible for a significant proportion of the FMI's transactions or whose transaction volumes or values are large relative to those of the direct participants through which they access the FMI. An FMI should identify and monitor such risk concentrations.

3.19.9. In a CCP, direct participants are responsible for the performance of their customers' financial obligations to the CCP. The CCP may, however, face an exposure to indirect participants (or arising from indirect participants' positions) if a direct participant defaults, at least until such time as the defaulting participant's customers' positions are ported to another participant or closed out. If a participant default would leave the FMI with a potential credit exposure related to an indirect participant's positions, the FMI should ensure it understands and manages the exposure it would face. For example, the FMI may set participation requirements that require the direct participant, on the FMI's request, to demonstrate that it is adequately managing relationships with its customers to the extent that they may affect the FMI. An FMI should also consider establishing concentration limits on exposures to indirect participants, where appropriate.

Indirect participation and default scenarios

3.19.10. Default scenarios can create uncertainty about whether indirect participants' transactions have been settled or will be settled and whether any settled transactions will be unwound. Default scenarios can also raise legal and operational risks for the FMI if there is uncertainty about whether the indirect or direct participant is liable for completing the transaction. An FMI should ensure that a default, whether by a direct participant or by an indirect participant, does not affect the finality of indirect participants' transactions that have been processed and settled by the FMI. An FMI should ensure that its rules and procedures are clear regarding the status of indirect participants' transactions at each point in the settlement process (including the point at which they become subject to the rules of the system and the point after which the rules of the system no longer apply) and whether such transactions would be settled in the event of an indirect or direct participant default. An FMI should also ensure that it adequately understands its direct participants' processes and procedures for managing an indirect participant's default. For example, the FMI should know whether the indirect participant's queued payments can be removed or future-dated transactions rescinded and whether such processes and procedures would expose the FMI to operational, reputational, or other risks.

Encouraging direct participation

3.19.11. Direct participation in an FMI usually provides a number of benefits, some of which may not be available to indirect participants, such as real-time gross settlement, exchange-of-value settlement, or settlement in central bank money. Moreover, indirect participants are vulnerable to the risk that their access to an FMI, their ability to make and receive payments and their ability to undertake and settle other transactions is lost if the direct participant on whom these indirect participants rely defaults or declines to continue their business relationship. If these indirect participants have large values or volumes of business through the FMI, this may affect the smooth functioning of the FMI. For these reasons, where an indirect participant accounts for a large proportion of the transactions processed by an FMI, it may be appropriate to encourage direct participation. For example, an FMI may in some cases establish objective thresholds above which direct participation would normally be encouraged (provided that the firm satisfies the FMI's access criteria). Setting such thresholds and encouraging direct participation should be based on risk considerations rather than commercial advantage.[153]

Regular review of risks in tiered participation arrangements

3.19.12. An FMI should regularly review risks to which it may be exposed as a result of tiered participation arrangements. If material risks exist, the FMI should take mitigating action when appropriate. The results of the review process should be reported to the board of directors and updated periodically and after substantial amendments to an FMI's rules.

[153] See CGFS, *The macrofinancial implications of alternative configurations for access to central counterparties in OTC derivatives markets*, November, 2011, which notes that overly tiered arrangements can potentially increase systemic risk because of the concentration of credit and operational risk in direct participants.

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Key considerations

1. *Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.*
2. *A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.*
3. *Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.*
4. *Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.*
5. *An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.*
6. *An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.*
7. *Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.*
8. *Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.*
9. *A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.*

Explanatory note

3.20.1. A link is a set of contractual and operational arrangements between two or more FMIs that connect the FMIs directly or through an intermediary. An FMI may establish a link with a similar type of FMI for the primary purpose of expanding its services to additional financial instruments, markets, or institutions.[154] For example, a CSD (referred to as an investor CSD) may establish a link to another CSD in which securities are issued or immobilised (referred to as an issuer CSD) to enable a participant in the investor CSD to access the services of the issuer CSD through the participant's existing relationship with the

[154] FMIs in all link arrangements should meet the requirement in key consideration 1 of Principle 18. Open access to other FMIs can be a pre-condition for the establishment of links between FMIs of the same type.

investor CSD.[155] A CCP may establish a link with another CCP to enable a participant in the first CCP to clear trades with a participant in the second CCP through the participant's existing relationship with the first CCP. An FMI may also establish a link with a different type of FMI. For example, a CCP for securities markets must establish and use a link to a CSD to receive and deliver securities. This principle covers links between CSDs, CCPs, and TRs, as well as CSD-CCP links and links between TRs and other FMIs.[156] If an FMI establishes a link, it should identify, monitor, and manage its links-related risks, including legal, operational, credit, and liquidity risks.[157] Further, an FMI that establishes multiple links should ensure that the risks generated in one link do not affect the soundness of the other links and linked FMIs. Mitigation of such spill-over effects requires the use of effective risk-management controls, including additional financial resources or the harmonisation of risk-management frameworks across linked FMIs.

Identifying link-related risks

3.20.2. Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify and assess all potential sources of risk arising from the link arrangement. The type and degree of risk varies according to the design and complexity of the FMIs and the nature of the relationship between them. In a simple case of a vertical link, for example, an FMI may provide basic services to another FMI, such as a CSD that provides securities transfer services to an SSS. Such links typically pose only operational and custody risks. Other links, such as an arrangement in which a CCP provides clearing services to another CCP, may be more complex and may pose additional risk to FMIs, such as credit and liquidity risk.[158] Cross-margining by two or more CCPs may also pose additional risk because the CCPs may rely on each other's risk-management systems to measure, monitor, and manage credit and liquidity risk (see Principle 6 on margin). In addition, links between different types of FMIs may pose specific risks to one or all of the FMIs in the link arrangement. For example, a CCP may have a link with a CSD that operates an SSS for the delivery of securities and settlement of margins. If the CCP poses risks to the CSD, the CSD should manage those risks. In all cases, link arrangements should be designed such that each FMI is able to observe the other principles in this report.

Managing legal risks

3.20.3. A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link. Cross-border links may present legal risk arising from differences between the laws and contractual rules governing the linked FMIs and their participants, including those relating to rights and interests, collateral arrangements, settlement finality, and netting arrangements (see Principle 1 on legal basis). For example, differences in law and rules governing settlement finality may lead to a scenario where a transfer is regarded as final in one FMI but not final in the linked FMI. In some jurisdictions, differences in laws may create uncertainties regarding

[155] The term CSD in this principle generally refers to a CSD that also operates an SSS. The use of this broader definition for CSD in this principle mirrors market convention in the discussion of FMI links.

[156] Links to payment systems are not addressed by this principle because these links are addressed in Principle 9 on money settlements.

[157] Prior to entering a link arrangement, an FMI should inform its participants of the expected effects on the FMI's risk profile. See also Principle 23 on disclosure of rules, key procedures, and market data.

[158] A link between two or more CCPs may enable participants in a CCP in one market to clear transactions in another market through their existing arrangements. By broadening trading opportunities for market participants, without imposing all of the costs normally associated with establishing clearing relationships, links can deepen the liquidity in the affected markets. A link may also reduce the costs of systems development and operation faced by CCPs because it enables them to share these expenses.

the enforceability of CCP obligations assumed by novation, open offer, or other similar legal device. Differences in insolvency laws may unintentionally give a participant in one CCP a claim on the assets or other resources of the linked CCP in the event of the first CCP's default. To limit these uncertainties, the respective rights and obligations of the linked FMIs and, where necessary, their participants should be clearly defined in the link agreement. The terms of the link agreement should also set out, in cross-jurisdictional contexts, an unambiguous choice of law that will govern each aspect of the link.

Managing operational risk

3.20.4. Linked FMIs should provide an appropriate level of information about their operations to each other in order for each FMI to perform effective periodic assessments of the operational risk associated with the link. In particular, FMIs should ensure that risk-management arrangements and processing capacity are sufficiently scalable and reliable to operate the link safely for both the current and projected peak volumes of activity processed over the link (see Principle 17 on operational risk). Systems and communication arrangements between linked FMIs also should be reliable and secure so that the link does not pose significant operational risk to the linked FMIs. Any reliance by a linked FMI on a critical service provider should be disclosed as appropriate to the other FMI. In addition, a linked FMI should identify, monitor, and manage operational risks due to complexities or inefficiencies associated with differences in time zones, particularly as these affect staff availability. Governance arrangements and change-management processes should ensure that changes in one FMI will not inhibit the smooth functioning of the link, related risk-management arrangements, or non-discriminatory access to the link (see Principle 2 on governance and Principle 18 on access and participation requirements).

Managing financial risk

3.20.5. FMIs in a link arrangement should effectively measure, monitor, and manage their financial risk, including custody risk, arising from the link arrangement. FMIs should ensure that they and their participants have adequate protection of assets in the event of the insolvency of a linked FMI or a participant default in a linked FMI. Specific guidance on mitigating and managing these risks in CSD-CSD links and CCP-CCP links is provided below.

CSD-CSD links

3.20.6. As part of its activities, an investor CSD may choose to establish a link with another CSD. If such a link is improperly designed, the settlement of transactions across the link could subject participants to new or increased risks. In addition to legal and operational risks, linked CSDs and their participants could also face credit and liquidity risks. For example, an operational failure or default in one CSD may cause settlement failures or defaults in a linked CSD and expose participants in the linked CSD, including participants that did not settle transactions across the link, to unexpected liquidity pressures or outright losses. A CSD's default procedures, for example, could affect a linked CSD through loss-sharing arrangements. Linked CSDs should identify, monitor, and manage the credit and liquidity risks arising from the linked entity. In addition, any credit extensions between CSDs should be covered fully by high-quality collateral and be subject to limits.[159] Further, some practices deserve particularly rigorous attention and controls. In particular, provisional transfers of

[159] In exceptional cases, other adequate collateral may be used to secure credit extensions between CSDs subject to the review and assessment by the relevant authorities. See also principle 4 on credit risk, principle 5 on collateral, and principle 7 on liquidity risk.

securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

3.20.7. An investor CSD should only establish links with an issuer CSD if the link arrangement provides a high level of protection for the rights of the investor CSD's participants. In particular, the investor CSD should use issuer CSDs that provide adequate protection of assets in the event that the issuer CSD becomes insolvent (see Principle 11 on CSDs). In some cases, securities held by an investor CSD can be subject to attachment by the creditors of the CSD or its participants and, as such, can also be subject to freezing or blocking instructions from local courts or other authorities. Further, if an investor CSD maintains securities in an omnibus account at an issuer CSD and a participant at the investor CSD defaults, the investor CSD should not use the securities belonging to other participants to settle subsequent local deliveries of the defaulting participant. The investor CSD should have adequate measures and procedures to avoid effects on the use of securities belonging to non-defaulting participants in a participant-default scenario.

3.20.8. Furthermore, linked CSDs should have robust reconciliation procedures to ensure that their respective records are accurate and current. Reconciliation is a procedure to verify that the records held by the linked CSDs match for transactions processed across the link. This process is particularly important when three or more CSDs are involved in settling transactions (that is, the securities are held in safekeeping by one CSD or custodian while the seller and the buyer participate in one or more of the linked CSDs) (see also Principle 11 on CSDs).

Indirect CSD-CSD links

3.20.9. If an investor CSD uses an intermediary to operate a link with an issuer CSD, the investor CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary. In an indirect CSD-CSD link, an investor CSD uses an intermediary (such as a custodian bank) to access the issuer CSD. In such cases, the investor CSD faces the risk that the custodian bank may become insolvent, act negligently, or commit fraud. Although an investor CSD may not face a loss on the value of the securities, the ability of the investor CSD to use its securities might temporarily be impaired. The investor CSD should measure, monitor, and manage on an ongoing basis its custody risk (see also Principle 16 on custody and investment risks) and provide evidence to the relevant authorities that adequate measures have been adopted to mitigate this custody risk. In addition, the investor CSD should ensure that it has adequate legal, contractual, and operational protections to ensure that its assets held in custody are segregated and transferable (see Principle 11 on CSDs). Similarly, an investor CSD should ensure that its settlement banks or cash correspondents can perform as expected. In that context, the investor CSD should have adequate information on the business continuity plans of its intermediary and the issuer CSD to achieve a high degree of confidence that both entities will perform as expected during a disruptive event.

CCP-CCP links

3.20.10. A CCP may establish links with one or more other CCPs. Although the details of individual link arrangements among CCPs differ significantly because of the varied designs of CCPs and the markets they serve, there are currently two basic types of CCP links: peer-to-peer links and participant links.

3.20.11. In a peer-to-peer link, a CCP maintains special arrangements with another CCP and is not subject to normal participant rules. Typically, however, the CCPs exchange margin and other financial resources on a reciprocal basis. The linked CCPs face current and potential future exposures to each other as a result of the process whereby they each net the trades cleared between their participants so as to create novated (net) positions between the CCPs. Risk management between the CCPs is based on a bilaterally approved framework, which is different from that applied to a normal participant.

3.20.12. In a participant link, one CCP (the participant CCP) is a participant in another CCP (the host CCP) and is subject to the host CCP's normal participant rules. In such cases, the host CCP maintains an account for the participant CCP and would typically require the participant CCP to provide margin, as would be the case for a participant that is not a CCP. A participant CCP should mitigate and manage its risk from the link separately from the risks in its core clearing and settlement activities. For example, if the host CCP defaults, the participant CCP may not have adequate protection because the participant CCP does not hold collateral from the host CCP to mitigate the counterparty risk posed to it by the host CCP. Risk protection in a participant link is one-way, unlike in a peer-to-peer link. The participant CCP that provides margin but does not collect margin from another linked CCP should therefore hold additional financial resources to protect itself against the default of the host CCP.

3.20.13. Both types of links – peer-to-peer and participant links – may present new or increased risks that should be measured, monitored, and managed by the CCPs involved in the link. The most challenging issue with respect to CCP links is the risk management of the financial exposures that potentially arise from the link arrangement. Before entering into a link with another CCP, a CCP should identify and assess the potential spillover effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify and assess the risks of the collective link arrangement. A network of links between CCPs that does not properly acknowledge and address the inherent complexity of multi-CCP links could have significant implications for systemic risk.

3.20.14. Exposures faced by one CCP from a linked CCP should be identified, monitored, and managed with the same rigour as exposures from a CCP's participants to prevent a default at one CCP from triggering a default at a linked CCP. Such exposures should be covered fully, primarily through the use of margin or other equivalent financial resources. In particular, each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time (see Principle 6 on margin). Financial resources used to cover inter-CCP current exposures should be prefunded with highly liquid assets that exhibit low credit risk. Best practice is for CCPs to have near real time inter-CCP risk management. However, at a minimum, financial exposures among linked CCPs should be marked to market and covered on a daily basis. CCPs also need to consider and address the risks arising from links in designing their stress tests and calibrating their prefunded default arrangements. Linked CCPs should also take into account the effects that possible contributions to each other's prefunded default arrangements, exchange of margin, common participants, major differences in their risk-management tools, and other relevant features may have on their risk-management frameworks, especially in relation to the legal, credit, liquidity, and operational risks they face.

3.20.15. Because of the different possible types of link arrangements, different types of CCPs, and differences in the legal and regulatory frameworks in which CCPs may operate, different combinations of risk-management tools may be used by the CCP. When linked CCPs have materially different risk-management frameworks, the risks stemming from the link are more complex. In this case, the linked CCPs should carefully assess the effectiveness of their risk-management models and methodologies, including their default procedures, in order to determine whether and to what extent their inter-CCP risk-management frameworks should be harmonised or whether additional risk-mitigation measures would be sufficient to mitigate risks arising from the link.

3.20.16. A CCP (the first CCP) will usually have to provide margin to a linked CCP for open positions. In some cases, the first CCP may not be able to provide margin that it has collected from its participants to the linked CCP because the first CCP's rules may prohibit the use of its participants' margin for any purpose other than to cover losses from a default of a participant in the first CCP, or the first CCP's legal or regulatory requirements may not permit such reuse of its participants' collateral. As such, the CCP would need to use alternative financial resources to cover its counterparty risk to the linked CCP, which is normally covered by margin. If a CCP is allowed to reuse its participants' collateral to meet an inter-CCP margin requirement, such collateral provided by the first CCP must be unencumbered and its use by the linked CCP in the event of the default of the first CCP must not be constrainable by actions taken by the participants of the first CCP. The credit and liquidity risk arising from the reuse of margin should be adequately mitigated by the CCPs. This can be achieved through segregation, protection, and custody of margin exchanged between CCPs in a manner that allows for its swift and timely return to the CCP in case of a decrease in the exposures and that allows for supplemental margin (and, if necessary, supplemental default fund contributions) needed to cover the counterparty risk between the linked CCPs to be charged directly to the participants who use the link service, if applicable.

3.20.17. Linked CCPs should maintain arrangements that are effective in managing the risks arising from the link; such arrangements often involve a separate default fund to cover that risk. In principle, the risk-management measures related to the link should not reduce the resources that a CCP holds to address other risks. The most direct way to achieve this outcome is for CCPs not to participate in each other's default funds, which may in turn mean that the CCP will need to provide additional margin. However, in arrangements in which CCPs have agreed, consistent with their regulatory framework, to contribute to each other's default funds, the linked CCPs should assess and mitigate the risks of making such contributions via specific conditions. In particular, funds used by a CCP to contribute to another CCP's default fund must represent prefunded additional financial resources and must not include resources used by the CCP to satisfy its regulatory requirements to hold sufficient capital or participant margin funds (or any other funds, including independent default fund resources) held by the CCP to mitigate the counterparty risk presented by its participants. The contributing CCP should further ensure that any consequent exposure of its own participants to the risk of a participant default in the linked CCP is fully transparent to and understood by its participants. The contributing CCPs may, for example, consider it appropriate to ensure the default fund contribution is made only by those of its participants that use the link, if applicable. Moreover, the resources provided by one CCP to another should be held in such a way that they are ring fenced from other resources provided to that CCP. For example, securities could be held in a separate account at a custodian. Cash would need to be held in segregated accounts to be considered as acceptable collateral in this case.[160] Finally, in case of a participant default in the first CCP, the use of the linked CCP's contribution to the default fund of the first CCP could be restricted or limited. For example, the linked CCP's contribution to the default fund could be put at the bottom of the first CCP's default waterfall.

3.20.18. Link arrangements between CCPs will expose each CCP to sharing in potentially uncovered credit losses if the linked CCP's default waterfall has been exhausted. For example, a CCP may be exposed to loss mutualisation from defaults of a linked CCP's participants. This risk will be greater to the extent that the first CCP is unable directly to monitor or control the other CCP's participants. Such contagion risks can be even more serious in cases where more than two CCPs are linked, directly or indirectly, and a CCP considering such a link should satisfy itself that it can manage such risks adequately. Each CCP should ensure that the consequent exposure of its own participants to a share in these uncovered losses is fully understood and disclosed to its participants. CCPs may consider it appropriate to devise arrangements to avoid sharing in losses that occur in products other than those cleared through the link and to confine any loss sharing to only participants that

[160] In some jurisdictions, the legal framework will not protect the segregation of cash on the books of a commercial bank.

clear products through the link. Depending on how losses would be shared, CCPs may need to increase financial resources to address this risk.

3.20.19. Any default fund contributions or allocation of uncovered losses should be structured to ensure that (a) no linked CCP is treated less favourably than the participants of the other CCP and (b) each CCP's contribution to the loss sharing arrangements of the other is no more than proportionate to the risk the first CCP poses to the linked CCP.

Special considerations for TR links

3.20.20. A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources. A TR can establish links with another TR or with another type of FMI. Such links may expose the linked FMIs to additional risks if not properly designed. Besides legal risks, a link to either another TR or to another type of FMI may involve the potential spillover of operational risk. The mitigation of operational risk is particularly important because the information maintained by a TR can support bilateral netting and be used to provide services directly to market participants, service providers (for example, portfolio compression service providers), and other linked FMIs. FMIs establishing a link to a TR should ensure that the system and communication arrangements between the linked entities are reliable and secure such that the operation of the link does not pose significant reliability and security risks. Moreover, given the role that a TR may play at the beginning of the clearing and settlement process for derivatives transactions, a TR should have governance arrangements that ensure the management of the linked entities would not inhibit the smooth functioning of the link, related risk-management arrangements, and non-discriminatory access to the link. Therefore, the scalability of IT and related resources may be especially important.

Efficiency

Efficiency and safety are important to an FMI in performing its payment, clearing, settlement, and recording functions. The following two principles provide guidance to FMIs on (a) efficiency and effectiveness and (b) communication procedures and standards, which is one traditional aspect of efficiency.

Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Key considerations

1. *An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.*
2. *An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.*
3. *An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.*

Explanatory note

3.21.1. An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves, while also maintaining appropriate standards of safety and security as outlined in the principles in this report.[161] "Efficiency" refers generally to the resources required by the FMI to perform its functions, while "effectiveness" refers to whether the FMI is meeting its intended goals and objectives. An FMI that operates inefficiently or functions ineffectively may distort financial activity and the market structure, increasing not only the financial and other risks of an FMI's participants, but also the risks of their customers and end users. If an FMI is inefficient, a participant may choose to use an alternate arrangement that poses increased risks to the financial system and the broader economy. The primary responsibility for promoting the efficiency and effectiveness of an FMI belongs to its owners and operators.

Efficiency

3.21.2. Efficiency is a broad concept that encompasses what an FMI chooses to do, how it does it, and the resources required. An FMI's efficiency depends partly on its choice of a clearing and settlement arrangement (for example, gross, net, or hybrid settlement; real time or batch processing; and novation or guarantee scheme); operating structure (for example, links with multiple trading venues or service providers); scope of products cleared, settled, or recorded; and use of technology and procedures (for example, communication procedures and standards). In designing an efficient system, an FMI should also consider the practicality and costs for participants, their customers, and other relevant parties (including other FMIs

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[161] There may be different ways for an FMI to meet a particular principle, but the objective of a particular principle should not be compromised.

and service providers).[162] Furthermore, the FMI's technical arrangements should be sufficiently flexible to respond to changing demand and new technologies. Fundamentally, an FMI should be designed and operated to meet the needs of its participants and the markets it serves.[163] An FMI's efficiency will ultimately affect the use of the FMI by its participants and their customers as well as these entities' ability to conduct robust risk management, which may affect the broader efficiency of financial markets.

3.21.3. Efficiency also involves cost control. An FMI should establish mechanisms for the regular review of its efficiency, including its costs and pricing structure.[164] An FMI should control its direct costs, such as those stemming from transaction processing, money settlement, and settlement-entry preparation and execution. An FMI also should consider and control its indirect costs. These include infrastructure, administrative, and other types of costs associated with operating the FMI. Some indirect costs (and risks) may be less apparent. For example, an FMI may need to consider its participants' liquidity costs, which include the amount of cash or other financial instruments that a participant must provide to the FMI, or other parties, in order to process its transactions, and the opportunity cost of providing such assets. An FMI's design has a significant impact on the liquidity costs borne by participants, which, in turn, affect the FMI's costs and risks. Cost considerations, however, should always be balanced against appropriate standards of safety and security as outlined in the principles in this report.

3.21.4. Competition can be an important mechanism for promoting efficiency. Where there is effective competition and participants have meaningful choices among FMIs, such competition may help to ensure that FMIs are efficient. FMIs should ensure, however, that they adhere to appropriate standards of safety and security as outlined in the principles in this report. Both private and central bank operators of FMIs should make use of market disciplines, as appropriate, to promote efficiency in the FMI's operations. For example, an FMI could use competitive tendering to select service providers. Where competition may be difficult to maintain because of economies of scale or scope, and an FMI therefore enjoys some form of market power over the service it provides, relevant authorities may have a responsibility to review the costs imposed on the FMI's participants and the markets it serves.

Effectiveness

3.21.5. An FMI is effective when it reliably meets its obligations in a timely manner and achieves the public policy goals of safety and efficiency for participants and the markets it serves. In the context of oversight and auditing, an FMI's effectiveness may also involve meeting service and security requirements. To facilitate assessments of effectiveness, an FMI should have clearly defined goals and objectives that are measureable and achievable. For example, an FMI should set minimum service-level targets (such as the time it takes to process a transaction), risk-management expectations (such as the level of financial resources it should hold), and business priorities (such as the development of new services).

[162] For a system to be practical for users, it needs to take into account the structure of the local market and its history and conventions. The system also must reflect the current and prospective costs of the inputs used as well as evolving technologies. Designing a system that appropriately meets the needs of its users will often require an understanding of local practices and technologies.

[163] One mechanism an FMI might use to gauge its success in meeting the needs of its participants and the markets it serves are periodic satisfaction surveys of its participants and other relevant institutions in the market.

[164] A review of an FMI's efficiency or cost-effectiveness could include an evaluation of both the productivity of operational processes and the relative benefits of the processing method given the corresponding costs. For example, an efficiency review could include analysing the number of transactions that could be processed in a given period or by measuring the processing cost per transaction.

An FMI should establish mechanisms for the regular review of its effectiveness, such as periodic measurement of its progress against its goals and objectives.

3.21.6. For a TR to be effective, its goals and objectives should include timeliness and accuracy. A TR should promptly record the transaction information it receives from its participants. To ensure the accuracy and timeliness of data, a TR should employ efficient recordkeeping procedures to document changes to recorded transaction information resulting from subsequent post-trade events. Ideally, a TR should set a service-level target to record to its central registry transaction information it receives from participants in real time, and at a minimum, within one business day. A TR should have adequate procedures and timelines for making data available for any downstream processing and should implement quality controls to ensure the accuracy, validity, and integrity of the data it stores and disseminates. In addition, a TR should have effective processes and procedures for the provision of data to relevant authorities (see also Principle 24).

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Key consideration

1. *An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.*

Explanatory note

3.22.1. The ability of participants to communicate with an FMI in a timely, reliable, and accurate manner is key to achieving efficient payment, clearing, settlement, and recording. An FMI's adoption of internationally accepted communication procedures and standards for its core functions can facilitate the elimination of manual intervention in clearing and settlement processing, reduce risks and transaction costs, improve efficiency, and reduce barriers to entry into a market. Therefore, an FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards to ensure effective communication between the FMI and its participants, their customers, and others that connect to the FMI. An FMI is encouraged but not required to use or accommodate internationally accepted communication procedures and standards for purely domestic transactions.

Communication procedures

3.22.2. An FMI should use, or at a minimum accommodate, internationally accepted communication procedures to facilitate effective communication between the FMI's information systems, and those of its participants, their customers, and others that connect to the FMI (such as third-party service providers and other FMIs). Standardised communication procedures (or protocols) provide a common set of rules across systems for exchanging messages. These rules allow for a broad set of systems and institutions in various locations to communicate efficiently and effectively. Reducing the need for intervention and technical complexity when processing transactions can help to reduce the number of errors, avoid information losses, and ultimately reduce the resources needed for data processing by the FMI, its participants, and markets generally.

Communication standards

3.22.3. An FMI should use, or at a minimum accommodate, internationally accepted communication standards, such as standardised messaging formats and reference data standards for identifying financial instruments and counterparties. The use of internationally accepted standards for message formats and data representation will generally improve the quality and efficiency of the clearing and settlement of financial transactions. If an FMI does not itself use internationally accepted communication standards, it should typically accommodate systems that translate or convert data from international standards into the domestic equivalent and vice versa.

Cross-border considerations

3.22.4. An FMI that conducts payment, clearing, settlement, or recording activities across borders should use internationally accepted communication procedures and standards or, at a minimum, accommodate them. An FMI that, for example, settles a chain of transactions processed through multiple FMIs or provides services to users in multiple jurisdictions should strongly consider using internationally accepted communication procedures and standards to achieve efficient and effective cross-border financial communication. Furthermore, adopting these communication procedures can facilitate interoperability between the information systems or operating platforms of FMIs in different jurisdictions, which allows market participants to obtain access to multiple FMIs without facing technical hurdles (such as having to implement or support multiple local networks with different characteristics). An FMI that operates across borders also should be able to support and use well-established communication procedures, messaging standards, and reference data standards relating to counterparty identification and securities numbering processes. For example, relevant standards promulgated by the International Organization for Standardization should be carefully considered and adopted by an FMI. If an FMI that operates across borders does not fully adopt international procedures and standards, it can still potentially interoperate with the information systems or operating platforms of other FMIs by developing systems to translate or convert international procedures and standards into the domestic equivalent, and vice versa.

Use of internationally accepted procedures and standards by TRs

3.22.5. Communication procedures and standards are particularly important for TRs that serve as a central data source for a variety of stakeholders potentially located in many jurisdictions. A TR should support technologies that are widely accepted in the market, including applicable market standards for reporting and recording trade information. A TR also should apply consistent application interfaces and communication links that enable technical interconnectivity with other FMIs and service providers. A TR should be able to directly exchange trade information not only with market participants but also with other entities such as exchanges, electronic trading venues, confirmation-matching platforms, CCPs, and other service providers. A TR should use industry standards for data representation, including those related to the unique identification of counterparties (such as legal entity identifiers) to facilitate the use and aggregation of data stored in the repository, especially by authorities.[165]

[165] Legal entity identifiers (LEIs) contribute to the ability of authorities to fulfil the systemic risk mitigation, transparency, and market abuse protection goals established by the G20 commitments related to OTC derivatives and would improve efficiency and transparency in many other areas. See CPSS-IOSCO, *Report on OTC derivatives data reporting and aggregation requirements*, January 2012.

Transparency

Transparency helps ensure that relevant information is provided to an FMI's participants, authorities, and the public to inform sound decision making and foster confidence. The following two principles provide guidance to (a) all FMIs on the disclosure of rules, key procedures, and market data to enable participants and other interested parties to have a clear understanding of the risks and controls on risks associated with an FMI, as well as fees and other costs incurred by participation in the FMI; and (b) TRs on the disclosure of market data to allow participants, authorities, and the public to make timely assessments of OTC derivatives markets and, if relevant, other markets served by the TR.

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Key considerations

1. *An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.*
2. *An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.*
3. *An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.*
4. *An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.*
5. *An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO* Disclosure framework for financial market infrastructures*. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.*

Explanatory note

3.23.1. An FMI should provide sufficient information to its participants and prospective participants to enable them to identify clearly and understand fully the risks and responsibilities of participating in the system. To achieve this objective, an FMI should adopt and disclose written rules and procedures that are clear and comprehensive and that include explanatory material written in plain language so that participants can fully understand the system's design and operations, their rights and obligations, and the risks of participating in the system. An FMI's rules, procedures, and explanatory material need to be accurate, up-to-date, and readily available to all current and prospective participants. Moreover, an FMI should disclose to participants and the public information on its fee schedule, basic operational information, and responses to the CPSS-IOSCO *Disclosure framework for financial market infrastructures*.

Rules and procedures

3.23.2. An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed. An FMI's rules and procedures are typically the foundation of the FMI and provide the basis for participants' understanding of the risks they incur by participating in the FMI. As such, relevant rules and procedures should include clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risk they would incur by participating in the FMI.[166] They should clearly outline the respective roles of participants and the FMI as well as the rules and procedures that will be followed in routine operations and non-routine, though foreseeable, events, such as a participant default (see Principle 13 on participant-default rules and procedures). In particular, an FMI should have clear and comprehensive rules and procedures for addressing financial and operational problems within the system.

3.23.3. In addition to disclosing all relevant rules and key procedures, an FMI should have a clear and fully disclosed process for proposing and implementing changes to its rules and procedures and for informing participants and relevant authorities of these changes. Similarly, the rules and procedures should clearly disclose the degree of discretion that an FMI can exercise over key decisions that directly affect the operation of the system, including in crises and emergencies (see also Principle 1 on legal basis and Principle 2 on governance). For example, an FMI's procedures may provide for discretion regarding the extension of operating hours to accommodate unforeseen market or operational problems. An FMI also should have appropriate procedures to minimise any conflict-of-interest issues that may arise when authorised to exercise its discretion.

Participants' understanding of rules, procedures, and risks

3.23.4. Participants bear primary responsibility for understanding the rules, procedures, and risks of participating in an FMI as well as the risks they may incur when the FMI has links with other FMIs. An FMI, however, should provide all documentation, training, and information necessary to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI. New participants should receive training before using the system, and existing participants should receive, as needed, additional periodic training. An FMI should disclose to each individual participant stress test scenarios used, individual results of stress tests, and other data to help each participant understand and manage the potential financial risks stemming from participation in the FMI.[167] Other relevant information that should be disclosed to participants, but typically not to the public, includes key highlights of the FMI's business continuity arrangements.[168]

3.23.5. An FMI is well placed to observe the performance of its participants and should promptly identify those participants whose behaviour demonstrates a lack of understanding of, or compliance with, applicable rules, procedures, and risks of participation. In such cases, an FMI should take steps to rectify any perceived lack of understanding by the participant and take other remedial action necessary to protect the FMI and its participants. This may include notifying senior management within the participant institution. In cases in which the

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[166] Information should be disclosed to the extent it would not risk prejudicing the security and integrity of the FMI or divulging commercially sensitive information, such as trade secrets or other intellectual property.

[167] In disclosing stress-test information, FMIs should avoid revealing information regarding the positions of individual participants.

[168] Information on business continuity that can undermine an FMI's safety and soundness, such as the locations of back-up sites, should not be disclosed to the public. However, this information should be disclosed to the relevant authorities.

participant's actions present significant risk or present cause for the participant's suspension, the FMI should notify the appropriate regulatory, supervisory, and oversight authorities.

Fees and other material costs to participants

3.23.6. An FMI should publicly disclose its fees at the level of the individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes. In addition, an FMI should disclose information on the system design, as well as technology and communication procedures, that affect the costs of operating the FMI. These disclosures collectively help participants evaluate the total cost of using a particular service, compare these costs to those of alternative arrangements, and select only the services that they wish to use. For example, large-value payment systems typically have higher values and lower volumes than retail payment systems, and, as a result, processing costs can be less important to participants than the costs of providing liquidity to fund payments throughout the day. The FMI's design will influence not only how much liquidity participants need to hold in order to process payments but also opportunity costs of holding such liquidity. An FMI should provide timely notice to participants and the public of any changes to services and fees.

Disclosure framework and other information

3.23.7. An FMI should complete regularly, and disclose publicly, responses to the CPSS-IOSCO *Disclosure framework for financial market infrastructures*. The FMI should provide comprehensive and appropriately detailed disclosures to improve the overall transparency of the FMI, its governance, operations, and risk-management framework. In order for the disclosures to reflect correctly the FMI's current rules, procedures, and operations, the FMI should update its responses following material changes to the system or its environment. At a minimum, an FMI should review its responses to the CPSS-IOSCO *Disclosure framework for financial market infrastructures* every two years to ensure continued accuracy and usefulness.

3.23.8. Other relevant information for participants and, more generally, the public could include general information on the FMI's full range of activities and operations, such as the names of direct participants in the FMI, key times and dates in FMI operations, and its overall risk-management framework (including its margin methodology and assumptions).[169] An FMI also should disclose its financial condition, financial resources to withstand potential losses, timeliness of settlements, and other performance statistics. With respect to data, an FMI should, at a minimum, disclose basic data on transaction volumes and values.[170]

Forms of disclosure

3.23.9. An FMI should make the relevant information and data it discloses as set forth in this report readily available through generally accessible media, such as the Internet, in a language commonly used in financial markets in addition to the domestic language(s) of the jurisdiction in which the FMI is located. The data should be accompanied by robust explanatory documentation that enables users to understand and interpret the data correctly.

[169] A clear description of the typical lifecycle of the transaction clearing and settlement process under normal circumstances may also be useful for participants and the public. This information would highlight how the FMI processes a transaction, including the timeline of events, the validation and checks to which a transaction is subjected, and the responsibilities of the parties involved.

[170] TRs should also disclose data consistent with Principle 24.

Principle 24: Disclosure of market data by trade repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Key considerations

1. A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.

2. A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities.

3. A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analysed.

Explanatory note

3.24.1. TRs may play a fundamental role in providing market transparency and are particularly important in the OTC derivatives markets. From a public policy perspective, the data maintained and generated by the operations of a TR and on behalf of its participants should promote market transparency and foster public policy objectives, subject to relevant laws governing disclosures of information maintained by a TR. Market transparency supports investor protection as well as the exercise of market discipline. Transparency to the broader public helps build greater confidence in, and understanding of, markets and informs and builds support for sound public policies. Authorities may identify other policy objectives specific to an individual TR's role in supporting market transparency in addition to these core policy objectives.

Disclosure of data

3.24.2. A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives. Accordingly, it is critical that TRs provide effective access to data to relevant authorities and the public.[171] The scope and level of detail of the data that a TR provides will vary depending on the respective information needs of the relevant authorities, the TR's participants, and the public. At a minimum, a TR should provide aggregate data on open positions and transaction volumes and values and categorised data (for example, aggregated breakdowns of trading counterparties, reference entities, or currency breakdowns of products), as available and appropriate, to the public. Relevant authorities should have access to additional data recorded in a TR, including participant-level data, that is relevant to their respective regulatory mandates and legal responsibilities, which may include market regulation and surveillance, oversight of market infrastructures, prudential supervision, resolution of failed institutions, and systemic risk regulation.

[171] See CPSS-IOSCO, *Report on OTC derivatives data reporting and aggregation requirements*, January 2012, which develops both for market participants reporting to TRs and for TRs reporting to the public: (a) minimum data reporting requirements and standardised formats and (b) the methodology and mechanism for the aggregation of data on a global basis.

Processes and procedures

3.24.3. A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities. For example, a TR should have procedures to facilitate enhanced monitoring, special actions, or official proceedings taken by relevant authorities in relation to data on troubled or failed participants by making relevant information in the TR available in a timely and effective manner. The provision of data from a TR to relevant authorities should be supported from a legal, procedural, operational, and technological perspective.[172]

Information systems

3.24.4. To meet the information needs of participants, authorities, and the public, a TR should have robust information systems that provide accurate current and historical data. A TR should collect, store, and provide data to participants, authorities, and the public in a timely manner and in a format that can facilitate prompt analysis. Data should be made available that permits both comparative and historical analysis of the relevant markets. The criticality of a TR's or its market's role should be a consideration in the frequency and speed with which data and other information are disclosed. If a TR is one of several providing services to a particular market, the TR should provide basic data and other information in a manner that can be easily analysed and compared to and aggregated with information provided by others serving the market. A TR should consult with relevant authorities in developing and maintaining a reporting framework that facilitates analysis, comparison, and aggregation of data from other TRs.

Forms of disclosure

3.24.5. A TR should make the data and other relevant information it discloses as set forth in this report readily available through generally accessible media, such as the Internet, in a language commonly used in financial markets in addition to the domestic language(s) of the jurisdiction in which the TR is located. The data should be accompanied by robust explanatory documentation that enables users to understand and interpret the data correctly.

[172] Authorities may need to cooperate in order to ensure timely access to trade data (see key consideration 8 of Responsibility E).

4.0 Responsibilities of central banks, market regulators, and other relevant authorities for financial market infrastructures

Responsibility A: Regulation, supervision, and oversight of FMIs

FMIs should be subject to appropriate and effective regulation, supervision, and oversight by a central bank, market regulator, or other relevant authority.

Key considerations

1. *Authorities should clearly define and publicly disclose the criteria used to identify FMIs that should be subject to regulation, supervision, and oversight.*
2. *FMIs that have been identified using these criteria should be regulated, supervised, and overseen by a central bank, market regulator, or other relevant authority.*

Explanatory note

4.1.1. FMIs are critical components of domestic and international financial markets and help to maintain and promote financial stability in periods of market stress. FMIs provide a number of services that are vital to a well-functioning financial system, including facilitating the exchange of money for goods, services, and financial assets and providing a safe and efficient means through which authorities can manage systemic risk and central banks can implement monetary policy. By design, FMIs concentrate payment, clearing, and settlement activities and trade data in order to manage risk better and to reduce payment, clearing, settlement, and recording costs and delays. Well-functioning FMIs can vastly improve the efficiency, transparency, and safety of financial systems. However, FMIs often concentrate risk and may even act as a source of systemic risk. Therefore, appropriate regulation, supervision, and oversight is critical to achieving the public policy goals set out in this report.

Criteria for regulation, supervision, and oversight

4.1.2. Authorities should clearly define and publicly disclose the criteria used to identify FMIs that should be subject to regulation, supervision, and oversight. The precise framework for making such decisions may vary across jurisdictions. In some countries, for example, there is a statutory framework, while in others, the central bank or other relevant authorities have greater discretion to set the criteria used. A basic criterion, however, is the function of the FMI. Systemically important payment systems, CSDs, SSSs, CCPs, and TRs are typically subject to regulation, supervision, and oversight because of the critical role that they play in the financial system. Criteria that are often considered in determining the need for or degree of regulation, supervision, and oversight for various types of FMIs include (a) the number and value of transactions processed, (b) the number and type of participants, (c) the markets served, (d) the market share controlled, (e) the interconnectedness with other FMIs and other financial institutions, and (f) the available alternatives to using the FMI at short notice. Authorities may also want to designate FMIs as systemically important on the basis of other criteria relevant in their jurisdictions for the purposes of applying the CPSS-IOSCO *Principles for financial market infrastructures*.

Responsibilities for regulation, supervision, and oversight

4.1.3. FMIs that have been identified using these criteria should be regulated, supervised, and overseen by a central bank, market regulator, or other relevant authority. The division of powers or responsibilities among authorities for regulating, supervising, and overseeing FMIs may vary depending on the applicable legal and institutional framework and the sources of such powers or responsibilities may take different forms. Preferably, legislation will clearly specify which authority or authorities have responsibility. For example, one or more authorities may have regulatory, supervisory, or oversight responsibility for an FMI registered, chartered, licensed, or designated as an entity that falls within a specific legislative mandate. However, in the national context, an FMI also may be overseen by an authority that does not derive responsibility from a specific legislative mandate.[173] Relevant authorities should address any existing gaps in regulation, supervision, and oversight of FMIs (see Responsibility E which addresses cooperation among different authorities, particularly in the international setting).

[173] This includes traditional use of moral suasion by central banks.

Responsibility B: Regulatory, supervisory, and oversight powers and resources

Central banks, market regulators, and other relevant authorities should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.

Key considerations

1. *Authorities should have powers or other authority consistent with their relevant responsibilities, including the ability to obtain timely information and to induce change or enforce corrective action.*
2. *Authorities should have sufficient resources to fulfil their regulatory, supervisory, and oversight responsibilities.*

Explanatory note

4.2.1. While the primary responsibility for ensuring an FMI's safety and efficiency lies with the system's owners and operator, central banks, market regulators, and other relevant authorities generally share the common objective of ensuring the safety and efficiency of FMIs. However, regulation, supervision, and oversight of an FMI are needed to ensure that the FMI fulfils this responsibility, to address negative externalities that can be associated with the FMI, and to foster financial stability generally. Further, authorities should have the appropriate powers and resources in order to administer their regulatory, supervisory, and oversight responsibilities effectively. An authority's powers, which may be statutory or non-statutory, should be consistent with its relevant responsibilities.

Powers to obtain information

4.2.2. Authorities should have powers or other authority consistent with their relevant responsibilities to obtain timely information necessary for effective regulation, supervision, and oversight. In particular, authorities should use these powers to access information that enables them to understand and assess (a) an FMI's various functions, activities, and overall financial condition; (b) the risks borne or created by an FMI and, where appropriate, its participants; (c) an FMI's impact on its participants and the broader economy; and (d) an FMI's adherence to relevant regulations and policies. Key sources of information include official system documents and records, regular or ad-hoc reports, internal reports from board meetings and internal auditors, on-site visits and inspections, information on operations outsourced to third parties, and dialogue with an FMI's board, management, or participants.[174] Authorities should have appropriate legal safeguards to protect all confidential and non-public information obtained from an FMI. Authorities, however, should be able to share relevant confidential or non-public information with other authorities, as appropriate, to minimise gaps and reduce duplication in regulation, supervision, and oversight.

Powers to induce change or enforce corrective action

4.2.3. Authorities also should have powers or other authority consistent with their relevant responsibilities to induce change or enforce corrective action in an FMI that is not complying with relevant regulations or policies. Other mechanisms may also be used to effect change, including the use of moral suasion. Discussions with FMIs, their participants, and, in some cases, their participants' customers play an important part in achieving regulatory,

[174] Official system documentation includes the FMI's rules, procedures, and business continuity plans. Regular or ad hoc reporting includes daily volume and value of transactions reports, operating performance reports, stress test results, and the scenarios and methodology employed in estimating exposures.

supervisory, and oversight objectives. In many cases, an authority may be able to rely on moral suasion to promote public policy interests for FMIs and their stakeholders. These techniques, however, work best when there are credible regulatory or other remedies available to authorities. Where appropriate and legally permissible, authorities may want to consider publicly disclosing their assessments of certain FMIs as a means to induce change at those FMIs and promote transparency.

Sufficient resources

4.2.4. Authorities should have sufficient resources to fulfil their regulatory, supervisory, and oversight responsibilities. Sufficient resources include adequate funding, qualified and experienced personnel, and appropriate ongoing training. In addition, authorities should adopt an organisational structure that uses these resources effectively. It should be clear where the responsibility for regulatory, supervisory, and oversight functions lies within an authority or authorities. These functions may include gathering information on FMIs, assessing the operation and design of FMIs, assessing interdependencies among FMIs, taking action to promote FMIs' observance of relevant policies and standards, and conducting on-site visits or inspections when necessary. Where relevant, personnel should have the appropriate legal protections to carry out their responsibilities.

Responsibility C: Disclosure of policies with respect to FMIs

Central banks, market regulators, and other relevant authorities should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.

Key considerations

1. *Authorities should clearly define their policies with respect to FMIs, which include the authorities' objectives, roles, and regulations.*
2. *Authorities should publicly disclose their relevant policies with respect to the regulation, supervision, and oversight of FMIs.*

Explanatory note

4.3.1. Central banks, market regulators, and other relevant authorities should clearly define their regulatory, supervisory, and oversight policies with respect to FMIs, which include the authorities' objectives, roles, and regulations. A clear definition of authorities' objectives provides a basis for consistent policymaking and a benchmark by which authorities can evaluate their effectiveness. Typically, the primary objectives of authorities with respect to FMIs are to promote safety and efficiency. Some authorities may also have additional relevant public policy objectives for the FMIs they regulate, supervise, or oversee. These objectives are usually implemented through specific regulations and other policies, such as risk-management standards or expectations for FMIs. The policies of authorities should be consistent with their legislative framework. In addition, authorities may find it beneficial to consult with the market, key stakeholders, and the broader public regarding their policies. In many countries, these consultations may be required by law.

4.3.2. Authorities should publicly disclose their relevant policies with respect to the regulation, supervision, and oversight of FMIs, as public disclosure promotes consistent policies. Such disclosure typically involves communicating the authorities' regulatory, supervisory, and oversight standards for FMIs and helps to establish clear expectations and facilitate compliance with those standards. Furthermore, disclosing policies publicly communicates the responsibilities and expectations of authorities to the wider public and thereby promotes the accountability of those authorities. Authorities can publicly disclose their policies in a variety of forms, including plain-language documents, policy statements, and relevant supporting material. Such materials should be readily available.[175] These disclosures, however, do not shift the responsibility of ensuring the safe and efficient operation of FMIs from the FMI to authorities. Authorities should emphasise that primary responsibility for complying with the regulatory, supervisory, and oversight policies rests with the FMIs themselves.

[175] For example, an authority can publicly disclose its policies by posting them to a public website.

Responsibility D: Application of the principles for FMIs

Central banks, market regulators, and other relevant authorities should adopt the CPSS-IOSCO* Principles for financial market infrastructures *and apply them consistently.

Key considerations

1. *Authorities should adopt the CPSS-IOSCO* Principles for financial market infrastructures*.*
2. *Authorities should ensure that these principles are, at a minimum, applied to all systemically important payment systems, CSDs, SSSs, CCPs, and TRs.*
3. *Authorities should apply these principles consistently within and across jurisdictions, including across borders, and to each type of FMI covered by the principles.*

Explanatory note

4.4.1. Central banks, market regulators, and other relevant authorities should adopt the CPSS-IOSCO *Principles for financial market infrastructures*. The adoption and application of these principles can greatly enhance regulatory, supervisory, and oversight efforts by relevant authorities and support the establishment of important minimum standards for risk management. While the precise means through which the principles are applied will vary from jurisdiction to jurisdiction, all CPSS and IOSCO members are expected to apply the principles to the relevant FMIs in their jurisdictions to the fullest extent allowed by the legal framework in their jurisdiction.[176] The principles draw on the collective experience of many central banks, market regulators, and other relevant authorities and have been subject to public consultation. The use of these principles helps to ensure that FMIs are safe and efficient.

Scope of application of principles

4.4.2. Authorities should ensure that these principles are, at a minimum, applied to all systemically important payment systems, CSDs, SSSs, CCPs, and TRs. A payment system is systemically important if it has the potential to trigger or transmit systemic disruptions; this includes, among other things, systems that are the sole payment system in a country or the principal system in terms of the aggregate value of payments, and systems that mainly handle time-critical, high-value payments or settle payments used to effect settlement in other FMIs. The presumption is that all CSDs, SSSs, CCPs, and TRs are systemically important because of their critical roles in the markets they serve.[177] Authorities should disclose which FMIs they do not regard as systemically important and to which they do not intend to apply the principles and provide a comprehensive and clear rationale. Conversely, authorities may disclose which FMIs they regard as systemically important.[178]

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[176] In some cases, specific legislation may be used or needed to set out the precise regulatory framework and rules applicable to FMIs. In other cases, the relevant authorities may not need statutory authority to adopt them, though they may still need to create more detailed policies, rules, or regulations to implement them.

[177] In some jurisdictions, national law will dictate the criteria to determine whether an FMI is systemically important.

[178] See also key consideration 1 of Responsibility A, which requires authorities to clearly define and publicly disclose the criteria used to identify FMIs that should be subject to regulation, supervision, and oversight.

Consistent application of principles

4.4.3. Authorities should apply the principles consistently within and across jurisdictions, including across borders, and to each type of FMI covered by these principles. Consistent application of these principles is important because different systems may be dependent on each other, in direct competition with each other, or both. The principles also represent common interests which make it easier for different authorities to work cooperatively and enhance the effectiveness and consistency of regulation, supervision, and oversight. This is particularly important because many FMIs operate across multiple jurisdictions. Authorities may apply more demanding requirements if and when they deem it appropriate to do so.

Observance of internationally accepted principles

4.4.4. If a systemically important FMI does not observe the applicable principles, relevant authorities should ensure, as far as possible within their responsibilities and powers, that the FMI takes appropriate and timely action to remedy its deficiencies within a timeframe consistent with the type or impact of the risks, concerns, or other issues associated with the identified gaps and shortcomings. Authorities should closely monitor newly formed FMIs and those undergoing significant changes.[179] Where central banks themselves own or operate FMIs or key components of FMIs, they should apply, to the extent applicable, the same international standards to their own systems with the same rigor as other overseen systems. If a central bank is an owner or operator of an FMI as well as the overseer of private-sector FMIs, it needs to consider how best to address any possible conflicts of interest. In particular, it should avoid disadvantaging private-sector FMIs relative to those it owns and operates.

[179] In these instances, authorities should engage with the FMI at an early stage to foster public policy goals and identify opportunities to enhance safety and efficiency.

Responsibility E: Cooperation with other authorities

Central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMIs.

Key considerations

1. *Relevant authorities should cooperate with each other, both domestically and internationally, to foster efficient and effective communication and consultation in order to support each other in fulfilling their respective mandates with respect to FMIs. Such cooperation needs to be effective in normal circumstances and should be adequately flexible to facilitate effective communication, consultation, or coordination, as appropriate, during periods of market stress, crisis situations, and the potential recovery, wind-down, or resolution of an FMI.*
2. *If an authority has identified an actual or proposed operation of a cross-border or multicurrency FMI in its jurisdiction, the authority should, as soon as it is practicable, inform other relevant authorities that may have an interest in the FMI's observance of the CPSS-IOSCO* Principles for financial market infrastructures*.*
3. *Cooperation may take a variety of forms. The form, degree of formalization and intensity of cooperation should promote the efficiency and effectiveness of the cooperation, and should be appropriate to the nature and scope of each authority's responsibility for the supervision or oversight of the FMI and commensurate with the FMI's systemic importance in the cooperating authorities' various jurisdictions. Cooperative arrangements should be managed to ensure the efficiency and effectiveness of the cooperation with respect to the number of authorities participating in such arrangements.*
4. *For an FMI where cooperative arrangements are appropriate, at least one authority should accept responsibility for establishing efficient and effective cooperation among all relevant authorities. In international cooperative arrangements where no other authority accepts this responsibility, the presumption is the authority or authorities with primary responsibility in the FMI's home jurisdiction should accept this responsibility.*
5. *At least one authority should ensure that the FMI is periodically assessed against the principles and should, in developing these assessments, consult with other authorities that conduct the supervision or oversight of the FMI and for which the FMI is systemically important.*
6. *When assessing an FMI's payment and settlement arrangements and its related liquidity risk-management procedures in any currency for which the FMI's settlements are systemically important against the principles, the authority or authorities with primary responsibility with respect to the FMI should consider the views of the central banks of issue. If a central bank of issue is required under its responsibilities to conduct its own assessment of these arrangements and procedures, the central bank should consider the views of the authority or authorities with primary responsibility with respect to the FMI.*
7. *Relevant authorities should provide advance notification, where practicable and otherwise as soon as possible thereafter, regarding pending material regulatory changes and adverse events with respect to the FMI that may significantly affect another authority's regulatory, supervisory, or oversight interests.*
8. *Relevant authorities should coordinate to ensure timely access to trade data recorded in a TR.*

9. *Each authority maintains its discretion to discourage the use of an FMI or the provision of services to such an FMI if, in the authority's judgment, the FMI is not prudently designed or managed or the principles are not adequately observed. An authority exercising such discretion should provide a clear rationale for the action taken both to the FMI and to the authority or authorities with primary responsibility for the supervision or oversight of the FMI.*

10. *Cooperative arrangements between authorities in no way prejudice the statutory or legal or other powers of each participating authority, nor do these arrangements constrain in any way an authority's powers to fulfil its statutory or legislative mandate or its discretion to act in accordance with those powers.*

Explanatory note

4.5.1. Central banks, market regulators, and other relevant authorities should cooperate with each other, domestically and internationally (that is, on a cross-border basis), in order to support each other in fulfilling their respective regulatory, supervisory, or oversight mandates with respect to FMIs. Relevant authorities should explore, and where appropriate, develop cooperative arrangements that take into consideration (a) their statutory responsibilities, (b) the systemic importance of the FMI to their respective jurisdictions, (c) the FMI's comprehensive risk profile (including consideration of risks that may arise from interdependent entities), and (d) the FMI's participants. The objective of such arrangements is to facilitate comprehensive regulation, supervision, and oversight and provide a mechanism whereby the responsibilities of multiple authorities can be fulfilled efficiently and effectively. Authorities are encouraged to cooperate with each other to reduce the probability of gaps in regulation, supervision, and oversight that could arise if they did not coordinate and to minimise the potential duplication of effort and the burden on the FMIs or the cooperating authorities. Relevant authorities should also cooperate with resolution authorities and the supervisors of direct participants, as appropriate and necessary, to enable each to fulfil its respective responsibilities.

4.5.2. Cooperative arrangements need to foster efficient and effective communication and consultation among relevant authorities. Such arrangements need to be effective in normal circumstances and should be adequately flexible to facilitate effective communication, consultation, or coordination, as appropriate, during periods of market stress, crisis situations, and the potential recovery, wind-down, or resolution of an FMI. Inadequate cooperation, especially during times of market stress and crisis situations, can impede significantly the work of relevant authorities.

Identification of FMIs and relevant authorities

4.5.3. If an authority has identified an actual or proposed operation of a cross-border or multicurrency FMI in its jurisdiction, the authority should, as soon as it is practicable, inform other relevant authorities that may have an interest in the FMI's observance of the CPSS-IOSCO *Principles for financial market infrastructures*. To determine whether such notification is appropriate, the authority should consider (to the extent it has such information) the nature and scope of other relevant authorities' regulatory, supervisory, or oversight responsibilities with respect to the FMI and the FMI's systemic importance in those authorities' jurisdictions.

Cooperation arrangements

4.5.4. Cooperation may take a variety of forms, including formal arrangements that are organised under memoranda of understanding, protocols, or other documentation as well as informal ad hoc arrangements and regular communications.[180] The relevant authorities should agree on the form of cooperative arrangement or such multiple arrangements as they deem most appropriate in light of the FMI's specific circumstances. Flexibility as to the form of cooperation allows relevant authorities to continue to adapt to a dynamic environment as financial markets and systems evolve. All authorities involved in cooperative arrangements should have the powers and resources needed to carry out their responsibilities under the arrangements.

4.5.5. The appropriate degree of formalisation and the intensity of the cooperation in relation to any given FMI will depend on the relevant authorities' statutory responsibilities and may also depend on the FMI's systemic importance to their respective jurisdictions. The degree of formalisation may vary depending on each set of circumstances. For example, using an ad hoc arrangement to address promptly an emerging supervisory issue may be preferable to establishing a more-formal arrangement. Similarly, the intensity of cooperation may vary among arrangements, ranging from information sharing to more-extensive consultation and cooperation arrangements.[181] Information sharing may include the exchange of supervisory and oversight information (both public and non-public); the exchange of perspectives on risk-management controls, safety, and soundness; or plans for the potential recovery, wind-down, or resolution of the FMI.[182] Relevant authorities should seek to achieve a cooperative arrangement that employs an appropriate combination of form and scope to achieve an effective outcome. Cooperative arrangements should be managed to ensure the efficiency and effectiveness of the cooperation with respect to the number of authorities participating in such cooperative arrangements.

4.5.6. For an FMI where cooperative arrangements are appropriate, at least one authority should accept responsibility for establishing efficient and effective cooperation arrangements among all relevant authorities. In international cooperative arrangements where no other authority accepts this responsibility, the presumption is the authority or authorities with primary responsibility in the FMI's home jurisdiction should accept this responsibility. Cooperation with other authorities should be guided by relevant international principles on cooperative arrangements for the regulation, supervision, and oversight of FMIs, such as the CPSS's *Central bank oversight of payment and settlement systems report* and IOSCO's *Principles regarding cross-border supervisory cooperation*. This responsibility addresses cooperation among authorities in the application of the principles and is intended to complement, but does not replace or supersede, any relevant guiding documents that exist for CPSS and IOSCO.

4.5.7. The acceptance of responsibility for establishing the cooperation arrangement for an FMI does not in itself confer any rights, supersede any national laws, or prejudice any bilateral or multilateral information sharing arrangements. The duties of an authority with such responsibility would typically include (a) proactively proposing arrangements for cooperation that would best meet the relevant authorities' objectives, (b) facilitating coordination and cooperation among the authorities, (c) ensuring transparency in the arrangements, (d) acting, where relevant, as a central point for the information exchanged between the FMI and the relevant authorities, and (e) undertaking or coordinating periodic

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[180] Such arrangements can be either bilateral or multilateral and may be implemented through colleges, regulatory networks, oversight committees, or other cooperative arrangements (for example, statements of intent or official exchanges of letters) or through ad hoc communication.

[181] These arrangements may define the roles and responsibilities of the relevant authorities in specific (for example, crisis) scenarios.

[182] In the resolution context, relevant authorities also may exchange information regarding the resolvability of a particular FMI.

assessments of the FMI against the principles in consultation with other authorities that have responsibilities with respect to the FMI.

4.5.8. Where several authorities have responsibilities in relation to the same FMI, at least one authority should accept responsibility for ensuring that the FMI is periodically assessed against the principles. Authorities should consult with each other, where practicable, and share assessments to support authorities with primary responsibility for the FMI's supervision or oversight and for which the FMI is systemically important. Information sharing and open discussion with respect to the principles should help authorities avoid sending the FMI conflicting messages or imposing unnecessarily burdensome requirements on the FMI. Assessments and the related consultation and information sharing should be conducted without prejudice to the relevant authorities' statutory powers or legal frameworks.

Payment and settlement arrangements

4.5.9. An FMI's payment and settlement arrangements and its related liquidity risk-management procedures in any currency for which the FMI's settlements are systemically important should be assessed against the principles by the authority or authorities with primary regulation, supervision, or oversight responsibility with respect to the FMI. When conducting these reviews, the authority or authorities should consider the views of the central banks of issue. Central banks of issue may have an interest in an FMI's payment and settlement arrangements and its related liquidity risk-management procedures because of their roles in implementing monetary policy and maintaining financial stability. Further, if a central bank of issue is required under its responsibilities to conduct its own assessment of these arrangements and procedures, the central bank should consider the views of the authority or authorities with primary responsibility with respect to the FMI.

Advance notification

4.5.10. Relevant authorities should provide advance notification, where practicable and otherwise as soon as possible thereafter, regarding pending material regulatory changes and adverse events with respect to the FMI that may significantly affect another authority's regulatory, supervisory, and oversight interests. In particular, for cross-border or multicurrency FMIs, where other authorities may have an interest in the FMI's observance of the principles, advance notification arrangements should take into account the authorities' responsibilities with respect to the FMI's potential systemic importance to their jurisdictions. The views of other authorities put forward through consultations should be considered, as appropriate, in connection with regulatory actions taken with respect to the FMI, including when the FMI is in a recovery, wind-down, or resolution scenario.

Timely access to trade data

4.5.11. Authorities primarily responsible for the regulation, supervision, and oversight of a TR that maintains data pertaining to other jurisdictions should coordinate with other relevant authorities to ensure timely and effective access to trade data and establish an appropriate data access process that is fair and consistent with the responsibilities of the other relevant authorities, to the extent legally permissible. All relevant authorities should mutually support each other's access to trade data in which they have a material interest in furtherance of their regulatory, supervisory, and oversight responsibilities, regardless of the particular organizational form or geographic location of a TR.

No pre-emption of statutory authority

4.5.12. Each authority maintains its discretion to discourage the use of an FMI located in another jurisdiction or the provision of services to such an FMI if, in the authority's judgment, the FMI is not prudently designed or managed or the principles are not adequately observed. This would be an option that would only be considered in extreme circumstances, and typically after consultation with the authority or authorities with primary responsibility for the supervision or oversight of the FMI. An example of such a circumstance would be if the authority concerned had been unable to secure changes to the FMI's risk controls which it regarded as necessary given the FMI's systemic importance in its jurisdiction. An authority exercising such discretion should provide a clear rationale for the action taken both to the FMI and to the authority or authorities with direct responsibility for the supervision or oversight of the FMI.

4.5.13. Cooperative arrangements between authorities in no way prejudice the statutory or legal or other powers of each participating authority, nor do these arrangements constrain in any way an authority's powers to fulfil its statutory or legislative mandate or its discretion to act in accordance with those powers. International cooperation for enforcement activities regarding persons other than FMIs is not covered by this responsibility. For IOSCO members, international cooperation for enforcement activities is governed by the *Multilateral memorandum of understanding for cooperation concerning consultation and cooperation and the exchange of information*.[183]

[183] See IOSCO, *Multilateral memorandum of understanding for cooperation concerning consultation and cooperation and the exchange of information*, May 2002.

Annex A:
Mapping of CPSIPS, RSSS, and RCCP standards to the principles in this report

The table below maps the CPSIPS, RSSS, and RCCP standards to the principles in this report. For example, Core Principle III of the *Core Principles for Systemically Important Payment Systems* is covered by Principles 3, 4, and 7 in this report.

Previous international standards		PFMI
Core principles for systemically important payment systems		
Core Principle I:	Legal basis	1
Core Principle II:	Understanding financial risks	23
Core Principle III:	Management of financial risks	3, 4, 7
Core Principle IV:	Prompt final settlement	8
Core Principle V:	Settlement in multilateral netting systems	4, 5, 7
Core Principle VI:	Settlement assets	9
Core Principle VII:	Security and operational reliability	17
Core Principle VIII:	Efficiency	21
Core Principle IX:	Access criteria	18
Core Principle X:	Governance	2
Responsibility A:	Disclosure of objectives, role and major policies	A, C
Responsibility B:	Compliance of central bank systems	D
Responsibility C:	Oversight of non-central bank systems	B, D
Responsibility D:	Cooperation with other authorities	E
Recommendations for securities settlement systems		
Recommendation 1:	Legal framework	1
Recommendation 2:	Trade confirmation	Annex C
Recommendation 3:	Settlement cycles	Annex C
Recommendation 4:	Central counterparties (CCPs)	Annex C
Recommendation 5:	Securities lending	Annex C
Recommendation 6:	Central securities depositories (CSDs)	11
Recommendation 7:	Delivery versus payment (DVP)	12
Recommendation 8:	Timing of settlement finality	8
Recommendation 9:	CSD risk controls to address participants’ failure to settle	4, 5, 7
Recommendation 10:	Cash settlement assets	9
Recommendation 11:	Operational reliability	17
Recommendation 12:	Protection of customers’ securities	11, 14, 16, Annex C
Recommendation 13:	Governance	2
Recommendation 14:	Access	18
Recommendation 15:	Efficiency	21
Recommendation 16:	Communication procedures and standards	22
Recommendation 17:	Transparency	23
Recommendation 18:	Regulation and oversight	Responsibilities A-E
Recommendation 19:	Risks in cross-border links	20

Previous international standards (cont)		PFMI
Recommendations for central counterparties		
Recommendation 1:	Legal risk	1
Recommendation 2:	Participation requirements	18
Recommendation 3:	Measurement and management of credit exposures	4
Recommendation 4:	Margin requirements	5, 6
Recommendation 5:	Financial resources	4, 5, 6, 7
Recommendation 6:	Default procedures	13
Recommendation 7:	Custody and investment risks	16
Recommendation 8:	Operational risk	17
Recommendation 9:	Money settlements	9
Recommendation 10:	Physical deliveries	10, 12
Recommendation 11:	Risks in links between CCPs	20
Recommendation 12:	Efficiency	21
Recommendation 13:	Governance	2
Recommendation 14:	Transparency	23
Recommendation 15:	Regulation and oversight	Responsibilities A-E

Annex B:
Mapping of the principles in this report to CPSIPS, RSSS, RCCP, and other guidance

The table below illustrates how the principles in this report relate to the CPSIPS, RSSS, and RCCP standards, as well as other guidance. For example, Principle 18 in this report harmonises and builds upon CPSIPS Principle 9, RSSS Recommendation 14, and RCCP Recommendation 2.

Principles for FMIs		**CPSIPS**	**RSSS**	**RCCP**
Principles for FMIs				
Principle 1:	Legal basis	1	1	1
Principle 2:	Governance	10	13	13
Principle 3:	Framework for the comprehensive management of risks	3	–	–
Principle 4:	Credit risk	3, 5	9	3, 5
Principle 5:	Collateral	5	9	4, 5
Principle 6:	Margin	–	–	4, 5
Principle 7:	Liquidity risk	3, 5	9	5
Principle 8:	Settlement finality	4	8	–
Principle 9:	Money settlements	6	10	9
Principle 10:	Physical deliveries	–	–	10
Principle 11:	Central securities depositories	–	6, 11, 12	–
Principle 12:	Exchange-of-value settlement systems	–	7	10
Principle 13:	Participant-default rules and procedures	–	–	6
Principle 14:	Segregation and portability	–	12	–
Principle 15:	General business risk	–	–	–
Principle 16:	Custody and investment risks	–	12	7
Principle 17:	Operational risk	7	11	8
Principle 18:	Access and participation requirements	9	14	2
Principle 19:	Tiered participation arrangements	–	–	–
Principle 20:	FMI links	–	19	11
Principle 21:	Efficiency and effectiveness	8	15	12
Principle 22:	Communication procedures and standards	–	16	–
Principle 23:	Disclosure of rules, key procedures, and market data	2	17	14
Principle 24:	Disclosure of market data by trade repositories	–	–	–
Responsibilities of central banks, market regulators, and other relevant authorities for FMIs				
Responsibility A:	Regulation, supervision, and oversight of FMIs	A	18	15
Responsibility B:	Regulatory, supervisory and oversight powers and resources	C	18	15
Responsibility C:	Disclosure of objectives and policies	A	18	15
Responsibility D:	Application of the principles for FMIs	B, C	–	–
Responsibility E:	Cooperation with other authorities	D	18	15

Note: Additional source documents for the section on responsibilities of central banks, market regulators, and other relevant authorities include: CPSS, *Central bank oversight of payment and settlement systems*, May 2005, and IOSCO, *Principles regarding cross-border supervisory cooperation*, May 2010.

Annex C:
Selected RSSS marketwide recommendations

The RSSS marketwide recommendations on trade confirmation, settlement cycle, CCPs, and securities lending were not part of the CPSS and Technical Committee of IOSCO's review of standards for FMIs. As a result, these marketwide recommendations remain in effect and are provided below as reference.

Recommendation 2: Trade confirmation

Confirmation of trades between direct market participants should occur as soon as possible after trade execution, but no later than trade date (T+0). Where confirmation of trades by indirect market participants (such as institutional investors) is required, it should occur as soon as possible after trade execution, preferably on T+0, but no later than T+1.

3.10 The first step in settling a securities trade is to ensure that the buyer and the seller agree on the terms of the transaction, a process referred to as trade confirmation. Often a broker-dealer or member of an exchange (a direct market participant) acts as an intermediary in executing trades on behalf of others (indirect market participants). In such circumstances, trade confirmation often occurs on two separate tracks: confirmation of the terms of the trade between direct participants and confirmation (sometimes termed "affirmation") of the intended terms between each direct participant and the indirect participant for whom the direct participant is acting. (Generally, indirect market participants for whom confirmations are required include institutional investors and cross-border clients.) On both tracks, agreement of trade details should occur as soon as possible so that errors and discrepancies can be discovered early in the settlement process. Early detection should help to avoid errors in recording trades, which could result in inaccurate books and records, increased and mismanaged market risk and credit risk, and increased costs. While this process is occurring, the back offices of the direct market participants, indirect market participants and custodians that act as agents for the indirect market participants need to prepare settlement instructions, which should be matched prior to the settlement date. Speedy, accurate verification of trades and matching settlement instructions is an essential precondition for avoiding settlement failures, especially when the settlement cycle is relatively short. (See Recommendation 3 regarding the length of settlement cycles.)

3.11 Trade confirmation systems are increasingly becoming automated. Many markets already have in place systems for the automatic comparison of trades between direct market participants. (In many markets, the use of electronic trading systems obviates the need for direct market participants to match the terms of the trade.) Automated matching systems are also being proposed and implemented for trade confirmation between direct market participants and indirect market participants and for the matching of settlement instructions. Automation improves processing times by eliminating the requirement to send information back and forth manually between parties and by avoiding the errors inherent in manual processing.

3.12 At its most sophisticated, automation allows manual intervention to be eliminated from post-trade processing through the implementation of straight through processing (STP), that is, procedures that require trade data to be entered only once and then use those same data for all post-trade requirements related to settlement. Many practitioners believe that market-wide achievement of STP is essential, both for maintaining high settlement rates as volumes increase and for ensuring timely settlement of cross-border trades, particularly if reductions in settlement cycles are to be achieved. STP systems may use a common message format or use a translation facility that either converts different message formats into a common format or translates between different formats. Several initiatives aim to achieve STP. These initiatives should be encouraged, and direct and indirect market participants should achieve the degree of internal automation necessary to take full advantage of whatever solutions emerge.

Recommendation 3: Settlement cycles

Rolling settlement should be adopted in all securities markets. Final settlement should occur no later than T+3. The benefits and costs of a settlement cycle shorter than T+3 should be evaluated.

3.13 Under a rolling settlement cycle, trades settle a given number of days after the trade date rather than at the end of an "account period", thereby limiting the number of outstanding trades and reducing aggregate market exposure. The longer the period from trade execution to settlement, the greater the risk that one of the parties may become insolvent or default on the trade, the larger the number of unsettled trades, and the greater the opportunity for the prices of the securities to move away from the contract prices, thereby increasing the risk that non-defaulting parties will incur a loss when replacing the unsettled contracts. In 1989, the G30 recommended that final settlement of cash transactions should occur on T+3, that is, three business days after the trade date. However, the G30 recognised that "to minimise counterparty risk and market exposure associated with securities transactions; same day settlement is the final goal".

3.14 This recommendation retains T+3 settlement as a minimum standard. Markets that have not yet achieved a T+3 settlement cycle should identify impediments to achieving T+3 and actively pursue the removal of those impediments. Many markets already are settling at a shorter interval than T+3. For example, many government securities already settle on T+1 or even T+0, and some equity markets are currently considering a T+1 settlement cycle. The standard judged appropriate for a type of security or market will depend upon factors such as transaction volume, price volatility and the extent of cross-border trading in the instrument. Each securities market should evaluate whether a cycle shorter than T+3 is appropriate, given the risk reduction benefits that could be achieved, the costs that would be incurred and the availability of alternative means of limiting pre-settlement risk, such as trade netting through a CCP (see Recommendation 4 below). Depending on these factors, some markets may conclude that different types of securities should have different settlement cycles.

3.15 Reducing the cycle is neither costless nor without certain risks. This is especially true for markets with significant cross-border activity because differences in time zones and national holidays, and the frequent involvement of multiple intermediaries, make timely trade confirmation more difficult. In most markets, a move to T+1 (perhaps even to T+2) would require a substantial reconfiguration of the trade settlement process and an upgrade of existing systems. For markets with a significant share of cross-border trades, substantial system improvements may be essential for shortening settlement cycles. Without such investments, a move to a shorter cycle could generate increased settlement fails, with a higher proportion of participants unable to agree and exchange settlement data or to acquire the necessary resources for settlement in the time available. Consequently, replacement cost risk would not be reduced as much as anticipated and operational risk and liquidity risk could increase.

3.16 Regardless of the settlement cycle, the frequency and duration of settlement failures should be monitored closely. In some markets, the benefits of T+3 settlement are not being fully realised because the rate of settlement on the contractual date falls significantly short of 100%. In such circumstances, the risk implications of the fail rates should be analysed and actions identified that could reduce the rates or mitigate the associated risks. For example, monetary penalties for failing to settle could be imposed contractually or by market authorities; alternatively, failed trades could be marked to market and, if not resolved within a specified timeframe, closed out at market prices.

Recommendation 4: Central counterparties (CCPs)

The benefits and costs of a CCP should be evaluated. Where such a mechanism is introduced, the CCP should rigorously control the risks it assumes.

3.17 A central counterparty (CCP) interposes itself between trade counterparties, becoming the buyer to every seller and the seller to every buyer. Thus, from the point of view of market participants the credit risk of the CCP is substituted for the credit risk of the other participants. (In some markets many of the benefits of a CCP are achieved by establishing an entity that indemnifies market participants against losses from counterparty defaults without actually acting as CCP.) If a CCP manages its risks effectively, its probability of default may be less than that of all or most of the market participants. Moreover, a CCP often bilaterally nets its obligations vis-à-vis its participants, which achieves multilateral netting of each participant's obligations vis-à-vis all of the other participants. This can reduce substantially the potential losses in the event of the default of a participant, both on trades that have not reached settlement (replacement cost exposures) and on trades in the process of settlement (principal exposures). In addition, netting reduces the number and value of deliveries and payments needed to settle a given set of trades, thereby reducing liquidity risks and transaction costs.

3.18 Introduction of a CCP is another tool, in addition to shortening settlement cycles, for reducing counterparty credit risks. It is especially effective for reducing risks vis-à-vis active market participants, who often buy and sell the same security for settlement on the same date. In addition to these risk reduction benefits, the growing demand for CCP arrangements in part reflects the increasing use of anonymous electronic trading systems, where orders are matched according to the rules of the system and participants cannot always manage their credit risks bilaterally through their choice of counterparty.

3.19 Nevertheless, a CCP will not be appropriate in all markets. Establishing a CCP is not without costs. In particular, establishing the kind of robust risk-management system that a CCP must have (see discussion below) generally requires significant initial investments and ongoing expenses. Thus, individual markets should assess carefully the balance of the benefits and costs of a CCP. This balance will depend on factors such as the volume and value of transactions, trading patterns among counterparties, and the opportunity costs associated with settlement liquidity. A growing number of markets have determined that the benefits of implementing a CCP outweigh the costs.

3.20 If a CCP is established, it is important that it have sound risk management because the CCP assumes responsibility for risk management and reallocates risk among its participants through its policies and procedures. As a result, if a CCP does not perform risk management well, the CCP could increase risk to market participants. The ability of the system as a whole to withstand the default of individual participants depends crucially on the risk-management procedures of the CCP and its access to resources to absorb financial losses. The failure of a CCP would almost certainly have serious systemic consequences, especially where multiple markets are served by one CCP. Consequently, a CCP's ability to monitor and control the credit, liquidity, legal and operational risks it incurs and to absorb losses is essential to the sound functioning of the markets it serves. A CCP must be able to withstand severe shocks, including defaults by one or more of its participants, and its financial support arrangements should be evaluated in this context. Furthermore, there must be a sound and transparent legal basis for the netting arrangements, whether by novation or otherwise. For example, netting must be enforceable against the participants in bankruptcy. Without such legal underpinnings, net obligations may be challenged in judicial or administrative insolvency proceedings. If these challenges are successful, the CCP or the original counterparty may face additional settlement exposure. The CCP must also be operationally sound and must ensure that its participants have the incentive and the ability to manage the risks they assume.

3.21 CCPs adopt a variety of means to control risk. The precise means reflects the market served and the nature of the risks incurred. Access criteria are essential (see [Principle 18, formerly] Recommendation 14 on access). The CCP's exposures should be collateralised. Most CCPs require members to deposit collateral to cover potential market movements on open positions or unsettled transactions. Positions are also generally marked to market one or more times daily, with the CCP taking additional cash or collateral to cover any changes in the net value of the open positions of participants since the previous valuation and settlement. During volatile periods, CCPs may collect additional collateral to minimise further their exposure. CCPs should also have rules specifying clearly how defaults will be handled and how losses will be shared in the event that a defaulting firm's collateral fails to cover its exposure. For example, CCPs may require their members to contribute to default clearing funds, typically composed of cash or high-quality, liquid securities and calculated using a formula based on the volume of the participant's settlement activity. Those funds are often augmented through insurance or other financial support. Liquidity demands are usually met by some combination of clearing fund assets and firmly committed bank credit lines. Rules and procedures for handling defaults should be transparent to enable members and other market participants to assess the risks they assume because of their membership in and use of a CCP.

3.22 CCPs are currently developing global risk-management standards that draw on their common experience and expertise. In February 2001, senior executives of the European Association of Central Counterparty Clearing Houses (EACH) developed risk-management standards for their organisations. Subsequently, CCP-12, a group that includes CCPs from Asia and the Americas as well as Europe, has been working to revise the EACH standards and broaden their acceptance among CCPs.[184] Once CCP-12's work is finalised, national authorities should consider using it as a starting point when evaluating the risk-management procedures of a CCP.

Recommendation 5: Securities lending

Securities lending and borrowing (or repurchase agreements and other economically equivalent transactions) should be encouraged as a method for expediting the settlement of securities transactions. Barriers that inhibit the practice of lending securities for this purpose should be removed.

3.23 Mature and liquid securities lending markets (including markets for repurchase agreements and other economically equivalent transactions) generally improve the functioning of securities markets by allowing sellers ready access to securities needed to settle transactions where those securities are not held in inventory, by offering an efficient means of financing securities portfolios, and by supporting participants' trading strategies.[185] The existence of liquid markets for securities lending reduces the risks of failed settlements because market participants with an obligation to deliver securities that they have failed to receive and do not hold in inventory can borrow these securities and complete delivery. Securities lending markets also enable market participants to cover transactions that have already failed, thereby curing the failure sooner. In cross-border transactions, particularly

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[184] The CCP-12 is composed of the following entities: (1) the Australian Stock Exchange; (2) the Brazilian Clearing and Depository Corporation; (3) Eurex Clearing; (4) the Chicago Mercantile Exchange; (5) Clearnet; (6) Hong Kong Exchanges and Clearing Limited; (7) the London Clearing House; (8) S D Indeval, SA de C V; (9) Singapore Exchange Limited; (10) The Canadian Depository for Securities Limited; (11) The Depository Trust & Clearing Corporation; (12) The Options Clearing Corporation; and (13) the Tokyo Stock Exchange.

[185] For a thorough discussion of securities lending and repo agreements, see Technical Committee of IOSCO and CPSS, *Securities lending transactions: market development and implications,* 1999; CGFS, *Implications of repo markets for central banks*, 1999.

back-to-back transactions, it is often more efficient and cost-effective for a market participant to borrow a security for the delivery than to deal with the risk and costs associated with a settlement failure.

3.24 Liquid securities lending markets are therefore to be encouraged, subject to appropriate limits on their use for purposes prohibited by regulation or law. For example, borrowing to support short sales is illegal in some circumstances in some markets. Even in jurisdictions that restrict securities lending because of other public policy concerns, authorities should consider permitting lending to reduce settlement failures. Impediments to the development and functioning of securities lending markets should, as far as possible, be removed. In many markets, the processing of securities lending transactions involves manually intensive procedures. In the absence of robust and automated procedures, errors and operational risks increase, and it may be difficult to achieve timely settlement of securities lending transactions, which often need to settle on a shorter cycle than regular trades. The scope for improvement in the processing of cross-border borrowing and lending transactions is particularly large. Some CSDs seek to overcome these impediments by providing centralised lending facilities; others offer services intended to support the bilateral lending market. The needs of individual markets will differ, and market participants and CSDs should evaluate the usefulness of the different types of facilities.

3.25 Other impediments might arise from tax or accounting policies, from legal restrictions on lending, from an inadequate legal underpinning for securities lending or from ambiguities about the treatment of such transactions in a bankruptcy. One of the most significant barriers to development may be related to taxation of securities lending transactions. A tax authority's granting of tax neutrality to the underlying transaction and the elimination of certain transaction taxes have served to increase activity in several jurisdictions. Accounting standards also have an influence on the securities lending market, particularly with respect to whether, and under what conditions, collateral must be reflected on the balance sheet. Authorities in some jurisdictions restrict the types or amounts of securities that may be loaned, the types of counterparties that may lend securities, or the permissible types of collateral. Uncertainty about the legal status of transactions, for example their treatment in insolvency situations, also inhibits development of a securities lending market. The legal and regulatory structure must be clear so that all parties involved understand their rights and obligations.

3.26 While securities lending may be a useful tool, it presents risk to both the borrower and the lender. The securities lent or the collateral may not be returned when needed, because of counterparty default, operational failure or legal challenge, for example. Those securities would then need to be acquired in the market, perhaps at a cost. Counterparties to securities loans should employ appropriate risk-management policies, including conducting credit evaluations, collateralising exposures, marking exposures and collateral to market daily, and employing master legal agreements.

Recommendation 6: Central securities depositories (CSDs)

Securities should be immobilised or dematerialised and transferred by book entry in CSDs to the greatest extent possible.

3.27 There are several different ways for beneficial owners to hold securities. In some jurisdictions, physical securities circulate and beneficial owners may keep securities in their possession, although beneficial owners typically employ a custodian to hold them to reduce risks and safekeeping costs. The costs and risks associated with owning and trading securities may be reduced considerably through immobilisation of physical securities, which involves concentrating the location of physical securities in a depository (or CSD). To promote immobilisation of all certificates of a particular issue, a jurisdiction could encourage the issuance of a global note, which represents the whole issue. A further step away from circulating physical securities is full dematerialisation of a securities issue. In this approach, there is no global note issued, as the rights and obligations stem from book entries in an electronic register.

3.28 In addition to differences in physical arrangements for holding securities, there are important differences in the legal arrangements. Holding systems may be categorised generally as direct or indirect (see [Annex D, formerly] Annex 2 [of the RSSS]). Each type of system has advantages and disadvantages and either type of system can be designed in a manner that complies with these Recommendations. In jurisdictions that operate a direct holding system but in which the CSD is not the official registrar of the issuer, a transfer of securities in the CSD should result automatically in the transfer of legal title to the securities in the official register of the issuer.

3.29 The immobilisation or dematerialisation of securities and their transfer by book entry within a CSD significantly reduces the total costs associated with securities settlements and custody. By centralising the operations associated with custody and transfer within a single entity, costs can be reduced through economies of scale. In addition, efficiency gains can be achieved through increased automation, which reduces the errors and delays inherent in manual processing. By reducing costs and improving the speed and efficiency of settlement, book entry settlement also supports the development of securities lending markets, including markets for repurchase agreements and other economically equivalent transactions. These activities, in turn, enhance the liquidity of securities markets and facilitate the use of securities collateral to manage counterparty risks, thereby increasing the efficiency of trading and settlement. Effective governance (see [Principle 2, formerly] Recommendation 13) is necessary, however, to ensure that these benefits are not lost as a result of monopolistic behaviour by the CSD.

3.30 The immobilisation or dematerialisation of securities also reduces or eliminates certain risks, for example destruction or theft of certificates. The transfer of securities by book entry is a precondition for the shortening of the settlement cycle for securities trades, which reduces replacement cost risks. Book entry transfer also facilitates delivery versus payment, thereby eliminating principal risks.

3.31 Thus, for both safety and efficiency reasons, securities should be immobilised or dematerialised in CSDs to the greatest extent possible. In practice, retail investors may not be prepared to give up their certificates. However, it is not necessary to achieve complete immobilisation to realise the benefits of CSDs. It may be sufficient that the most active market participants immobilise their holdings. Less active investors that insist on holding certificates should bear the costs of their decisions.

Recommendation 12: Protection of customers' securities

Entities holding securities in custody should employ accounting practices and safekeeping procedures that fully protect customers' securities. It is essential that customers' securities be protected against the claims of a custodian's creditors.

3.60 Custody risk is the risk of a loss on securities held in custody occasioned by a custodian's (or subcustodian's) insolvency, negligence, misuse of assets, fraud, poor administration, inadequate record keeping, or failure to protect a customer's interests in securities (including voting rights and entitlements).[186] Although custodians are predominantly commercial banks, CSDs also hold and administer securities on behalf of their direct participants, and thus present custody risk. (Direct participants in a CSD may hold securities both for their own account and on behalf of customers.)

[186] For a thorough discussion of custody issues, see Technical Committee of IOSCO, *Client Asset Protection*, 1996.

3.61 A custodian should employ procedures ensuring that all customer assets are appropriately accounted for and kept safe whether it holds them directly or through a subcustodian. Because customer securities must also be protected against the claims of a custodian's creditors, a customer's claims against a custodian are typically given priority or are given preferential treatment under insolvency law. (Nonetheless, customer assets could be subject to liens in favour of the custodian if, for example, the customer has pledged them to secure an obligation to the custodian.) One way that a customer can be protected in the event of a custodian's insolvency is through segregation (identification) of customer securities on the books of the custodian (and of all subcustodians, and ultimately, the CSD). Even when customer securities are segregated from a custodian's own securities, customers may still be at risk of a loss if the custodian does not hold sufficient securities to satisfy all customer claims or if an individual customer's securities cannot be readily identified. Thus, entities that hold securities in custody (or maintain records of balances of securities) should reconcile their records regularly to keep them current and accurate. Other ways to safeguard or protect customers against misappropriation and theft include internal controls and insurance or other compensation schemes.

3.62 Ideally, a customer's securities are immune from claims made by third-party creditors of the custodian. Although the ideal is not realised in all circumstances, when the entities through which securities are held are performing their responsibilities effectively, the likelihood of a successful legal claim made on a customer's securities by a third-party creditor is minimised. In addition, in the event of a custodian's or subcustodian's insolvency, it should be highly improbable that a customer's securities could be frozen or made unavailable for an extended period of time. If that were to happen, the customer could come under liquidity pressures, suffer price losses or fail to meet its obligations. Segregation is a common device that facilitates the movement of a customer's positions by a receiver to a solvent custodian, thereby enabling customers to manage their positions and meet their settlement obligations. To bring these results about, it is essential that the legal framework support segregation of customer assets or other arrangements for prioritising claims in bankruptcy that serve to protect customers' holdings. It is also important for supervisory authorities to enforce effective segregation of customer assets by custodians.

3.63 Cross-border holdings of securities often involve several layers of intermediaries acting as custodians. For example, an institutional investor may hold its securities through a global custodian, which, in turn, holds securities in a subcustodian that is a member of the local CSD. Or a broker-dealer may hold its securities through its home country CSD or an international CSD, which, in turn, holds its securities through a cross-border link with the local CSD or through a local custodian. Mechanisms to protect customer assets may vary depending on the type of securities holding system instituted in a jurisdiction. Beneficial owners of securities should understand the extent of a custodian's responsibility for securities held through intermediate custodians.

3.64 To prevent unexpected losses, a global custodian should determine whether the legal framework in the jurisdiction of each of its local subcustodians has appropriate mechanisms to protect customer assets. Alternatively, a global custodian should keep its customers apprised of the custody risk arising from holding securities in a particular jurisdiction. Global custodians should also ascertain whether their local subcustodians employ appropriate accounting, safekeeping and segregation procedures for customer securities. Likewise, when home country CSDs and ICSDs establish links to other CSDs, they should ensure that those other CSDs protect customer securities adequately. With complex cross-border arrangements, it is imperative that sound practices and procedures be used by all entities in the chain of custodians so that the interests of beneficial owners are protected from legal actions relating to the insolvency of, or the commission of fraud by, any one of the custodians. Each jurisdiction should take the attributes of its securities holding system into account in judging whether its legal framework includes appropriate mechanisms to protect a custodian's customer against loss upon the insolvency of, or the commission of fraud by, a custodian.

Annex D:
Summary of designs of payment systems, SSSs, and CCPs

This annex provides a high-level description of various institutional designs associated with payment systems, securities settlement systems (SSSs), and central counterparties (CCPs).

Payment systems

A payment system is a set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement. A payment system is typically based on an agreement between or among participants and the operator, and the transfer of funds is effected using an agreed-upon operational infrastructure. A payment system is generally categorised as either a retail payment system or a large-value payment system (LVPS).[187] A retail payment system is a funds transfer system that typically handles a large volume of relatively low-value payments in such forms as cheques, credit transfers, direct debits, and payment card transactions. An LVPS is a funds transfer system that typically handles large-value and high-priority payments.

Organisational structures

A payment system can take on different organizational forms. A system may include a central entity that acts as the payment system operator (that is, it runs the infrastructure that processes payment obligations, settlement obligations, or both; communicates with participants; and, in some cases, calculates net obligations), as a settlement institution (that is, it debits and credits the balances in settlement accounts on its books), or as both. Further, the settlement institution may act as a type of central counterparty to each payment obligation (henceforth, payment), provide a guarantee of finality or settlement for each payment accepted to the system, or offer no form of settlement guarantee and let any associated risks remain with the participants. Other possible arrangements include an operating entity that is different from the settlement institution and operates some or all of the technical elements of the payment system on behalf of the participants or the settlement institution. In some cases, the operator will operate the system on behalf of a broader industry group, statutory body, or other organization as part of a payment scheme.[188] Still other arrangements may involve multilateral clearing and settlement systems with very limited roles for central entities.

Institutional designs

Payment systems can be categorised generally into real-time gross settlement (RTGS) systems, deferred (or designated-time) net settlement (DNS) systems, and “hybrid” systems. The key distinctions among these three systems involve the form and timing of settlement.

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[187] See also, CPSS, *New developments in large-value payment systems*, May 2005

[188] Some countries may have payment schemes for one or more types of payments in which there exists a rule-making body that sets rules or provides some form of governance applicable to the operator, the participants, or a broader set of parties.

Real-time gross settlement systems

RTGS systems settle payments continuously in real time (that is, without deferral) and on a gross basis, typically on a payment-by-payment basis. A payment is accepted by the system once it successfully passes the system's validity and conditionality checks (such as that the sender has sufficient funds or credit available to send the payment) and is typically unconditional and irrevocable.[189] If the payment cannot be validated, it is generally rejected back to the sender. If the payment is validated but does not pass the conditionality checks, the payment is either queued or rejected back to the sender (although other alternatives may exist in some systems). RTGS systems provide the advantage that payments are settled with finality on a payment-by-payment basis in the course of the day, thus reducing intraday credit and liquidity exposures between participants. A downside of RTGS systems is that they require participants to have sufficient liquidity to cover the principal amount of each payment and can therefore require large amounts of intraday liquidity from participants.

Deferred net settlement systems

In DNS systems, payments are accumulated and netted throughout the day (or possibly once per day), and settlement of the net amount takes place at the end of the day, if not more frequently intraday. By netting payment values among participants, DNS systems require significantly less liquidity for settlement, as compared to RTGS systems. However, DNS systems may expose participants to credit and liquidity risks for the period during which settlement is deferred. Settlement finality is only achieved at the end of the day (or at designated times during the day) in DNS systems and thus if there is no settlement guarantee, either by the system or its participants, there is no certainty that the payments will be settled until that point in time. If a participant fails to meet its payment obligation when due, some or all processed payments could be unwound, thereby exposing participants to liquidity risk and possibly credit risk depending on the design, rules, and legal framework of the payment system.

Hybrid systems and liquidity-saving mechanisms

In recent years, distinctions between RTGS and DNS systems have become less clear. Some DNS systems have increased the frequency of intraday final settlement to reduce risks associated with delayed settlement. Many RTGS systems have incorporated liquidity-saving features akin to netting in DNS systems in order to economise on participants' use of liquidity. A range of system designs with liquidity-saving mechanisms and settlement priority options are sometimes classified as hybrid systems.

In general, liquidity-saving mechanisms include frequent netting or offsetting of payments during the course of the operating day. A typical approach is to hold payments in a central queue and to net or offset those payments on a bilateral or multilateral basis at frequent intervals. To the extent that resulting potential net debit positions are fully covered, the payments can be settled immediately. Liquidity-saving mechanisms reduce the amount of liquidity needed relative to traditional RTGS systems by using the potential liquidity from a participant's incoming payments to settle outgoing payments via netting or offsetting. Liquidity-saving mechanisms also reduce settlement risk relative to DNS systems by providing intraday final settlement after each round of netting. However, systems with these mechanisms may require more liquidity than pure DNS systems, which typically conduct settlement once per day, and may involve greater settlement delays for some payments than pure RTGS systems.

[189] Some systems may have a legal or technical sequence of events that differs from this description yet achieves the same purposes.

Other payment system enhancements include the integration of recurrent netting or offsetting with real-time settlement functionality and the addition of prioritisation options for payment processing or settlement. Such functionality allows a participant either to settle a particular payment in real time (or near real time) or to place the payment in a queue for deferred settlement. In many cases, systems have adopted complex algorithms for settling payments. For example, some systems first attempt to settle a payment on a gross basis. If gross settlement is not possible (for example, due to insufficient funds or lack of available credit), the system attempts to bilaterally or multilaterally offset the payment against other pending payments, thereby reducing or eliminating the amount of liquidity required to settle the payment. A number of different optimisation routines can be used to match, offset, or net queued payments, and the complexity of these algorithms varies greatly. Some systems also allow participants to set settlement or processing priorities among different payments or payment types.

Payment process

Regardless of their design, payment systems typically have four conceptual stages of processing: submission, validation, conditionality, and settlement (see also Box 3).[190]

Submission

The first stage of the payment process is the submission of a payment to the payment system. A payment can take on a number of forms based on the type of payment being submitted (for example, time-critical versus non time-critical payments; balances of ancillary systems or cash legs of securities transactions for LVPS; or ACH, debit or credit transfers for retail payment systems). Payments may differ based on the direction of funds flows (for example, credit transfers or debit transfers), format, legal status, and medium (for example, in electronic form or physical form). Also, some payments may be submitted as individual payments or as part of a file of payments.

Validation

Once a payment is submitted, it must pass through the payment system's validation procedures before it can be accepted for final settlement. The type of validation the payment system performs depends on its specific design, but typically includes verifying that the payment instruction includes certain key data elements. These validation procedures may also include security measures in addition to those employed by the network provider to verify the identity of the sender of the payment as well as to ensure the integrity and non-repudiation of the payment itself. In the event that the payment system cannot validate a payment, it is usually returned to the sending participant and is not considered eligible for settlement. If the validation is successful, the payment system subjects the payment to conditionality requirements.

Conditionality

Another key feature of a payment system's design is the set of conditions that a payment must meet in order for it to be accepted by the system and be settled. In the most straightforward case, after the payment has been validated, the only condition for settlement is whether the sender has sufficient funds available (or access to intraday credit).[191] If the

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[190] See also CPSS, *New developments in large-value payment systems*, May 2005.

[191] Additional conditions for settlement may be created by limits set either by a participant or by the system. While limits typically restrict credit exposures, a recent feature in some systems providing continuous intraday finality is the introduction of position or sender limits in order to control the outflow of settlement funds.

payment exceeds the amount of funds available, the payment system may reject the payment. Alternatively, the system may temporarily place the payment in a system queue. The queued payment will be released from the queue at a later stage when all relevant conditions for settlement are satisfied. Even in systems without a queue, other options beside rejection may be possible. For example, in the case that a payment cannot be settled under a sender's limit, it is possible that the payment may still be settled subject to the sender undergoing a programme of ex-post counselling.

Settlement

A payment is final at the point in time when it becomes irrevocable and unconditional. This precise moment typically depends on the underlying legal regime and the rules of the payment system itself. In some systems, a payment becomes irrevocable as soon as the system validates it (that is, queued payment orders cannot be revoked by the sender). However, the payment may not provide funds irrevocably and unconditionally to the receiver or the beneficiary until settlement occurs and is final. In other systems, payments remain revocable until settlement takes place and, lastly, in some systems a payment can only be revoked with the receiver's consent. In general, however, in an RTGS system, a payment becomes final after it is validated by the payment system and has passed the necessary conditionality checks.

In a DNS system, a payment is typically considered final upon final settlement at the designated time(s). However, in DNS systems, it is possible for settlement of the net amount to be final, while individual payments are not finally settled or paid. Some DNS systems may also provide an explicit settlement guarantee, either from the operator of the system or from the participants as a group. Such systems would also have financial mechanisms to support such a guarantee.

Box 3

Conceptual stages of payment processing

Submission	**Validation**	**Conditionality**	**Settlement**
• Sender submits payment to the payment system.	• The payment system validates payment's key data elements. • If the payment passes validation, the system accepts it subject to conditionality. • If the payment fails any of the validation checks, it is rejected back to the sender.	• The payment system checks that necessary conditions for settlement are satisfied (such as sufficient funds availability and consistency with any established limits). • A payment that fails conditionality checks is either placed back in the queue until the necessary validation checks are passed or is rejected back to sender.	• Settlement finality occurs when the account of the receiver within the payment system has been credited and settlement is unconditional and irrevocable. In an RTGS system, final settlement follows immediately after the conditionality tests are passed. • In a DNS system, the payment is netted against other payments submitted to the system. Final settlement takes place at a designated time.

Time

Securities settlement systems

An SSS enables securities to be transferred and settled by book entry according to a set of predetermined multilateral rules.[192] An SSS typically allows transfers of securities either free of payment or against payment. When transfer is against payment, the SSS should provide delivery versus payment (DvP). *DvP is settlement mechanism that links a securities transfer and a funds transfer in such a way as to ensure that delivery occurs* ***if and only if*** *the corresponding funds transfer occurs.*[193] An SSS may be part of a formal organisational structure that includes other FMIs, or it may operate as a completely independent entity with

[192] It should be noted that the definition of an SSS in this report is narrower than the one used in the RSSS, which defined an SSS broadly to include the full set of institutional arrangements for confirmation, clearance, and settlement of securities trades, and safekeeping of securities across a securities market.

[193] An analogous settlement mechanism of delivery versus delivery (DvD) also exists. A DvD settlement mechanism is a securities settlement mechanism which links two or more securities transfers in such a way as to ensure that delivery of one security occurs if and only if the corresponding delivery(ies) of the other security(ies) occur(s).

its own governance structure and operating rules. An independent SSS may also provide additional securities clearing and settlement services, such as the confirmation of trades and settlement obligations. An SSS may operate independently of, or as part of, a CSD. Further, an SSS can provide a guarantee of finality or settlement from the system itself or its participants for each transaction accepted by the system, or offer no form of guarantee at all and simply provide the technical operations of an SSS.

Institutional designs

An SSS can use a number of DvP settlement mechanisms to settle obligations. These mechanisms may involve either the simultaneous settlement of securities and funds or the sequential settlement of securities and funds. In addition, settlement may occur on an obligation-by-obligation (that is, gross) or on a net basis. There are three common models for achieving DvP.[194] The first, DvP model 1, is a system that settles transfers for both securities and funds on a gross basis, with final (irrevocable and unconditional) transfer of securities from the seller to the buyer (delivery) occurring at the same time as final transfer of funds from the buyer to the seller (payment). The second, DvP model 2, is a system that settles securities transfer obligations on a gross basis, with final transfer of securities from the seller to the buyer occurring throughout the processing cycle, but settles funds transfer obligations on a net basis, with final transfer of funds from the buyer to the seller occurring at the end of the processing cycle. Lastly, the third, DvP model 3, is a system that settles transfer obligations for both securities and funds on a net basis, with final transfers of both securities and funds occurring at the end of the processing cycle.

Model 1: Gross, simultaneous settlements of securities and funds transfers

The essential characteristic of a DvP model 1 system is the simultaneous settlement of individual securities transfers and associated funds transfers. The system typically maintains both securities and funds accounts for participants and makes all transfers by book entry.[195] An "against payment" transfer is settled by debiting the seller's securities account, crediting the buyer's securities account, debiting the buyer's funds account, and crediting the seller's funds account.[196] All transfers are final at the instant the debits and credits are posted to the securities and funds accounts. Overdrafts (negative balances) on securities accounts are prohibited, but the settlement agent typically provides intraday credit on funds accounts to facilitate settlement, subject to the SSS's operating rules and risk-management controls. An advantage of model 1 is that transactions become final on an obligation-by-obligation basis during the course of the settlement day, thus reducing credit and liquidity exposures among participants or between a participant and the SSS. A disadvantage of model 1, however, is that it requires participants to cover the principal value of the funds leg of each obligation, thus requiring a potentially large amount of liquidity from participants. To help mitigate this disadvantage, some systems have adopted mechanisms for both securities and funds similar to the liquidity-saving mechanisms used by payment systems.

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194 See CPSS, *Delivery versus payment in securities settlement systems*, September 1992.

195 If funds accounts are held by another entity, a communications link must be established between the operator of the securities transfer system and the entity handling participants' funds to provide the securities transfer system with real-time information on the completion of funds transfers.

196 The system may also allow participants to make "free of payment", that is, transfers of securities without a corresponding transfer of funds, or "free of transfers", that is, transfers of funds without a corresponding transfer of securities.

Model 2: Gross settlements of securities transfers followed by net settlement of funds transfers

The essential characteristic of a DvP model 2 system is that securities transfers are settled on a obligation-by-obligation (gross) basis throughout the processing cycle, while funds transfers are settled on a net basis, typically at the end of the processing cycle. The system maintains securities accounts for participants. Funds accounts may be maintained by a separate entity, such as a commercial bank or a central bank. Securities are transferred by book entry. These securities transfers are usually provisional until the corresponding funds settlement becomes final. The corresponding funds transfers are irrevocable but not final. During the processing cycle (or perhaps at the end of the settlement day) the system calculates net balances of funds debits and credits. The net balances are settled at the end of the processing cycle when the net debit positions and net credit positions are posted to the books of the commercial bank or central bank that maintains the funds accounts. Settlement of funds transfers may occur once a day or several times a day. Like model 1 systems, model 2 systems prohibit participants from overdrawing securities accounts but, in some cases, intraday credit is allowed for funds, subject to SSS or participant established limits or risk-management controls. A securities transfer may be rejected if there are insufficient securities available in the seller's account or the seller fails any other risk-management test. By netting the funds values among participants, a model 2 system requires significantly less liquidity for settlement, as compared to a model 1 system. A disadvantage to model 2, however, is the amount of risk created by the delay in settlement finality, which is only achieved at the end of the settlement day (or at designated times during the day).

Model 3: Simultaneous net settlement of securities and funds transfers

The essential characteristic of a DvP model 3 system is the simultaneous net settlement of both securities and funds transfer obligations. Settlement may occur once a day or at several times during the day. The system maintains securities accounts for participants. Funds accounts may be maintained by the SSS or a separate entity, such as a commercial bank or a central bank. Securities are transferred by book entry. During a processing cycle (or at the end of the settlement day), net balances of debits and credits to securities and funds accounts are calculated. However, book-entry transfers of securities do not occur until the end of the processing cycle. In the interim, all securities and funds transfers are provisional. At the end of the processing cycle (and possibly also at points during the processing cycle) the system checks whether those participants in a net debit position in securities and funds have sufficient balances to cover their net debits.[197] If a participant has insufficient balances, it may be notified and given an opportunity to obtain the necessary securities or funds. Final transfers of the net securities balances and net funds balances are executed if and only if all participants with net debit positions have sufficient balances of securities and funds. A disadvantage to model 3, however, is the potentially large liquidity exposures created if a participant fails to settle its net funds debit position. In this scenario, some or all of the defaulting participant's transfers may have to be unwound.

Settlement process

The process of clearing and settling a securities trade includes three key steps: the confirmation of the settlement obligations; clearance (the calculation of the obligations of the counterparties resulting from the confirmation process); and settlement (the final transfer of securities in exchange for final transfer of funds in order to settle the obligations). An SSS, as

[197] In some systems a transfer would not be processed if it would result in a net debit position in a security larger than the participant's balance in that security. In other systems, however, an inadequate securities balance might not become evident until later in the processing cycle or at the end of the processing cycle.

strictly defined in this report, is involved in the settlement step of the clearing and settlement process, but many SSSs may be organised to provide additional securities clearing and settlement services, such as trade confirmation, settlement obligation validation, and securities safekeeping and custody.

Confirmation of settlement obligations

Once a trade is executed, the first step in the clearing and settlement process is to ensure that the counterparties to the trade (the buyer and the seller) agree on the terms, including the securities involved, the amounts to be exchanged, and the settlement date. This process of trade confirmation can take place in a variety of ways and the trading mechanism itself often determines how it occurs. For example, an electronic trading system may automatically produce a confirmed trade between the two counterparties. Other trades may be confirmed by exchanges, CCPs, or other organizations based on data submitted to them by the participants. In over-the-counter (OTC) markets, participants typically confirm the trade bilaterally.

Clearance

After trades have been confirmed, the next step in the process is clearance, which is the computation of the counterparties' obligations to make deliveries or payments on the settlement date. Clearance typically occurs in one of two ways, either on a gross basis, in which systems compute obligations for every trade individually, or a net basis. In some markets, a CCP interposes itself between the counterparties to a securities trade, taking on each party's obligation in relation to the other. A CCP typically reduces credit and liquidity risks for the trade counterparties by netting the underlying trade obligations. Netting arrangements are increasingly common in securities markets with high volumes of trades because properly designed netting algorithms produce significant reductions in gross exposures in such markets. Trade or obligation netting arrangements should be distinguished from settlement or payment netting arrangements, in which underlying obligations are not extinguished but funds or securities transfers are settled on a net basis.

Settlement

Settlement of a trade involves the final transfer of the securities from the seller to the buyer (delivery) and the final transfer of funds from the buyer to the seller (payment). The processing of transfers by an SSS (and perhaps a payment system) often involves several stages before the transfers are final and the settlement process is complete. The obligation is discharged when the transfer becomes final, that is, an irrevocable and unconditional transfer.

Central counterparties

A CCP interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the performance of open contracts. A CCP becomes a counterparty to trades with market participants through novation, open-offer, or an analogous legally binding arrangement. A CCP has the potential to reduce its participants' risks significantly by multilaterally netting trades and imposing more-effective risk controls on all participants. A CCP's typical risk controls include requiring participants to provide collateral (usually in the form of margin) to cover current and potential future exposures, collecting and paying mark-to-market losses and gains frequently to reduce current exposure, and requiring participants to share residual risk in the event that one or more participant defaults. A CCP's risk-reduction mechanisms can also reduce systemic risk in the markets it serves depending on the effectiveness of the CCP's risk controls and the adequacy of its financial resources.

Organisational structures

A CCP may be privately or publicly owned and operate on an at-cost or for-profit basis. A CCP may serve one or more markets where trades are conducted on an exchange, over-the-counter, or both and, potentially, operate across multiple jurisdictions. A CCP may be vertically or horizontally integrated.[198] Vertical integration in clearing is characterised by the formation of an integrated group, typically bringing trade and post-trade infrastructure providers under common ownership with other parts of the value chain. Horizontal integration occurs when a CCP expands clearing to more than one type of product or the products traded at more than one trading venue.[199]

Institutional designs

Institutional designs vary from one CCP to another. These differences may reflect risk characteristics of the instruments that the CCP clears, the characteristics of the participants for which the CCP clears, other external factors, and the design of the CCP's risk-management framework.

Factors affecting institutional design

A number of factors affect the institutional design of a CCP, including its risk-management framework. Among these are the risk characteristics of the instruments that a CCP clears. For example, some instruments may be complex or have high market volatility, jump-to-default risk, or other hard-to-model sources of risk. Another important factor is the inherent liquidity of the market being served. A less liquid market will lead to, among other things, longer close-out times, increased difficulty in marking-to-market, and increased model risk. Other attributes affecting institutional design are the magnitude of the duration of the exposure between the CCP and its counterparties. Contracts cleared by a CCP can vary in length from as short as one day (such as in some securities markets) to upwards of several decades (such as in the credit-default swap market). Additionally, some contracts are characterised by trading practices that feature long periods between trade date and final settlement (such as in the futures market).

Further, the design of a CCP may be influenced by the characteristics of the market participants for which the CCP clears. In some markets, a CCP may permit a diverse set of market participants to access its services. These participants can range from large banks to small non-bank dealers, and possibly buy-side firms. The range market participants may affect the CCP's risk-management framework, including the amount of financial resources, eligible collateral, and loss-sharing arrangements. Further, the design of a CCP is further influenced by other external requirements, such as regulatory requirements, required levels of funding, and capital costs. A careful analysis of these, and the individual risk appetite of the CCP, will influence decisions towards one design over another. As such, legal and institutional arrangements will also influence the institutional design of a CCP. For example, the laws governing novation, open offer, and similar legal devices may vary by jurisdiction.

Form of guarantee

An important element of any CCP design is the legal mechanism for the CCP to become the counterparty to its participants' trades. In most cases, this is either novation or open offer. In novation, the original contract between the buyer and seller is discharged and two new

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[198] See also CPSS, *Market structure developments in the clearing industry: implications for financial stability*, September 2010.

[199] It should be noted that, in some jurisdictions, a CCP may be classified as either vertically or horizontally integrated; the two are not mutually exclusive.

contracts are created, one between the CCP and the buyer and the other between the CCP and the seller. The CCP thereby assumes the original parties' contractual obligations to each other. In an open-offer system, a CCP extends an open offer to act as a counterparty to its participants and is automatically and immediately interposed in a transaction at the moment the buyer and seller agree on the terms, either at the exchange or at the point of agreement over-the-counter. In an open offer system, if all pre-agreed conditions are met, the buyer and seller never have a contractual relationship. In jurisdictions that support them, both novation and open offer give market participants legal certainty that a CCP is obligated to effect settlement. Other legal mechanisms that allow a CCP to guarantee obligations and perform netting also exist such as explicit and legally binding, settlement guarantees.

Approaches to loss allocation

In the event of a participant default, a CCP will need access to financial resources to perform on its obligations and may need to initiate its loss-allocation procedures. In developing its loss-allocation procedures, a CCP may combine a defaulter-pay approach and a survivor-pay approach.

Defaulter-pay approach. In employing a defaulter-pay approach, a CCP seeks to cover a large proportion of its losses with the defaulting participant's financial resources. A CCP seeking to emphasize the use of the defaulter-pay approach would have higher levels of financial resources provided by the defaulter in the default waterfall, thereby making it less likely that losses will need to be allocated to non-defaulting participants through pooling-of-resources arrangements, such as a default fund. In these arrangements, the initial margin provided by non-defaulting participants cannot be used to cover losses. Defaulter-pay approaches typically decrease moral hazard because each participant is responsible for a significant proportion of its own potential losses. The use of defaulter-pay approach has historically been more prevalent in derivatives markets.

Survivor-pay approach. In employing a survivor-pay approach, a CCP would cover a residual portion of its losses with non-defaulting participants' resources through a pooling-of-resources arrangement, such as a default fund. The pooling of resources effectively acts as an insurance arrangement supported by all of the participants. Non-defaulting participants of the CCP will typically bear the risk of losses not covered by the defaulter's resources. There are a number of ways to allocate such losses among non-defaulting participants at different CCPs and in different jurisdictions. When applying this approach, the CCP should be attentive to the contagion risks created by interdependencies among participants.

Annex E:
Matrix of applicability of key considerations to specific types of FMIs

Key considerations	PSs	CSDs	SSSs	CCPs	TRs
Principle 1: Legal basis	●	●	●	●	●
1. *The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.*	●	●	●	●	●
2. *An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.*	●	●	●	●	●
3. *An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.*	●	●	●	●	●
4. *An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.*	●	●	●	●	●
5. *An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.*	●	●	●	●	●
Principle 2: Governance	●	●	●	●	●
1. *An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.*	●	●	●	●	●
2. *An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.*	●	●	●	●	●
3. *The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.*	●	●	●	●	●
4. *The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).*	●	●	●	●	●
5. *The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.*	●	●	●	●	●
6. *The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.*	●	●	●	●	●
7. *The board should ensure that the FMI's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.*	●	●	●	●	●

Key considerations (cont)	**PSs**	**CSDs**	**SSSs**	**CCPs**	**TRs**
Principle 3: Framework for the comprehensive management of risks	●	●	●	●	●
1. An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.	●	●	●	●	●
2. An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.	●	●	●	●	●
3. An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.	●	●	●	●	●
4. An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.	●	●	●	●	●
Principle 4: Credit risk	●		●	●	
1. An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.	●		●	●	
2. An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.	●		●	●	
3. A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.	●		●		
4. A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.				●	

Key considerations (cont)	PSs	CSDs	SSSs	CCPs	TRs
5. *A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.*				●	
6. *In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.*				●	
7. *An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.*	●		●	●	
Principle 5: Collateral	●		●	●	
1. *An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.*	●		●	●	
2. *An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.*	●		●	●	
3. *In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.*	●		●	●	
4. *An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.*	●		●	●	
5. *An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.*	●		●	●	
6. *An FMI should use a collateral management system that is well-designed and operationally flexible.*	●		●	●	

Key considerations (cont)	PSs	CSDs	SSSs	CCPs	TRs
Principle 6: Margin				●	
1. *A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.*				●	
2. *A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.*				●	
3. *A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.*				●	
4. *A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.*				●	
5. *In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems.*				●	
6. *A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.*				●	
7. *A CCP should regularly review and validate its margin system.*				●	

Key considerations (cont)	**PSs**	**CSDs**	**SSSs**	**CCPs**	**TRs**
Principle 7: Liquidity risk	●		●	●	
1. An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.	●		●	●	
2. An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.	●		●	●	
3. A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.	●		●		
4. A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.				●	
5. For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.	●		●	●	
6. An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.	●		●	●	

Key considerations (cont)	PSs	CSDs	SSSs	CCPs	TRs
7. *An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.*	●		●	●	
8. *An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.*	●		●	●	
9. *An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.*	●		●	●	
10. *An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.*	●		●	●	
Principle 8: Settlement finality	●		●	●	
1. *An FMI's rules and procedures should clearly define the point at which settlement is final.*	●		●	●	
2. *An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.*	●		●	●	
3. *An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.*	●		●	●	

Key considerations (cont)	**PSs**	**CSDs**	**SSSs**	**CCPs**	**TRs**
Principle 9: Money settlements	●		●	●	
1. An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.	●		●	●	
2. If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.	●		●	●	
3. If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.	●		●	●	
4. If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.	●		●	●	
5. An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.	●		●	●	
Principle 10: Physical deliveries		●	●	●	
1. An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.		●	●	●	
2. An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.		●	●	●	
Principle 11: Central securities depositories		●			
1. A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.		●			
2. A CSD should prohibit overdrafts and debit balances in securities accounts.		●			
3. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.		●			
4. A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.		●			
5. A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.		●			
6. A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.		●			

Key considerations (cont)	PSs	CSDs	SSSs	CCPs	TRs
Principle 12: Exchange-of-value settlement systems	●		●	●	
1. *An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.*	●		●	●	
Principle 13: Participant-default rules and procedures	●	●	●	●	
1. *An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.*	●	●	●	●	
2. *An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.*	●	●	●	●	
3. *An FMI should publicly disclose key aspects of its default rules and procedures.*	●	●	●	●	
4. *An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.*	●	●	●	●	
Principle 14: Segregation and portability				●	
1. *A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective.*				●	
2. *A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.*				●	
3. *A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.*				●	
4. *A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.*				●	
Principle 15: General business risk	●	●	●	●	●
1. *An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.*	●	●	●	●	●

Key considerations (cont)	**PSs**	**CSDs**	**SSSs**	**CCPs**	**TRs**
2. *An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.*	●	●	●	●	●
3. *An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.*	●	●	●	●	●
4. *Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.*	●	●	●	●	●
5. *An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.*	●	●	●	●	●
Principle 16: Custody and investment risks	●	●	●	●	
1. *An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.*	●	●	●	●	
2. *An FMI should have prompt access to its assets and the assets provided by participants, when required.*	●	●	●	●	
3. *An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.*	●	●	●	●	
4. *An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.*	●	●	●	●	
Principle 17: Operational risk	●	●	●	●	●
1. *An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.*	●	●	●	●	●
2. *An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.*	●	●	●	●	●
3. *An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.*	●	●	●	●	●
4. *An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.*	●	●	●	●	●
5. *An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.*	●	●	●	●	●

Key considerations (cont)	**PSs**	**CSDs**	**SSSs**	**CCPs**	**TRs**
6. An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.	●	●	●	●	●
7. An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.	●	●	●	●	●
Principle 18: Access and participation requirements	●	●	●	●	●
1. An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.	●	●	●	●	●
2. An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.	●	●	●	●	●
3. An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.	●	●	●	●	●
Principle 19: Tiered participation arrangements	●	●	●	●	●
1. An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.	●	●	●	●	●
2. An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.	●	●	●	●	●
3. An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.	●	●	●	●	●
4. An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.	●	●	●	●	●
Principle 20: FMI links		●	●	●	●
1. Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.		●	●	●	●
2. A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.		●	●	●	●

Key considerations (cont)	**PSs**	**CSDs**	**SSSs**	**CCPs**	**TRs**
3. *Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.*		●	●		
4. *Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.*		●	●		
5. *An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.*		●	●		
6. *An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.*		●	●		
7. *Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.*				●	
8. *Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.*				●	
9. *A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.*					●
Principle 21: Efficiency and effectiveness	●	●	●	●	●
1. *An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.*	●	●	●	●	●
2. *An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.*	●	●	●	●	●
3. *An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.*	●	●	●	●	●
Principle 22: Communication procedures and standards	●	●	●	●	●
1. *An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.*	●	●	●	●	●
Principle 23: Disclosure of rules, key procedures, and market data	●	●	●	●	●
1. *An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.*	●	●	●	●	●
2. *An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.*	●	●	●	●	●
3. *An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.*	●	●	●	●	●

Key considerations (cont)	**PSs**	**CSDs**	**SSSs**	**CCPs**	**TRs**
4. *An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.*	●	●	●	●	●
5. *An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO* Disclosure framework for financial market infrastructures*. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.*	●	●	●	●	●
Principle 24: Disclosure of market data by trade repositories					●
1. *A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.*					●
2. *A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities.*					●
3. *A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analysed.*					●

Annex F:
Oversight expectations applicable to critical service providers

The operational reliability of an FMI may be dependent on the continuous and adequate functioning of service providers that are critical to an FMI's operations, such as information technology and messaging providers. A regulator, supervisor, or overseer of an FMI may want to establish expectations for an FMI's critical service providers in order to support the FMI's overall safety and efficiency. The expectations should help ensure the operations of a critical service provider are held to the same standards as if the FMI provided the service. The expectations outlined below are specifically targeted at critical service providers and cover risk identification and management, robust information security management, reliability and resilience, effective technology planning, and strong communications with users. These expectations are written at a broad level, allowing critical service providers flexibility in demonstrating that they meet the expectations.

1. Risk identification and management

A critical service provider is expected to identify and manage relevant operational and financial risks to its critical services and ensure that its risk-management processes are effective.

A critical service provider should have effective processes and systems for identifying and documenting risks, implementing controls to manage risks, and making decisions to accept certain risks. A critical service provider may face risks related to information security, reliability and resilience, and technology planning, as well as legal and regulatory requirements pertaining to its corporate organisation and conduct, relationships with customers, strategic decisions that affect its ability to operate as a going concern, and dependencies on third parties. A critical service provider should reassess its risks, as well as the adequacy of its risk-management framework in addressing the identified risks, on an ongoing basis.

The identification and management of risks should be overseen by the critical service provider's board of directors (board) and assessed by an independent, internal audit function that can communicate clearly its assessments to relevant board members. The board is expected to ensure an independent and professional internal audit function. The internal audit function should be reviewed to ensure it adheres to the principles of a professional organisation that governs audit practice and behaviour (such as the Institute of Internal Auditors) and is able to independently assess inherent risks as well as the design and effectiveness of risk-management processes and internal controls. The internal audit function should also ensure that its assessments are communicated clearly to relevant board members.

2. Information security

A critical service provider is expected to implement and maintain appropriate policies and procedures, and devote sufficient resources to ensure the confidentiality and integrity of information and the availability of its critical services in order to fulfil the terms of its relationship with an FMI.

A critical service provider should have a robust information security framework that appropriately manages its information security risks. The framework should include sound policies and procedures to protect information from unauthorised disclosure, ensure data integrity, and guarantee the availability of its services. In addition, a critical service provider should have policies and procedures for monitoring its compliance with its information security framework.

This framework should also include capacity planning policies and change-management practices. For example, a critical service provider that plans to change its operations should assess the implications of such a change on its information security arrangements.

3. Reliability and resilience

A critical service provider is expected to implement appropriate policies and procedures, and devote sufficient resources to ensure that its critical services are available, reliable, and resilient. Its business continuity management and disaster recovery plans should therefore support the timely resumption of its critical services in the event of an outage so that the service provided fulfils the terms of its agreement with an FMI.

A critical service provider should ensure that it provides reliable and resilient operations to users, whether these operations are provided to an FMI directly or to both an FMI and its participants. A critical service provider should have robust operations that meet or exceed the needs of the FMI. Any operational incidents should be recorded and reported to the FMI and the FMI's regulator, supervisor, or overseer. Incidents should be analysed promptly by the critical service provider in order to prevent recurrences that could have greater implications. In addition, a critical service provider should have robust business continuity and disaster recovery objectives and plans. These plans should include routine business continuity testing and a review of these test results to assess the risk of a major operational disruption.

4. Technology planning

The critical provider is expected to have in place robust methods to plan for the entire lifecycle of the use of technologies and the selection of technological standards.

A critical service provider should have effective technology planning that minimises overall operational risk and enhances operational performance. Planning entails a comprehensive information technology strategy that considers the entire lifecycle for the use of technologies and a process for selecting standards when deploying and managing a service. Proposed changes to a critical service provider's technology should entail a thorough and comprehensive consultation with the FMI and, where relevant, its participants. A critical service provider should regularly review its technology plans, including assessments of its technologies and the processes it uses for implementing change.

5. Communication with users

A critical service provider is expected to be transparent to its users and provide them sufficient information to enable users to understand clearly their roles and responsibilities in managing risks related to their use of a critical service provider.

A critical service provider should have effective customer communication procedures and processes. In particular, a critical service provider should provide the FMI and, where appropriate, its participants with sufficient information so that users clearly understand their roles and responsibilities, enabling them to manage adequately their risks related to their use of the services provided. Useful information for users typically includes, but is not limited to, information concerning the critical service provider's management processes, controls, and independent reviews of the effectiveness of these processes and controls. As a part of its communication procedures and processes, a critical service provider should have mechanisms to consult with users and the broader market on any technical changes to its operations that may affect its risk profile, including incidences of absent or non-performing risk controls of services. In addition, a critical service provider should have a crisis communication plan to handle operational disruptions to its services.

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Annex H:
Glossary

For general definitions of terms not found in this glossary, please see CPSS, *A glossary of terms used in payments and settlement systems*, March 2003, and European Central Bank and Eurosystem, *Glossary of terms related to payment, clearing, and settlement systems*, December 2009.

Term	Definition
affiliates	A company that controls, or is controlled by, or is under common control with the participant. Control of a company is defined as (a) ownership, control, or holding with power to vote 20 percent or more of a class of voting securities of the company; or (b) consolidation of the company for financial reporting purposes.
backtesting	An ex-post comparison of observed outcomes with expected outcomes derived from the use of margin models.
batch settlement	The settlement of groups of payments, transfer instructions, or other obligations together at one or more discrete, often pre-specified times during the processing day.
beneficial owner	A person or entity that is entitled to receive some or all of the rights deriving from ownership of a security or financial instrument (for example, income, voting rights, and power to transfer).
book-entry	The transfer of securities and other financial assets which does not involve the physical movement of paper documents or certificates (for example, the electronic transfer of securities).
business continuity	A state of uninterrupted business operations. This term also refers to all of the organisational, technical, and staffing measures used to ensure the continuation of operations following a disruption to a service, including in the event of a wide-scale or major disruption.
central bank money	A liability of a central bank, in this case in the form of deposits held at the central bank, which can be used for settlement purposes.
central counterparty	An entity that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the performance of open contracts.
central securities depository	An entity that provides securities accounts, central safekeeping services, and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues (that is, ensure that securities are not accidentally or fraudulently created or destroyed or their details changed).
choice of law	A contractual provision by which parties choose the law that will govern their contract or relationship. Choice of law may also refer to the question of what law should govern in the case of a conflict of laws.

Term	Definition
clearing	The process of transmitting, reconciling, and, in some cases, confirming transactions prior to settlement, potentially including the netting of transactions and the establishment of final positions for settlement. Sometimes this term is also used (imprecisely) to cover settlement. For the clearing of futures and options, this term also refers to the daily balancing of profits and losses and the daily calculation of collateral requirements.
clearing fund	A prefunded default arrangement that is composed of assets contributed by a CCP's participants that may be used by the CCP in certain circumstances to cover losses or liquidity pressures resulting from participant defaults.
collateral	An asset or third-party commitment that is used by a collateral provider to secure an obligation vis-à-vis a collateral taker.
commercial bank money	A liability of a commercial bank, in the form of deposits held at the commercial bank, which can be used for settlement purposes.
confirmation	A process whereby the terms of a trade are verified either by directly involved market participants or by a central entity.
conflict of laws	An inconsistency or difference in the laws of jurisdictions that have a potential interest in a transaction.
counterparty	A party to a trade.
credit risk	The risk that a counterparty, whether a participant or other entity, will be unable to meet fully its financial obligations when due, or at any time in the future.
cross-margining agreement	An agreement among CCPs to consider positions and supporting collateral at their respective organisations as a common portfolio for participants that are members of two or more of the organisations.
current exposure	The loss that an FMI (or in some cases, its participants) would face immediately if a participant were to default. Current exposure is technically defined as the larger of zero or the market value (or replacement cost) of a transaction or portfolio of transactions within a netting set with a counterparty that would be lost upon the default of the counterparty.
custody risk	The risk of loss on assets held in custody in the event of a custodian's (or subcustodian's) insolvency, negligence, fraud, poor administration, or inadequate recordkeeping.
default	An event stipulated in an agreement as constituting a default. Generally, such events relate to a failure to complete a transfer of funds or securities in accordance with the terms and rules of the system in question.
deferred net settlement	A net settlement mechanism which settles on a net basis at the end of a predefined settlement cycle.
delivery versus delivery	A securities settlement mechanism that links two securities transfers in such a way as to ensure that delivery of one security occurs if and only if the corresponding delivery of the other security occurs.

Term	Definition
delivery versus payment	A securities settlement mechanism that links a securities transfer and a funds transfer in such a way as to ensure that delivery occurs if and only if the corresponding payment occurs.
dematerialisation	The elimination of physical certificates or documents of title that represent ownership of securities so that securities exist only as accounting records.
derivative	A financial contract whose value depends on the value of one or more underlying reference assets, rates or indices, on a measure of economic value or on factual events.
fellow-customer risk	The risk that another customer of the same participant will default and create a loss that exceeds both the amount of available collateral supporting the defaulting customer's positions and the available resources of the participant.
final settlement	The irrevocable and unconditional transfer of an asset or financial instrument, or the discharge of an obligation by the FMI or its participants in accordance with the terms of the underlying contract. Final settlement is a legally defined moment.
financial market infrastructure	A multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, derivatives, or other financial transactions.
general business risk	Any potential impairment of the FMI's financial position (as a business concern) as a consequence of a decline in its revenues or an increase in its expenses, such that expenses exceed revenues and result in a loss that must be charged against capital.
governance	The set of relationships between an FMI's owners, board of directors (or equivalent), management, and other relevant parties, including participants, authorities, and other stakeholders (such as participants' customers, other interdependent FMIs, and the broader market).
haircut	A risk control measure applied to underlying assets whereby the value of those underlying assets is calculated as the market value of the assets reduced by a certain percentage (the "haircut"). Haircuts are applied by a collateral taker in order to protect itself from losses resulting from declines in the market value of a security in the event that it needs to liquidate that collateral.
immobilisation	The act of concentrating the location of securities in a depository and transferring ownership by book entry.
initial margin	Collateral that is collected to cover potential changes in the value of each participant's position (that is, potential future exposure) over the appropriate close-out period in the event the participant defaults.
investment risk	The risk of loss faced by an FMI when it invests its own or its participants' resources, such as collateral.
investor CSD	A term used in the context of CSD links. An investor CSD – or a third party acting on behalf of the investor CSD – opens an account in another CSD (the issuer CSD) so as to enable the cross-system settlement of securities transactions.

Term	Definition
issuer CSD	A CSD in which securities are issued (or immobilised). The issuer CSD opens accounts allowing investors (in a direct holding system) and intermediaries (including investor CSDs) to hold these securities.
large-value payment system	A funds transfer system that typically handles large-value and high-priority payments.
legal risk	The risk of the unexpected application of a law or regulation, usually resulting in a loss.
liquidity risk	The risk that a counterparty, whether a participant or other entity, will have insufficient funds to meet its financial obligations as and when expected, although it may be able to do so in the future.
mark to market	The practice of revaluing securities and financial instruments using current market prices.
netting	The offsetting of obligations between or among participants in the netting arrangement, thereby reducing the number and value of payments or deliveries needed to settle a set of transactions.
novation	A process through which the original obligation between a buyer and a seller is discharged through the substitution of the CCP as seller to the buyer and buyer to the seller, creating two new contracts.
omnibus account	An account structure where securities or collateral belonging to some or all customers of a particular participant is commingled and held in a single account segregated from that of the participant.
open offer	A process through which a CCP extends an “open offer” to act as counterparty to market participants and thereby is interposed between participants at the time a trade is executed.
operational risk	The risk that deficiencies in information systems or internal processes, human errors, management failures, or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by an FMI.
payment system	A set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement.
payment versus payment	A settlement mechanism that ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place.
physical delivery	The delivery of an asset, such as an instrument or commodity, in physical form.
portability	The operational aspects of the transfer of contractual positions, funds, or securities from one party to another party.
potential future exposure	Any potential credit exposure that an FMI could face at a future point in time. Potential future exposure is technically defined as the maximum exposure estimated to occur at a future point in time at a high level of statistical confidence. Potential future exposure arises from potential fluctuations in the market value of a participant’s open positions between the time they are incurred or reset to the current market price, and the time they are liquidated or effectively hedged.

Term	Definition
principal risk	The risk that a counterparty will lose the full value involved in a transaction, for example, the risk that a seller of a financial asset will irrevocably deliver the asset, but not receive payment.
procyclicality	The changes in risk-management requirements or practices that are positively correlated with business or credit cycle fluctuations and that may cause or exacerbate financial instability.
real-time gross settlement	The real-time settlement of payments, transfer instructions, or other obligations individually on a transaction-by-transaction basis.
reconciliation	A procedure to verify that two sets of records issued by two different entities match.
replacement cost	The unrealised gain on the unsettled contract or the cost of replacing the original contract at market prices that may be changing rapidly during periods of stress.
replacement-cost risk	The risk of loss of unrealised gains on unsettled transactions with a counterparty. The resulting exposure is the cost of replacing the original transaction at current market prices.
repurchase agreement (repo)	A contract to sell and subsequently repurchase securities at a specified date and price.
retail payment system	A funds transfer system that typically handles a large volume of relatively low-value payments in such forms as cheques, credit transfers, direct debits, and card payment transactions.
securities registrar	An entity that provides the service of preparing and recording accurate, current, and complete securities registers for securities issuers.
securities settlement system	An entity that enables securities to be transferred and settled by book entry according to a set of predetermined multilateral rules. Such systems allow transfers of securities either free of payment or against payment.
segregation	A method of protecting customer collateral and contractual positions by holding or accounting for them separately from those of the direct participant (such as a carrying firm or broker).
settlement risk	The general term used to designate the risk that settlement in a funds or securities transfer system will not take place as expected. This risk may comprise both credit and liquidity risk.
specific wrong-way risk	The risk that an exposure to a counterparty is highly likely to increase when the creditworthiness of that counterparty is deteriorating.
stress testing	The estimation of credit and liquidity exposures that would result from the realisation of extreme price changes.
systemic risk	The risk that the inability of one or more participants to perform as expected will cause other participants to be unable to meet their obligations when due.
trade repository	An entity that maintains a centralised electronic record (database) of transaction data.

Term	Definition
unwind	The process used to recalculate obligations in some net settlement systems where transfers between the accounts of participants are provisional until all of them have finally discharged their settlement obligations. If a particular participant fails to settle, some or all of the provisional transfers involving that participant are deleted from the system and the settlement obligations of the remaining participants are recalculated.
value date	The day on which the payment, transfer instruction, or other obligation is due and the associated funds and securities are typically available to the receiving participant.
variation margin	Funds that are collected and paid out to reflect current exposures resulting from actual changes in market prices.
zero-hour rule	A provision in the insolvency law of some countries whereby the transactions conducted by an insolvent institution after midnight on the date the institution is declared insolvent are automatically ineffective by operation of law.

Annex I:
Members of the CPSS-IOSCO review of standards

This list shows the members of the Steering Group that coordinated the review. Those members who were also part of the Editorial Team that implemented the review and/or who chaired a sub-group looking at a specific review issue have an asterisk next to their name.

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Committee on Payment and Settlement Systems

Technical Committee of the International Organization of Securities Commissions

Assessment methodology for the principles for FMIs and the responsibilities of authorities

Consultative report

April 2012

BANK FOR INTERNATIONAL SETTLEMENTS

OICU-IOSCO

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This assessment methodology is being issued now for public consultation. Comments should be sent **by 15 June 2012** to both the CPSS secretariat (cpss@bis.org) and the IOSCO secretariat (fmi@iosco.org). The comments will be published on the websites of the BIS and IOSCO unless commentators have requested otherwise.

A cover note, published simultaneously and also available on the BIS and IOSCO websites, provides background information on why the assessment methodology has been issued and sets out some specific points on which comments are particularly requested.

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1.0. Introduction

This document provides a methodology for assessing observance of the 24 principles and five responsibilities as defined in the CPSS-IOSCO report on *Principles for financial market infrastructures* (PFMI Report), published by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in April 2012. The CPSS and IOSCO developed the assessment methodology (AM) with the aim of promoting observance of the principles. Key benefits include objectivity and comparability across the assessments of observance of the principles and the responsibilities in different jurisdictions.[1]

This AM was developed in parallel with and as an adjunct to the PFMI Report. Accordingly, the AM and PFMI Report should be taken together as closely related and supporting documents. The AM avoids repetition of the discussions of the principles and responsibilities that are contained in the PFMI Report; any elaborating commentary is intended to help explicate practical considerations that arise when performing assessments, not to amend or expand upon those discussions.

1.1. Use of the Assessment Methodology

The PFMI Report emphasizes the need for concerted effort by various stakeholders to implement the principles. While primary responsibility for implementation lies with the designers, owners, and operators of FMIs, the PFMI Report stresses the need for central banks, market regulators, and other relevant national authorities to promote implementation by undertaking their own assessments of FMIs' observance of the principles in their jurisdictions and by identifying steps, where necessary, for completing implementation and achieving observance. All CPSS and IOSCO members intend to apply the principles to the relevant FMIs in their jurisdictions to the fullest extent possible. Members also intend to apply the responsibilities when discharging their regulation, supervision, and oversight responsibilities.

The CPSS and IOSCO intend to promote implementation and ongoing observance of the principles and responsibilities through periodic assessments of observance performed by a variety of parties:

- FMIs may have to conduct formal periodic full or partial self-assessments of observance of the principles, where this is consistent with national practice.
- As part of their responsibilities for regulation, supervision, and oversight of FMIs, the relevant national authorities are expected to regularly assess observance of the principles by FMIs in their respective jurisdictions in connection with such authorities' supervisory and oversight programs. Authorities are also encouraged to conduct periodic self-assessments of their observance of the responsibilities to gauge their ability to ensure ongoing observance of the principles.
- The CPSS and IOSCO are also encouraging external assessments of FMI observance of the principles and authorities' observance of the responsibilities, including assessments conducted by international financial institutions (IFIs), namely, the International Monetary Fund and the World Bank, in particular as part of

[1] The World Bank (WB) and International Monetary Fund (IMF) co-chaired the Sub-Group, the members of which were experienced experts who have collectively performed numerous assessments through the IMF-WB Financial Sector Assessment Program (FSAP) and other diagnostics of payment systems, central securities depositories (CSDs), securities settlements systems (SSSs), and central counterparties (CCPs) as external assessors and as overseers of national and international systems.

their Financial Sector Assessment Program (FSAP). National authority peer-reviewers may also be considered external assessors.

Among these various types of assessors, the common objective is to determine whether the FMI observes the principles. However, individual objectives may differ somewhat:

- An FMI may conduct an assessment to identify matters that require structural improvement and prioritize resources to address identified areas of improvement.
- National authorities conduct FMI assessments as part of their supervision and oversight regimes to identify possible risks and induce changes at the FMI. They may also be involved in cooperative arrangements with authorities in other jurisdictions regarding cross-currency and/or cross-border FMIs. Moreover, national authorities may want to self-assess how effectively they discharge their responsibilities as regulators, supervisors, and overseers.
- Finally, external assessors may conduct assessments to identify vulnerabilities to global financial stability and potential areas for improvement; they may also draw comparisons at the international level to identify best practices. They can also use the assessment tool in the context of technical assistance to identify development needs and build assessment capacity.

This AM is primarily intended for external assessors at the international level, in particular the IFIs. It also provides a baseline for national authorities to assess FMIs under their supervision and oversight against the principles or to self-assess the way they discharge their own responsibilities as regulators, supervisors, and overseers. National authorities should use this AM as it is or take it into consideration when developing equally effective methodologies for their national supervision and oversight processes.

Different types of assessors may communicate the outcome of their assessments of FMIs differently, depending on their specific objectives. This is particularly the case with respect to rating assignments and the communication of assessment outcomes. Therefore, the expected use of the AM rating scheme, by assessor type, is as follows:

- Where consistent with national practice, FMIs should use this rating scheme.
- National authorities may choose to use the AM rating scheme or may choose to use another rating scheme, in particular when they are legally bound to use a different assessment methodology. If a national authority uses a different rating scheme, it should be equally effective for assessing FMIs as the AM rating scheme and must enable the assessor to form a judgment regarding the level of observance of the principles. The suggested AM rating scheme is expected to be used in the context of cross-border cooperative oversight arrangements unless agreed otherwise by the authorities that are participating in such arrangements.
- External assessors, in the context of FSAPs or peer-reviews, need a rating framework that is consistent with other sets of standards, such as the Basel Committee's *Core principles for effective banking supervision*, and provides comparability over time and between countries.[2] The IFIs therefore will use the rating scheme presented in this AM in the context of the FSAP. Technical assistance (TA) assessors are not necessarily expected to use a rating scheme. TA assessments are likely to achieve their goals best by communicating outcomes through dialogue with local FMI management and authorities, rather than relying on formal ratings.

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[2] See Basel Committee on Banking Supervision, *Core principles for effective banking supervision*, December 2011.

1.2. Customization of the assessment of the principles according to each type of FMI

This AM is designed to cover all of the types of FMIs to which the principles apply, that is, systemically important payment systems, central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs), and trade repositories (TRs). Annex D of the PFMI Report provides a description of the various institutional designs associated with different generic types of payment systems, SSSs, and CCPs. The assessor might have to exercise some judgment in the identification and classification of an FMI, in particular where multiple FMIs belong to the same legal entity, where individual FMIs perform multiple functions, or where the clearing and settlement processes are divided.

As specified in the PFMI Report (see specifically Table 1 and Annex E), certain principles or key considerations are applicable only to specific types of FMI. For example, the PFMI Report reflects the fact that TRs do not face credit or liquidity risks, and therefore the principles and key considerations pertaining to these risks do not apply. Likewise, this AM specifies to which types of FMIs key elements and the associated assessment questions apply in a manner consistent with the PFMI Report.

1.3. Applicability of the AM to public sector-owned FMIs

This AM is also intended to assist assessors in correctly applying the principles and key considerations to both private and public sector FMIs that are objects of an assessment, taking into account differences in private and public ownership structures and organizational forms, as specified in the PFMI Report. In general, the principles are fully applicable to FMIs owned or operated by the public sector, in particular central banks. Central banks and other public sector entities should apply the same standards to FMIs that they own or operate as those that are applied to similar private-sector FMIs. However, due to the circumstances of their ownership, public-sector FMIs are out of the scope of some assessment questions, and require specific guidance under a few principles and responsibilities. Appropriate questions have been formulated to help assess observance by public sector-owned FMIs for Principle 2 on governance, Principle 15 on general business risk, Principle 21 on efficiency and effectiveness, and Responsibility D on application of the PFMI Report.

1.4. Practical considerations in conducting an assessment

This sub-section provides guidance on practical matters to be considered when conducting an assessment: (a) access to information, (b) assessment of actual practice, (c) assessors' background, experience, and training, and (d) assessment obstacles.

Access to information – when conducting an assessment, assessors should be given access to all relevant information and interested parties. In particular, external assessors will need to meet with a range of individuals and organizations, including, the oversight authority or authorities, banking supervisory authority or authorities, other domestic supervisory authorities, any relevant government ministries, market participants and industry associations, auditors, and other financial sector participants. For all assessments, relevant information may include public information, such as relevant laws, regulations and policies, and also non-public information, such as internal self-assessments, policies, procedures, data, and metrics. In the case of an external assessment, relevant information will also include operational guidelines for supervisors and overseers and completed supervisory assessments of individual FMIs. Special note should be made in the assessment report of instances when any required information or access to key staff is not provided, as well as the implications for the completeness and accuracy of the assessment.

Assessment of actual practice – strong emphasis should be placed on the actual practice and enforcement of the principles and responsibilities to ensure the safety and soundness of FMIs. Assessors should evaluate not only the legal and regulatory framework and the rules of the FMI, but also the way in which such legislation and rules are applied and achieved in practice within the jurisdiction. This is most relevant in the case of Principle 1 on legal basis, Principle 2 on governance, Responsibility D on application of the principles, and Responsibility E on cooperation with other authorities.

Assessors' background, experience, and training – the use of professional judgment when carrying out an assessment requires qualified individuals possessing both practical and relevant experience. Therefore, the assessment should be conducted by persons with appropriate knowledge and understanding of FMIs.

Assessment obstacles – assessors should note any factors that facilitated or impaired the assessment, with particular reference to the degree of cooperation encountered in carrying out the analysis and should indicate in the assessment report the extent to which these factors may have affected the comprehensiveness of the assessment.

2.0. Assessment methodology framework

This section describes the five steps involved in an assessment against the principles and responsibilities. These steps are: (i) determining the appropriate scope of an assessment; (ii) gathering facts useful to evaluate the key considerations; (iii) developing key conclusions for each key consideration; (iv) assigning a rating category to each principle or responsibility; and (v) indicating an appropriate timeframe for addressing each identified issue of concern, including a discussion on priorities.

2.1. Step 1: Scope of the assessment

Before beginning an assessment, careful consideration should be given to the appropriate scope, which should be clearly communicated to the assessed entities in advance of it being undertaken.

Which FMIs to assess

According to the PFMI Report, national authorities are expected to regularly assess FMIs that they have deemed systemically important (see the PFMI Report for further discussions on systemically important FMIs).

External assessors would normally rely on the domestic authorities' designation of FMIs as systemically important, but may define certain FMIs as being out of scope for the assessment, for example, national FMIs processing small-value transactions that pose little contagion risk outside the domestic jurisdiction. They may also decide to focus on the FMIs that are the most relevant for global financial stability.

Which assessment perimeter to define

Each FMI should be assessed separately. According to the PFMI Report, an FMI is defined as a multilateral system among participating financial institutions, including the operator of the system, used for the purposes of recording, clearing, or settling payments, securities, derivatives, or other financial transactions.[3] FMIs can differ significantly in organization, function, and design. FMIs can be legally organized in a variety of forms, including associations of financial institutions, non-bank clearing corporations, and specialized banking organizations. They can be defined as separate legal entities or parts of another legal entity. The functional definition of an FMI includes five key types of FMIs: payment systems, CSDs, SSSs, CCPs, and TRs.

Assessors must determine the functions to be covered (for example central counterparty clearing of OTC derivatives, securities settlement, or large-value payment settlement) and identify the institution(s) to be assessed for each assessment (such as, a legal entity, part of a legal entity, or several legal entities). Assessors should ensure that all of the critical functions of the FMI are included in the scope of the assessment. If the FMI subject to the assessment has established links to settle cross-border trades, assessors will need to

[3] The general analytical approach of the PFMI report and this AM is to consider FMIs as multilateral systems, inclusive of their participants, as stated in the definition of FMI. In market parlance, however, the term FMI may be used to refer only to a legal or functional entity that is set up to carry out centralised, multilateral payment, clearing, settlement, or recording activities and, in some contexts, may exclude the participants that use the system. This difference in terminology or usage may introduce ambiguity at certain points in the PFMI report. To address this issue, the PFMI report and this AM may refer to an FMI and its participants, or to an FMI including its participants, to emphasize the coverage of a principle or other text where this is not clear from the context. The definition of FMIs excludes bilateral relationships between financial institutions and their customers, such as traditional correspondent banking.

consider how best to cooperate with the authorities in those relevant jurisdictions to fulfil the assessment obligation.

Which principles to use

Assessors should also determine which principles will be the subject of the assessment, as not all may be applicable in every situation. For instance, an assessment might be conducted (a) against all principles, as part of a periodic comprehensive review of an FMI's safety and efficiency; (b) against one or more individual principles that may be impacted by a proposed new service offering or a proposed material change to an FMI's risk-management framework; (c) against one or more individual principles that may be targeted for a thematic (or "horizontal") review across one or more FMIs; or (d) against one or more individual principles that are relevant to certain problems identified prior to the assessment.[4]

Which authorities to assess

In general, the authorities are assessed at a jurisdictional level (not at the level of the FMI or the individual regulatory, supervisory, or oversight authority). This allows the assessor to perform a comprehensive assessment of the authorities' observance of the responsibilities and to identify potential regulatory gaps or overlaps in the way they are discharged in the jurisdiction. This approach is consistent with Responsibility E which deals, inter alia, with cooperation between domestic authorities. There are situations, however, where assessing the regulatory, supervisory, and oversight framework that applies to a specific FMI may be appropriate, such as in the case of an FMI with cross-border activity. Foreign authorities, for example, may be interested not only in obtaining information about the general adherence of the domestic authorities to the responsibilities but also in a more specific assessment of the way the responsibilities are applied with respect to a particular FMI in which they have an interest. It may also be appropriate to assess the responsibilities in conjunction with a category of FMIs (to understand how national authorities discharge their responsibilities towards payment systems or CCPs for example). In addition, a relevant national authority may assess its own observance of the responsibilities.

2.2. Step 2: Fact gathering

Assessors should gather sufficient facts to be able to develop key conclusions for each key consideration. This AM provides key elements for each key consideration to organize the fact finding process. In addition, the AM includes a set of related questions for each key element to guide assessors in gathering relevant facts (see Appendix 3: Questions by key considerations for the principles and Appendix 4: Questions by key considerations for the responsibilities).

Key elements and the related questions are derived from and based on the key considerations for each of the 24 principles and five responsibilities. The key considerations for each principle and responsibility elaborate on the principles that FMIs or authorities are expected to observe. The key elements associated with each key consideration are indicators to help determine whether an FMI or an authority is actually achieving the key considerations and hence the principles. The list of questions is a tool to help assessors gather facts to make this determination.

[4] In this case, the assessment may cover several FMIs.

Additionally, this information collecting process may serve as an early indicator of the extent to which the FMI (or authority) being assessed is meeting expectations for providing access to information.

Throughout the process of populating the key elements, assessors must develop a general understanding of the FMI's (or authority's) basic business processes, operations, and activities. Obtaining this macro view will provide context for an assessment and position assessors to seek the full set of information needed. Therefore, assessors should keep in mind the following overarching questions for each principle during the assessment:

1. What is the FMI's approach/method for observing the principle?
2. What analyses, processes, and rationale did the FMI use in developing, identifying, selecting, and ensuring the effectiveness of its approach/method for observing the principle?
3. How does the FMI measure and monitor its ongoing performance in observing the principle?
4. What other evidence is available (for example, assessments performed by the FMI's direct regulator or other separately available information) to help gauge the FMI's ongoing performance in observing the principle?

A similar approach applies to the assessment of observance of the responsibilities by the relevant authorities. Assessor should have in mind the following overarching questions for each responsibility that is being assessed:

1. What is the authorities' approach for fulfilling the responsibility?
2. What analyses, processes, and rationale did the authorities use in developing, identifying, selecting, and ensuring the effectiveness of their approach for fulfilling the responsibility?
3. How do the authorities measure and monitor their ongoing performance in fulfilling the responsibility?
4. What other evidence is available to help gauge the authorities' ongoing performance in fulfilling the responsibility?

The questions are not intended to be exhaustive and assessors could, at their discretion, pose additional or different questions as needed depending on the circumstances, in particular to address the different levels of complexity of the FMI. In some instances, assessors may want to modify specific questions to adjust to particular risk factors or circumstances specific to the assessment. For example, they may want to pose additional probing questions. The list of questions used by assessors should provide at least an equivalent level of information as the one included in this AM.

The questions included in this AM may have to be revised in the future to ensure they stay up to date.

2.3. Step 3: Key conclusions for each key consideration

Key conclusions are an assessor's overall determination of the extent to which the intent of a key consideration is met by the entity being assessed. A key conclusion for each key consideration should be drawn. Key conclusions are provided in the form of a narrative summary based on facts gathered by assessors. In drawing a key conclusion, assessors should:

1. Summarize the FMI practices and achievements, as warranted.
2. Identify any observed gaps and shortcomings with respect to each key consideration, as they emerge from the facts gathered by assessors, using the questions as guidance.
3. For each of the identified gaps and shortcomings, describe the risks, concerns or other issues associated with that gap or shortcoming, and the implications for meeting the key consideration.

Key conclusions will then serve as building blocks for Step 4 in assigning a rating category, as described in the following sub-section.

2.4. Step 4: Rating framework

This sub-section illustrates the AM's rating framework and provides guidance for assigning a rating category. As noted, the IFIs will use the framework described in this sub-section, particularly in the FSAP context. National authorities may also adopt the proposed rating framework.

Observance is assessed at the level of each principle and responsibility. The rating and language for communicating the assessment results applies to each principle and responsibility, respectively.

Rating scale and language for communicating the assessments results – Principles

The rating scale is built on the gravity and urgency to remedy identified "issues of concern". For the purpose of this scale, an "issue of concern" is a risk management flaw, a deficiency, or a lack of transparency or effectiveness that needs to be addressed.

Observed	The FMI observes the principle. Any identified gaps and shortcomings are not issues of concern and are minor, manageable, and of a nature that the FMI could consider taking up in the normal course of its business.
Broadly Observed	The FMI broadly observes the principle. One or more issues of concern have been identified that the FMI is encouraged to address and follow up to better manage risks or improve operations. The FMI should pursue such improvements in a defined timeline.
Partly Observed	The FMI partly observes the principle. The assessment has identified one or more issues of concern that could become serious if not addressed in a timely manner. The FMI should accord a high priority to address these issues.
Not Observed	The FMI does not observe the principle. The assessment has identified one or more serious issues of concern that warrant immediate action. Therefore, the FMI must accord the highest priority to address these issues in a timely manner.
Not Applicable	The principle does not pertain to the type of FMI being assessed because of the particular legal, institutional, structural, or other characteristics of the FMI.[5]

[5] The case of a principle not being assessed does not fall within this category. A list of principles not covered in the assessment, and an accompanying explanation of the reasons for the exclusion, are part of the

Rating scale and language for communicating the assessments results – Responsibilities

The rating scale is built on the gravity and urgency to remedy identified "issues of concern". For the purpose of this scale, an "issue of concern" is an oversight or supervisory flaw, a deficiency, or a lack of transparency or effectiveness that needs to be addressed.

Observed	The authorities fulfil the responsibility. Any identified gaps and shortcomings are not issues of concern and are minor, manageable, and of a nature that the authorities can consider taking up in the normal conduct of their activities.
Broadly Observed	The authorities are broadly fulfilling the responsibility. The assessment has identified one or more issues of concern that authorities are encouraged to address and follow up in a defined timeline.
Partly Observed	The authorities partly fulfil the responsibility. The assessment has identified one or more issues of concern that could seriously affect the reliable discharge of the responsibility by the authorities if not addressed in a timely manner. The authorities to which these concerns apply should accord a high priority to their resolution.
Not Observed	The authorities are not fulfilling the responsibility. The assessment has identified one or more serious issues of concern in the current discharge of the responsibility by the authorities that warrant immediate action. The authorities to which these concerns apply should accord the highest priority to their resolution.
Not Applicable	This responsibility does not pertain because of the particular institutional framework or other conditions faced by the authorities with respect to this responsibility.[6]

Translating key conclusions into the relevant ratings

Assessors assign ratings to reflect conditions at the time of the assessment. Plans for improvements should be mentioned in the introduction and comments section of the assessment report where appropriate, but should not influence judgments about observance of the principles or responsibilities.

The assessment should note if and why observance of a particular principle or responsibility could not be adequately assessed. For example, certain information may not have been provided or key individuals or institutions may have been unavailable to discuss important issues. Unsatisfied requests for information or meetings should be documented in writing. In such cases, the assessors may treat such information gaps as evidence of a concern.

For Principles

The rating is built on the key conclusions and reflects the assessors' judgment regarding the type or impact of the risks, concerns, or other issues associated with each identified gap or shortcoming.

introduction to the Assessment (see Appendix 1: assessment report template on the observance of the principles for FMIs).

6 The case of a Responsibility not being assessed does not fall within this category. A list of Responsibilities not covered in the assessment, and an accompanying explanation of the reasons for the exclusion, are part of the introduction to the Assessment (see Appendix 2 on the assessment report template on the observance of the responsibilities of central banks, market regulators, and other relevant authorities for FMIs).

First, assessors should identify principles that are not applicable: this is the case when a principle does not apply to the type of FMI being assessed (e.g. Principle 4 on credit risk for a TR, Principle 6 on margins for a PS). This can also be the case when the principle applies to the type of FMI being assessed but the specific, legal, institutional, structural, or other characteristics of the FMI's jurisdiction or design make the principle irrelevant (e.g. Principle 4 on credit risk for a RTGS with no (intraday) credit provided to participants).

For rating applicable principles, assessors should determine whether they are observed. For a principle to be observed, any identified gaps and shortcomings should not be issues of concern. Minor, manageable gaps and shortcomings that are of a nature that the FMI could consider taking up in the normal course of an FMI's business would be acceptable for an observed rating. Any recommendations provided by the assessors, in this instance, should only further strengthen the FMI's observed status, follow evolving international best practices, or should prepare the FMI to adapt for future changes of the regulatory, operational, or legal environment. These recommendations should be scaled to the relevance of the FMI for financial stability. There is no requirement or specified timeline for implementing these recommendations, so the FMI can consider taking them up in the normal course of its business.

When the principle is applicable but not fully observed, assessors must decide the degree of observance. It is important to note that there may be multiple issues with differing degrees of concern. In such cases, the assessor should assign the principle a rating that reflects the severity of the most serious concerns identified:

- If assessors have identified one or more serious issues of concern that need to be addressed immediately with the highest priority, the principle should be rated as not observed.
- If the above condition does not apply, but the assessors have identified one or more issues of concern that could lead to the emergence of serious risks or other significant issues and that should be addressed with high priority, the principle should be rated as partly observed.
- If the above conditions do not apply, but the assessors have identified one or more issues of concern that should be addressed in a defined timeline to better manage risks or improve operations, the principle should be rated as broadly observed.

For Responsibilities

The rating is built on the key conclusions and reflects the assessors' judgment regarding the impact of the risks, concerns, or other issues associated with each identified gap and shortcoming.

First, assessors should identify responsibilities that are not applicable: this is the case when the particular institutional framework makes the responsibility irrelevant (e.g. Responsibility E on cooperation between authorities when there is only one relevant authority).

For rating-applicable responsibilities, assessors should first determine whether they are observed. For a responsibility to be observed, any identified gaps and shortcomings should not be issues of concern. Minor, manageable gaps and shortcomings that are not issues of concern would be acceptable for an observed rating. The assessor may provide suggestions to strengthen observance of the responsibility, in particular to follow evolving international best practices or prepare the authorities to adapt for future changes of the regulatory, operational, or legal environment. There is no requirement or specified timeline for implementing these suggestions, so the authorities can consider taking them up in the normal course of their activities.

When the responsibility is applicable but not fully observed, assessors must decide the degree of observance. It is important to note that there may be multiple issues with differing degrees of concern. In such cases, the assessor should assign the responsibility with a rating that reflects the severity of the most serious concerns identified:

- If assessors have identified one or more serious issues of concern in the ability of the authorities to fulfil the responsibility that need to be addressed immediately with the highest priority, the responsibility should be rated as not observed.
- If the above condition does not apply, but the assessors have identified one or more issues of concern that could seriously affect the ability of the authorities to fulfil the responsibility and that should be addressed with high priority, the responsibility should be rated as partly observed.
- If the above conditions do not apply but the assessors have identified one or more issues of concern that authorities are encouraged to address in a defined timeline, the responsibility should be rated as broadly observed.

2.5. Step 5: Timeframe for addressing each identified concern

An assessment report should conclude with (a) a clear identification of the issues of concern that would need to be addressed, (b) an indication of an appropriate timeframe for addressing each identified issue of concern, and (c) an identification of the parties that are best positioned to address each identified issue of concern. This sub-section provides guidance on how to prepare the follow-up on assessment findings.

For Principles

There is no simple recipe for defining an appropriate timeframe, but some basic steps may be useful to consider. Assessors should identify the areas in which less-than full observance of principles may lead to serious risks. The CPSS and IOSCO have not assigned degrees of importance to the individual principles because the principles as a group contribute to the creation of a safe and efficient FMI. However, assessors will have to come to an understanding on priorities based upon their judgment as to the deficiencies that pose the greatest risks or greatest lack of transparency or effectiveness to the FMI.

Having identified priority areas, assessors should then determine the types of actions needed in each area. In the case of assessments completed by domestic authorities, the FMI itself is often expected to prepare an action plan for review by the authorities. In the case of assessments completed by external assessors, the assessors often prepare recommendations and discuss them with the authorities. In each case, the party best positioned to initiate each action or recommendation should be identified.

A reasonable timeframe in which an issue of concern should be addressed should also be specified.

For Responsibilities

As in the case of the principles, assessors should identify the areas in which less-than full observance of responsibilities leads to serious risks, and, will have to come to an understanding on priorities based upon their judgment as to the deficiencies that pose the greatest risks or greatest lack of transparency or effectiveness.

Having identified priority areas, assessors should then determine the types of actions needed in each area. Where domestic authorities conduct self-assessments, they would prepare the action plan themselves. In the case of assessments completed by external assessors, the assessors often prepare recommendations and discuss them with the authorities. In each case, the party best positioned to initiate each action or recommendation should be identified.

A reasonable timeframe in which an issue of concern should be addressed should also be specified.

3.0. Guidelines for preparing the assessment reports

Assessment report templates for assessing an FMI against the principles and authorities against the responsibilities are provided in Appendixes 1 and 2, respectively. Each assessment report consists of two parts: (1) a summary assessment and (2) a detailed assessment.

3.1. Assessment report on an FMI

Assessors should not combine several FMIs in the same assessment report but rather complete an assessment report for each FMI.

In general, the assessment report should identify the main areas of concern that impact financial sector stability and the main sources of inefficiency and risks in the FMI, and provide an appropriate timeframe to address them. The first part of the assessment report should clearly define the scope of the assessment, mention the sources of information and the methodology used, provide an overview of the applicable payment, clearing, and settlement landscape, and summarize the main findings of the assessment, including the proposed follow-up. The second part of the assessment report should provide a principle-by-principle assessment of observance, supported by a description of facts for each key element and based on key conclusions for each key consideration.

3.2. Assessment report on relevant authorities

In general, the assessment report should identify the main areas of concern that impact financial sector stability, the main sources of inefficiency and risks in the regulatory, supervisory, and oversight framework, and provide an appropriate timeframe to address them. The first part of the assessment report should clearly define the scope of the assessment, mention the sources of information and the methodology used, provide an overview of the relevant payment, clearing, and settlement landscape and regulatory framework for relevant FMIs, and summarize the main findings of the assessment, including the proposed follow-up. The second part of the assessment report should provide a responsibility-by-responsibility assessment of observance, supported by a description of facts for each key element and based on key conclusions for each key consideration.

Appendix 1:
Assessment report template
on the observance of the principles for FMIs

Abbreviations

BCP	Business Continuity Plan
CSD	Central Securities Depository
CCP	Central Counterparty
CPSS	Committee on Payment and Settlement Systems
DVD	Delivery versus Delivery
DVP	Delivery versus Payment
IOSCO	International Organization of Securities Commission
ISO	International Organization for Standardization
PS	Payment System
SSS	Securities Settlement System
TR	Trade Repository

Assessors should list other terms that are used in the assessment report

I. Background, Key Findings, and Follow-up

Summary

An executive summary should highlight the key relevant findings of the assessment.

Introduction

Assessor and objective: identify the entity and assessor(s) conducting the assessment, and the objective and context of the assessment.

Scope of the assessment: identify the FMI being assessed.

Scope of coverage of the FMI: identify the FMI's scope of coverage, i.e. instruments (e.g. large value payments, securities, or derivatives), markets (exchange-traded and/or OTC transactions), and functions (such as CSD and SSS).

Methodology and information used for the assessment

Assessors should mention the process followed in conducting the assessment. If not all principles are assessed, assessors should explain why and list the principles that are assessed. Assessors should also explain which questions are used.

This section should identify the main sources of information used in making the assessment. Information sources may be public and non-public. These sources may include written documentation (such as other assessments, surveys, questionnaires, reports, studies, and relevant laws, regulations, or regulatory or industry guidance) and oral discussions with oversight, regulatory, or supervisory bodies, the FMIs themselves, and relevant industry stakeholders (such as, participants, staff, payment committees, stock exchanges, custodians, securities brokers, or end user associations).

Any practical difficulties in applying the assessment methodology should be mentioned, such as lack of information or cooperation and any factors limiting the assessment process or its scope. An account of any information requested but not obtained should be given.

Payment, clearing, and settlement landscape - overview

This section should begin with a general description of the role of the FMI in the overall relevant payment, securities, or derivatives clearing and settlement infrastructure.

The section should continue with a general description of the FMI's basic business processes, operations, and activities. The description should include sufficient transaction data to understand the scope of the FMI's activities, including by comparison with other FMIs of the same type, either from the same country, or from other relevant countries.

The section should also provide a general description of the regulatory and supervisory framework relating to the FMI in the jurisdiction and a brief description of the oversight, regulatory and supervisory bodies with authority over the FMI.

Finally, this section should describe major changes implemented in the recent past or scheduled for the near future.

Key findings and follow-up

This section should summarize the key findings of the detailed assessment. Assessors should state the main findings of the detailed assessment of observance of the principles under the following main categories: (a) General organization (Principles 1 to 3); (b) Credit and liquidity risk management (Principles 4 to 7); (c) Settlement (Principles 8 to 10); (d) Central securities depositories and exchange-of-value settlement systems (Principles 11 to 12); (e) Default management (Principles 13 to 14); (f) General business and operational risk management (Principles 15 to 17); (g) Access (Principles 18 to 20); (h) Efficiency (Principles 21 to 22); and (i) Transparency (Principles 23 to 24).

Under each category, assessors should:

- Highlight FMI key practices and achievements;
- List identified issues of concern, gaps or shortcomings;
- Comment separately on the principles which are not fully observed and provide the main reasons for assessing broad, partial or non-observance; indicate the risk factors that might influence the significance of the degree of non-observance; and indicate whether the issues of concern are being addressed, as well as the degree of observance that will be achieved if current efforts proceed as envisaged.
- Conclude the summary with a table collating the results of the principle-by-principle assessment of observance by reference to the assessment categories:

Table 1

Ratings Summary

Assessment category	Principle
Observed	e.g. Principles 1, 3, 6, 8
Broadly observed	
Partly observed	
Not observed	
Not applicable	

Recommendations

In Table 2, assessors should list issues of concern and other identified gaps or shortcomings in the FMI's observance of the principles, along with recommendations to address them.

Assessors should distinguish among three categories of issues of concern; (a) items warranting immediate action, (b) items to be implemented in a timely manner, and (c) items to be implemented in a defined timeline. If an FMI has plans for improvements under way, this should be noted (although the future impact of those plans will not be reflected in the current assignment of assessment category). Any specific obstacles to observance should be noted. Assessors should explain the manner in which the recommended action would lead to an improvement in the level of observance of the principle. The parties that are best positioned to address each identified issue of concern should be indicated.

Assessors should also note any other identified gaps and shortcomings that are not issues of concern and that are of a nature that the FMI could consider taking up in the normal course of business. Assessors should explain the manner in which the recommended action would lead to an improvement in the safety/efficiency of the FMI. The parties that are best positioned to address each identified gap and shortcoming should be indicated.

Some principles may be listed multiple times in the table when both issues of concern and gaps or shortcomings that are not issues of concern have been identified, or when multiple issues of concern warranting different levels of attention have been identified.

Table 2

List of Prioritized Recommendations

Principles	Issues of concern and other gaps or shortcomings	Recommended action	Relevant parties	Comments
Serious and warranting immediate action				
To be addressed in a timely manner				
To be addressed in a defined timeline				
For consideration in the normal course of business				

II. Detailed Assessment

The detailed assessment should provide a description of the FMI with regard to a particular key consideration, key conclusions for each key consideration, and an assessment rating for each by principle (see Table 3).

Description by key consideration. This section should provide information on the practices of the FMI that apply to the principle being assessed. In providing the description, assessors should be guided by the relevant key considerations and the related key elements. Only the key considerations and key elements applying to the category of FMI being assessed should be selected. Responses should reflect the actual practices followed by FMI operators and participants. The list of questions in Appendix 3 is a tool to help assessors gather facts to populate the key elements. The specific answers to each of these questions should not, per se, be part of the assessment report.

Key conclusions. Key conclusions are a narrative summary of key information collected by the assessor during the assessment of the key considerations. They should summarize the FMI practices and achievements, as warranted, identify any observed gaps or deficiencies with respect to the key considerations, describe the seriousness of any issues of concern, and provide recommendations associated with each identified gap or shortcoming.

Assessment of the principle. This section should state whether the principle is observed, broadly observed, partly observed, not observed, or not applicable and give the rationale for the rating in the Comments section.

Table 3

Detailed Assessment of Observance

For each Principle	
Principle X	Principle's headline
Key consideration X.X	Key consideration's headline
Descriptive part	Supporting facts by key elements
Key consideration X.X	Key consideration's headline
Descriptive part	Supporting facts by key elements
Key conclusion(s) and comments	Summary of notable achievements, issues of concern, and other identified gaps and shortcomings by key consideration, as warranted. Recommended action for each identified issue of concern and other gap or shortcoming. Any other relevant comments or remarks.
Assessment of Principle X	Rating Comments

Appendix 2:
Assessment report template on the observance of the responsibilities of central banks, market regulators, and other relevant authorities for FMIs

Abbreviations

BCP	Business Continuity Plan
CSD	Central Securities Depository
CCP	Central Counterparty
CPSS	Committee on Payment and Settlement Systems
DVD	Delivery versus Delivery
DVP	Delivery versus Payment
IOSCO	International Organization of Securities Commission
ISO	International Organization for Standardization
PS	Payment System
SSS	Securities Settlement System
TR	Trade Repository

Assessors should list other terms that are used in the assessment report

I. Background, Key Findings, and Follow-up

Summary

An executive summary should highlight the key relevant findings of the assessment.

Introduction

Assessor and objective: identify the entity and assessor(s) conducting the assessment, and the objective and context of the assessment.

Scope of the assessment: identify the authorities and the responsibilities being assessed.

Scope of coverage of the authorities: identify the authorities' scope of coverage, that is, FMIs and functions.

Methodology and information used for the assessment

This section should identify the main sources of information used in making the assessment. Information sources may be public and non-public. These sources may include written documentation (such as other assessments, surveys, questionnaires, reports, studies, and relevant laws, regulations, or regulatory guidance) and oral discussions with oversight, regulatory or supervisory bodies, the FMIs themselves, and relevant industry stakeholders (such as participants, staff, payment committees, stock exchanges, custodians, securities brokers, or end user associations).

Assessors should mention the process followed in conducting the assessment. Any practical difficulties in applying the assessment methodology should be mentioned, such as lack of information or cooperation and any factors limiting the assessment process or its scope. An account of any information requested but not obtained should be given.

Payment, clearing, and settlement landscape – overview

This section should provide a general description of the relevant payment, clearing, and settlement infrastructure.

The section should also provide a description of the regulatory and supervisory framework relating to the FMIs in the jurisdiction and a brief description of the oversight, regulatory and supervisory bodies with authority over the FMIs.

Finally, this section should describe major reforms implemented in the recent past or scheduled for the near future.

Key findings and follow-up

This section should summarize the key findings of the detailed assessment. Assessors should state the main findings of the detailed assessment of observance of the responsibilities.

For each responsibility, the assessment should:

– Highlight authorities' key practices and achievements;

– List identified issues of concern;

– Comment separately on the responsibilities that are not observed and provide the main reasons for assessment of broad, partial or non-observance; indicate the risk factors that might influence the significance of the degree of non-observance; and indicate whether the issues of concern are being addressed, as well as the degree of observance that will be achieved if current efforts proceed as envisaged.

– Conclude the summary with a table collating the results of the responsibility-by-responsibility assessment of observance by reference to the assessment categories:

Table 1

Ratings Summary

Assessment category	Responsibility
Observed	e.g. Responsibilities A, C
Broadly observed	e.g. Responsibilities B, D, E
Partly observed	
Not observed	
Not applicable	

Recommendations

In Table 2, assessors should list issues of concern and other identified gaps or shortcomings in the authorities' observance of the responsibilities, along with recommendations to address them.

Assessors should distinguish among the three categories of issues of concern; (a) items warranting immediate action, (b) items to be implemented in a timely manner, and (c) items to be implemented in a defined timeline. If authorities have plans for improvements under way, this should be noted (although the future impact of those plans will not be reflected in the current assignment of assessment category). Any specific obstacles to observance should be noted. Assessors should explain the manner in which the recommended action would lead to an improvement in the level of observance of the responsibilities. The parties that are best positioned to address each identified issue of concern should be indicated.

Assessors should also note any other identified gaps and shortcomings that are not issues of concern and are of a nature that authorities could consider taking up in the normal course of business should also be noted. Assessors should explain the manner in which the recommended action would lead to an improvement in the way authorities fulfil the responsibilities. The parties that are best positioned to address each identified gap and shortcoming should be indicated.

Some responsibilities may be listed multiple times in the table when both issues of concern and gaps or shortcomings that are not issues of concern have been identified, or when multiple issues of concern warranting different levels of attention have been identified.

Table 2

List of Prioritized Recommendations

Responsibilities	Issues of concern and other gaps or shortcomings	Recommended action	Relevant parties	Comments
Serious and warranting immediate action				
To be addressed in a timely manner				
To be addressed in a defined timeline				
For consideration in the normal course of business				

II. Detailed Assessment

The detailed assessment should provide a description with regard to a particular key consideration, key conclusions for each key consideration, and an assessment rating for each responsibility (see Table 3).

Description by key consideration. This section should provide information on the Responsibility being assessed. In providing the description, assessors should be guided by the relevant key considerations and the related key elements included in the Assessment Methodology. Responses should reflect the actual practices followed by the authorities. The list of questions in Appendix 4 is a tool to help assessors gather facts to populate the key elements. The specific answers to each of these questions should not, per se, be part of the assessment report.

Key conclusions. Key conclusions are a narrative summary of information collected by the assessor during the assessment of the key considerations. They should summarize the FMI practices and achievements, as warranted, identify any observed gaps or deficiencies with respect to the key considerations and describe the seriousness of the any issues of concern associated with each identified gap or shortcoming.

Assessment of the responsibility. This section should state whether the responsibility is observed, broadly observed, partly observed, not observed, or not applicable and give the rational for the rating in the Comments section.

Table 3

Detailed Assessment of Observance

For each Responsibility	
Responsibility X	Responsibility's headline
Key consideration X.X	Key consideration's headline
Descriptive part	Supporting facts by key elements
Key consideration X.X	Key consideration's headline
Descriptive part	Supporting facts by key elements
Key conclusion(s) and comments	Summary of notable achievements, issues of concern, and other identified gaps and shortcomings by key consideration, as warranted. Recommended action for each identified issue of concern and other gap or shortcoming. Any other relevant comments or remarks.
Assessment of Principle X	Rating Comments

Appendix 3:
Questions by key consideration for the principles for FMIs

Principle 1: Legal basis									
An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 1.1	*The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of each material aspect of the FMI's activity requiring legal certainty.					Q.1.1.1: What are the material aspect(s) of the FMI's activities that require legal certainty (for example, rights and interests in financial instruments, settlement finality, and netting)?				
KE 2. Identification of all relevant jurisdictions for the FMI's activities.					Q.1.1.2: What are all of the relevant jurisdictions for each material aspect of the FMI's activities?				
KE 3. Assurance of high degree of legal certainty for each aspect of the FMI's activities in all relevant jurisdictions.					Q.1.1.3: What is the legal framework and how does it provide a high degree of legal certainty for each material aspect of the FMI's activities in all relevant jurisdictions? Do/Does the legal opinion(s)/analysis(es) examine all relevant legal aspects regarding the different perspectives (for example, the FMI's perspective or the participant's perspective)?				

KC 1.2	*An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Clarity of the FMI's rules, procedures, and contracts.					Q.1.2.1: How has the FMI demonstrated that its rules, procedures, and contracts are clearly and understandably formulated?				
KE 2. Consistency of the FMI's rules, procedures, and contracts with relevant laws and regulations.					Q.1.2.2: How does the FMI ensure that its rules, procedures, and contracts are consistent with relevant laws and regulations? For example, has a legal opinion confirmed that these are consistent with relevant laws and regulations? Are the FMI's rules, procedures, and contracts reviewed or assessed by external authorities or entities? Do the FMI's rules, procedures, and contracts have to be approved before coming into force, by whom and how? Have any inconsistencies been identified and remedied?				

KC 1.3	*An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Ability of the FMI to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers.					Q.1.3.1: How does the FMI articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers?				

KC 1.4	*An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Enforceability of the FMI's rules, procedures, and contracts in all relevant jurisdictions.					Q.1.4.1: How does the FMI achieve a high level of confidence that its rules, procedures, and contracts related to its operations are enforceable in all relevant jurisdictions identified in KC 1.1? For example, has a legal opinion verified that the FMI's rules, procedures (including default procedures), and contracts are enforceable in all relevant jurisdictions when a participant defaults or becomes insolvent, or when the FMI is implementing its plan for recovery or orderly wind-down?				
KE 2. Degree of certainty that actions taken under the FMI's rules, procedures, and contracts will not be voided, reversed, or subject to stays.					Q.1.4.2: What legal precedence, if any, could void or reverse the FMI's actions under its rules, procedures, and contracts? Q.1.4.3: How does the FMI achieve a high degree of certainty that its rules, procedures, and contracts will not be voided, reversed, or subject to stays? Q1.4.4: Has a court in any relevant jurisdiction ever failed to enforce any of the FMI's activities or arrangements?				

KC 1.5	*An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of potential conflict of laws across jurisdictions.					Q.1.5.1: If the FMI conducts business in multiple jurisdictions or deals with contracts governed by a different law, what potential conflict of laws issues has the FMI identified and analysed? Q.1.5.2: How is the legal analysis for identifying potential conflict-of-laws issues regularly reviewed?				
KE 2. Mitigation of risks arising from conflict of laws across jurisdictions.					Q.1.5.3: What steps has the FMI taken to mitigate the legal risks identified in operating in multiple jurisdictions?				

Principle 2: Governance									
An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 2.1	*An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Identification of the FMI's objectives.	Q.2.1.1: What are the FMI's objectives, and are they clearly identified? Q.2.1.2: How is the FMI's performance in meeting its objectives assessed?
KE 2. Prioritisation of safety and efficiency in the FMI's objectives.	Q.2.1.3: How does the FMI prioritise safety and efficiency in its objectives?
KE 3. Explicit support for financial stability and other relevant public interests in the FMI's objectives.	Q.2.1.4: How do the FMI's objectives reflect explicit support for financial stability? Q.2.1.5: How are other relevant public interest considerations identified, and how are they reflected in the FMI's objectives?

KC 2.2	*An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Identification of the governance arrangements under which the board and management operate.	Q.2.2.1: What are the FMI's governance arrangements under which the board and management operate including a description of the FMI's corporate group and its ownership structure and organisational form?
KE 2. Identification of lines of responsibilities and accountability within the FMI.	Q.2.2.2: What are the lines of responsibilities and accountability within the FMI? Q.2.2.3: How does the FMI provide accountability to owners, participants, and other relevant stakeholders?
KE 3. Disclosure of the identified governance arrangements.	Q.2.2.4: How are the governance arrangements disclosed to owners, relevant authorities, users, and the public?

<table>
<tr><td>KC 2.3</td><td colspan="9">The roles and responsibilities of an FMI’s board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Identification of the roles and responsibilities of the FMI’s board of directors (or equivalent).</td><td colspan="5">Q.2.3.1: What are the roles and responsibilities of the FMI’s board of directors (or equivalent), and are they clearly identified?</td></tr>
<tr><td colspan="5">KE 2. Identification of procedures for the functioning of the board.</td><td colspan="5">Q.2.3.2: What are the procedures of the board? For example, describe how the board committees have been established to facilitate the functioning of the board. What are the roles, responsibilities, and composition of such committees?</td></tr>
<tr><td colspan="5">KE 3. Identification of processes to identify, address, and manage conflicts of interest of members.</td><td colspan="5">Q.2.3.3: How does the board identify, address, and manage conflicts of interest? What document describes these processes? Are such documents public or available to owners, relevant authorities, and users?</td></tr>
<tr><td colspan="5">KE 4. Review of board’s performance.</td><td colspan="5">Q.2.3.4: What are the procedures established to review the performance of the board as a whole?

Q.2.3.5: What are the procedures established to review the performance of individual board members?</td></tr>
</table>

<table>
<tr><td>KC 2.4</td><td colspan="9">The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Identification of the appropriate skill sets for board members.</td><td colspan="5">Q.2.4.1: What skill sets are necessary for the FMI’s board members? What are the processes for identifying potential board members with the required skills?</td></tr>
<tr><td colspan="5">KE 2. Identification of appropriate incentives for board members.</td><td colspan="5">Q.2.4.2: What are the incentives that the FMI provides to members of the board, particularly incentives to attract and retain members of the board with appropriate skills?

Q.2.4.3: How do these incentives reflect the long-term achievement of the FMI’s objectives?</td></tr>
<tr><td colspan="5">KE 3. Inclusion of non-executive board members.</td><td colspan="5">Q.2.4.4: What is the FMI’s policy on the composition of its board of directors (or equivalent), including whether there has to be a minimum number of non-executive and/or independent directors. How does the FMI define independent board members?

Q.2.4.5: How does the FMI assess the independence of the board member(s)?</td></tr>
</table>

KC 2.5	*The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of the roles and responsibilities of the FMI's management.					Q.2.5.1: What are the roles and responsibilities of management? Q.2.5.2: How are the roles and objectives of senior management set?				
KE 2. Identification of skills, experience and integrity of management.					Q.2.5.3: What is the process and criteria for selecting senior management? Q.2.5.4: What processes are there for ensuring senior management positions are filled by staff with the required skills necessary for the operation and risk management of the FMI? Q.2.5.5: How is management performance assessed? Q.2.5.6: What is the process to remove senior management if necessary?				

KC 2.6	*The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of the risk-management framework established by the board.					Q.2.6.1: What is the risk-management framework that has been established by the board? Q.2.6.2: How does this framework address the FMI's risk-tolerance policy, assign responsibilities and accountability for risk decisions (such as limits on risk exposures), and address decision making in crises and emergencies?				
KE 2. Identification of board processes to determine, endorse, and regularly review the risk-management framework.					Q.2.6.3: What is the process for determining, endorsing, and reviewing the risk-management framework?				
KE 3. Identification of authority, independence, resources, and access to the board of the risk-management and internal control functions in governance arrangements.					Q.2.6.4: What are the roles, responsibilities, authority, reporting lines, and resources of the risk-management and audit functions? Q.2.6.5: What is the board's role regarding the adoption and use of risk-management models? How are these models and the related methodologies validated?				

<table>
<tr><td>KC 2.7</td><td colspan="9">The board should ensure that the FMI’s design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Identification of how the legitimate interests of direct and indirect participants and other relevant stakeholders are reflected in the FMI’s design, rules, strategy, and major decisions.</td><td colspan="5">Q.2.7.1: How does the FMI identify and take account of the interests of the FMI’s participants and other relevant stakeholders in its decision making in relation to its design, rules, overall strategy, and major decisions?

Q.2.7.2: How does the board solicit, assess, and incorporate the views of direct and indirect participants and other relevant stakeholders on these decisions? How are conflicts of interest identified, and how are they addressed?</td></tr>
<tr><td colspan="5">KE 2. Identification of how the FMI discloses major decisions to relevant stakeholders and, where appropriate, the public.</td><td colspan="5">Q.2.7.3: How does the FMI disclose major decisions made by the board to relevant stakeholders and, where appropriate, the public?</td></tr>
</table>

Principle 3: Framework for the comprehensive management of risks									
An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 3.1	*An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.*
PS X CSD X SSS X CCP X TR X	
KE 1. Identification of types of risk and risk-management policies and procedures.	Q.3.1.1: What types of risk arise in the FMI? Q.3.1.2: What are the FMI's policies and procedures in place that help the FMI identify, measure, monitor, and manage the risks that arise in the FMI?
KE 2. Identification of risk-management systems.	Q.3.1.3: What risk-management systems are used by the FMI to help identify, measure, monitor, and manage its range of risks? Q.3.1.4: How do these systems provide the capacity to aggregate exposures across the FMI or other relevant parties, such as the FMI's participants and their customers?
KE 3. Review of risk-management policies, procedures, and systems.	Q.3.1.5: How does the FMI assess the effectiveness of risk-management policies, procedures, and systems? Q.3.1.6: What is the process for developing, approving, and maintaining risk-management policies, procedures, and systems? Q.3.1.7: Do these reviews properly take into account fluctuation in risk intensity, changing environments, and market practices?

KC 3.2	*An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.*
PS X CSD X SSS X CCP X TR X	
KE 1. Identification of incentives provided to the FMI's participants and their customers to manage and contain risk.	Q.3.2.1: What incentives does the FMI provide for participants and their customers to monitor and manage the risks they pose to the FMI?
KE 2. Identification of information provided by the FMI to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.	Q.3.2.2: What information does the FMI provide to its participants and their customers to monitor the risks they pose to the FMI? For example, does the FMI provide them information on their credit and liquidity exposures, overall credit and liquidity limits, and the relationship between the exposures and limits?
KE 3. Review of the policies and procedures for allowing participants and their customers to manage and contain their risks.	Q.3.2.3: What policies and systems does the FMI have to enable participants to understand and manage risks? How does the FMI ensure that its policies and systems are effective over time in allowing their participants and customers to manage and contain their risks?

<table>
<tr><td>KC 3.3</td><td colspan="9">An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Identification of material risks that the FMI bears from and poses to other entities as a result of interdependencies.</td><td colspan="5">Q.3.3.1: What material risks has the FMI identified that it bears from and poses to other entities as a result of interdependencies?
Q.3.3.2: How are these risks identified, measured, and monitored?</td></tr>
<tr><td colspan="5">KE 2. Development of risk-management tools that address risks arising from interdependencies with other entities.</td><td colspan="5">Q.3.3.3: What risk-management tools are used by the FMI to address the risks arising from interdependencies with other entities?
Q.3.3.4: How does the FMI assess the effectiveness of its risk-management tools that examine interdependencies?</td></tr>
</table>

<table>
<tr><td>KC 3.4</td><td colspan="9">An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Identification of the scenarios that may potentially prevent the FMI from being able to provide its critical operations and services.</td><td colspan="5">Q.3.4.1: What are the FMI’s processes to identify scenarios that may potentially prevent the FMI from being able to provide its critical operations and services? What scenarios have been identified as a result of these processes?
Q.3.4.2: How do these scenarios take into account both independent and related risks which the FMI is exposed to?</td></tr>
<tr><td colspan="5">KE 2. Preparation of appropriate plans for recovery or orderly wind-down.</td><td colspan="5">Q.3.4.3: What plans does the FMI have for its recovery or orderly wind-down?
Q.3.4.4: What are the FMI’s key recovery or orderly wind-down strategies regarding the identified critical operations and services? How can these be implemented?
Q.3.4.5: How and how often are the plans for the FMI’s recovery and orderly wind-down reviewed and updated?</td></tr>
</table>

Principle 4: Credit risk									
An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.									
PS	**X**	**CSD**		**SSS**	**X**	**CCP**	**X**	**TR**	

KC 4.1	*An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Establishment of a framework for managing credit exposures from participants.	Q.4.1.1: What is the FMI's framework for managing credit exposures from its participants? Q.4.1.2: How are current exposures and, where they exist, potential future exposures taken into account in the FMI's framework to manage credit risks?
KE 2. Establishment of a framework for managing credit risks from the FMI's payment, clearing, and settlement processes.	Q.4.1.3: What is the FMI's framework for managing credit risks from its payment, clearing, and settlement processes? Q.4.1.4: What evidence supports the validity of the framework for managing credit risks from the FMI's payment, clearing, and settlement processes (for example, backtesting)?

KC 4.2	*An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of the FMI's sources of credit risk.	Q.4.2.1: What are the sources of credit risk to the FMI?
KE 2. Measuring and monitoring credit exposures.	Q.4.2.2: How does the FMI measure credit exposures? Q.4.2.3: How frequently does, and how frequently can, the FMI recalculate these exposures? How timely is the information?
KE 3. Use of tools to control credit risk.	Q.4.2.4: What tools does the FMI use to eliminate, limit, or mitigate credit risk (for example, offering an RTGS or DvP settlement mechanism, limiting net debits or intraday credit, establishing concentration limits, or marking positions to market on a daily basis)?

<table>
<tr><td>KC 4.3</td><td colspan="9">A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td></td><td>SSS</td><td>X</td><td>CCP</td><td></td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Coverage of current and potential future exposures to each participant.</td><td colspan="5">Q.4.3.1: What composition of financial resources does the FMI use to cover its current and potential future exposures?

Q.4.3.2: To what extent do these financial resources cover the FMI’s current and potential future exposures fully with a high degree of confidence?</td></tr>
<tr><td colspan="5">KE 2. (For DNS payment systems and DNS SSSs in which there is no settlement guarantee) Coverage of the exposures of the two participants and their affiliates that would create the largest aggregate exposure in the system.</td><td colspan="5">Q.4.3.3: If the FMI is a DNS payment system or DNS SSS that does not provide a settlement guarantee, do its participants face credit exposures arising from the payment, clearing, and settlement processes? If there are credit exposures in the system, how does the system measure these exposures?

Q.4.3.4: If the FMI has credit exposures among its participants, do the FMI’s financial resources cover, at a minimum, the default of the two participants and their affiliates that would create the largest credit exposure in the system?</td></tr>
</table>

<table>
<tr><td>KC 4.4</td><td colspan="9">A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td></td><td>SSS</td><td></td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Coverage of current and potential future exposures to each participant.</td><td colspan="5">Q.4.4.1: What composition of financial resources does the CCP use to cover its current and potential future exposures?

Q.4.4.2: To what extent do these financial resources cover the CCP’s current and potential future exposures fully with a high degree of confidence?</td></tr>
</table>

KE 2. Additional financial resources to cover a wide range of potential stress scenarios.	Q.4.4.3: What additional financial resources does the CCP maintain to cover a wide range of potential stress scenarios that include, but are not limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure in extreme but plausible market conditions? Q.4.4.4: If the CCP is systemically important in multiple jurisdictions or involved in activities with a more-complex risk profile, do the additional financial resources cover, at a minimum, the default of the two participants and their affiliates that would create the largest credit exposure in the CCP in extreme but plausible market conditions? Q.4.4.5: Has the CCP considered whether it is systemically important in multiple jurisdictions when setting its level of financial resources? Q.4.4.6: Has the CCP considered its risk profile when setting its level of financial resources (in particular, the clearing of financial instruments that are characterised by discrete jump-to-default price changes or that are highly correlated with potential participant defaults)? Q.4.4.7: What is the frequency at which the FMI evaluates these additional resources to determine their sufficiency?
KE 3. Documentation and governance arrangements relating to total financial resources.	Q.4.4.8: How does the CCP document its policies regarding its holdings of total financial resources? Q.4.4.9: What governance arrangements are in place relating to the amount of total financial resources at the CCP?

KC 4.5	*A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.*								
PS		CSD		SSS		CCP	X	TR	
KE 1. Details of the CCP's total financial resources and stress testing program.	Q.4.5.1: How does the CCP stress test to assess the sufficiency of its total financial resources?								

<table>
<tr><td>KE 2. Communication and use of stress testing results.</td><td>Q.4.5.2: How are stress-testing results communicated to relevant parties? How are these results used to evaluate the adequacy of and adjust the CCP’s total financial resources?</td></tr>
<tr><td>KE 3. Frequency of stress testing.</td><td>Q.4.5.3: How often does the CCP perform stress testing to check the adequacy of total financial resources in the event of default in extreme but plausible market conditions?</td></tr>
<tr><td>KE 4. Analysis of stress-testing scenarios, models, and underlying parameters and assumptions.</td><td>Q.4.5.4: How does the CCP’s stress-testing program take into account various conditions, such as a surge in position and price volatility, position concentration, change in market liquidity, and model risk including shift of parameters? How often does the CCP assess the effectiveness and appropriateness of stress-testing assumptions and parameters?

Q.4.5.5: What is the process of review for the stress testing program?</td></tr>
<tr><td>KE 5. Validation of the CCP’s risk-management model.</td><td>Q.4.5.6: How does the CCP carry out a validation of its risk-management model? How often does it perform this validation?</td></tr>
</table>

<table>
<tr><td>KC 4.6</td><td colspan="9">In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters’ positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td></td><td>SSS</td><td></td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Identification of scenarios for stress testing financial resources.</td><td colspan="5">Q.4.6.1: In conducting stress testing, what scenarios does the CCP consider? What analysis supports the use of these particular scenarios?</td></tr>
</table>

<table>
<tr><td>KC 4.7</td><td colspan="9">An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI’s process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td></td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Explicit rules and procedure to address fully any credit losses.</td><td colspan="5">Q.4.7.1: According to the FMI’s rules and procedures, how are uncovered credit losses to be allocated, including in relation to the repayment of any funds an FMI may borrow from liquidity providers?</td></tr>
<tr><td colspan="5">KE 2. Process for the replenishment of financial resources during a stress event.</td><td colspan="5">Q.4.7.2: What are the FMI’s rules and procedures on the replenishment of the financial resources that are exhausted during a stress event?</td></tr>
</table>

Principle 5: Collateral									
An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.									
PS	**X**	**CSD**		**SSS**	**X**	**CCP**	**X**	**TR**	

KC 5.1	*An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of acceptable collateral for the FMI.	Q.5.1.1: What guidelines are used in determining whether a specific asset can be accepted as collateral, including for collateral to be accepted on an exceptional basis and the circumstances that would qualify as an exceptional basis? Q.5.1.2: How frequently does the FMI adjust its requirements for acceptable collateral? Q.5.1.3: How does the FMI identify and mitigate possible specific wrong-way risk, for example, by limiting the collateral it accepts?
KE 2. Tools available to the FMI to check acceptability of posted collateral.	Q.5.1.4: How does the FMI control that the posted collateral meets the applicable acceptance criteria?

KC 5.2	*An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of the FMI's valuation practices for collateral.	Q.5.2.1: How frequently does the FMI mark its collateral to market, and does it do so at least daily? Q.5.2.2: To what extent is the FMI authorised to exercise discretion in valuing assets when market prices do not represent their true value?
KE 2. Identification of the FMI's haircutting practices.	Q.5.2.3: How does the FMI determine haircuts? Q.5.2.4: How and how often does the FMI test the sufficiency of haircuts and validate its haircut procedures, including with respect to the potential decline in the assets' value in stressed market conditions involving the liquidation of collateral?

KC 5.3	*In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Establishment of stable and conservative haircuts to reduce the need for procyclical adjustments.					Q.5.3.1: How does the FMI identify and evaluate the potential procyclicality of its haircut calibrations? Q.5.3.2: How does the FMI incorporate periods of stressed market conditions during the calibration of haircuts to reduce the need for procyclical adjustments?				

KC 5.4	*An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Identification of policies and procedures to avoid the concentration of certain assets held as collateral.					Q.5.4.1: How does the FMI identify and avoid the concentration of collateral holdings to limit potential adverse price effects at liquidation? Q.5.4.2: What factors (for example, adverse price effects or market conditions) are considered when determining these policies? Q.5.4.3: How and how often does the FMI review and evaluate concentration policies and practices to determine their adequacy?				

KC 5.5	*An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Identification of risks resulting from accepting cross-border collateral.					Q.5.5.1: What are the legal, operational, market, and other risks the FMI is exposed to by accepting cross-border collateral?				
KE 2. Mitigation of risks from accepting cross-border collateral.					Q.5.5.2: How, and to what extent, has each of these risks been mitigated?				
KE 3. Ability of the FMI to ensure cross-border collateral can be used in a timely manner.					Q.5.5.3: How does the FMI ensure and verify that cross-border collateral can be used in a timely manner?				

<table>
<tr><td>KC 5.6</td><td colspan="9">An FMI should use a collateral management system that is well-designed and operationally flexible.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td></td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Design of the FMI’s collateral management system.</td><td colspan="5">Q.5.6.1: How, and to what extent, does the FMI track the reuse of collateral and the rights of the FMI to the collateral provided, and accommodate the timely deposit, withdrawal, substitution, and liquidation of collateral?

Q.5.6.2: How, and to what extent, does the FMI’s collateral management system, where relevant, allow for the timely calculation and execution of margin calls, management of margin call disputes, and the daily reporting of initial and variation margins?</td></tr>
<tr><td colspan="5">KE 2. Operational flexibility of the FMI’s collateral management system.</td><td colspan="5">Q.5.6.3: How, and to what extent, does the FMI’s collateral management system accommodate changes in the ongoing monitoring and management of collateral?

Q.5.6.4: To what extent is the collateral management system staffed to ensure smooth operations even during times of market stress?</td></tr>
</table>

Principle 6: Margin									
A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.									
PS		**CSD**		**SSS**		**CCP**	**X**	**TR**	

KC 6.1	*A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.*								
PS		CSD		SSS		CCP	X	TR	
KE 1. Framework of margin system.					Q.6.1.1: How would the CCP describe the general framework of its margin system particularly with respect to current and potential future exposures? If the CCP does not use a margining system, what risk-management measures does it take to mitigate its risks?				
KE 2. Determinants of credit exposure and margin requirements.					Q.6.1.2: What are the determinants of the credit exposures of the CCP, with respect to the attributes of each product, portfolio, and market it serves? Q.6.1.3: How do the CCP's margin requirements reflect the credit exposures the CCP faces?				
KE 3. Documentation of the margin methodology.					Q.6.1.4: In which document is the margin methodology described? Q.6.1.5: Is the detail of the CCP's margin methodology available to the participants for use in their individual risk-management efforts?				
KE 4. Timeliness and possession of margin payments.					Q.6.1.6: How does the CCP enforce timelines for margin collection and payment? Q.6.1.7: How does the CCP address the risk of a participant payment failure that would cause a shortage of required margin to the participant's position? Q.6.1.8: How does the CCP enforce timelines for margin payments? If the CCP has participants from different time zones, how does the CCP address issues posed by differences in local funding markets and operating hours of relevant payment and settlement systems?				

KC 6.2	*A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.*								
PS		CSD		SSS		CCP	X	TR	
KE 1. Reliability of price data for margin systems.					Q.6.2.1: How does the CCP determine that the price data it receives is appropriate for the margin system? Q.6.2.2: How does the CCP evaluate the reliability and accuracy of the prices provided by any third-party pricing services?				

KE 2. Identification of valuation models for calculating margin requirements when market prices are not readily available or reliable.	Q.6.2.3: When prices are not readily available or reliable, how does the CCP estimate prices to calculate margin requirements? Q.6.2.4: How does the CCP validate models used to estimate prices or margin requirements when price data are not readily available or reliable?

KC 6.3	*A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Features of the initial margin methodology.	Q.6.3.1: What is the design of the CCP's initial margin model? What is the methodology used to measure potential future exposure in the margin model? Q.6.3.2: What are the assumptions of the margin model? Q.6.3.3: How does the CCP estimate the margin model, in particular upon what does the CCP base its determination of the sample periods for historical data for its initial margin model?
KE 2. Close out and sample periods for margin model.	Q.6.3.4: How does the CCP determine an appropriate close-out period for each product? In particular, how does the CCP account for potentially increased liquidation times during stressed market conditions? What factors are considered in this analysis (for example market liquidity, impact of a participant's default on prevailing market conditions, adverse effects of position concentration, and the CCP's hedging capability)? Q.6.3.5: How does the CCP determine an appropriate sample period for historical data used in the margin model? What factors are considered (for example reflection of new, current, or past volatilities or use of simulated data for new products without much history)? Q.6.3.6: How does the CCP consider the trade-off between prompt liquidation and adverse price effects?

KE 3. Procyclicality and specific wrong-way risk in the CCP's margin system.	Q.6.3.7: How does the CCP address procyclicality in the margin methodology, in particular, does the CCP adopt forward-looking and relatively stable and conservative margin requirements to limit the need for destabilising procyclical changes? Q.6.3.8: How does the CCP identify and mitigate specific wrong-way risk?

KC 6.4	*A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Features of the variation margin methodology.	Q.6.4.1: What is the design of the CCP's variation margin model? Describe the model in detail including the method used to measure current exposure, frequency of mark-to-market and schedule of margin collection, and intraday margin call capabilities.
KE. 2. Determination of the CCP's authority and operational capacity to make intraday calls and payments, both scheduled and unscheduled, to participants.	Q.6.4.2: What evidence is there that the CCP has the authority and operational capacity to make and complete intraday margin calls for initial and variation margin?

KC 6.5	*In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Identification of methodology used for offsets or reductions in margin requirements.	Q.6.5.1: How does the CCP measure its potential future exposure at the product and portfolio level? How does the CCP's portfolio margining methodology account for offsets or reductions in required margin across products that it clears? Q.6.5.2: How does the cross-margining arrangement offset or reduce required margin both among products and among CCPs?
KE 2. Robustness of the methodology.	Q.6.5.3: How does the CCP confirm the robustness of its portfolio and cross-margining methodologies? How does the CCP's methodology account for the degree of price dependency, its stability in stressed market conditions, and the impact of default arrangements on overall financial resources?
KE 3. Identification of risks from cross-margining and implementation of appropriate safeguards and harmonised risk-management programmes at the CCPs.	Q.6.5.4: In the case of cross-margining, how do the CCPs harmonise their approaches to risk management? Q.6.5.5: What are the legal and operational arrangements to govern the cross-margining arrangements?

KC 6.6	*A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Margin model performance.	Q.6.6.1: Describe in detail the backtesting methodologies and model performance including both target confidence level and the result of overall margin coverage. Does such testing address portfolio effects within and across asset classes within the CCP and cross-margining programmes with other CCPs? Q.6.6.2: What procedures will the CCP follow if the model does not perform as expected?
KE 2. Sensitivity analysis of model performance and overall margin coverage.	Q.6.6.3: Describe in detail the sensitivity analysis of model performance and overall margin coverage initial margin methodology. What range of parameters, assumptions, historical and hypothetical market conditions, and participant positions including stressed conditions are covered by the analysis? Q.6.6.4: What are the identified potential shortcomings of the margin model?
KE 3. Disclosure of backtesting and sensitivity analysis results.	Q.6.6.5: How does the CCP disclose the results of its backtesting and sensitivity analysis?

KC 6.7	*A CCP should regularly review and validate its margin system.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Regular review and validation of the margin system.	Q.6.7.1: How does the CCP regularly review and validate its margin system including its theoretical and empirical properties? How frequently is this done? Q.6.7.2: How does the CCP incorporate material revisions and adjustments of the margin methodology including parameters into its governance arrangement? Q.6.7.3: How does the CCP disclose both the method and the results of this review and validation?

Principle 7: Liquidity risk									
An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.									
PS	**X**	**CSD**		**SSS**	**X**	**CCP**	**X**	**TR**	

KC 7.1	*An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of liquidity risks in each currency.	Q.7.1.1: What are the nature and size of the liquidity needs, and the associated sources of liquidity risks, that arise in the FMI in each relevant currency? Q.7.1.2: How does the FMI take into account the potential aggregate liquidity risk presented by an individual entity and its affiliates that may play multiples roles with respect to the FMI? Q.7.1.3: In light of the FMI's particular payment and settlement structure, how, and to what extent, are the liquidity risks in each currency borne directly by the FMI, by its participants, or both?
KE 2. Establishment of a framework for measuring, monitoring, and managing liquidity risks in each currency.	Q.7.1.4: What is the FMI's framework for measuring, monitoring, and managing the identified liquidity risks in each currency and across all currencies?

KC 7.2	*An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of operational and analytical tools to identify, measure, and monitor settlement and funding flows on an ongoing and timely basis.	Q.7.2.1: What operational and analytical tools does the FMI have to identify, measure, and monitor settlement and funding flows? Q.7.2.2: How do these tools enable the FMI and its participants to monitor the size, and to identify the potential materialisation, of the identified liquidity risks they face in a timely manner? Q.7.2.3: How do these tools enable the FMI to monitor and to deploy in a timely manner the available liquid resources it has to address liquidity risks that might materialise?

KC 7.3	*A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.*								
PS	X	CSD		SSS	X	CCP		TR	

KE 1. Quantification of the minimum liquidity resource requirement in each currency.	Q.7.3.1: What is the estimated size of the liquidity shortfall in each currency that would need to be covered to effect settlement of payment obligations, following the default of the participant and its affiliates that would generate the largest aggregate payment obligation in each currency in extreme but plausible market conditions? Q.7.3.2: How, and to what extent, is the FMI's process for estimating the size of this minimum liquidity resource requirement in each currency integrated into the FMI's overall liquidity-risk management framework (see KC 7.1) and its stress-testing program for determining the adequacy of its liquidity resources (see KC 7.9)?
KE 2. Quantification of additional liquidity resource requirements.	Q.7.3.3: What is the estimated size of any additional liquidity shortfall in each currency that would need to be covered to effect of payment obligations under a wide range of other relevant stress scenarios identified by the FMI? Q.7.3.4: How, and to what extent, is the FMI's process for estimating the size of this additional minimum liquidity resource requirement in each currency integrated into the FMI's overall liquidity risk-management framework (see KC 7.1) and its stress-testing program for determining the adequacy of its liquidity resources (see KC 7.9)?

KC 7.4	*A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Minimum liquidity resource requirement in each currency to cover a participant default.	Q.7.4.1: What is the estimated size of the liquidity shortfall in each currency that would need to be covered, following the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions? Q.7.4.2: How, and to what extent, is the CCP's process for estimating the size of this minimum liquidity resource requirement in each currency integrated into the CCP's overall liquidity risk-management framework (see KC 7.1) and its stress testing program for determining the adequacy of its liquidity resources (see KC 7.9)?
KE 2. Additional minimum liquidity resource requirements.	Q.7.4.3: What is the estimated size of any additional liquidity shortfall in each currency that would need to be covered under a wide range of other relevant stress scenarios identified by the CCP? Q.7.4.4: How, and to what extent, is the CCP's process for estimating the size of this additional minimum liquidity resource requirement in each currency integrated into the CCP's overall liquidity risk-management framework (see KC 7.1) and its stress testing program for determining the adequacy of its liquidity resources (see KC 7.9)?

<table>
<tr><td>KE 3. Consideration to cover the default of two participants by a CCP involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions.</td><td>Q.7.4.5: How, and to what extent, is the CCP involved in activities with a more-complex risk profile or systemically important in multiple jurisdictions?

Q.7.4.6: What is the estimated size of the liquidity shortfall in each currency that would need to be covered following the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP?

Q.7.4.7: Within the CCP's overall liquidity risk-management framework (see KC 7.1) and when conducting its stress-testing program for determining the adequacy of its liquidity resources (see KC 7.9), how does the CCP consider the additional liquidity resources that would be needed to cover the default of the two participants and their affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions?</td></tr>
</table>

<table>
<tr><td>KC 7.5</td><td colspan="9">For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td></td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Composition of qualifying liquid resources.</td><td colspan="5">Q.7.5.1: What is the size and composition of the FMI's liquid resources in each currency that is held?

Q.7.5.2: How, and on what basis, has the FMI determined that its prearranged funding arrangements to convert its readily available collateral and investments into cash would be highly reliable in extreme but plausible market conditions?

Q.7.5.3: If the FMI has access to routine credit at the central bank of issue, what is the FMI's relevant borrowing capacity for meeting its minimum liquidity resource requirement in that currency?</td></tr>
<tr><td colspan="5">KE 2. Coverage and availability of qualifying liquid resources.</td><td colspan="5">Q.7.5.4: To what extent does the size and the availability of the FMI's qualifying liquid resources cover its identified minimum liquidity resource requirement in each currency to effect settlement of payment obligations on time?</td></tr>
</table>

<table>
<tr><td>KC 7.6</td><td colspan="9">An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td></td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Composition of supplemental liquid resources.</td><td colspan="5">Q.7.6.1: What is the size of any supplemental liquid resources following a default?

Q.7.6.2: How, and on what basis, has the FMI determined that these assets are likely to be saleable or acceptable as collateral to obtain the relevant currency, even if this cannot be reliably prearranged or guaranteed in extreme market conditions?

Q.7.6.3: What proportion of these supplemental assets qualifies as collateral at the relevant central bank?</td></tr>
<tr><td colspan="5">KE 2. Use, coverage, and availability of supplemental liquidity resources.</td><td colspan="5">Q.7.6.4: When, and how would, the FMI use its supplemental liquid resources in advance of, or in addition to, using its qualifying liquid resources?

Q.7.6.5: To what extent does the size and availability of the FMI's supplemental liquid resources, in conjunction with its qualifying liquid resources, cover the relevant liquidity needs identified through the FMI's stress testing program for determining the adequacy of its liquidity resources (see KC 7.9)?</td></tr>
</table>

<table>
<tr><td>KC 7.7</td><td colspan="9">An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td></td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Identification of the FMI's minimum required qualifying liquid resources.</td><td colspan="5">Q.7.7.1: Who are the providers of the FMI's minimum required qualifying liquid resources?</td></tr>
<tr><td colspan="5">KE 2. Due diligence by the FMI to assess the sufficiency of information for each liquidity provider to understand and to manage its associated liquidity risks.</td><td colspan="5">Q.7.7.2: How, and on what basis, has the FMI determined that each of its liquidity providers has sufficient information to understand and to manage its associated liquidity risk in each relevant currency on an ongoing basis?</td></tr>
</table>

<table>
<tr><td>KE 3. Due diligence by the FMI to assess the capacity of each liquidity provider to perform as required under its commitment.</td><td>Q.7.7.3: How, and on what basis, has the FMI determined that each of its liquidity providers has the capacity to perform on its commitment in each relevant currency on an ongoing basis?

Q.7.7.4: How, and to what extent, does the FMI take into account a liquidity provider’s potential access to credit at the central bank of issue?

Q.7.7.5: How does the FMI regularly test the timeliness and reliability of its procedures for accessing its liquid resources at a liquidity provider?</td></tr>
</table>

<table>
<tr><td>KC 7.8</td><td colspan="9">An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td></td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Access to central bank accounts, payment services, or securities services.</td><td colspan="5">Q.7.8.1: To what extent does the FMI currently have, or is the FMI eligible to obtain, access to accounts, payment services, and securities services at each relevant central bank that could be used to conduct its payments and settlements and to manage liquidity risks in each relevant currency?</td></tr>
<tr><td colspan="5">KE 2. Use of central bank services to enhance management of liquidity risk.</td><td colspan="5">Q.7.8.2: To what extent does the FMI use each of these services at each relevant central bank to conduct its payments and settlements and to manage liquidity risks in each relevant currency?

Q.7.8.3: If the FMI employs services other than those provided by the relevant central banks, to what extent has the FMI analysed the potential to enhance the management of liquidity risk by expanding its use of central bank services?

Q.7.8.4: What, if any, practical or other considerations to expanding its use of relevant central bank services have been identified by the FMI?</td></tr>
</table>

KC 7.9	*An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of the FMI's stress testing program.	Q.7.9.1: How and how frequently does the FMI use stress testing to determine and to test the sufficiency of the size and composition of its liquid resources in each currency? Q.7.9.2: How is this stress testing program integrated into the FMI's overall liquidity risk-management framework (see KC 7.1), the FMI's quantification of its minimum liquidity resource requirements (see KC 7.3 for a payment system or SSS, and KC 7.4 for a CCP), and the FMI's establishment of its supplementary liquid resources?
KE 2. Communication and use of stress testing results.	Q.7.9.3: What is the process for reporting on an ongoing basis the results of its liquidity stress tests to appropriate decision makers at the FMI, for the purpose of supporting their timely evaluation and adjustment of the size and composition of its liquidity resources and the FMI's liquidity risk-management framework? Q.7.9.4: What is the process for using the results of the stress tests for timely adjustment of the size and composition of the FMI's liquidity resources and of the FMI's liquidity risk-management framework?

KE 3. Analysis of stress-testing scenarios, models, and underlying parameters and assumptions.	Q.7.9.5: What scenarios are used in the stress tests, and to what extent do they take into account a combination of peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions? Q.7.9.6: How do the scenarios and stress tests take into account the FMI's particular payment and settlement structure (for example, real-time gross or deferred net; with or without a settlement guarantee; DVP model 1, 2, or 3 for SSSs), and the extent to which liquidity risks are borne directly by the FMI, by its participants, or both? Q.7.9.7: How do the scenarios and stress tests take into account the nature and size of the liquidity needs, and the associated sources of liquidity risks, that arise in the FMI to settle its payment obligations on time, including the potential that individual entities and their affiliates may play multiples roles with respect to the FMI?
KE 4. Documentation and governance.	Q.7.9.8: Where and to what extent does the FMI document its supporting rationale for, and its governance arrangements relating to, the amount and form of total liquid resources it maintains?

KC 7.10	*An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of explicit rules and procedures to enable the FMI to settle following any individual or combined default among its participants.	Q.7.10.1: What are the rules and procedures that would enable the FMI to settle payment obligations on time following any individual or combined default among its participants? Q.7.10.2: How, and to what extent, would these rules and procedures address unforeseen and potentially uncovered liquidity shortfalls to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations?
KE 2. Identification of a process to replenish any liquidity resources employed during a stress event.	Q.7.10.3: What rules and procedures does the FMI have in place for replenishing any liquidity resources employed during a stress event?
KE 3. Documentation and communication.	Q.7.10.4: To what extent are these rules and procedures discussed with and communicated to participants?

Principle 8: Settlement finality									
An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.									
PS	**X**	**CSD**		**SSS**	**X**	**CCP**	**X**	**TR**	

KC 8.1	*An FMI's rules and procedures should clearly define the point at which settlement is final.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of the point at which settlement is final based on the FMI's rules and procedures.	Q.8.1.1: At what point is the settlement of a payment, transfer instruction, or other obligation final, meaning irrevocable and unconditional? Q.8.1.2: How does the FMI's legal framework and rules, including the insolvency law, acknowledge the discharge of a payment, transfer instruction, or other obligation between the FMI and its participants, or between participants? Q.8.1.3: How does the FMI ensure that finality is achieved under all relevant jurisdictions? Q.8.1.4: In case of a SSS, how is consistency of finality achieved between the SSS and, if relevant, the LVPS where the cash leg is settled? Q.8.1.5: In case of a CCP for cash products, what is the relation between the finality of obligations in the CCP and the finality of the settlement of the CCP claims and obligations balances in other systems, depending on the rules of the relevant CSD/SSS and payment system?
KE 2. Clarity of the documentation.	Q.8.1.6: Where is the FMI's definition of the point of settlement finality defined? How is this information disclosed, and to whom is it disclosed?

KC 8.2	*An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Occurrence of final settlement no later than the end of the value date.	Q.8.2.1: Is the FMI designed to provide final settlement on the value date (or same-day settlement)? How does the FMI ensure that final settlement occurs no later than the end of the intended value date? Q.8.2.2: Has the FMI experienced any deferral of final settlement to the next business day? If so, under which circumstances? What steps have been taken to prevent a similar situation in the future?

KE 2. Occurrence of intraday or real-time final settlement.	Q.8.2.3: How does the FMI provide intraday or real-time final settlement? Q.8.2.4: If settlement occurs through multiple-batch processing, what is the frequency of the batches and within what timeframe do they operate? What happens if a participant does not have enough funds or securities at the settlement time? Are transactions entered in the next batch? If so, what is the status of those transactions and when would they become final? Q.8.2.5: Does the FMI inform participants of final account balances as quickly as possible, preferably in real time?
KE 3. Consideration of the potential risk-reducing benefits of changing current processes to adopt RTGS, to adopt multiple-batch processing, and/or to complete final settlement earlier in the day, as applicable.	Q.8.2.6: If settlement does not occur intraday or in real time, how has the LVPS or SSS considered the introduction of either of these modalities?

KC 8.3	*An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Identification of the points after which unsettled payment, transfer instructions, or other obligations may not be revoked by a participant.	Q.8.3.1: How does the FMI define the point at which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant? How does the FMI prohibit the unilateral revocation of accepted and unsettled payments, transfer instructions, or obligations after this time? Q.8.3.2: Under what circumstance can an instruction or obligation accepted by the system for settlement still be revoked (for example, queued obligations)? Who can revoke unsettled payment or transfer instructions? Q.8.3.3: Under what conditions does the FMI allow exceptions and extensions to the revocation deadline?
KE 2 .Clarity of the documentation.	Q.8.3.4: Where does the FMI define this information? How is this information disclosed, and to whom is it disclosed? Is the information clearly articulated to the FMI's participants?

Principle 9: Money settlements									
An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risks arising from the use of commercial bank money.									
PS	**X**	**CSD**		**SSS**	**X**	**CCP**	**X**	**TR**	

KC 9.1	*An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Identification of money settlement assets.					Q.9.1.1: What types of money settlement does the FMI carry out? What are the different cases according to types of operations and currencies, if relevant? Q.9.1.2: How does the FMI complete these money settlements using central bank money and/or commercial bank money? What factors were considered in determining the settlement asset?				

KC 9.2	*If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Credit or liquidity risk of settlement assets used for money settlement.					Q.9.2.1: If commercial bank money is used, how does the FMI assess the credit and liquidity risk of the settlement asset used for money settlement?				

KC 9.3	*If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Identification of strict criteria for settlement banks.					Q.9.3.1: What criteria has the FMI established for selecting its settlement banks? In particular, how does the FMI evaluate the banks' regulation, supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability?				
KE 2. Assessment of the FMI's monitoring of settlement banks' adherence to the criteria mentioned in KE 1.					Q.9.3.2: How does the FMI monitor the banks' adherence to those criteria?				

KE 3. Management of the concentration of credit and liquidity risks to the commercial settlement banks.	Q.9.3.3: How does the FMI monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks? Q.9.3.4: How does the FMI monitor and manage the concentration of credit and liquidity exposures to the banks? Q.9.3.5: How does the FMI assess its potential losses and liquidity pressures as well as those of its participants if there is a failure of its largest settlement bank?

KC 9.4	*If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Risks associated with money settlements on the books of the FMI.					Q.9.4.1: How does the FMI conduct money settlements on its own books? Q.9.4.2: How does it minimize and strictly control its credit and liquidity risks?				

KC 9.5	*An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.*								
PS	X	CSD		SSS	X	CCP	X	TR	
KE 1. Provisions of the FMI's legal agreements with its settlement banks.					Q.9.5.1: Do the FMI's legal agreements with its settlement banks state when transfers occur, that transfers are final when effected, and that funds received are transferable? Q.9.5.2: Are funds received transferable by the end of the day at the latest? If not, why? Are they transferable intraday? If not, why?				

Principle 10: Physical deliveries									
An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.									
PS		**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	

KC 10.1	*An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.*

PS		CSD	X	SSS	X	CCP	X	TR	

KE 1. Identification and documentation of the FMI's obligations with respect to the delivery of physical instruments or commodities.	Q.10.1.1: Which asset classes does the FMI accept for physical delivery? Q.10.1.2: How does the FMI define its obligations and responsibilities with respect to the delivery of physical instruments or commodities? Q.10.1.3: In which documents are these responsibilities defined? What is the disclosure status of these documents? Q.10.1.4: Is there evidence that the participants have an understanding of their obligations and the procedures for effecting physical delivery?

KC 10.2	*An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.*

PS		CSD	X	SSS	X	CCP	X	TR	

KE 1. Identification, management, and monitoring of the risks and costs of the storage and delivery of physical instruments or commodities.	Q.10.2.1: What procedures, processes, and controls has the FMI put in place to identify, monitor, and manage the risks and costs associated with storage and delivery of physical instruments or commodities? Q.10.2.2: How do the FMI's policies and procedures ensure that the FMI's record of physical assets accurately reflects its holding of assets?
KE 2. Matching participants for delivery and receipt for FMIs serving commodity markets.	Q.10.2.3: Under what circumstances will the FMI match participants for delivery and receipt? Q.10.2.4: Are legal obligations for delivery clearly expressed in the rules in such instances? Do they address the compensation issue in the event of a loss? Q.10.2.5: For an FMI holding margins, when does it release the margin of the matched participants? Q.10.2.6: How does the FMI ensure that its participants have the necessary systems and resources to be able to fulfil their physical delivery obligations?

Principle 11: Central securities depositories							
A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.							
PS		**CSD**	**X**	**SSS**		**CCP**		**TR**	

KC 11.1	*A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.*								
PS		CSD	X	SSS		CCP		TR	

KE 1. Rules, procedures, and controls to safeguard the rights of securities issuers and holders (including accounting practices).	Q.11.1.1: What are the accounting practices used by the CSD? Q.11.1.2: How are the rights of securities issuers and holders safeguarded by the rules, procedures, and controls of the CSD? Q.11.1.3: Are frequent end-to-end audits conducted to examine the procedures and internal controls used in the safekeeping of securities? Do audits review whether there are sufficient securities to satisfy customer rights? Q.11.1.4: How are key aspects of the CSD's rules and procedures identified in KE 1 described and made available to participants?
KE 2. Rules, procedures, and controls to prevent the unauthorised creation or deletion of securities.	Q.11.1.5: What are the CSD's internal procedures to authorise the creation and deletion of securities? Q.11.1.6: What are the internal controls to prevent the unauthorised creation and deletion of securities?
KE 3. Rules, procedures, and controls for conducting periodic and at least daily reconciliation of securities issues.	Q.11.1.7: Does the CSD conduct periodic and at least daily reconciliation of the totals of securities issues in the CSD for each issuer (or its issuing agent)? Does the CSD ensure that the total number of securities recorded in the CSD for a particular issue is equal to the amount of securities of that issue held on the CSD's books? Q.11.1.8: Is the CSD the official registrar of the issues held on its books? If not, how does the CSD reconcile its records with official registrar?

KC 11.2	A CSD should prohibit overdrafts and debit balances in securities accounts.								
PS		CSD	X	SSS		CCP		TR	

KE 1. Prohibition of overdrafts or debit balances in securities accounts.	Q.11.2.1: What are the CSD's policies for prohibiting overdraft or debit balances in securities accounts? Q.11.2.2: How are debit positions in securities accounts prevented?

KC 11.3	*A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.*								
PS		CSD	X	SSS		CCP		TR	
KE 1. Immobilisation or dematerialisation of securities.					Q.11.3.1: Are securities issued or maintained in a dematerialised form? What percentage of securities is dematerialised, and what percentage of the total volume of transactions applies to these securities? Q.11.3.2: If securities are issued as a physical certificate, is it possible to immobilise them and allow the holding and transfer of these securities in a book-entry system? If relevant, what percentage of securities is immobilised, and what percentage of the total volume of transactions applies to immobilised securities? Q11.3.3: How does the CSD provide incentives to immobilise or dematerialise securities?				

KC 11.4	*A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.*								
PS		CSD	X	SSS		CCP		TR	
KE 1. Rules and procedures for protecting assets from custody risk.					Q.11.4.1: How do the CSD's rules and procedures protect participants' assets against custody risk, including the risk of loss because of the CSD's negligence, misuse of assets, fraud, poor administration, inadequate recordkeeping, or failure to protect participants' interests in their securities? Q.11.4.2: Are those rules and procedures consistent with the legal framework? Q.11.4.3: What other methods, such as insurance or other compensation schemes, does the CSD employ to protect its participants against misappropriation, destruction, and theft of securities?				

KC 11.5	*A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.*								
PS		CSD	X	SSS		CCP		TR	

KE 1. Identification of segregation mechanisms for securities.	Q.11.5.1: What policies and procedures ensure that the securities belonging to the CSD are segregated from those of participants? Q.11.5.2: What segregation arrangements are in place at the CSD? Does the CSD provide separate accounts to segregate the securities belonging to participants? Q.11.5.3: Where supported by the legal framework, does the CSD support the operational segregation of securities belonging to participants' customers from the participants' book? Does the CSD facilitate the transfer from these customers' accounts to another participant?

KC 11.6	*A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.*								
PS		CSD	X	SSS		CCP		TR	

KE 1. Identification, measurement, monitoring, and management of risks to the CSD deriving from other activities it may perform.	Q.11.6.1: Does the CSD provide services other than central safekeeping and administration of securities and settlement? If so, what services? Q.11.6.2: How does the CSD identify, measure, monitor, and manage the risks associated with those activities, including potential credit and liquidity risks?

Principle 12: Exchange-of-value settlement systems									
If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.									
PS	**X**	**CSD**		**SSS**	**X**	**CCP**	**X**	**TR**	

KC 12.1	*An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.*								
PS	X	CSD		SSS	X	CCP	X	TR	

KE 1. Elimination of principal risk by linking the two settlement obligations.	Q.12.1.1: How does the FMI's settlement mechanism ensure that the final settlement of relevant financial instruments eliminates principal risk? What procedures ensure that the final settlement of one obligation occurs if and only if the final settlement of a linked obligation also occurs? Q.12.1.2: Are each of the linked obligations settled on a gross or net basis?
KE 2. Achievement of final settlement of two linked obligations.	Q.12.1.3: Is the finality of settlement of linked obligations simultaneous? If not, what is the timing of finality for both obligations? Is the length of time between the blocking and final settlement of both obligations minimised? Are blocked assets protected from a claim by a third party?

Principle 13: Participant-default rules and procedures									
An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	

KC 13.1	*An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	

KE 1. Identification of default rules and procedures.	Q.13.1.1: Do the FMI's rules and procedures clearly define an event of default (both a financial and an operational default of a participant) and the method for identifying a default? Q.13.1.2: How do the FMI's rules and procedures address the following key aspects: (a) the actions that the FMI can take when a default is declared; (b) the extent to which the actions are automatic or discretionary; (c) changes to normal settlement practices; (d) the management of transactions at different stages of processing; (e) the expected treatment of proprietary and customer transactions and accounts; (f) the probable sequencing of actions; (g) the roles, obligations, and responsibilities of the various parties, including non-defaulting participants; and (h) the existence of other mechanisms that may be activated to contain the impact of a default?
KE 2. Use and sequencing of financial resources.	Q.13.1.3: How do the FMI's rules and procedures allow the FMI to use promptly any financial resources that it maintains for covering losses and containing liquidity pressures arising from default, including liquidity facilities? Q.13.1.4: How do the FMI's rules and procedures address the order in which the financial resources can be used?
KE 3. Identification of default rules and procedures that address the replenishment of resources following a participant default.	Q.13.1.5: How do the FMI's rules and procedures address the replenishment of resources following a default?

<table>
<tr><td>KC 13.2</td><td colspan="9">An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Preparation of an FMI to implement its default rules and procedures.</td><td colspan="5">Q.13.2.1: Does the FMI’s management have clearly articulated plans to address a participant default which delineate roles and responsibilities, including in respect to any discretionary procedures?

Q.13.2.2: What type of communication procedures does the FMI have to reach in a timely manner all relevant stakeholders, including regulators, supervisors, and overseers?

Q.13.2.3: How frequently are the internal processes to manage a default reviewed?</td></tr>
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<table>
<tr><td>KC 13.3</td><td colspan="9">An FMI should publicly disclose key aspects of its default rules and procedures.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Disclosure of key aspects of default rules and procedures to the public.</td><td colspan="5">Q.13.3.1: How are the key aspects of the FMI’s participant-default rules and procedures made publicly available?

Q.13.3.2: Do they include: (a) the circumstances in which action may be taken; (b) who may take those actions; (c) the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds, and assets; (d) the mechanisms to address an FMI’s obligations to non-defaulting participants; and (e) the mechanisms to help address the defaulting participant’s obligations to its customers?</td></tr>
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<table>
<tr><td>KC 13.4</td><td colspan="9">An FMI should involve its participants and other stakeholders in the testing and review of the FMI’s default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Testing and review of the default procedures with participants and other stakeholders.</td><td colspan="5">Q.13.4.1: How does the FMI engage with its participants and other relevant stakeholders in the testing and review of its participant-default procedures? At what frequency does it engage in these tests and reviews? Are these tests performed following material changes to the related rules and procedures?

Q.13.4.2: What range of potential participant-default scenarios and procedures do these tests cover? How does the FMI test the implementation of the resolution regime for its participants?

Q.13.4.3: How are the test results used? Are the results shared with the board, risk committee, and relevant authorities?</td></tr>
</table>

Principle 14: Segregation and portability									
A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.									
PS		**SSS**		**CSD**		**CCP**	**X**	**TR**	

KC 14.1	*A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Identification of the segregation and portability arrangements that protect customer positions and related collateral.	Q.14.1.1: What are the segregation arrangements that the CCP has in place to permit the identification and separate treatment of participants' customers' positions and collateral? Q.14.1.2: What are the CCP's portability arrangements? Q.14.1.3: If the CCP serves a cash market and does not provide segregation arrangements, how is protection of customers' assets achieved?
KE 2. Legal support for such segregation and portability arrangements under applicable law.	Q.14.1.4: What evidence is there that the legal framework provides a high degree of assurance that it will support the CCP's arrangements to protect and transfer the positions and collateral of a participant's customers? Q.14.1.5: What analysis has the CCP conducted regarding the enforceability of its customer segregation and portability arrangements, including with respect to any foreign/remote participants? In particular which foreign laws has the CCP determined to be relevant to its ability to segregate or transfer customer positions and collateral? How have any identified issues been addressed?

KC 14.2	*A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Identification of the account structure for positions of a participant's customers and related collateral.	Q.14.2.1: What account structure does the CCP use for the positions and related collateral of participants' customers? In particular, are customers' positions and collateral segregated from participants' positions and collateral, and the CCP's positions and collateral? Are collateral and positions belonging to customers maintained in individual or omnibus accounts?
KE 2. Ability of the CCP to readily identify positions of its participants' customers and to segregate related collateral.	Q.14.2.2: If the CCP (or its custodians) holds collateral supporting customers' positions, what does this collateral cover (e.g., initial margin or variation margin requirements)? Q.14.2.3: Does the CCP rely on the participant's records containing the sub-accounting for individual customers to ascertain each customer's interest? If so, describe how the CCP ensures its access to this information. Is customer margin obtained by the CCP from its participants collected on a gross or net basis? Is a customer's collateral exposed to "fellow-customer risk"?

KC 14.3	*A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.*								
PS		CSD		SSS		CCP	X	TR	

KE 1. Identification of the CCP's portability arrangement.	Q.14.3.1: In which ways do the CCP's portability arrangements make it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants? How do the CCP's rules and procedures require participants to facilitate the transfer of customer positions and collateral? Q.14.3.2: How does the CCP obtain the consent of the participant(s) to which positions and collateral are to be ported? Are the consent procedures set out in the CCP's rules, policies, or procedures? If so, please describe them. If there are any exceptions, how are they disclosed? Q.14.3.3: Has the CCP had any actual experience in transferring the positions and collateral belonging to customers of a defaulting participant? If so, please describe this experience.

<table>
<tr><td>KC 14.4</td><td colspan="9">A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td></td><td>SSS</td><td></td><td>CCP</td><td>X</td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Disclosure of the rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral.</td><td colspan="5">Q.14.4.1: How are the CCP's segregation and portability arrangements disclosed?
Q.14.4.2: How does the CCP disclose whether a participant's customers' collateral is protected on an individual or omnibus basis?</td></tr>
<tr><td colspan="5">KE 2. Disclosure of any constraints that may impair the CCP's ability to segregate or port a participant's customers' positions and collateral.</td><td colspan="5">Q.14.4.3: Where and how are the risks, costs, and uncertainties associated with the CCP's segregation and portability arrangements identified and disclosed? How does the CCP disclose any constraints (such as legal or operational), that may impair the CCP's ability fully to segregate or port a participant's customers' positions and collateral?</td></tr>
</table>

Principle 15: General business risk									
An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 15.1	*An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Management and control systems to identify, monitor, and manage general business risks.	Q.15.1.1: How does the FMI identify and monitor its general business risks, including new and emerging business risks? What are the general business risks identified by the FMI? Q.15.1.2: Has the FMI developed the capacity to assess its business risks on an ongoing basis? Q.15.1.3: How does the FMI manage the general business risks that it has identified?

KC 15.2	*An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Amount of liquid net assets funded by equity held by the FMI.	Q.15.2.1: How is the required amount of liquid net assets funded by equity to cover the FMI's general business losses calculated? How would the FMI cover losses that exceed the amount of liquid net assets funded by equity set aside for business risk? Q.15.2.2: How does the FMI analyse its business risk profile when determining an appropriate amount of liquid net assets funded by equity to hold? How does the FMI determine the length of time and associated operating costs of achieving an orderly recovery or wind-down of critical operations and services?

<table>
<tr><td>KC 15.3</td><td colspan="9">An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Identification of a viable plan to achieve a recovery or orderly wind-down.</td><td colspan="5">Q.15.3.1: Has the FMI developed a plan to achieve a recovery or orderly wind-down?

Q.15.3.2: If so, what does this plan take into consideration (for example, the operational, technological, and legal requirements for participants to establish and move to an alternative arrangement)?</td></tr>
<tr><td colspan="5">KE 2. Minimum holdings of liquid net assets funded by equity.</td><td colspan="5">Q.15.3.3: Does the FMI hold liquid net assets funded by equity to cover general business risk that is at least the maximum of:

• six months of current operating expenses; or

• the amount of liquid net assets funded by equity needed to implement the FMI's plan discussed in Q.15.3.2?

Q.15.3.4: How are the resources designated to cover business risks and losses separated from resources designated to cover the default of a member?</td></tr>
<tr><td colspan="5">KE 3. Inclusion of capital held under international risk-based capital standards.</td><td colspan="5">Q.15.3.5: Does the FMI include capital held under international risk-based standards to cover general business risks?</td></tr>
</table>

<table>
<tr><td>KC 15.4</td><td colspan="9">Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Identification of assets to cover general business risk.</td><td colspan="5">Q.15.4.1: In which high quality assets are the FMI's liquid net assets funded by equity held? How will the FMI convert these assets into cash at little or no loss of value in adverse market conditions?

Q.15.4.2: How does the FMI regularly assess the quality and liquidity of its liquid net assets funded by equity to meet its current and projected operating expenses under a range of scenarios?</td></tr>
</table>

KC 15.5	*An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of a viable plan for raising additional equity capital.					Q.15.5.1: What are the main features of the FMI's plan to replenish equity capital should it approach or fall below minimum requirements? Q.15.5.2: How often is the plan to replenish equity capital regularly reviewed and updated?				
KE 2. Approval of the plan to replenish capital by the FMI's board of directors (or equivalent).					Q.15.5.3: What is the role of the FMI's board (or equivalent) in reviewing and approving the FMI's plan to raise additional equity capital if needed?				

Principle 16: Custody and investment risks									
An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	

KC 16.1	*An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	
KE 1. Characteristics of the entities at which the FMI holds it assets.	Q.16.1.1: What is the FMI's custody policy? With which entities does the FMI hold its assets, such as cash and securities, including assets provided by its participants? How does it check that these entities are supervised and regulated?								
KE 2. Ability of the entities to protect the FMI's and its participants' assets.	Q.16.1.2: How does the FMI verify that these entities have robust accounting practices, safekeeping procedures, and internal controls that fully protect its and its participants' assets?								

KC 16.2	*An FMI should have prompt access to its assets and the assets provided by participants, when required.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	
KE 1. Prompt access to the FMI's and its participants' assets.	Q.16.2.1: How has the FMI established that it has a sound legal basis to support enforcement of its interest or ownership rights in assets held in custody? Q.16.2.2: How does the FMI ensure that it can have prompt access to its assets, including securities that are held with a custodian in another time zone or legal jurisdiction, in the event of participant default?								

KC 16.3	*An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	
KE 1. Evaluation of the FMI's exposure to its custodian banks.	Q.16.3.1: How does the FMI evaluate and understand its exposures to its custodian banks? In managing those exposures, how does it take into account the full scope of its relationship with each custodian bank? For instance, does the FMI use multiple custodians for the safekeeping of its assets to diversify exposure to any single custodian? How does the FMI monitor concentration of risk exposures to its custodian banks?								

KC 16.4	*An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	

KE 1. Investment strategy of the FMI.	Q.16.4.1: How does the FMI ensure that its investment strategy is consistent with its overall risk-management strategy? Q.16.4.2: Are all of the FMI's investments secured by, or claims on, high-quality obligors? Q.16.4.3: How does the FMI consider its overall exposure to an obligor in choosing investments? What investments are subject to limits to avoid concentration of credit risk exposures? Does the FMI invest in participants' own securities or those of its affiliates?
KE 2. Disclosure of the FMI's investment strategy to participants.	Q.16.4.4: How does the FMI disclose its investment strategy to its participants?
KE 3. Characteristics of the FMI's investments.	Q.16.4.5: How does the FMI ensure that its investments allow for quick liquidation? Q.16.4.6: How does the FMI ensure that its investments are exposed to little, if any, adverse price effects?

Principle 17: Operational risk									
An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 17.1	*An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Identification of operational risk.	Q.17.1.1: What are the FMI's policies and processes for identifying the full range of operational risks on an ongoing basis? Q.17.1.2: What are the sources of operational risks identified by the FMI? How do the FMI's processes ensure that the full range of operational risks is identified, whether these risks arise from internal sources (for example, the arrangements of the system itself, including human resources), from the FMI's participants, or from external sources? How has the FMI identified and addressed potential single points of failure in its operations?
KE 2. Operational risk-management framework.	Q.17.1.3: What are the FMI's systems, policies, procedures, and controls addressing the identified operational risks? Where are these systems, policies, procedures, and controls defined? Q.17.1.4: What policies, processes, and controls does the FMI employ to ensure that operational procedures are implemented appropriately? To what extent do the FMI's systems, policies, processes, and controls take into consideration relevant international, national, and industry-level operational risk-management standards? Q.17.1.5: What are the FMI's human resources policies to hire, train, and retain qualified personnel, and to mitigate the effects of high rates of personnel turnover or key-person risk? Moreover, how do the FMI's risk-management policies address fraud prevention? Q.17.1.6: How, and to what extent, do the FMI's change-management and project-management policies and processes ensure that changes and major projects do not affect the smooth functioning of the system?

KC 17.2	*An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of roles and responsibilities for operational risk.					Q.17.2.1: How has the board of directors defined the key roles and responsibilities for operational risk management?				
KE 2. Endorsement of the operational risk-management framework by board of directors (or equivalent).					Q.17.2.2: How, and how frequently, does the FMI's board explicitly review and endorse the FMI's operational risk-management framework?				
KE 3. Auditing and testing.					Q.17.2.3: How, and how frequently, does the FMI review, audit and test its systems, operational policies, procedures, and controls, including its operational risk-management arrangements with participants? Q.17.2.4: To what extent is the FMI's operational risk-management framework subject to external audit?				

KC 17.3	*An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Operational reliability objectives.					Q.17.3.1: What are the FMI's operational reliability objectives, both qualitative and quantitative? Where and how are they documented? Q.17.3.2: How do these objectives ensure a high degree of security and operational reliability?				
KE 2. Policy to achieve the operational reliability objectives.					Q.17.3.3: How, and to what extent, are the FMI's reliability objectives integrated into its operational risk-management framework (see KC 17.1)? Q.17.3.4: How and to what extent are these objectives integrated into the FMI's review, auditing, and testing of its systems, operational policies, procedures, and controls (see KC 17.2)? Q.17.3.5: What are the processes to review the FMI's objectives and performance and take appropriate action as needed?				

KC 17.4	*An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Scalable capacity.					Q.17.4.1: How, and how frequently, does the FMI review, audit, and test the scalability and adequacy of its capacity? Q.17.4.2: How frequently are capacity plans reviewed and tested and how are the test results used? How are situations where operational capacity is neared or exceeded addressed?				

KC 17.5	*An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Physical security policies.					Q.17.5.1: What are the FMI's policies and processes for identifying, monitoring, assessing, and managing the full range of physical vulnerabilities and threats on an ongoing basis? Q.17.5.2: To what extent do the FMI's policies, processes, controls, and testing take into consideration relevant international, national, and industry-level standards for physical security? How are deviations from the security policies and risk mitigations documented? Q.17.5.3: How, and to what extent, do the FMI's change-management and project-management policies and processes ensure that changes and major projects do not affect the physical security of the system?				
KE 2. Information security policies.					Q.17.5.4: What are the FMI's policies and processes for identifying, monitoring, assessing, and managing the full range of information security vulnerabilities and threats on an ongoing basis? Q.17.5.5: To what extent do the FMI's policies, processes, controls, and testing take into consideration relevant international, national, and industry-level standards for information security? Q.17.5.6: How, and to what extent, do the FMI's change-management and project-management policies and processes ensure that changes and major projects do not affect the information security of the system? What reliance is placed on outside expertise to test resilience?				

<table>
<tr><td>KC 17.6</td><td colspan="9">An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.</td></tr>
<tr><td>PS</td><td>X</td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td>X</td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Business continuity plan.</td><td colspan="5">Q.17.6.1: How, and to what extent, does the FMI’s business continuity plan reflect objectives, policies, and procedures that allow for the rapid recovery and timely resumption of critical operations following a wide-scale or major disruption?

Q.17.6.2: How, and to what extent, are the FMI’s business continuity objectives and plan aimed at being able to resume operations within two hours following disruptive events, and to complete settlement by the end of the day even in the case of extreme circumstances?

Q.17.6.3: How does the contingency plan ensure that the status of all transactions can be identified in a timely manner, at the time of the disruption and if there is a possibility of data loss, what are the procedures to deal with such loss (for example, reconciliation with participants or third parties)?</td></tr>
<tr><td colspan="5">KE 2. Crisis management and communication.</td><td colspan="5">Q.17.6.4: How, and to what extent, does the FMI’s crisis management procedures address the need for effective communications internally and with key external stakeholders and authorities?</td></tr>
<tr><td colspan="5">KE 3. Adequate secondary site.</td><td colspan="5">Q.17.6.5: How, and to what extent, has the FMI set up a secondary site with sufficient resources, capabilities, functionalities, and appropriate staffing arrangements that would not be affected by a wide-scale disruption and would allow the secondary site to take over operations if needed?

Q.17.6.6: To what extent is the secondary site located at a geographical distance from the primary site that is sufficient for the secondary site to have a distinct risk profile from that of the primary site?

Q.17.6.7: Has the FMI considered alternative arrangements to allow the processing of time-critical transactions in extreme circumstances?</td></tr>
</table>

KE 4. Review and testing of business continuity arrangements.	Q.17.6.8: How, and how often, are the FMI's business continuity and contingency arrangements reviewed and tested, including with respect to scenarios related to wide-scale and major disruptions? Q.17.6.9: How, and how often, does review and testing involve the FMI's participants, critical service providers, and linked FMIs as relevant (see KC 17.7)?

KC 17.7	*An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Identification, monitoring, and management of risks posed by participants, other FMIs, and service and utility providers.	Q.17.7.1: How, and to what extent, does the FMI identify, monitor, manage, and mitigate both direct and indirect effects on its ability to process and settle transactions from risks that stem from an external operational failure of participants, other FMIs, and service and utility providers? Q.17.7.2: If the FMI has outsourced some of its operations to an external service provider, how, and to what extent, does the FMI ensure that those operations meet the same reliability and contingency requirements they would need to meet if they were provided internally?
KE 2. Identification, monitoring, and management of risks posed by the FMI to other FMIs.	Q.17.7.3: How, and to what extent, does the FMI identify, monitor, and mitigate the risks it may pose to another FMI? Q.17.7.4: How, and to what extent, does the FMI coordinate its business continuity arrangements with those of other interdependent FMIs?

Principle 18: Access and participation requirements									
An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 18.1	*An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Access policies of the FMI.	Q.18.1.1: What are the FMI's criteria and requirements for participation (including fees and other costs)? Q.18.1.2: What evidence is there that these requirements allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs? Q.18.1.3: For a TR, how do the terms of access for use of its services help ensure that competition and innovation in post-trade processing are not impaired? Q.18.1.4: For a TR, how do the terms of access support interconnectivity with other FMIs and service providers?								

KC 18.2	*An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Description of participation requirements.	Q.18.2.1: How are the participation requirements for the FMI justified in terms of the safety and efficiency of the FMI and the markets it serves, and tailored to and commensurate with the FMI's specific risks? Q.18.2.2: Are there participation requirements that are not risk-based but required by law or regulation? If so, what are these requirements? Q.18.2.3: Are all classes of participants subject to the same access criteria? If not, what is the rationale for the different criteria (for example, size or type of activity, additional requirements for participants that act on behalf of third parties, additional requirements for participants that are non-regulated entities)?								

KE 2. Impact of requirements on access.	Q.18.2.4: How, and how often, are the access restrictions and requirements reviewed to ensure that they have the least restrictive access that circumstances permit, consistent with maintaining acceptable risk controls?
KE. 3. Disclosure of participation requirements.	Q.18.2.5: How, and to whom, are participation criteria, including restrictions in participation, disclosed and explained?

KC 18.3	*An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Monitoring of compliance with participation requirements.					Q.18.3.1: How does the FMI monitor the participants' ongoing compliance with the access criteria? How does the FMI ensure that the information it uses to monitor compliance with participation criteria is timely and accurate? Q.18.3.2: What duties do participants have to report on developments that may affect their ability to fulfil the participation requirements? Q.18.3.3: What are the FMI's policies for conducting enhanced surveillance of, or imposing additional controls on, a participant whose risk profile deteriorates?				
KE 2. Procedures for facilitating the suspension and orderly exit of a participant that fails to meet participation requirements.					Q.18.3.4: What are the FMI's procedures for managing the suspension and orderly exit of a participant that breaches, or no longer meets, those requirements? Q.18.3.5: How and to whom are the FMI's procedures for managing the suspension and orderly exit of a participant disclosed?				

Principle 19: Tiered participation arrangements									
An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 19.1	*An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Ability to gather and assess information on risks to the FMI arising from tiered participation arrangements.					Q.19.1.1: What tiered participation arrangements does the FMI have? Q.19.1.2: How does the FMI gather information about indirect participants? Which information is collected and how often is it updated? Q.19.1.3: How does the FMI evaluate its risks arising from these dependencies?				

KC 19.2	*An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of dependencies between direct and indirect participants that can affect the FMI.					Q.19.2.1: What are the interdependencies considered and how are they identified?				

KC 19.3	*An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Identification of key indirect participants.					Q.19.3.1: Has the FMI identified (a) the proportion of activity that direct participants conduct on behalf of indirect participants in relation to the direct participants' capacity, (b) direct participants that act on behalf of a material number of indirect participants, (c) indirect participants responsible for a significant proportion of turnover in the system, and (d) indirect participants whose transaction volumes or values are large relative to the capacity of the direct participant through which they access the FMI to manage risks arising from these transactions?				
KE 2. Management of the risks arising from transactions of key indirect participants.					Q.19.3.2: How does the FMI manage the risks arising from its key indirect participants?				

KC 19.4	*An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Review of risks arising from tiered participation arrangements.					Q.19.4.1: What are the FMI's policies for reviewing its rules and procedures in order to mitigate risks to the FMI arising from tiered participation?				
KE 2. Implementation of mitigating actions.					Q.19.4.2: What are the FMI's criteria to determine when mitigating actions are required? What steps can the FMI take, or has the FMI taken, to mitigate its risks?				

Principle 20: FMI links									
An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.									
PS		**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 20.1	*Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.*								
PS		CSD	X	SSS	X	CCP	X	TR	X

KE 1. Identification of potential sources of risk arising from prospective link arrangements.	Q.20.1.1: What process is used to identify potential sources of risk (such as, legal, credit, liquidity, custody, and operational risks) arising from prospective links? How does this affect the FMI's decision whether to establish the link?
KE 2. Identification, monitoring, and management of risk arising from established links.	Q.20.1.2: What links have been established with other FMIs? Q.20.1.3: What processes are in place to identify, monitor, and manage risks arising from an existing link on an ongoing basis? What is the policy for updating this analysis?
KE 3. Effect of link arrangements on observance of other principles.	Q.20.1.4: How does the FMI ensure that link arrangements allow for it to remain observant of the other principles? How often is this analysis conducted?

KC 20.2	*A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.*								
PS		CSD	X	SSS	X	CCP	X	TR	X

KE 1. Legal basis to support operation of any link arrangements.	Q.20.2.1: What is the relevant legal framework supporting any link arrangements? Q.20.2.2: How does the FMI validate that its links have a well-founded legal basis and provide it with adequate protection against legal risk? Q.20.2.3: How does the FMI ensure that the well-founded legal basis and adequate protection are maintained over time?

<table>
<tr><td>KC 20.3</td><td colspan="9">Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td></td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Measurement, monitoring, and management of credit and liquidity risk arising from linked CSDs.</td><td colspan="5">Q.20.3.1: What processes are in place to measure, monitor, and manage credit and liquidity risks arising from any established links?

Q.20.3.2: If a CSD extends credit to a linked CSD, what processes exist to ensure that credit extensions to the linked CSD are fully covered by high-quality collateral and that credit limits are appropriate?</td></tr>
</table>

<table>
<tr><td>KC 20.4</td><td colspan="9">Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td></td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Restrictions on provisional transfer of securities between linked CSDs.</td><td colspan="5">Q.20.4.1: If the link permits provisional transfers of securities across the link, is the retransfer of these securities prohibited until the first transfer is final?</td></tr>
</table>

<table>
<tr><td>KC 20.5</td><td colspan="9">An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td></td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Level of protection for investor CSD's participants.</td><td colspan="5">Q.20.5.1: For any established link, how has the investor CSD determined that the rights of its participants have a high level of protection?

Q.20.5.2: How often is reconciliation of holdings conducted by the entities holding the securities in custody?

Q.20.5.3: What safeguards does the investor CSD have in place to provide a high-level of protection for the rights of its participants (including, segregation and portability arrangements and asset protection provisions for omnibus accounts)?</td></tr>
</table>

<table>
<tr><td>KC 20.6</td><td colspan="9">An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td>X</td><td>SSS</td><td>X</td><td>CCP</td><td></td><td>TR</td><td></td></tr>
<tr><td colspan="5">KE 1. Investor CSD's measurement, management, and monitoring of the risks arising from the use of an intermediary.</td><td colspan="5">Q.20.6.1: What are the criteria used by the CSD to select intermediaries? Are these criteria risk-based?

Q.20.6.2: If the CSD uses any intermediaries to operate links, what are the respective liabilities of the two linked CSDs and the intermediaries?

Q.20.6.3: What processes exist to measure, monitor, and manage the risks arising from use of the intermediary?</td></tr>
</table>

KC 20.7	*Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.*							
PS		CSD		SSS		CCP	X	TR

KE 1. Identification, assessment, and management of potential spill-over effects of a linked CCP's default.	Q.20.7.1: Prior to establishing any links, what analysis was undertaken by the CCP to identify and assess the spill-over effects of a linked CCP's default?
KE 2. Identification, assessment, and management of the potential spill-over effects in case of networks of links between CCPs.	Q.20.7.2: Prior to establishing any links, what analysis was conducted by the CCP to identify and assess the potential spill-over effects of a link arrangement involving three or more CCPs?
	Q.20.7.3: In the case of links involving more than two CCPs, what processes are in place for the collective link arrangement to identify, assess, and manage risks arising from the links? What specific risk-management measures have been adopted to address the risks arising from the collective link arrangements?
	Q.20.7.4: In case of a network of links between CCPs, is there a clear definition of the respective liabilities of the different CCPs?

KC 20.8	*Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.*							
PS		CSD		SSS		CCP	X	TR

KE 1. Ability to cover exposures to the linked CCP.	Q.20.8.1: What processes are in place to measure, monitor, and manage inter-CCP exposures?
	Q.20.8.2: How does the CCP ensure, on an ongoing basis, that it can cover its current exposure fully?
	Q.20.8.3: How does the CCP ensure that it covers its potential future exposure with a high degree of confidence, without reducing its ability to fulfil its own obligations?
KE 2. Contribution to linked CCP's default funds.	Q.20.8.4: What arrangements do the linked CCPs have in place to manage the risks arising from the link (such as, a separate default fund, increased margin requirements, or contributions to each other's default funds)?
	Q.20.8.5: If the CCPs contribute to each other's default funds, how is it ensured that the contribution to another CCP's default fund does not affect the ability of the CCP to fulfil its obligations to its own participants at any time?
KE 3. Potential sharing of uncovered losses.	Q.20.8.6: How do the linked CCPs ensure that participants are informed about their exposures to the potential sharing of uncovered losses from the link arrangement?

<table>
<tr><td>KC 20.9</td><td colspan="9">A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.</td></tr>
<tr><td>PS</td><td></td><td>CSD</td><td></td><td>SSS</td><td></td><td>CCP</td><td></td><td>TR</td><td>X</td></tr>
<tr><td colspan="5">KE 1. Assessment of operational risk from links to ensure scalability and reliability of IT and related resources.</td><td colspan="5">Q.20.9.1: How does the TR ensure the scalability and reliability of its IT and related resources to take into account the additional operational risks associated with a link to another FMI?

Q.20.9.2: How often does the TR validate the adequacy of its scalability and reliability?</td></tr>
</table>

Principle 21: Efficiency and effectiveness									
An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 21.1	*An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. Design of the FMI to meet the needs of its participants and the markets it serves.					Q.21.1.1: How does the FMI's design, including its clearing and settlement scheme, its operating structure, its delivery systems and technologies, and its individual services and products take into account the needs of its participants and the markets it serves? Q.21.1.2: What methods does the FMI use to determine whether it is meeting the requirements of its participants and other users and continues to meet those requirements as they change? How, and how regularly, does the FMI gauge customer satisfaction with its effectiveness and efficiency of its contributions to the markets it serves?				

KC 21.2	*An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. FMI's goals and objectives.					Q.21.2.1: What are the FMI's goals and objectives as far as the effectiveness of its operations is concerned? Q.21.2.2: Have the goals and objectives been achieved? What mechanisms does the FMI have to measure and assess this?				

KC 21.3	*An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X
KE 1. FMI review of its efficiency and effectiveness.					Q.21.3.1: What processes and metrics does the FMI use to evaluate its efficiency and effectiveness? Q.21.3.2: How often does the FMI evaluate its efficiency and effectiveness?				

Principle 22: Communication procedures and standards									
An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 22.1	*An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Use or accommodation of internationally accepted communication procedures.	Q.22.1.1: How do the FMI's operational procedures, processes, and systems use or otherwise accommodate internationally accepted communication procedures to interact with participants, the customers of participants, and other connected parties (including, where relevant, other linked FMIs)? Q.22.1.2: If the FMI engages in cross-border operations, how do the FMI's operational procedures, processes, and systems use or otherwise accommodate internationally accepted communication procedures for cross-border operations?
KE 2. Use or accommodation of internationally accepted communication standards.	Q.22.1.3: How do the FMI's operational procedures, processes, and systems use or otherwise accommodate internationally accepted communication standards for message formats and reference data to identify financial instruments and counterparties? Q.22.1.4: If the FMI engages in cross-border operations, how do the FMI's operational procedures, processes, and systems use or otherwise accommodate internationally accepted communication standards for cross-border operations? Q.22.1.5: If no international standard is used, how does the FMI accommodate systems that translate or convert message format and data from international standards into the domestic equivalent and vice versa? Q. 22.1.6: What processes and procedures does the TR follow to ensure that data recorded is supported both operationally and technically?

Principle 23: Disclosure of rules, key procedures, and market data									
An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.									
PS	**X**	**CSD**	**X**	**SSS**	**X**	**CCP**	**X**	**TR**	**X**

KC 23.1	*An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.*

PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Clarity and comprehensiveness of rules and procedures.	Q.23.1.1: Which documents comprise the system's rules and procedures? Q.23.1.2: How does the FMI determine that relevant rules and key procedures are clearly articulated? Q.23.1.3: What information do the FMI's rules and procedures contain on procedures it will follow in non-routine events?
KE 2. Disclosure of rules and procedures to participants.	Q.23.1.4: How are rules and procedures disclosed to participants?
KE 3. Disclosure of relevant rules and key procedures to the public.	Q.23.1.5: How are relevant rules and procedures disclosed to the public?

KC 23.2	*An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.*

PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Description of the system's design and operations.	Q.23.2.1: Which documents comprise information about the system's design and operations? Q.23.2.2: How and to whom does the FMI disclose the system's design and operations? Q.23.2.3: How and to whom does the FMI disclose the processes it follows for changing its rules and procedures? Q.23.2.4: How and to whom does the FMI disclose the degree of discretion it can exercise over the operation of the system?
KE 2. Description of participants' rights and obligations.	Q.23.2.5: What information does the FMI provide to its participants about their rights, obligations, and risks incurred through participation in the FMI?

KC 23.3	*An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. FMI documentation and training for its participants.	Q.23.3.1: How does the FMI facilitate its participants' understanding of the FMI's rules, procedures, and the risks associated with participating? Q.23.3.2: Is there evidence that the means described above enable and actually result in participants' understanding of the FMI's rules, procedures, and the risks they face from participating in the FMI? Q.23.3.3: In the event that the FMI identifies a participant who demonstrates a lack of understanding, what remedial actions are taken by the FMI?

KC 23.4	*An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Public disclosure of service fees and discounts.	Q.23.4.1: What fee and other material cost information on its pricing (i.e. services and associated fees and discounts) does the FMI publicly disclose? Q.23.4.2: How is this information made available to the public? Q.23.4.3: What is the FMI's process for notifying participants and the public of changes to services and fees and what policy is followed regarding the timing of such notifications?
KE 2. Description of priced services.	Q.23.4.4: How does the FMI define its priced services? Is there evidence that service definitions are clearly described in a manner that allows for comparability? Q.23.4.5: Does the FMI disclose information on its technology and communication procedures, or any other factors that affect the costs of operating the FMI?

KC 23.5	*An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO* Disclosure framework for financial market infrastructures*. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.*								
PS	X	CSD	X	SSS	X	CCP	X	TR	X

KE 1. Completion and public disclosure of the CPSS-IOSCO Disclosure framework for financial market infrastructures*.*	Q.23.5.1: When did the FMI last complete the disclosure framework? How frequently is it updated?

KE 2. Public disclosure of other information.	Q.23.5.2: What information in addition to that mentioned in the previous key element does the FMI disclose to the public? How does the FMI disclose any data and information in addition to the disclosure framework? Q.23.5.3: Which media does the FMI use to publicly disclose information? In which language(s)?

Principle 24: Disclosure of market data by trade repositories									
A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.									
PS		**CSD**		**SSS**		**CCP**		**TR**	**X**

KC 24.1	*A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.*								
PS		CSD		SSS		CCP		TR	X
KE 1. Provision of data to relevant authorities and the public.					Q.24.1.1: What data are made available by the TR to the public and the relevant authorities? Q.24.1.2: How does the TR ensure that its disclosures of data effectively meet the needs of the public and the relevant authorities?				

KC 24.2	*A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities*								
PS		CSD		SSS		CCP		TR	X
KE 1. Processes and procedures to provide data to relevant authorities.					Q.24.2.1: What processes and procedures does the TR follow to ensure the timely delivery of data to authorities and the public, including ad hoc data requests by authorities? Q.24.2.2: What processes and procedures does the TR follow to ensure that the provision of data to meet legal and regulatory responsibilities is supported both operationally and technically?				

KC 24.3	*A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analysed.*								
PS		CSD		SSS		CCP		TR	X
KE 1. Information systems for the provision of current and historical data.					Q.24.3.1: How does the TR ensure that data remain accurate?				
KE 2. Availability and format of data.					Q.24.3.2: How does the TR ensure that data and other relevant information are provided in a format that is generally accessible, comparable, and easily analysed?				

Appendix 4:
Questions by key considerations for the responsibilities of central banks, market regulators, and other relevant authorities for FMIs

Responsibility A: Regulation, supervision, and oversight of FMIs
FMIs should be subject to appropriate and effective regulation, supervision, and oversight by a central bank, market regulator, or other relevant authority.

KC A.1	*Authorities should clearly define and publicly disclose the criteria used to identify FMIs that should be subject to regulation, supervision, and oversight.*
KE 1. Definition of the criteria used to identify FMIs that should be subject to regulation, supervision, and oversight.	Q.A.1.1: What criteria do authorities use to identify FMIs that should be regulated, supervised, and overseen?
KE 2. Public disclosure of the criteria.	Q.A.1.2: How are the criteria defined and publicly disclosed?

KC A.2	*FMIs that have been identified using these criteria should be regulated, supervised, and overseen by a central bank, market regulator, or other relevant authority.*
KE 1. Identification of FMIs according to the criteria.	Q.A.2.1: Which FMIs have been identified according to the criteria set forth in KC A.1?
KE 2. Regulation, supervision, and oversight of identified FMIs.	Q.A.2.2: Which authority or authorities regulate, supervise, or oversee the identified FMIs? What is the scope of the responsibilities for each authority?
KE 3. Potential gaps.	Q.A.2.3: How have relevant authorities avoided (or, if not, addressed) any gaps in regulation, supervision or oversight of FMIs?

Responsibility B: Regulatory, supervisory, and oversight powers and resources
Central banks, market regulators, and other relevant authorities should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.

KC B.1	*Authorities should have powers or other authority consistent with their relevant responsibilities, including the ability to obtain timely information and to induce change or enforce corrective action.*
KE 1. Powers to obtain timely information.	Q.B.1.1: What are the authorities' powers or other authority to obtain timely information from the FMIs in order to carry out their responsibilities? What are the relevant constraints, if any? Q.B.1.2: What information are FMIs required to provide? How frequently is this information provided? Q.B.1.3: What is the evidence that the information available to the authorities allows them to understand and assess: (a) an FMI's various functions, activities, and overall financial condition; (b) the risks borne or created by an FMI and, where appropriate, the participants; (c) an FMI's impact on its participants and the broader economy; and (d) an FMI's adherence to relevant regulations and policies? Q.B.1.4: To what extent are the relevant authorities empowered or constrained to receive and to share relevant confidential or non-public information with other authorities, as appropriate; to carry out their responsibilities; and to minimise gaps and reduce duplication in regulation, supervision, and oversight?
KE 2. Powers to induce change or enforce corrective action.	Q.B.1.5: What are the authorities' powers or other authority to induce change or enforce corrective action in an FMI that is not observing relevant principles or that is not complying with relevant regulations or policies? What are the relevant constraints, if any?

KC B.2	*Authorities should have sufficient resources to fulfil their regulatory, supervisory, and oversight responsibilities.*
KE 1. Resources to carry out the responsibilities.	Q.B.2.1: What is each authority's process for assessing the resources it needs to fulfil its regulatory, supervisory, or oversight responsibilities? Q.B.2.2: How does each authority demonstrate that it has sufficient resources, including financial and human resources, to carry out its functions? Q.B.2.3: What legal protections apply to the staff that carry out responsibilities for regulation, supervision, and oversight?

Responsibility C: Disclosure of policies with respect to FMIs
Central banks, market regulators, and other relevant authorities should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.

KC C.1	*Authorities should clearly define their policies with respect to FMIs, which include the authorities' objectives, roles, and regulations.*
KE 1. Content of the authorities' policies.	Q.C.1.1: What is each authority's policies with respect to FMIs, including its objectives, roles, and regulations?

KC C.2	*Authorities should publicly disclose their relevant policies with respect to the regulation, supervision, and oversight of FMIs.*
KE 1. Public disclosure of policies.	Q.C.2.1: How are the relevant policies disclosed?

Responsibility D: Application of the principles for FMIs
Central banks, market regulators, and other relevant authorities should adopt the CPSS-IOSCO* Principles for financial market infrastructures *and apply them consistently.

KC D.1	*Authorities should adopt the CPSS-IOSCO* Principles for financial market infrastructures*.*
KE 1. Adoption of the CPSS-IOSCO Principles for financial market infrastructures*.*	Q.D.1.1: How, and to what extent, have the authorities adopted the principles?

KC D.2	*Authorities should ensure that these principles are, at a minimum, applied to all systemically important payment systems, CSDs, SSSs, CCPs, and TRs.*
KE 1. Application of CPSS-IOSCO principles to systemically important payment systems, CSDs, SSSs, CCPs, and TRs.	Q.D.2.1: How does the authority disclose to which FMIs it does or does not intend to apply the principles? How does the authority justify its decision to apply or not to apply the principles to certain FMIs?

KC D.3	*Authorities should apply these principles consistently within and across jurisdictions, including across borders, and to each type of FMI covered by the principles.*
KE 1 .Consistency of the application of the principles.	Q.D.3.1: How do authorities promote the consistent application of the principles within and across jurisdictions? Q.D.3.2: If an FMI does not observe all applicable principles, how does the authority ensure that the FMI takes appropriate and timely action to remedy its deficiencies?

Responsibility E: Cooperation with other authorities
Central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMIs.

KC E.1	*Relevant authorities should cooperate with each other, both domestically and internationally, to foster efficient and effective communication and consultation in order to support each other in fulfilling their respective mandates with respect to FMIs. Such cooperation needs to be effective in normal circumstances and should be adequately flexible to facilitate effective communication, consultation, or coordination, as appropriate, during periods of market stress, crisis situations, and the potential recovery, wind-down, or resolution of an FMI.*

KE 1. Identification of FMIs subject to cooperation, both domestically and internationally.	Q.E.1.1: For which FMIs is there cooperation among authorities?
KE 2. Identification of cooperating authorities, both domestically and internationally.	Q.E.1.2: Which authorities cooperate with respect to each FMI identified above?
KE 3. Efficiency and effectiveness of cooperation, both domestically and internationally.	Q.E.1.3: What evidence suggests the cooperation is effective in normal circumstances? Q.E.1.4: How does the cooperation foster efficient and effective communication and consultation in order to support each other in fulfilling their respective mandates with respect to FMIs in normal circumstances? Q.E.1.5: How does the cooperation facilitate the effective communication, consultation, or coordination, as appropriate, during periods of market stress, crisis situations, and the potential recovery, wind-down or resolution of an FMI?

KC E.2	*If an authority has identified an actual or proposed operation of a cross-border or multicurrency FMI in its jurisdiction, the authority should, as soon as it is practicable, inform other relevant authorities that may have an interest in the FMI's observance of the CPSS-IOSCO* Principles for financial market infrastructures*.*

KE 1. Identification of an actual or proposed operation of a cross-border or multicurrency FMI.	Q.E.2.1: How does the authority identify an actual or proposed operation of a cross-border or multicurrency FMI in its jurisdiction?
KE 2. Notification of relevant authorities of identified FMI, both domestically and internationally.	Q.E.2.2: What criteria are used to determine whether other authorities should be notified? Q.E.2.3: When are relevant notifications provided to other authorities?

KC E.3	*Cooperation may take a variety of forms. The form, degree of formalization and intensity of cooperation should promote the efficiency and effectiveness of the cooperation, and should be appropriate to the nature and scope of each authority's responsibility for the supervision or oversight of the FMI and commensurate with the FMI's systemic importance in the cooperating authorities' various jurisdictions. Cooperative arrangements should be managed to ensure the efficiency and effectiveness of the cooperation with respect to the number of authorities participating in such arrangements.*
KE 1. Form, formalization, and intensity of cooperation for each identified FMI, both domestically and internationally.	Q.E.3.1: What are the forms of cooperation for each FMI identified under KC E.1?
KE 2. Efficiency and appropriateness of cooperation, both domestically and internationally.	Q.E.3.2: How do cooperative arrangements promote the efficiency and effectiveness of the cooperation? Q.E.3.3: How are the forms of cooperation appropriate to the nature and scope of each authority's responsibility for the supervision or oversight of the FMI?
KE 3. Management of cooperative arrangements, both domestically and internationally.	Q.E.3.4: How does the management of cooperative arrangements promote the efficiency and effectiveness of the cooperation, including with respect to the number of authorities participating in such arrangements?

KC E.4	*For an FMI where cooperative arrangements are appropriate, at least one authority should accept responsibility for establishing efficient and effective cooperation among all relevant authorities. In international cooperative arrangements where no other authority accepts this responsibility, the presumption is the authority or authorities with primary responsibility in the FMI's home jurisdiction should accept this responsibility.*
KE 1. Identification of responsible authority for each cooperative arrangement, both domestically and internationally.	Q.E.4.1: For each FMI identified under KC E.1, which authority or authorities have accepted responsibility for establishing efficient and effective cooperation among all relevant authorities?

KC E.5	*At least one authority should ensure that the FMI is periodically assessed against the principles and should, in developing these assessments, consult with other authorities that conduct the supervision or oversight of the FMI and for which the FMI is systemically important.*
KE 1. Assessment of relevant FMIs against the CPSS-IOSCO principles, both domestically and internationally.	Q.E.5.1: Which relevant authority ensures that the FMI is periodically assessed against the principles?
KE 2. Consultation and sharing of assessments among authorities, both domestically and internationally.	Q.E.5.2: How does this authority consult on and share assessments with other authorities that conduct the supervision or oversight of the FMI and for which the FMI is systemically important?

KC E.6	*When assessing an FMI's payment and settlement arrangements and its related liquidity risk-management procedures in any currency for which the FMI's settlements are systemically important against the principles, the authority or authorities with primary responsibility with respect to the FMI should consider the views of the central banks of issue. If a central bank of issue is required under its responsibilities to conduct its own assessment of these arrangements and procedures, the central bank should consider the views of the authority or authorities with primary responsibility with respect to the FMI.*

KE 1. Assessment of an FMI's payment arrangements, both domestically and internationally.	Q.E.6.1: For which currencies, does the authority or authorities with primary regulation, supervision or oversight responsibility assess the FMI's payment and settlement arrangements and its related liquidity risk-management procedures?
KE 2. Consideration of views of the central bank(s) of issue.	Q.E.6.2: When assessing an FMI's payment and settlement systems and its related liquidity risk-management procedures in any currency for which the FMI's settlements are systemically important, how does the authority or authorities with primary regulation, supervision, or oversight responsibility with respect to the FMI consider the views of the central bank(s) of issue?
KE 3. Consideration of views of the authorities with primary responsibility, both domestically and internationally.	Q.E.6.3: When conducting its own assessment of the payment and settlement arrangements and liquidity risk-management procedures of an FMI, how does the central bank of issue consider the views of the authority or authorities with primary responsibility with respect to the FMI?

KC E.7	*Relevant authorities should provide advance notification, where practicable and otherwise as soon as possible thereafter, regarding pending material regulatory changes and adverse events with respect to the FMI that may significantly affect another authority's regulatory, supervisory, or oversight interests.*

KE 1. Notification of material, regulatory changes and adverse events, both domestically and internationally.	Q.E.7.1: How do relevant authorities provide advance notification, where practicable and otherwise as soon as possible thereafter, regarding pending material regulatory changes and adverse events with respect to the FMI that may significantly affect the respective regulatory, supervisory or oversight interests of another domestic or foreign authority? Q.E.7.2: How does the authority consider the views of other authorities in connection with such regulatory actions taken with respect to the FMI?

KC E.8	*Relevant authorities should coordinate to ensure timely access to trade data recorded in a TR.*

KE 1. Identification of authorities of TRs with data pertaining to other jurisdictions, both domestically and internationally.	Q.E.8.1: If the authority regulates, supervises, or oversees a TR, how does the authority determine whether the TR holds data for which other authorities have a material regulatory interest?

KE 2. Coordination to ensure timely access to TR trade data, both domestically and internationally.	Q.E.8.2: If the authority regulates, supervises, or oversees a TR that maintains data pertaining to other jurisdictions, how does such an authority coordinate with other authorities who have a material interest in the trade data consistent with their responsibilities, to ensure that they have timely and appropriate access to trade data in the TR? Q.E.8.3: How does the relevant authority coordinate an appropriate access process that is consistent with the responsibilities of the requesting authority?

KC E.9	*Each authority maintains its discretion to discourage the use of an FMI or the provision of services to such an FMI if, in the authority's judgment, the FMI is not prudently designed or managed or the principles are not adequately observed. An authority exercising such discretion should provide a clear rationale for the action taken both to the FMI and to the authority or authorities with primary responsibility for the supervision or oversight of the FMI.*
KE 1. Use of individual discretion.	Q.E.9.1: Has the authority exercised discretion to discourage the use of an FMI, or the provision of services to an FMI, on the grounds that it is not prudently designed or managed, or the principles are not adequately observed? Q.E.9.2: If so, did the authority provide a clear rationale to the FMI and to the authority or authorities with primary responsibility for the supervision or oversight of the FMI?

KC E.10	*Cooperative arrangements between authorities in no way prejudice the statutory or legal or other powers of each participating authority, nor do these arrangements constrain in any way an authority's powers to fulfil its statutory or legislative mandate or its discretion to act in accordance with those powers.*
Not applicable	

Committee on Payment and Settlement Systems

Technical Committee of the International Organization of Securities Commissions

Disclosure framework for financial market infrastructures

Consultative report

April 2012

BANK FOR INTERNATIONAL SETTLEMENTS

OICU-IOSCO

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This disclosure framework is being issued now for public consultation. Comments should be sent **by 15 June 2012** to both the CPSS secretariat (cpss@bis.org) and the IOSCO secretariat (fmi@iosco.org). The comments will be published on the websites of the BIS and IOSCO unless commentators have requested otherwise.

A cover note, published simultaneously and also available on the BIS and IOSCO websites, provides background information on why the disclosure framework has been issued and sets out some specific points on which comments are particularly requested.

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1 Introduction

Clear and comprehensive disclosures by financial market infrastructures (FMIs) support sound decision making by market participants, authorities, and the public. Such disclosures also support the main public policy objectives of the CPSS and IOSCO to enhance the safety and efficiency in payment, clearing, settlement, and recording arrangements, and more broadly, limit systemic risk and foster financial stability and transparency.

This disclosure framework was prepared to supplement the CPSS-IOSCO *Principles for financial market infrastructures* (PFMI report) and to assist FMIs in providing the comprehensive level of disclosure that is expected of them under Principle 23 on disclosure of rules, key procedures, and market data. In particular, FMIs should provide responses that are thorough and at an appropriate level of detail in order to:

(1) provide substantive descriptions of key risks, policies, controls, rules, and procedures on a principle-by-principle basis, as required by Principle 23;

(2) provide current and prospective participants, other market participants, authorities, and the general public with a comprehensive understanding of the FMI, its role in the markets it serves, and the range of its relationships, interdependencies, and interactions (for example, its key links, key service providers, and participants); and

(3) improve transparency of FMI governance, risk-management, and operating structure in order to inform and facilitate comparisons among FMIs by current and prospective participants, other market participants, authorities, and the general public.

This disclosure framework was prepared in connection with the CPSS-IOSCO *Assessment methodology for the principles for FMIs and the responsibilities of authorities* to ensure a common framework for disclosure and assessment that will reduce burden on FMIs and provide assessors with a basic set of information from which to begin their assessments of FMIs.

2 FMI disclosure template

In order to facilitate the comparison of FMIs, an FMI's disclosure should follow the structure outlined below.

Responding institution: *[name of FMI]*
Jurisdiction: *[name of primary regulator(s)]*

The information provided in this disclosure is accurate as of *[date]*.
This disclosure can also be found at *[website address]*.
For further information, please contact *[contact details]*.

I. Executive summary

II. General description of the FMI: (a) organization; (b) market(s) served; and (c) key metrics

A. General description

An FMI should provide basic, concise descriptions of the services offered and functions performed by the FMI. A clear description of the typical lifecycle of the transaction clearing and settlement process under normal circumstances may also be useful for participants and the public. The information should highlight how the FMI processes a transaction, including the timeline of events, the validation and checks to which a transaction is subjected, and the responsibilities of the parties involved.

B. Key metrics

An FMI should provide key metrics of its services and operations. For example, an FMI should provide basic volume and value statistics by product type, average aggregate intraday exposures of the FMI to its participants, and statistics on the operational reliability of the FMI's systems. An FMI should also provide statistics related to the financial resources it holds to meet the requirements of the PFMI report. For CCPs, a detailed list of key metrics is provided in Annex 2.

III. Summary of major changes since last update

An FMI should provide a summary of changes since its last disclosure to highlight any material changes and updates to the FMI's design and services.

IV. Principle-by-principle narrative disclosure

An FMI should provide a narrative response for each applicable key consideration with sufficient detail and context, as well as any other appropriate supplementary information, to enable the reader to understand the FMI's approach to or method for observing the principles. Cross-references to publicly-available documents should be included, where relevant, to supplement the FMI's discussion. Section 3 and Annex 1 provide specific guidance on the expected content of an FMI's narrative responses.

V. Annex of additional publicly available resources

3 General instructions for completing the principle-by-principle narrative disclosure

1. An FMI should provide a comprehensive narrative disclosure for each key consideration for each relevant principle, including the key elements listed in the assessment methodology under each key consideration. For the disclosure to be considered complete, the FMI's response must cover at a minimum all of these key elements. The key considerations and key elements are reproduced below for convenience.
2. The applicability of each principle to particular types of FMIs is indicated in the following template (see Annex 1) by the dots in the tabs attached to the headline principles.
3. Charts and diagrams should be included wherever they would be helpful. All charts and diagrams should be accompanied by a description that enables them to be easily understood.
4. In cases where multiple responses to a question are needed, for example if an FMI offers multiple types of services (such as, an FMI that acts as both a CSD and SSS), the FMI should provide a response covering each service and indicate the extent to which each response is relevant.
5. An FMI should not simply refer to or quote rules or regulations as a response to the disclosure framework. As a supplement to a response, however, an FMI may indicate where relevant rules or regulations may be found.
6. When addressing the timing of events, an FMI should provide responses relative to the local time zone(s) where it is located.
7. An FMI should update its responses to the disclosure framework following material changes to the system or its environment. An FMI should perform a comprehensive review of its responses periodically (at least once every two years) to ensure that they are up to date.

8. An FMI should make its responses to the disclosure framework readily available through generally accessible media, such as the Internet.

9. An FMI should be careful not to disclose confidential information in its response.

Annex 1:
Template for the principle-by-principle narrative disclosure

	PS	CSD	SSS	CCP	TR
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Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Key consideration 1: *The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.*

Key elements:

- Identification of each material aspect of the FMI's activity requiring legal certainty.
- Identification of all relevant jurisdictions for the FMI's activities.
- Assurance of high degree of legal certainty for each aspect of the FMI's activities in all relevant jurisdictions.

Key consideration 2: *An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.*

Key elements:

- Clarity of the FMI's rules, procedures, and contracts.
- Consistency of the FMI's rules, procedures, and contracts with relevant laws and regulations.

Key consideration 3: *An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.*

Key element:

- Ability of the FMI to articulate the legal basis for its activities to relevant authorities, participants, and where relevant, participants' customers.

Key consideration 4: *An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.*

Key elements:

- Enforceability of the FMI's rules, procedures, and contracts in all relevant jurisdictions.
- Degree of certainty that actions taken under the FMI's rules, procedures, and contracts will not be voided, reversed, or subjected to stays.

Key consideration 5: *An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.*

Key elements:

- Identification of potential conflict of laws across jurisdictions.
- Mitigation of risks arising from conflict of laws across jurisdictions.

PS	CSD	SSS	CCP	TR
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Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Key consideration 1: *An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.*

Key elements:

- Identification of the FMI's objectives.
- Prioritisation of safety and efficiency in the FMI's objectives.
- Explicit support for financial stability and other relevant public interests in the FMI's objectives.

Key consideration 2: *An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.*

Key elements:

- Identification of the governance arrangements under which the board and management operate.
- Identification of lines of responsibilities and accountability within the FMI.
- Disclosure of the identified governance arrangements.

Key consideration 3: *The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.*

Key elements:

- Identification of the roles and responsibilities of the FMI's board of directors (or equivalent).
- Identification of procedures for the functioning of the board.
- Identification of processes to identify, address, and manage conflicts of interest of members.
- Review of board's performance.

Key consideration 4: *The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).*

Key elements:

- Identification of the appropriate skill sets for board members.

- Identification of appropriate incentives for board members.
- Inclusion of non-executive board members.

Key consideration 5: *The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.*

Key elements:

- Identification of the roles and responsibilities of the FMI's management.
- Identification of skills, experience and integrity of management.

Key consideration 6: *The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.*

Key elements:

- Identification of the risk-management framework established by the board.
- Identification of board processes to determine, endorse, and regularly review the risk-management framework.
- Identification of authority, independence, resources, and access to the board of the risk-management and internal control functions in governance arrangements.

Key consideration 7: *The board should ensure that the FMI's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.*

Key elements:

- Identification of how the legitimate interests of direct and indirect participants and other relevant stakeholders are reflected in the FMI's design, rules, strategy, and major decisions.
- Identification of how the FMI discloses major decisions to relevant stakeholders and, where appropriate, the public.

PS	CSD	SSS	CCP	TR
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Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Key consideration 1: *An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.*

Key elements:

- Identification of types of risk and risk-management policies and procedures.
- Identification of risk-management systems.
- Review of risk-management policies, procedures, and systems.

Key consideration 2: *An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.*

Key elements:

- Identification of incentives provided to the FMI's participants and their customers to manage and contain risk.
- Identification of information provided by the FMI to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.
- Review of the policies and procedures for allowing participants and their customers to manage and contain their risks.

Key consideration 3: *An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.*

Key elements:

- Identification of material risks that the FMI bears from and poses to other entities as a result of interdependencies.
- Development of risk-management tools that address risks arising from interdependencies with other entities.

Key consideration 4: *An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.*

Key elements:

- Identification of the scenarios that may potentially prevent the FMI from being able to provide its critical operations and services.
- Preparation of appropriate plans for recovery or orderly wind-down.

	PS	CSD	SSS	CCP	TR
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Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposure to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two largest participants and their affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions. All other CCPs should maintain, at a minimum, total financial resources sufficient to cover the default of the one participant and its affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions.

Key consideration 1: *An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.*

Key elements:

- Establishment of a framework for managing credit exposures from participants.
- Establishment of a framework for managing credit risks from the FMI's payment, clearing, and settlement processes.

Key consideration 2: *An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.*

Key elements:

- Identification the FMI's sources of credit risk.
- Measuring and monitoring credit exposures.
- Use of tools to control credit risk.

Key consideration 3: *A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.*

Key elements:

- Coverage of current and potential future exposures to each participant.
- (For DNS payment systems and DNS SSSs where there is no settlement guarantee) Coverage of the exposures of the two participants and their affiliates that would create the largest aggregate exposure in the system.

Key consideration 4: *A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is* *involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.*

Key elements:

- Coverage of current and potential future exposures to each participant.
- Additional financial resources to cover a wide range of potential stress scenarios.
- Documentation and governance arrangements relating to total financial resources.

Key consideration 5: *A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.*

Key elements:

- Details of the CCP's total financial resources and stress testing program.
- Communication and use of stress testing results.
- Frequency of stress testing.
- Analysis of stress-testing scenarios, models, and underlying parameters and assumptions.
- Validation of the CCP's risk-management model.

Key consideration 6: *In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.*

Key element:

- Identification of scenarios for stress testing financial resources.

Key consideration 7: *An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.*

Key elements:

- Explicit rules and procedure to address fully any credit losses.
- Process for the replenishment of financial resources during a stress event.

PS	CSD	SSS	CCP	TR
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Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Key consideration 1: *An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.*

Key elements:

- Identification of acceptable collateral for the FMI.
- Tools available to the FMI to check acceptability of posted collateral.

Key consideration 2: *An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.*

Key elements:

- Identification of the FMI's valuation practices for collateral.
- Identification of the FMI's haircutting practices.

Key consideration 3: *In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.*

Key element:

- Establishment of stable and conservative haircuts to reduce the need for procyclical adjustments.

Key consideration 4: *An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.*

Key element:

- Identification of policies and procedures to avoid the concentration of certain assets held as collateral.

Key consideration 5: *An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.*

Key elements:

- Identification of risks resulting from accepting cross-border collateral.
- Mitigation of risks from accepting cross-border collateral.
- Ability of the FMI to ensure cross-border collateral can be used in a timely manner.

Key consideration 6: *An FMI should use a collateral management system that is well-designed and operationally flexible.*

Key elements:

- Design of the FMI's collateral management system.
- Operational flexibility of the FMI's collateral management system.

	PS	CSD	SSS	CCP	TR
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Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

Key consideration 1: *A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.*

Key elements:

- Framework of margin system.
- Determinants of credit exposure and margin requirements.
- Documentation of the margin methodology.
- Timeliness and possession of margin payments.

Key consideration 2: *A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.*

Key elements:

- Reliability of price data for margin systems.
- Identification of valuation models for calculating margin requirements when market prices are not readily available or reliable.

Key consideration 3: *A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.*

Key elements:

- Features of the initial margin methodology.
- Close out and sample periods for margin model.
- Procyclicality and specific wrong-way risk in the CCP's margin system.

Key consideration 4: *A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have* *the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.*

Key elements:

- Features of the variation margin methodology.
- Determination of the CCP's authority and operational capacity to make intraday calls and payments, both scheduled and unscheduled, to participants.

Key consideration 5: *In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems.*

Key elements:

- Identification of methodology used for offsets or reductions in margin requirements.
- Robustness of the methodology.
- Identification of risks from cross-margining and implementation of appropriate safeguards and harmonised risk-management programmes at the CCPs.

Key consideration 6: *A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.*

Key elements:

- Margin model performance.
- Sensitivity analysis of model performance and overall margin coverage.
- Disclosure of backtesting and sensitivity analysis results.

Key consideration 7: *A CCP should regularly review and validate its margin system.*

Key element:

- Regular review and validation of the margin system.

	PS	CSD	SSS	CCP	TR
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Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Key consideration 1: *An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.*

Key elements:

- Identification of liquidity risks in each currency.
- Establishment of a framework for measuring, monitoring, and managing liquidity risks in each currency.

Key consideration 2: *An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.*

Key element:

- Identification of operational and analytical tools to identify, measure, and monitor settlement and funding flows on an ongoing and timely basis.

Key consideration 3: *A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.*

Key elements:

- Quantification of the minimum liquidity resource requirement in each currency.
- Quantification of additional liquidity resource requirements.

Key consideration 4: *A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.*

Key elements:

- Minimum liquidity resource requirement in each currency to cover a participant default.
- Additional minimum liquidity resource requirements.
- Consideration to cover the default of two participants by a CCP involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions.

Key consideration 5: *For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.*

Key elements:

- Composition of qualifying liquid resources.
- Coverage and availability of qualifying liquid resources.

Key consideration 6: *An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.*

Key elements:

- Composition of supplemental liquid resources.
- Use, coverage, and availability of supplemental liquidity resources.

Key consideration 7: *An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.*

Key elements:

- Identification of the FMI's minimum required qualifying liquid resources.
- Due diligence by the FMI to assess the sufficiency of information for each liquidity provider to understand and to manage its associated liquidity risks.

- Due diligence by the FMI to assess the capacity of each liquidity provider to perform as required under its commitment.

Key consideration 8: *An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.*

Key elements:

- Access to central bank accounts, payment services, or securities services.
- Use of central bank services to enhance management of liquidity risk.

Key consideration 9: *An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.*

Key elements:

- Identification of the FMI's stress testing program.
- Communication and use of stress testing results.
- Analysis of stress-testing scenarios, models, and underlying parameters and assumptions.
- Documentation and governance.

Key consideration 10: *An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.*

Key elements:

- Identification of explicit rules and procedures to enable the FMI to settle following any individual or combined default among its participants.
- Identification of a process to replenish any liquidity resources employed during a stress event.
- Documentation and communication.

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Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Key consideration 1: *An FMI's rules and procedures should clearly define the point at which settlement is final.*

Key elements:

- Identification of the point at which settlement is final based on the FMI's rules and procedures.
- Clarity of the documentation.

Key consideration 2: *An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.*

Key elements:

- Occurrence of final settlement no later than the end of the value date.
- Occurrence of intraday or real-time final settlement.
- Consideration of the potential risk-reducing benefits of changing current processes to adopt RTGS, to adopt multiple-batch processing, and/or to complete final settlement earlier in the day, as applicable.

Key consideration 3: *An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.*

Key elements:

- Identification of the points after which unsettled payment, transfer instructions, or other obligations may not be revoked by a participant.
- Clarity of the documentation.

	PS	CSD	SSS	CCP	TR
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Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Key consideration 1: *An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.*

Key element:

- Identification of money settlement assets.

Key consideration 2: *If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.*

Key element:

- Credit or liquidity risk of settlement assets used for money settlement.

Key consideration 3: *If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.*

Key elements:

- Identification of strict criteria for settlement banks.
- Assessment of the FMI's monitoring of settlement banks' adherence to the criteria mentioned in KE 1.
- Management of the concentration of credit and liquidity risks to the commercial settlement banks.

Key consideration 4: *If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.*

Key element:

- Risks associated with money settlements on the books of the FMI.

Key consideration 5: *An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.*

Key element:

- Provisions of the FMI's legal agreements with its settlement banks.

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Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

Key consideration 1: *An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.*

Key element:

- Identification and documentation of the FMI's obligations with respect to the delivery of physical instruments or commodities.

Key consideration 2: *An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.*

Key elements:

- Identification, management, and monitoring of the risks and costs of the storage and delivery of physical instruments or commodities.
- Matching participants for delivery and receipt for FMIs serving commodity markets.

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Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

Key consideration 1: *A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.*

Key elements:

- Rules, procedures, and controls to safeguard the rights of securities issuers and holders (including accounting practices).
- Rules, procedures, and controls to prevent the unauthorised creation or deletion of securities.
- Rules, procedures, and controls for conducting periodic and at least daily reconciliation of securities issues.

Key consideration 2: *A CSD should prohibit overdrafts and debit balances in securities accounts.*

Key element:

- Prohibition of overdrafts or debit balances in securities accounts.

Key consideration 3: *A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.*

Key element:

- Immobilisation or dematerialisation of securities.

Key consideration 4: *A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.*

Key element:

- Rules and procedures for protecting assets from custody risk.

Key consideration 5: *A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.*

Key element:

- Identification of segregation mechanisms for securities.

Key consideration 6: *A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.*

Key element:

- Identification, measurement, monitoring, and management of risks to the CSD deriving from other activities it may perform.

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Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Key consideration 1: *An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.*

Key elements:

- Elimination of principal risk by linking the two settlement obligations.
- Achievement of final settlement of two linked obligations.

	PS	CSD	SSS	CCP	TR
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Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Key consideration 1: *An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.*

Key elements:

- Identification of default rules and procedures.
- Use and sequencing of financial resources.
- Identification of default rules and procedures that address the replenishment of resources following a participant default.

Key consideration 2: *An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.*

Key element:

- Preparation of an FMI to implement its default rules and procedures.

Key consideration 3: *An FMI should publicly disclose key aspects of its default rules and procedures.*

Key element:

- Disclosure of key aspects of default rules and procedures to the public.

Key consideration 4: *An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.*

Key element:

- Testing and review of the default procedures with participants and other stakeholders.

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Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

Key consideration 1: *A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective.*

Key elements:

- Identification of the segregation and portability arrangements that protect customer positions and related collateral.
- Legal support for such segregation and portability arrangements under applicable law.

Key consideration 2: *A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.*

Key elements:

- Identification of the account structure for positions of a participant's customers and related collateral.
- Ability of the CCP to readily identify positions of its participants' customers and to segregate related collateral.

Key consideration 3: *A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.*

Key element:

- Identification of the CCP's portability arrangement.

Key consideration 4: *A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.*

Key elements:

- Disclosure of the rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral.
- Disclosure of any constraints that may impair the CCP's ability to segregate or port a participant's customers' positions and collateral.

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Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Key consideration 1: *An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.*

Key element:

- Management and control systems to identify, monitor, and manage general business risks.

Key consideration 2: *An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.*

Key element:

- Amount of liquid net assets funded by equity held by the FMI.

Key consideration 3: *An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.*

Key elements:

- Identification of a viable plan to achieve a recovery or orderly wind-down.
- Minimum holdings of liquid net assets funded by equity.
- Inclusion of capital held under international risk-based capital standards.

Key consideration 4: *Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.*

Key element:

- Identification of assets to cover general business risk.

Key consideration 5: *An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.*

Key elements:

- Identification of a viable plan for raising additional equity capital.
- Approval of the plan to replenish capital by the FMI's board of directors (or equivalent).

	PS	CSD	SSS	CCP	TR
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Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Key consideration 1: *An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.*

Key elements:

- Characteristics of the entities at which the FMI holds it assets.
- Ability of the entities to protect the FMI's and its participants' assets.

Key consideration 2: *An FMI should have prompt access to its assets and the assets provided by participants, when required.*

Key element:

- Prompt access to the FMI's and its participants' assets.

Key consideration 3. *An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.*

Key element:

- Evaluation of the FMI's exposure to its custodian banks.

Key consideration 4: *An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.*

Key elements:

- Investment strategy of the FMI.
- Disclosure of the FMI's investment strategy to participants.
- Characteristics of the FMI's investments.

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Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Key consideration 1: *An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.*

Key elements:

- Identification of operational risk.
- Operational risk-management framework.

Key consideration 2: *An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.*

Key elements:

- Identification of roles and responsibilities for operational risk.
- Endorsement of the operational risk-management framework by board of directors (or equivalent).
- Auditing and testing.

Key consideration 3: *An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.*

Key elements:

- Operational reliability objectives.
- Policy to achieve the operational reliability objectives.

Key consideration 4: *An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.*

Key element:

- Scalable capacity.

Key consideration 5: *An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.*

Key elements:

- Physical security policies.
- Information security policies.

Key consideration 6: *An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.*

Key elements:

- Business continuity plan.
- Crisis management and communication.
- Adequate secondary site.
- Review and testing of business continuity arrangements.

Key consideration 7: *An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.*

Key elements:

- Identification, monitoring, and management of risks posed by participants, other FMIs, and service and utility providers.
- Identification, monitoring, and management of risks posed by the FMI to other FMIs.

	PS	CSD	SSS	CCP	TR
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Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Key consideration 1: *An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.*

Key element:

- Access policies of the FMI.

Key consideration 2: *An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.*

Key elements:

- Description of participation requirements.
- Impact of requirements on access.
- Disclosure of participation requirements.

Key consideration 3: *An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.*

Key elements:

- Monitoring of compliance with participation requirements.
- Procedures for facilitating the suspension and orderly exit of a participant that fails to meet participation requirements.

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Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Key consideration 1: *An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.*

Key element:

- Ability to gather and assess information on risks to the FMI arising from tiered participation arrangements.

Key consideration 2: *An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.*

Key element:

- Identification of dependencies between direct and indirect participants that can affect the FMI.

Key consideration 3: *An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.*

Key elements:

- Identification of key indirect participants.
- Management of the risks arising from transactions of key indirect participants.

Key consideration 4: *An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.*

Key elements:

- Review of risks arising from tiered participation arrangements.
- Implementation of mitigating actions.

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Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Key consideration 1: *Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.*

Key elements:

- Identification of potential sources of risk arising from prospective link arrangements.
- Identification, monitoring, and management of risk arising from established links.
- Effect of link arrangements on observance of other principles.

Key consideration 2: *A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.*

Key element:

- Legal basis to support operation of any link arrangements.

Key consideration 3: *Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.*

Key element:

- Measurement, monitoring, and management of credit and liquidity risk arising from linked CSDs.

Key consideration 4: *Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.*

Key element:

- Restrictions on provisional transfer of securities between linked CSDs.

Key consideration 5: *An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.*

Key element:

- Level of protection for investor CSD's participants.

Key consideration 6: *An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.*

Key element:

- Investor CSD's measurement, management, and monitoring of the risks arising from the use of an intermediary.

Key consideration 7: *Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.*

Key elements:

- Identification, assessment, and management of potential spill-over effects of a linked CCP's default.
- Identification, assessment, and management of the potential spill-over effects in case of networks of links between CCPs.

Key consideration 8: *Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.*

Key elements:

- Ability to cover exposures to the linked CCP.
- Contribution to linked CCP's default funds.
- Potential sharing of uncovered losses.

Key consideration 9: *A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.*

Key element:

- Assessment of operational risk from links to ensure scalability and reliability of IT and related resources.

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Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Key consideration 1: *An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.*

Key element:

- Design of the FMI to meet the needs of its participants and the markets it serves.

Key consideration 2: *An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.*

Key element:

- FMI's goals and objectives.

Key consideration 3: *An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.*

Key element:

- FMI review of its efficiency and effectiveness.

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Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Key consideration 1: *An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.*

Key elements:

- Use or accommodation of internationally accepted communication procedures.
- Use or accommodation of internationally accepted communication standards.

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Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Key consideration 1: *An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.*

Key elements:

- Clarity and comprehensiveness of rules and procedures.
- Disclosure of rules and procedures to participants.
- Disclosure of relevant rules and key procedures to the public.

Key consideration 2: *An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.*

Key elements:

- Description of the system's design and operations.
- Description of participants' rights and obligations.

Key consideration 3: *An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.*

Key element:

- FMI documentation and training for its participants.

Key consideration 4: *An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.*

Key elements:

- Public disclosure of service fees and discounts.
- Description of priced services.

Key consideration 5: *An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO* Disclosure framework for financial market infrastructures*. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.*

Key elements:

- Completion and public disclosure of the CPSS-IOSCO *Disclosure framework for financial market infrastructures*.
- Public disclosure of other information.

PS	CSD	SSS	CCP	TR
				●

Principle 24: Disclosure of market data by trade repositories *A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.*

Key consideration 1: *A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.*

Key element:

- Provision of data to relevant authorities and the public.

Key consideration 2: *A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities.*

Key element:

- Processes and procedures to provide data to relevant authorities.

Key consideration 3: *A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analysed.*

Key elements:

- Information systems for the provision of current and historical data.
- Availability and format of data.

Annex 2:
Key metrics for CCPs

Margin	
Total collateral held – cash basis on which supplied (title-transfer or not)	
Total collateral held (non-cash)	
Proportions of non-cash collateral held by collateral type (%)	
List of eligible collateral accepted (Complete details in Principle 5)	
Frequency of routine margin collection	
Number of non-routine margin calls over last 12 months	
Value of routine margin collection vs. non-routine margin calls over last 12 months	
Summary description of margin methodology and representative list of factors that would cause margin requirements to change. Should include summary of netting arrangements across positions / products.	
The initial margin requirement that would result from simple specified example trades / portfolios [so that participants, and regulators and market could compare the output]	
Default fund	
Size of pre-paid DF, including any segmentation by, e.g., type of product	
Discussion of ability to call additional contributions from participants	
Explanation of the specific stress test or series of tests from which the size of the DF was derived. (Implicitly, more severe tests would be result in losses beyond the default capabilities of the CCP).	
Results of simple standardized stress tests, e.g., parallel shift in relevant curves	
Frequency of stress testing, back testing and model reviews/validation	
Capital	
Capital / own funds	
Amount of own funds is committed to waterfall	
Uncovered credit losses	
How these will be allocated	
Investment risk	
Policy on how margin and default fund invested	
Summary details of investments held at the CCPs own risk	
Summary measure of interest rate and fx risk in the investment portfolio	
Liquidity risk	
Coverage policy (cover one, cover two, etc.)	
Arrangements to cover liquidity needs in event of failure to pay	
Arrangements to manage uncovered liquidity shortfalls	
Segregation arrangements	
Whether clients are protected against simultaneous default of clearing member and fellow clients	

COMMITTEE ON PAYMENT AND SETTLEMENT SYSTEMS

BANK FOR INTERNATIONAL SETTLEMENTS

OICU-IOSCO

16 April 2012

Co-chairs' summary note for the CPSS-IOSCO *Principles for financial market infrastructures*

The Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) are publishing today the CPSS-IOSCO *Principles for financial market infrastructures*.

- The report contains new international standards for financial market infrastructures (FMIs), including systemically important payment systems, central securities depositories, securities settlement systems, central counterparties and trade repositories. It replaces the existing standards for these FMIs.[1]
- Compared to the three sets of standards they are replacing, the new standards are updated, harmonised and strengthened. These stronger standards are designed to make FMIs more resilient to financial crises and, in particular, participant defaults.
- The report also includes revised responsibilities of relevant authorities in regulating, supervising and overseeing FMIs.
- CPSS and IOSCO members will strive to adopt the new standards by the end of 2012 and put them into effect as soon as possible. FMIs are expected to observe the standards as soon as possible.

This report incorporates more than a decade of experience with international standards for FMIs, important lessons from the financial crisis and recent policy work by the CPSS, IOSCO and other international standard-setting bodies. The report also incorporates feedback from extensive formal and informal market consultation. In addition, the report supports the initiatives of the Group of Twenty Finance Ministers and Central Bank Governors (G20) and the Financial Stability Board (FSB) to strengthen core financial infrastructures and markets.

The standards in this report are addressed to systemically important payment systems, central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs) and trade repositories (TRs). The standards incorporate CPSS and IOSCO guidance for CCPs that clear over-the-counter (OTC) derivatives.

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[1] The existing standards are published in *Core principles for systemically important payment systems* (CPSS, 2001), *Recommendations for securities settlement systems* (CPSS-IOSCO, 2001) and *Recommendations for central counterparties* (CPSS-IOSCO, 2004).

In general, the standards are principles-based in recognition that different FMIs may have different approaches to achieve a particular result. In some cases, however, the standards set out a specific minimum requirement to ensure a common minimum level of risk-management across FMIs and countries.

Although, as noted above, this report replaces the existing international standards for individual FMIs, select marketwide recommendations from the *Recommendations for securities settlement systems* remain in effect (see Annex C of the report). The CPSS and IOSCO may conduct a full review of these marketwide recommendations in the future.

Overall, the new standards (hereafter called "the principles") have strengthened risk-management guidance, provided new requirements and broadened the scope and applicability of principles to different types of FMIs, such as TRs. For example, the principles require that certain FMIs maintain a higher level of financial resources to address credit, liquidity and general business risk than in the past. Equally important, the principles provide greater guidance on governance for an FMI's operations. Further, the principles provide more-detailed guidance on the risks associated with tiered participation in FMIs and place new emphasis on transparency. The principles are complemented by five responsibilities of authorities to provide for the effective regulation, supervision and oversight of FMIs. These principles and responsibilities are consistent with G20 and FSB strategies of cooperation, access and resolution for CCPs.

This report is accompanied by the *Disclosure framework for financial market infrastructures* and the *Assessment methodology for the principles for FMIs and the responsibilities of authorities*. The disclosure framework and assessment methodology are being published for public comment until 15 June. These companion reports will be finalised and published following the public comment period.

Background

In 2010, the CPSS and IOSCO began an initiative to review and update the international standards for FMIs. This initiative was primarily the result of the increasing risk and uncertainty in financial markets evident during the financial crisis and the increasing role and importance of FMIs in these markets. FMIs were a source of strength during the recent financial crisis; they were generally able to settle obligations when due and gave market participants the confidence to continue transacting. However, the financial crisis highlighted important lessons for effective risk management and the need for strong governance and oversight of FMIs to handle even more-severe stress conditions.

The review of the international standards for FMIs also was undertaken to support the goals of the G20 and FSB to strengthen the safety and soundness of the financial markets, including critical market infrastructures. In particular, the G20 has mandated the central clearing of standardised OTC derivatives products and the reporting of trade data on OTC derivatives to trade repositories. Moreover, central clearing is becoming increasingly prominent in the settlement of money market transactions such as repos and may expand its role even further in coming years. It is therefore vital that FMIs have risk-management practices that are consistent with their enhanced role in global and national financial markets. The early implementation of the new principles is crucial to meeting the G20 commitment for centralised clearing and data reporting by the end of 2012.

Support for the G20 and FSB strategies on cooperation, access and resolution

Importantly, this report supports the G20 and FSB strategies with respect to cooperation, access and resolution.

CPSS and IOSCO recognise the need for effective cooperation and coordination among central banks, market regulators and other relevant authorities, both domestically and internationally, due to the rising importance of global FMIs that serve multiple jurisdictions and markets as well as the increasing interconnectedness of FMIs. The report builds on the existing cooperative frameworks of central banks and of securities regulators and establishes a new framework for consultation and cooperation among central banks and market regulators (see Responsibility E) to promote the safety and efficiency of FMIs that are overseen by multiple authorities.

The report also addresses access to FMIs. FMIs should establish access policies that provide fair and open access, while ensuring their own safety and efficiency. Access to CCPs, in particular, is even more important in light of the G20 commitment to centrally clear all standardised OTC derivatives by the end of 2012. In its November 2011 report, the Committee on the Global Financial System (CGFS) considered potential implications of alternative access arrangements, such as access through direct participation in global CCPs, tiered participation arrangements, establishment of local CCPs and links between CCPs.[2] The principles in this current report reflect the work of the CGFS and address the identification, monitoring, mitigation and management of risks posed to FMIs in light of these various arrangements.

The report also addresses resolution in several principles, consistent with the FSB objective to develop effective FMI resolution frameworks. While the focus of the principles is on ensuring that FMIs operate as smoothly as possible in normal circumstances and in times of extreme but plausible market conditions, it is possible that in certain extreme circumstances, and all preventive measures notwithstanding, an FMI may face such an extreme level of stress that it might have difficulty satisfying its obligations and responsibilities. In the limit, it could even become non-viable as a going concern or insolvent. Depending on the specific situation and the powers available to authorities in relevant jurisdictions, in such cases actions may be implemented by the FMI, relevant authorities, or both to ensure the continuation of essential services and to mitigate any disruption of the financial system. The principles identify a number of measures that FMIs should take to prepare for and facilitate the implementation of their own recovery or orderly wind-down plans. FMIs should also consider applicable resolution regimes in their design and operations. Forthcoming CPSS-IOSCO work will focus specifically on the resolution of FMIs.

Strengthening and harmonising international standards for FMIs

CPSS and IOSCO have strengthened and harmonised the international standards for FMIs by raising minimum requirements, by providing more-detailed guidance and by broadening the scope of the standards to cover new risk-management topics and new types of FMIs. The twenty-four principles outlined in this report are categorised into nine broad categories: (a) general organisation, (b) credit and liquidity risk management, (c) settlement, (d) CSDs and exchange-of-value settlement systems, (e) default management, (f) general business and operational risk management, (g) access, (h) efficiency, and (i) transparency. These broad categories encompass the major elements critical to the safe and efficient design and operation of FMIs.

General organisation

The first three principles in the report provide guidance on the general organisation of an FMI to help establish a strong foundation for an FMI's risk management. Principle 1 on legal basis requires that an FMI have a strong legal basis for its activities. Principle 2 on governance

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[2] See *The macrofinancial implications of alternative configurations for access to central counterparties in OTC derivatives markets* (CGFS, 2011).

requires that an FMI have robust governance arrangements that focus on the safety and efficiency of the FMI and that support the stability of the broader financial system, other public interest considerations and objectives of relevant stakeholders.[3] The principle also provides greater guidance than the previous standards on the roles, responsibilities and composition of boards of directors. Principle 3 on the framework for the comprehensive management of risks is a new principle that requires an FMI to take an integrated and comprehensive view of its risks, including those it bears from and poses to its participants, their customers and other entities.

Credit and liquidity risk management

Principles 4 through 7 address the management of the credit and liquidity risks that arise from an FMI's payment, clearing and settlement processes. Unlike previous international standards, this report distinguishes between credit and liquidity risks and provides separate principles to address the management of these risks. Principle 4 on credit risk and Principle 7 on liquidity risk are complemented by Principle 5 on collateral and Principle 6 on margin. Taken together, these four principles are designed to provide a high degree of confidence that an FMI will be able to operate and serve as a source of financial stability during times of stress even in extreme but plausible market conditions.

Principle 4 addresses credit risk management and requires that a systemically important payment system, SSS or CCP fully collateralise its credit exposure to each participant with a high degree of confidence. Furthermore, the principle requires that a CCP involved in activities with more complex risk profiles or that is systemically important in multiple jurisdictions should maintain *additional* financial resources sufficient to withstand at least the default of the two participants *and their affiliates* that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. Other CCPs are required to maintain *additional* financial resources sufficient to withstand at least the default of the participant *and its affiliates* that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. Principle 4 also contains a new requirement for an FMI to establish explicit rules and procedures to address potentially uncovered credit losses and the replenishment of financial resources when needed.

Principles 5 on collateral and 6 on margin address the issue of the collateral that an FMI should hold to cover its credit exposures. Principle 5 addresses the quality, form and management of collateral that an FMI collects to manage its credit exposure. The principle requires that collateral accepted by an FMI has low credit, liquidity and market risks. Further, the principle requires that an FMI set and enforce appropriately conservative haircuts and concentration limits. Principle 6 applies specifically to CCPs and addresses margin requirements and models. In order to have a strong buffer against its potential future exposure to participants, a CCP should set initial margin levels at an established single-tailed confidence level of at least 99 per cent with respect to the estimated distribution of this future exposure. The principle also requires a CCP to analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly sensitivity analyses for the model. Principles 5 and 6 both contain new guidance regarding the management of procyclicality and of wrong-way risk.

Principle 7 on liquidity risk increases minimum requirements for liquidity risk management. The principle requires an FMI to maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment

[3] Further, certain governance issues are addressed more specifically in several other principles in the report to provide additional guidance, such as in the financial resources principles.

obligations with a high degree of confidence under a wide range of potential stress scenarios. These scenarios should include the default of the participant *and its affiliates* that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions. A CCP that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should take into account scenarios involving the default of the two participants and their affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions. Similar to the credit risk principle, Principle 7 requires an FMI to have explicit rules and procedures that address potentially uncovered liquidity shortfalls and the replenishment of financial resources when needed.

To determine the amount and to test the sufficiency of financial resources held according to the quantitative requirements in Principles 4 and 7, an FMI should perform regular and rigorous stress testing. In particular, Principle 4 requires a CCP to test the sufficiency of its total financial resources, and Principle 7 requires payment systems, SSSs and CCPs to test the sufficiency of their liquid resources. These principles require stress tests to be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, relevant FMIs are required to perform a comprehensive and thorough analysis of stress testing scenarios, models and underlying parameters and assumptions used to ensure they are appropriate in light of current and evolving market conditions. An FMI is also required to perform a full validation of its risk-management model at least annually. Importantly, an FMI should use the results of these stress tests to evaluate the adequacy of its resources and to adjust its resources as appropriate.

Settlement

Settlement risk, which is the risk that settlement will not take place as expected, is addressed in Principles 8 through 10. An FMI faces settlement risk whether settlement of a transaction occurs on the FMI's books, on the books of another FMI or on the books of an external party (for example, a central bank or a commercial bank). Principle 8 on settlement finality addresses the fundamental issue of the finality of transactions processed by an FMI. An FMI should be designed to provide clear and certain final settlement. Where necessary or preferable, an FMI should provide final settlement intraday or in real time. Principle 9 strengthens the former guidance on money settlements and strongly encourages an FMI to conduct money settlements using central bank money. Where central bank money is impractical or unavailable, the FMI should mitigate its risks arising from the use of commercial bank money. In addition, Principle 10 provides guidance to FMIs that provide physical deliveries. In particular, an FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities.

CSDs and exchange-of-value settlement systems

Principle 11 on CSDs and Principle 12 on exchange-of-value settlement systems consolidate and harmonise previous guidance regarding the unique risks faced by these types of FMIs associated with their function and design. While the nature and scope of activities performed by CSDs vary based on jurisdiction and market practices, CSDs play a critical role in the protection of securities and help ensure the integrity of securities issues and transactions. Principle 11 requires that a CSD maintain securities in an immobilised or dematerialised form for their transfer by book entry. Similarly, exchange-of-value settlement systems play a critical role in mitigating principal risk. Principle 12 requires these systems to eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs.

Default management

The principles also require that an FMI have appropriate policies and procedures to handle participant defaults. Principle 13 on participant-default rules and procedures requires all FMIs to have effective and clearly defined rules and procedures to manage the default of a participant. These rules and procedures should enable an FMI to continue to meet its obligations in the event of a participant default. Principle 14 on segregation and portability is a new principle specific to CCPs. The principle requires that a CCP have rules and procedures that enable the segregation and portability of the positions of a participant's customers and the collateral provided to the CCP with respect to those positions. Appropriate segregation and portability within a CCP is especially important in light of the G20 mandate for the central clearing of standardised OTC derivatives products.

General business risk and operational risk management

General business risk, custody and investment risks and operational risk are addressed in Principles 15, 16 and 17, respectively. Principle 15 on general business risk is a new principle designed to protect participants and the financial system from the risk that an FMI could cease operations suddenly as a result of business losses that are unrelated to participant defaults. Specifically, Principle 15 requires an FMI to hold liquid net assets funded by equity equal to at least six months of current operating expenses so that it can continue providing operations and services, either as a going concern or during its recovery or orderly wind-down, if it incurs general business losses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resource principles. Principle 16 on custody and investment risks requires an FMI to safeguard its own assets as well as those of its participants and to maintain investment policies that are consistent with the FMI's overall risk-management strategy. Principle 17 on operational risk strengthens the requirements on operational reliability and resilience. For example, business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption. Business continuity plans should be designed to enable an FMI to complete settlement by the end of the day of the disruption even in extreme circumstances, and critical systems should be designed so that operations can be restored within two hours of a disruption.

Access

Principles 18, 19 and 20 address the need for fair and open access to an FMI as well as management of risks posed by alternative access arrangements. Principle 18 on access and participation requirements provides guidance to an FMI for establishing appropriate access policies that provide fair and open access, while ensuring the FMI's own safety and efficiency. Principle 19 on tiered participation arrangements is a new principle that requires an FMI to identify, monitor, and manage the material risks it faces from indirect participants. Principle 20 on FMI links contains more detailed and specific requirements for FMIs that participate in link arrangements. Specifically, FMIs that are linked to other FMIs, either directly or indirectly, should identify, monitor and manage the risks arising from these types of arrangements.

Efficiency

Issues related to efficiency are addressed in Principles 21 and 22. Principle 21 addresses general efficiency and effectiveness. An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves. Efficiency is a broad concept that encompasses what an FMI does, how it does it and the resources required. Effectiveness relates to how the FMI meets its core objectives and goals. Principle 22 addresses one traditional aspect of efficiency, which is the use of communication procedures and standards. An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards to enhance efficiency. For an FMI that maintains cross-border operations or provides cross-border services, the use of internationally accepted communication procedures and standards is particularly important.

Transparency

Finally, Principles 23 and 24 address transparency and require that relevant information be provided to an FMI's participants, authorities and the public to inform sound decision making and foster confidence in the markets the FMI serves. Principle 23 on disclosure of rules, key procedures and market data requires sufficient disclosure by an FMI to allow participants and prospective participants to have an accurate understanding of the risks, fees and other material costs they incur by participating in the FMI. Further, an FMI is required to publicly disclose and review regularly its responses to the *Disclosure framework for FMIs*. Principle 24 on disclosure of market data by trade repositories is a new principle specific to TRs, which was developed to require a TR to disclose market data and to allow participants, authorities and the public to make timely assessments of OTC derivatives markets and, if relevant, other markets served by the TR.

Consistent global use and observance

To promote consistent global use and observance of the principles, the report contains a section on the responsibilities of central banks, market regulators and other relevant authorities for FMIs with respect to the oversight, supervision and regulation of FMIs. In addition, the CPSS and IOSCO are developing the *Disclosure framework for financial market infrastructures* and the *Assessment methodology for the principles for FMIs and the responsibilities of authorities* to promote consistent disclosures of information by FMIs and assessments of FMIs by international financial institutions and national authorities.

Responsibilities of relevant authorities for FMIs

The report outlines five responsibilities for central banks, market regulators and other relevant authorities for FMIs in the effective regulation, supervision and oversight of FMIs. Responsibility A requires that FMIs be subject to appropriate regulation, supervision and oversight by a central bank, market regulator or other relevant authority. Responsibility B requires that these authorities have the powers and resources to carry out their responsibilities in regulating, supervising and overseeing FMIs. Responsibility C requires that authorities clearly define and disclose their policies with respect to FMIs. Responsibility D requires relevant authorities to adopt the CPSS-IOSCO principles for FMIs and apply them consistently. Responsibility E requires central banks, market regulators and other relevant authorities to cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMIs. Authorities for FMIs are expected to accept and be guided by the responsibilities in this report.

Disclosure framework and assessment methodology

In addition, CPSS-IOSCO will publish the *Disclosure framework for financial market infrastructures* and the *Assessment methodology for the principles for FMIs and the responsibilities of authorities*. The disclosure framework is intended to promote consistent disclosures of information by FMIs in fulfilling Principle 23. The assessment methodology provides guidance for assessing and monitoring observance with the principles and responsibilities. The assessment methodology is primarily intended for external assessors at the international level, in particular the International Monetary Fund and the World Bank. It also provides a baseline for national authorities to assess observance of the principles by the FMIs under their oversight or supervision or to self-assess the way they discharge their own responsibilities as regulators, supervisors, and overseers. National authorities may use this assessment methodology as written or use it to develop equally effective methodologies for their national oversight or supervision processes. The assessment methodology may also be used by FMIs for purposes of self-assessments of observance of the principles. Public consultation drafts of these two documents accompany this report.

Next steps

The publication of this report is the first step in the efforts of the CPSS and IOSCO to enhance the safety and efficiency of FMIs. The committees, as noted above, are also publishing the disclosure framework and the assessment methodology for public consultation. These documents will be finalised promptly. The documents will be used to enhance market transparency and promote a common level of observance of the international standards.

Furthermore, as also noted above, the CPSS and IOSCO are engaged in additional work on the resolution of FMIs. This work will aim to provide guidance for designing recovery and resolution regimes for FMIs consistent with the FSB's *Key attributes of effective resolution regimes for financial institutions* while taking account of the special characteristics of FMIs.

Finally, CPSS and IOSCO members will strive to adopt the new principles by the end of the 2012 and put them into effect as soon as possible. FMIs are also expected to observe the principles as soon as possible. In the coming months, the CPSS and IOSCO will conduct outreach activities to inform FMIs, authorities and the general public about the principles.

河野正道 William C. Dudley

Masamichi Kono William C Dudley
CPSS-IOSCO Review of Standards
Steering Group Co-Chairs

Comments received on the consultative documents *Assessment methodology for the principles for FMIs and the responsibilities of authorities* and *Disclosure framework for financial market infrastructures*

In April 2012, the CPSS and IOSCO released their consultative documents *Assessment methodology for the principles for FMIs and the responsibilities of authorities* and *Disclosure framework for financial market infrastructures* with a request that any comments be provided by 15 June 2012. These comments, in PDF format, are available below.

The committees thank those who have taken the time and effort to express their views. The CPSS and IOSCO are now reviewing the comments, following which final versions of the documents will be published.

List of Respondents

ACG (Asia-Pacific Central Securities Depository Group)

ASX (Australian Securities Exchange)

Bankgirot (Bankgirocentralen BGC AB)

CCP12 (The Global Association of Central Counterparties)

CHAPS Clearing Company Limited

Chris Bernard

Clearstream

CLS (CLS Bank International)

CME Group Inc.

DTCC (Depository Trust & Clearing Corporation)

EBA Clearing

Emin Ali Gundez

Eurex Clearing

Euroclear

EACH European Association of Central Counterparty Clearing Houses

ECSDA European Central Securities Depositories Association

GFMA (The Global Financial Markets Association) and ISDA (The International Swaps and Derivatives Association, Inc)

ICE Clear Europe

Institute of International Finance

JSCC Japan Securities Clearing Corporation

JASDEC (Japan Securities Depository Center, Incorporated) and JDCC (JASDEC DVP Clearing Corporation)

NSDL (National Securities Depository Ltd)

South Africa-Financial Services Board

SWIFT

Target Working Group

The Clearing House

WFC (World Forum of CSDs)

Zengin-Net (The Japanese Banks' Payment Clearing Network)

Zhen Li

Commentary on the Assessment Methodology and Disclosure Framework for the Principles for Financial Market Infrastructures

June 15, 2012
Asia-Pacific Central Securities Depository Group (ACG)
(Prepared by the ACG Legal Task Force)

The ACG (Asia-Pacific CSD Group) welcome the opportunity to comment on the Assessment Methodology and Disclosure Framework for the Principles for Financial Market Infrastructures (PFMI). Along with the published PFMI, we believe, the Assessment Methodology (AM) and Disclosure Framework (DF) will provide very important guidelines for FMIs to observe the principles as soon as possible, hence increase the resiliency and robustness of their respective systems.

I. Assessment Methodology

- *General Comment*

Flexibility for local authorities and FMIs to use the AM

When applying the AM, we believe it is important to follow the intent of the PFMI while taking into account different roles of FMIs and characteristics of individual markets. To this end, we support the current design of the AM that while primary purpose of the assessment methodology is for external assessment at international level, some flexibility is allowed for local authorities and FMIs to assess specific local practices or to satisfy different assessment objectives.

- *Specific Comments*

1.1. Use of the Assessment Methodology

Consistency of assessment criteria and information when assessing observance

We understand that the AM will be used by various relevant parties, such as external IFIs or local authorities, sometimes for slightly different assessing purposes. It should be made very clear in the introduction that, when the purpose is to assess FMIs' observance of the PFMI, the assessment criteria used and information acquired by different assessors should be consistent with the requirement of principles and that of the AM.

1.4. Practical considerations in conducting an assessment

Scope and purpose of information collecting

We concur with the point that for assessors to undertake proper, detailed assessments it is necessary for them to have access to a wide range of information and interested parties. At the same time, we think the scope of information should be defined clearer in the introduction that, the request of access to information and/or interviews should be consistent to the fact-finding purpose and in line with the questions so designed under the AM.

2.5. Timeframe for addressing each identified concern

Need of response timeframe

With regard to concerns identified, especially serious issues that require immediate remedial actions, we think it is important that a response timeframe is also specified. At the same time, as for the implementation of the remedial actions, we think that assessment reports should be written with due consideration of the decision making process of FMIs, after ample discussion between the FMIs responsible for implementing specific measures and national authorities and other relevant parties.

II. Disclosure Framework

- *General comments*

The CPSS/IOSCO DF should unify thus replace existing disclosure frameworks
Currently, FMIs such as CSDs are undertaking information disclosure in accordance with various overlapping regulations or request of information (e.g. the Association of Global Custodians questionnaire). ACG and other regional CSD groups have been always supporting unification of disclosure frameworks for CSDs. Now the PFMI will replace old standards and become the most important and comprehensive international standards for FMIs to observe. By continuously providing relevant information to authorities and peer organizations, the DF will certainly play an important role in assessing FMIs' observance to the PFMI. At the same time, we strongly support CPSS/IOSCO Disclosure Framework to become a unified global disclosure framework for FMIs. This will significantly reduce the burden on FMIs to complete various information disclosure requirement or request.

- *Specific comments*

We have no specific comments on the DF.

About ACG
The Asia-Pacific Central Securities Depository Group (ACG) was formed in November 1997 as an informal international organization with the objective to facilitate the exchange of information and to promote mutual assistance among member securities depositories and clearing organizations in the Asia Pacific region.
The number of participants as of the end of December 2011 is 30 institutions in 21 countries and regions.

For further information, please contact：
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15 June 2012

CPSS-IOSCO – Assessment Methodology for the Principles for FMIs and the Responsibilities of Authorities

Dear CPSS and IOSCO Secretariats,

The Australian Securities Exchange (ASX) would like to thank CPSS and IOSCO for the opportunity to comment on the Assessment Methodology for the Principles for FMIs and the Responsibilities of Authorities. While ASX is broadly supportive of the proposed Assessment Methodology, we would like to make the following comments.

Key issues

ASX is concerned that the Assessment Methodology only allows FMIs and their regulators to assess performance against each principle without a method to convert these assessments to a single view of the FMI's compliance with the Standards. The absence of such guidance creates the opportunity for significant international variance in the application of the Standards.

While the Assessment Methodology outlines the steps involved in formulating a particular rating, it does not provide any guidance on sanctions for poorly performing FMIs or specify any minimum required FMI rating. ASX is concerned that, without a consistent framework in place to manage poorly performing FMIs, some entities may choose to delay or fail to implement regulatory concerns in a timely fashion. Such an outcome would be particularly undesirable and could propagate systemic risk across global financial markets.

ASX also considers that the Assessment Methodology needs to better recognise that domestic regulators will retain their ability to impose more onerous requirements on domestic FMIs. As a result the Assessment Methodology should not be explicitly or implicitly accepted as a uniform global standard for mutual recognition.

Other issues

ASX is concerned that some current domestic regulatory settings (e.g. domestic insolvency law) may prevent FMIs from fully complying with all key considerations under each principle. ASX is strongly of the view that, where compliance is not possible due to existing regulatory settings, FMIs should not be penalised or downgraded under the Assessment Methodology.

ASX believes that the Assessment Methodology should state that, where an FMI must comply with domestic regulations which are inconsistent with the Principles for FMIs, compliance with the domestic regulations is sufficient for deeming the FMI's compliance with the Principles.

If you would like further detail on any of our suggestions, please contact Joshua Everson on +61 2 9227 0233.

Yours sincerely

Alan Bardwell
Chief Risk Officer

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ASX
AUSTRALIAN SECURITIES EXCHANGE

15 June 2012

CPSS-IOSCO – Disclosure framework for Financial Market Infrastructures

Dear CPSS and IOSCO Secretariats,

The Australian Securities Exchange (ASX) would like to thank CPSS-IOSCO for the opportunity to comment on the Disclosure framework for Financial Market Infrastructures (FMIs). For many years ASX has been an advocate of clearing and settlement facility transparency and we strongly support CPSS-IOSCO's efforts to enhance FMI disclosure. We believe transparency is particularly important as it enables customers to understand the risks inherent in the use of the FMI's services.

Key Issues

1. Having been subject to detailed annual regulatory assessments for some time, ASX sees strong financial market benefits from public disclosure being undertaken by regulatory authorities as part of the routine regulatory assessment mechanism. Such annual reviews generally involve the disclosure of very detailed information on FMI operations. ASX considers that, where national regulators publish a detailed annual assessment on FMI compliance with national requirements (which are consistent with CPSS-IOSCO's *Principles for FMIs*) and this is readily available through generally accessible media, then this is sufficient, in whole or part as appropriate, to meet the CPSS-IOSCO FMI disclosure requirements. This will avoid considerable duplication of effort and will ensure that timely information is made available to all stakeholders.

2. Should a CCP need to provide the disclosure itself, in assessing a CCP's compliance with the Disclosure Framework, regulators should take into consideration the specific needs of FMIs in respect of:
   - protection of intellectual property rights;
   - maintenance of privacy and commercial confidence; and
   - the importance and primacy of FMI Rulebooks by ensuring they are not undermined by the disclosure documentation.

If you would like further detail on any of our suggestions, please contact Joshua Everson on +61 2 9227 0233.

Yours sincerely

Alan Bardwell
Chief Risk Officer

Committee on Payment and Settlement Systems (CPSS) **Stockholm, Sweden**
International Organization of Securities Commissions (IOSCO) 2012-06-15

Dear Sirs,

Bankgirocentralen BGC AB (Bankgirot) appreciates the opportunity to comment on the "Assessment methodology for the principles for FMIs and the responsibilities of authorities" and the "Disclosure framework for financial market infrastructures", prepared by CPSS and IOSCO.

Bankgirot´s payment system
Bankgirot is a bank-owned clearing organization and the main infrastructure (payment system) for payments in the Swedish market. The Swedish Financial Supervisory Authority (Finansinspektionen) has granted Bankgirot a license to conduct clearing operations in accordance with the Swedish Securities Market Act (2007:528). In its capacity as a clearing organization Bankgirot provides a clearing and settlement service, which, together with the general payment system the Bankgiro system, constitutes Bankgirot´s payment system.

The majority of payment products are cleared and settled on a bilateral gross basis, between two parties. The remainder are cleared and settled on a multilateral net basis, between several participants. All types of payments have one or more predetermined settlement times a day. Payments are settled in SEK or EUR.

In Bankgirot´s payment system central bank money is always used for settlement. The clearing and settlement service handles incoming payments and creates settlement documentation to be sent to the Swedish Riksbank´s settlement system (RIX) where the final settlement occurs. The clearing and settlement service is used by the Bankgiro system but also by payment products with external owners. For settlement of payments in Swedish kronor (SEK) Bankgirot sends gross positions and multilateral net positions to RIX in the form of settlement documentation. A small number of payment products (MasterCard and ATM) are cleared as multilateral net amounts. The payments are then settled in the participant´s accounts in RIX for payment orders in SEK. For settlement of payments in EUR, each paying bank receives settlement documentation from Bankgirot, subsequently forwarding this to TARGET2, either directly or via its custodian bank.

By the end of 2012 Bankgirot plans to put into production a new payment system for payments in real time (PRT), where settlement will be done in real time using central bank money (when the settlement institute are open) or central bank backed money (when the settlement institute are closed).

Comments on Assessment Methodology

Section 2.4 Rating framework
Bankgirot´s opinion is that the rating scale is clear and understandable, but with the exception of the lack of a more precise time line for requested improvements and actions. Bankgirot would therefore appreciate a clarification regarding the length of the time period for rating observations, as well as recommended considerations for decisions on the timeline.

Appendix 3: Questions by key consideration for the principles for FMI´s
The questionnaire connected to the Key Elements is often very specific and detailed. Bankgirot foresee a risk, should the questionnaire be applied by the letter, assessments might be carried out without enough view of the characteristics or ways of working for a specific FMI. Therefore, Bankgirot would appreciate an clarification that the questionnaire are to be regarded as an example and that compliance with all the questions do not have to be applied to an specific FMI, as long as the specific FMI are compliant with the intentions in the explanatory notes in the Principles for financial market infrastructures (PFMI) report.

National characteristics and specific features of an FMI
Bankgirot´s opinion is that national characteristics and specific features should be reasonably considered in the assessment of an FMI. A far too strict use of the Key Elements and the underlying questionnaire might in worst case be a contradictory to the intentions as expressed in the explanatory notes in the PFMI report.

Comment on Disclosure Framework

Section 3 General instructions for completing the principle-by-principle on narrative disclosure, p 9
Bankgirot suggests an editorial change in p 9 to be as follows: "An FMI should be careful not to disclose confidential information in this response *through generally accessible media, such as the Internet.*"

For further information or any questions in this matter, please contact Hillevi Kämpeskog, Compliance Manager, hillevi.kampeskog@bankgirot.se or Per Löfgren, Risk Manager, per.lofgren@bankgirot.se.

Kind regards,

Bankgirot

Birgitta Simonsson
CEO

Gunnar Ölundh
Executive Vice President
Director business area Infrastructure

June 15th, 2012

Letter to be submitted by e-mail to cpss@bis.org, and fmi@iosco.org

Reference: CCP12 response to Public Consultation on Assessment Methodology and Disclosure Framework of the Principles for Financial Market Infrastructures.

Mr. Robert Lindley,
Head of Secretariat, CPSS
Mr. Masamichi Kono,
Chairman, IOSCO

Dear Mr. Lindley and Mr. Kono,

CCP12 The Global Association of Central Counterparties[1], welcomed the initiatives taken by CPSS[2] and IOSCO[3] in publishing the Public Consultations on Principles of Financial Market Infrastructures (PFMIs), its Assessment Methodology (AM) and Disclosure Framework (DF). These last two consultations were issued on April 16th. CCP12 is grateful to comment again on these reports.

CCP12 notes that the AM and the DF were developed respectively *with the aim of promoting observance of Principles*[4] and to have *clear and comprehensive disclosures by financial market infrastructures (FMIs) to support sound decision making by market participants, authorities, and the public... to enhance the safety and efficiency in payment, clearing, settlement, and recording arrangements, and more broadly, limit systemic risk and foster financial stability and transparency*[5].

Our Association wants to emphasize the relevance of the AM as a key tool for Regulators to Qualify CCPs. The AM and the DF should therefore contribute to the promotion of a level playing field in all the jurisdictions where our CCPs operate by establishing homogenous criteria amid Assessors. It is, nonetheless, important to

[1] CCP12, The Global Association of Central Counterparties, was formed in 2001, and is currently comprised of 30 members that operate major central counterparty (CCP) clearing house organizations across Africa, the Americas, Asia, Australia and Europe. These experienced members handle separate CCPs across an extensive range of OTC and exchange traded markets, both cash and derivatives, covering equities, fixed interest, commodities and energy. There is therefore substantial diversity across CCP12 membership in approach reflecting at times complex differences in: market protocols, local legislation and regulatory expectations, payment, trading and settlement systems with which the CCP interacts, product coverage, nature of the contractual obligations e.g. CCP relationship with the end user/client, nature of the business e.g. listed/mutualised/vertical/horizontal; and type, size and counterparty standing of the CCPs' members / participants

[22] Committee on Payment and Settlement System

[3] Technical Committee of the International Organization of Securities Commissions

[4] AM Consultatve Report, page 1

[5] DF Consultatve Report, page 1

recognize the diversity of economic, legislative and regulatory environments under which CCPs operate around the globe.

Annexed to this letter, you will find our response that is divided into two sections; the first one offering our high level opinion on both the AM and DF reports, the second one, containing punctual comments and recommendations on both documents under consultation.

We look forward to our comments and recommendations being taken into consideration and hope that they contribute to the development of a usable and profitable final version. We reaffirm our availability to cooperate with CPSS-IOSCO in further promoting projects for the long term stability and competitiveness of the global financial markets.

Sincerely yours,

Luis Jorge Pelayo
Chair CCP12

Annex

CCP12 comments to CPSS-IOSCO Public Consultation on Assessment Methodology (AM) and Disclosure Framework (DF) for FMI Principles (PFMI)

A. GENERAL COMMENTS TO AM AND DF

The Association and its membership recognize the AM and the DF as powerful tools to make transparent the current status of compliance of a CCP with the PFMIs, to identify gaps and shortcomings, as well as to facilitate the tracking of their fulfilment. In this section we externalize general comments on both reports and in some cases we suggest complementary ideas to be noted or highlighted in them. For each general comment, we specify (in parenthesis) if they apply to AM, DF or both.

Assessment and Disclosure of information size (AM / DF) - The PFMIs, AM and DF contain 106 Key Considerations (KC) applicable to CCPs (that is excluding Principle 11 and 24), and many of the KCs are sometimes integrated by several Key Elements (KE). Both KCs and KEs include more than 400 questions, while the RCCPs[6] contain 50 Key Issues and 71 questions (21 of which are related to Guarantee Funds). The response and much more important, the compliance effort for PFMIs is almost 6 times that for the RCCPs. There will be a considerable (and necessary) additional effort to assess, disclose relevant information, follow up and in general, to comply with PFMIs. We consider that relevant stakeholders such as Regulators should be conscious of this and promote a proactive and a communicative interaction with CCPs in order to facilitate the closing of gaps in the most reduced timeframe required to comply with the PFMIs. We want to highlight in the occasion of this Consultation, that compliance with the PFMIs is a joint effort of the relevant stakeholders. This should be explicitly noted.

Multiple related reports to PFMIs (AM / DF) - In the short and middle term, FMIs will need to intensively refer to the three reports in the effort of complying with Principles. Some CCP12 members that have already begun their self-assessment have constantly to go and back from PFMIs and AM, searching for concepts, precise definitions at the glossary for further reference in the explanation of the Principle, etc. It seems practical to have a single integral document.

Assessment Framework Methodology (AM) - The five steps for assessing an FMI (scope, facts, conclusions, rating categories and the timeframe for addressing issues) offer an integral overview of the actual compliance level, gaps and shortcomings, as well as a clear path to comply with PFMIs. We feel that this methodology is a usable tool to the end of promoting observance of the Principles.

Assessors' criteria (AM) - The proposed multi-step methodology requires the Assessor to elaborate particular conclusions according to his/her criteria for each Principle instead of using the *Assignment of an assessment category* guide used for assessing each Recommendation as in the past RCCPs. By applying the AM, the Assessor would identify gaps or shortcomings, the risks for each issue of concern and then would judge

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[6] CPSS-IOSCO, Recommendations For Central Counterparties, November 2004

on the priority to address such issues. We agree that this flexibility in rating the Principles is necessary in order to put a CCP in the context of the market where it operates. However it is important to recognise the risk that this flexibility results in a misjudgement of the CCP. We want to highlight the relevance of the experienced profile of the Assessor.

Identification and follow up of gaps (AM / DF) – In the AM, questions for each Key Consideration can serve, in our opinion, as a guidance to identify the gaps. We consider it positive that these gaps are explicitly noted as well as the risk and concerns. This provides clarity on the priority of issues to be heeded. Moreover we feel that in the DF Disclosure Template, the summary of major changes since the last update; should be oriented to report the evolution of the gaps' completion.

Contextual information (DF)- In order to satisfy the information needs of diverse stakeholders, we agree with item II related to The General Description of the FMI. It is important that the disclosure template considers information providing them with a general overview of the CCP. In the respective table of Recommendations and Comments, we propose some other complementary elements that would put the CCP in a clear context to stakeholders providing an idea of the systemic relevance of that CCP.

Timing for disclosure PFMI compliance – Both Regulators and FMIs are for the first time using these Principles as a reference to comply with in 2012. As the development of the reports based on AM and DF will need substantial effort and time, we suggest that FMIs disclose their compliance to PFMIs by 2013

AM questions as a possibility of disclosure- CCP12 agrees with the scope and particular purposes of both AM and DF. However we expect that CCPs will be required to answer AM questions as part of the regular assessments, which can create additional complexity and duplicated efforts, because both AM responses and DF sentences are supposed to be aligned. We suggest that FMIs are permitted to voluntarily use AM responses as part of their disclosure report.

Confidentiality- CCP12 considers relevant that the AM should establish explicitly a clear obligation for the Assessor to keep confidentiality about sensible business information and that this could be preferably formalized in a confidentiality agreement.

B. PARTICULAR COMMENTS AND RECOMMENDATIONS

In this section punctual observations, request for clarification and recommendations to both reports are specified.

Assessment Criteria

1.0. Introduction Page 1	*Key benefits include objectivity and comparability across the assessments* Observation- This reference should be qualified to emphasize that the comparability may be conditioned on the level of experience of the Assessors and whether the assessment is conducted by the same Assessors. If assessments of different CCPs are conducted by different national, international or external Assessors without the same degree of experience or if different Assessors apply the AM inconsistently, it may well limit the comparability of the assessment results. Recommendation- Add the following to the above reference: " if the assessments of different CCPs are able to be conducted in a consistent manner by appropriately experienced Assessors and/or conducted by the same authorities."
1.1. Use of the Assessment Methodology Page 1	*CPSS and IOSCO are also encouraging external assessments of FMI … conducted by international financial institutions (IFIs),* Observation- While CCP12 agrees with CPSS-IOSCO in encouraging external assessments by IFIs, we consider that further clarity on Assessor selection is needed. That is, it's important to know if the FMI can suggest an Assessor, if the national authority would necessarily select it and/or if experienced and independent advisors could also act as Assessors and under which criteria would they be selected. Recommendation- The categories of Assessors as well as the eligibility criteria of each type of Assessor should be referenced.
1.1. Use of the Assessment Methodology Page 2	*This AM is primarily intended for external Assessors at the international level, in particular the IFIs. It also provides a baseline for national authorities to assess FMIs under their supervision and oversight* Observation- It is not clear why the AM is intended primarily for external Assessors at the international level and complementary to national authorities Recommendation- The AM should explicitly establish that the AM is intended to be applied by all Assessors. Moreover, those Assessors not applying the AM should provide justification on applying any alternative methodologies.

1.1. Use of the Assessment Methodology Page 2	*If a national authority uses a different rating scheme… National authorities may choose to use the AM rating scheme or may choose to use another rating scheme in particular when they are legally bound to use a different assessment methodology.* Observation- The usage of different rating schemes risk to lead to a misinterpretation of the assessment results Recommendation- CPSS-IOSCO should promote explicitly the use of the AM rating scheme and if possible to establish them as a minimum standard. When necessary for an authority to use an alternative scheme, the AM should ask that a clear interpretation of each of the proposed ratings is done. For those Assessors/authorities mandated to use another rating scheme, the AM should provide a mapping of the results to the AM rating scale.
1.1. Use of the Assessment Methodology Page 2	*Different types of Assessors may communicate the outcome of their assessments of FMIs differently, depending on their specific objectives.* Observation- We feel that PFMI compliance should not depend on a perspective of assessment. However, we do agree that PFMI compliance can be an evolutive process, so Assessors can configure the assessment and communicate the results according to their objectives. Recommendation- The AM should specify that even if the outcome can be communicated depending on Assessor's objective, the judgment of compliance according to the rating scale should not vary.
1.1. Use of the Assessment Methodology Page 2	*Technical assistance (TA) Assessors are not necessarily expected to use a rating scheme* Observation- This type of Assessor is mentioned only once in the AM and its role is not clear. Recommendation- AM should provide clarity on the role of the Technical Assistance Assessor (TA) and what expertise may be applicable. Same applies for all categories of Assessor.
1.4. Practical considerations in conducting an assessment Page 4	*Assessors' background, experience, and training – the use of professional judgment when carrying out an assessment requires qualified individuals possessing both practical and relevant experience.* Observation- We agree that AM establish this profile for Assessors; however this *background, experience, and training* is not informed in the assessment report (I. Background, Key Findings, and Follow-up, page 14)

	Recommendation- Assessors' background, experience, and training should be explicitly and clearly specified in the AM report.
2.1. Step 1: Scope of the assessment	*national authorities are expected to regularly assess FMIs that they have deemed systemically important* Observation- 1) According to PFMI page 12[7], CCPs are supposed to be systemically important at least in their jurisdictions, unless the Authority determines otherwise, 2) The regularity of assessment or a criteria for regularity is not specified. Recommendation- The AM should specify that an update to assessment should be reflected once the CCP addresses any material gap or shortcoming identified in previous assessment.
2.2. Step 2: Fact gathering Page 7	*Assessors must develop a general understanding of the FMI's* Observation- - CCP12 agrees in this statement. A basic part of a general understanding of the FMI is a general understanding of the market where the FMI operates. This is particularly relevant when an IFI acts as the Assessor. Corporate and market practices are important facts to be considered in the assessment and into the improvement planning. These practices are not sometimes easy to change. The communication process within an FMI is very relevant in order to facilitate the required changes Recommendation- AM should specify that the Assessor should also have a general understanding of relevant market practices and any unique aspects of the local market which may be relevant to the assessment.
2.3. Step 3: Key conclusions for each key consideration Page 7	*A key conclusion for each key consideration should be drawn.* Observation- The conclusions for each key consideration in a narrative format are made in the DF Recommendation- The AM and DF should specify that conclusions in the AM and statements in DF for each Key Consideration, should be aligned.
Translating key conclusions into the relevant ratings Page 9	*The rating is built on the key conclusions and reflects the Assessors' judgment regarding* Observation- The rating reflects the Assessor judgment. The Assessor is supposed to be an experienced person / entity. There's still a qualitative element of potential misjudgment and disagreement between Assessor

[7] PFMIs, page12: *The presumption is that all CSDs, SSSs, CCPs, and TRs are systemically important, at least in the jurisdiction where they are located, typically because of their critical roles in the markets they serve*

	and FMI. Recommendation- AM should establish that the FMI have the right to ask for a revision or further justification of a conclusion, when it disagrees.
I. Background, Key Findings, and Follow-up Page 14	*Introduction…* Observation- In this section the Assessor background is not specified and we consider it relevant to further transparency Recommendation- The Assessment report should mention the Assessor background.
Page 14	*Key findings and follow-up* Observation- This section only mentions how to report the Key Findings and does not address the follow up. However, if the assessment report is an update of a previous one, it is important to provide for reflection of the follow-up action(s) taken since the assessment was concluded. Recommendation- The assessment report should address how to reflect follow up action(s) taken on addressing material gaps. Furthermore, we recommend that the assessment report is updated exclusively when gap(s) is(are) closed. A full update is more effective.

Disclosure Framework

2 FMI disclosure template Page 1	Observation- There's a Principle-by-Principle narrative disclosure; however there's not a Rating Summary as Table 1 of Key findings and follow-up of the AM. Recommendation- CCP may choose to disclose this rating summary or at least to summarize the CCP's observance of Principles and/or key conclusions for each one of the Principles and /or to show a general summary on how will the CCPs address the gaps (if they are mentioned) and in what timeframe.
2 FMI disclosure template Page 1	*II. General description of the FMI: (a) organization; (b) market(s) served; and (c) key metrics* Observation- 1) When developing items (a), (b) and (c); Key metrics is labeled as B. and there's not a market(s) served explanation. 2) Additional contextual information can be useful to enhance transparency. Recommendation- 1) It's necessary to correct the item labels. 2) Other contextual information that we consider useful to be disclosed for the key metrics is: • Products cleared • Size of the market • Number of Clearing and Non-Clearing members • Relevant laws and regulation to which the CCP is subject to • Relevant authorities • Relevant links and a very broad description on how the CCP controls it's risks face to these linked entities • Disclosure/description of relevant risk management policies • Level of segregation and key aspects of portability • Other activities if any
Annex 2 Page 39	Observation- The table should be considered illustrative, because it's highly probable that CCPs would require more space to show clearly their information
Annex 2 Margin Page 39	*Proportions of non-cash collateral held by collateral type List of eligible collateral accepted* Observation- It's useful to have the list, but it's more relevant to show a summary of the approved policy to elect collateral. Recommendation- We recommend that DF indicates the disclosure of the general characteristics of the acceptable collateral, as well as the proportions and a generic list.
Annex 2 Margin Page 39	*Number of non-routine margin calls over last 12 months* Observation- This is an interesting statistic of abnormal situations (market conditions, risk accumulation, etc); however it is important to put this information in a context that facilitates the comprehension of the situations that originated the non-routine margin calls. Recommendation- DF should recommend that a general explanation of why these non-routine margin calls were generated is made.
Annex 2	*The initial margin requirement that would result from simple specified example trades…*

Margin Page 39	 Observation- It's very common that stakeholders ask how margin is computed, however due to the diversity of the products it is important to context this explanation and mention the factors that determines the margin levels. Recommendation- DF should ask also for a general explanation of the methodology an how the parameters and risk factors influence the results of margin / variation margin calls.
Annex 2 Liquidity risk Page 39	*Coverage policy (cover one, cover two, etc.)* Recommendation- For transparency purposes, we consider important to mention in general why the assessed CCP is classified as Cover One / Cover Two; and in this last case, why the CCP is considered to be involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions.
Annex 2 Investment risk Page 39	*Summary details of investments held at the CCPs own risk* Observation- This item is not clear enough, because the whole amount of resources invested are at CCPs own risk and CCPs define the risk tolerance of investing its resources. Recommendation- CCP12 would ask further explanation to this item.
Annex 2 Default fund Page 39	*Discussion of ability to call additional contributions from participants* Observation- The discussion is not necessarily profitable to disclose. It's more relevant to establish clearly the ability to call for additional contributions according to the CCP Rulebook, under what circumstances, conditions (for example deadline to replenish the default fund), maximum amount expected to be replenish, the consequences for a Participant if it doesn't replenish the fund, etc. Recommendation- DF should establish that the CCP disclose its ability to call additional contributions from participants.
Annex 2 Uncovered credit losses Page 39	Observation- This is a very relevant item to be disclosed. It is also important to clarify what happens in the extreme scenario that the CCP defaults and where the losses are supposed to be allocated.
Annex 2 Page 39	Recommendation- For CCPs , there should be an extra section on FMI links which should seek brief disclosure of description and nature of links with other CCPs, if any and how risks relating to such links are managed. The disclosure should cover summary of cross margining methodology, if any, including process for movement of margins between CCPs , statistics of maximum exposures on other linked CCPs on intra-day basis, default handling special arrangements, if any and the proposed approach to manage any contagion risk if one of the linked CCPs goes insolvent.

CCP12 Executive Committee and Members

Executive Committee

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- **Chair**: Luis Jorge Pelayo, Grupo BMV (Mexico);
- **Vice-Chair**: Siddharta Roy, CCIL (India);
- **Vice-Chair**: Marcus Zickwolff, Eurex Group (Germany)

Ordinary Executive Committee members:

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- Rory Cunningham, LCH.Clearnet (UK);
- Takeshi Hirano, JSCC/TSE (Japan);
- Paul Jones, ASX (Australia);
- Kevin King, HKEx (Hong Kong);
- Dale Michaels, CME (USA);
- Johan Rudén, NASDAQ OMX (Sweden);
- Karl Spielmann, DTCC (USA);
- Luis Vicente, BM&F Bovespa (Brazil); and
- Mike Walinskas, OCC (USA).

Members

ASX Limited (ASX)

BM&F Bovespa (BM&F)

The Canadian Depository of Securities Limited (CDS)

Canadian Derivatives Clearing Corporation (CDCC)

Cassa di Compensazione e Garanzia S.p.A. (CC&G)

CME Group (CME)

Cámara de Compensación y Liquidación (CCLV)

Cámara de Riesgo de Colombia (CRCC)

The Clearing Corporation of India Ltd (CCIL)

Depository Trust & Clearing Corporation (DTCC)

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LCH.Clearnet Group Ltd (LCH)

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Singapore Exchange Ltd (SGX)
SIX X-clear (SIX)
Taiwan Stock Exchange (TWSE)
Taiwan Futures Exchange (Taifex)
Tel Aviv Stock Exchange (TASE)

Note

CHAPS Co

15 June 2012

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To CPSS Secretariat
IOSCO Secretariat

Copy Bank of England Oversight

From Phil Kenworthy
Managing Director

CPSS-IOSCO ASSESSMENT METHODOLOGY AND DISCLOSURE FRAMEWORK CONSULTATION

Following the publication of the *Principles for financial market infrastructures* (PFMI) report, CHAPS Clearing Company Limited ("CHAPS Co") appreciates the opportunity to comment on the CPSS-IOSCO consultative documents *Assessment methodology for the principles for FMIs and the responsibilities of authorities* and the *Disclosure framework for financial market infrastructures*.

CHAPS Co is the system operator of the UK's high value real-time CHAPS sterling payment scheme. The CHAPS scheme processes and settles both systemically important and time-dependent payments using an enhanced real-time gross settlement (RTGS) system, where each individual payment is settled in real-time across its members' settlement accounts at the Bank of England.

CHAPS Co response to the two CPSS-IOSCO consultative documents

A. Assessment Methodology

CHAPS Co supports the *Assessment methodology for the principles for FMIs and the responsibilities of authorities* as a means for authorities to be provided with a basic set of information using a common framework for assessment and disclosure from which to begin their assessments of FMIs. At an international CPSS-IOSCO level, CHAPS Co have no specific comments as to whether the assessment methodology is appropriately comprehensive, sufficiently clear, or includes an appropriate level of detail.

B. Disclosure Framework

CHAPS Co supports the *Disclosure framework for financial market infrastructures* as a means for assisting FMIs in providing the level of disclosure that is expected under Principle 23 in the PFMI Report. Whilst at an international CPSS-IOSCO level, CHAPS Co have no specific comments as to whether the disclosure framework is appropriately comprehensive, sufficiently clear, or includes an appropriate level of detail, we are of the opinion where a payment system spans across two or more FMIs, the overseeing authority should ensure that disclosure occurs in a co-ordinated manner.

Phil Kenworthy
Managing Director
CHAPS Clearing Company Limited

Please note that the comments expressed herein are solely my personal views

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Munich
Germany

08 June 2012

- **Public comment on CPSS-IOSCO Consultative Report on Assessment methodology for the principles for FMIs and the responsibilities of authorities**

Dear Mr. Tucker and Mr. Kono.

Thank you for giving us the opportunity to comment on your Consultative Report on “Assessment methodology for the principles for FMIs and the responsibilities of authorities”. The assessment methodology provides a comprehensive framework for assessing and monitoring an FMI’s observance and compliance with each of the twenty four principles for financial market infrastructures, and the relevant authorities’ observance and compliance with each of the five responsibilities. This should help to improve confidence in financial market infrastructures and financial markets generally, promote market integrity and increase transparency and comparability across jurisdictions.

I support the assessment methodology and the practical matters to be considered when conducting an assessment, which include:

- access to information
- assessment of actual practice
- assessors’ background, experience and training
- assessment obstacles

I also broadly agree with the rating scale and language for communicating the assessment results. I would only add here that in practice, a rating of “Not Observed” may need to be accompanied by a recommended timeframe for addressing each identified concern, and with a clear escalation process should such timeframe not be agreed or accepted by the relevant party. This should help to improve investors’ and the general public’s perceptions of the effectiveness of the assessment framework, including the follow-up on assessment findings.

Framework for the comprehensive management of risks

Concerning principle 3 on risk management, an FMI would normally quantify and assess the net or residual risk, which is the risk net of any policies, procedures or controls in place to mitigate the risk. However, the FMI should also quantify and assess risk before allowing for any policies, procedures, controls or risk mitigations. Such a gross risk assessment is useful, as risk losses are caused and affected by both the extent of the gross risk and the effectiveness of the policies, procedures, controls and risk mitigations in place. A gross and net risk assessment would help the FMI to understand its potential risk losses if policies, procedures, controls or risk mitigations were ineffective, and also to help prioritise control assurance work. I would only recommend that this dual assessment should be considered in the questions by key consideration for principle 3 on risk management.

Yours sincerely

C.R. Barnard

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12 June 2012

- **Public comment on CPSS-IOSCO Consultative Report on Disclosure framework for financial market infrastructures**

Dear Mr. Tucker and Mr. Kono.

Thank you for giving us the opportunity to comment on your Consultative Report on “Disclosure framework for financial market infrastructures”. The disclosure framework will assist an FMI in preparing clear, consistent and comprehensive disclosure required under Principle 23. This will enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. It will also improve the transparency of FMI governance and operating structure, which should help to promote market integrity, increase transparency and facilitate comparability across FMIs and jurisdictions. Under Principle 23, an FMI should complete the disclosure framework and disclose the answers publicly on a regular basis.

The disclosure framework is sufficient and complete in order to meet the requirements under Principle 23. The framework includes an appropriate level of detail concerning quantitative and qualitative disclosure requirements. I agree with the structure of the proposed disclosure template, which consists of :

- Executive summary
- General description of the FMI
- Summary of major changes since last update

- Principle-by-principle narrative disclosure
- Annex of additional publicly available resources

This is clear, transparent and complete, and it should ensure that FMIs' disclosure is aligned to a common structure, which should facilitate comparability across all FMIs.

Yours sincerely

C.R. Barnard

Chris Barnard

clearstream | DEUTSCHE BÖRSE GROUP

CPSS-IOSCO

Consultative report on the Assessment methodology for the principles for FMIs and the responsibilities of authorities

Consultative report on the Disclosure framework for financial market infrastructures

Clearstream's response to the consultative reports

26 July 2011

Clearstream Banking AG, Frankfurt and Clearstream Banking S.A., Luxembourg (jointly referred to as Clearstream) appreciate the opportunity to comment on the public consultation on the "Disclosure framework for financial market infrastructures" as well as the "Assessment methodology for the principles for FMIs and the responsibilities of authorities" issued by CPSS-IOSCO.
As a wholly owned subsidiary of Deutsche Börse Group, Clearstream is one of the world's leading suppliers of post-trading services including settlement, safekeeping, and administration of securities, Clearstream welcomes the objective of the new Principles which will further harmonize at a global-level the existing international standards for central securities depositories (CSDs), and securities settlement systems (SSSs).

The settlement of market transactions and the custody of securities are Clearstream's most important fields of activity. In this environment Clearstream provides two fundamental services:
- International Central Securities Depository (ICSD): As an ICSD it has, over a period of over 40 years, developed a strong position in the international fixed income market. It handles the clearing, settlement and safekeeping of international securities and offers its customers the possibility to use Clearstream Banking as a single point of access for the settlement and custody of internationally traded bonds and equities across 50 markets.
- Central Securities Depository (CSD) for German domestic securities.

(I)CSDs have proven their resilience during the financial crisis, while playing a stabilizing role on the financial markets, in particular in facilitating the movement of collateral between counterparties at a time of severe liquidity stress and in ensuring the availability of global settlement liquidity to the financial centre. This has been a test for the (I)CSDs throughout the world that has proven the appropriate implementation of sound and safe risk management procedures and global best-practice standards. It needs to be ensured that newly introduced international rules and the proposed disclosure requirements do not affect the safety, efficiency and services innovation of the current post-trading arrangements.

Comments on the Consultative report on the Assessment methodology for the principles for FMIs and the responsibilities of authorities

1. While the approach of the two consultative reports seems very different from one another, from a respondent point of view the two are very closely linked in an ever growing transparency aim.

   We believe there is scope duplication between the Assessment methodology (AM) and Disclosure framework (DF). While you could argue that only FMIs are only obliged to publish the Disclosure framework, there has been a very strong incentive from the authorities for FMIs to publish the CPSS-IOSCO assessment against the Recommendations (which is likely to grow with the publication of the Principles).

   From a respondent perspective very often the response provided for the Assessment will be also used for the Disclosure framework, taking care to eliminate the confidential topics addressed which cannot be made public.

   An assessment methodology which would have taken into account the need to create a disclosure document within the same exercise would have been much preferred, and would have made the exercise much more efficient and less resources intensive.

2. Commenting on the Assessment methodology consultative report, has revealed itself very a very difficult task without having undertaken the self-assessment exercise: which in itself cannot be undertaken until the Assessment methodology will be finalised.
   With the aim to create an ever enhanced assessment tool, we reserve ourselves the possibility to provide additional comments on this Assessment methodology, at the time when the first self-assessment will need to be undertaken.

3. The customization approach proposed in the Assessment methodology is likely to create confusion once implemented, as this is designed to cover all of the types of FMIs: systemically important payment systems, central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs), and trade repositories (TRs).
   This solution is likely to create confusion once implemented as it requires the FMI to "chose" the relevance of each principle, and to "exercise some judgment" in the identification and classification of the Principles.
   We believe this solution is likely to create grey areas, which could easily lead to applying the "higher common denominator" and a general misinterpretation of the Principle's scope.

Comments on the Consultative report on the Disclosure framework for financial market infrastructures

1. Please refer to the comment 1 and 2 in the previous page, which also fully applies to the Disclosure framework

2. The consultative report dwells on a substantially strengthened set of principles, risk management obligations and transparency/disclosure requirements. We draw your attention (as we did for the Consultation on the Principles) to the fact that excessive disclosure could also be in contradiction with the data privacy rules applicable in several modern jurisdictions, and particularly true in Europe. These requirements (particularly the governance, most of the risks and business continuity) should be shared and discussed with Regulators and Supervisors, while their disclosure to participants should not be made mandatory.

3. We believe that the revised Disclosure framework proposed will not enhance transparency compared to the former disclosure framework as it relies entirely on "free text" responses which will make comparisons between different infrastructures quite difficult.

4. A major concern that afflicts the FMIs is the multiplicity of transparency requirements that apply to them. In the case of CSDs are not only expected to publish a yearly disclosure framework based on the CPSS-IOSCO framework, but also other disclosure questionnaires whose contents largely overlaps with the CPSS-IOSCO disclosure requirements.
   As an example (I)CSDs are currently already subject to publishing the following best practice and other compulsory information:
   - BIS Disclosure framework for securities settlement systems
   - Pillar III Disclosure Report according to the Basel II framework
   - ECSDA Disclosure framework
   - Questionnaire of the Association of Global Custodians
   - European Code of Conduct-related:
     - Unqualified independent assurance report on the Self-assessment Report
     - Fee Schedule
     - General Terms and Conditions
   - Statement on Auditing Standards (SAS) No. 70 by the American Institute of Certified Public Accountants (AICPA), soon to be replaced by the new SSAE 16 reporting standard.

We believe this could have been an opportunity to avoid duplication, by harmonising such requirements for FMIs at a global scale, making the disclosure exercise much more efficient and less resource intensive for FMIs.

For any further details or clarifications, please contact:

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June 15, 2012

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Ladies and Gentlemen:

CLS Bank International ("CLS") welcomes the opportunity to share its views on the consultative report on the *Assessment Methodology for the Principles for FMIs and the Responsibilities of Authorities* (the "Proposed Assessment Methodology") prepared by the Committee on Payment and Settlement Systems ("CPSS") and the Technical Committee of the International Organization of Securities Commissions ("IOSCO"). The Proposed Assessment Methodology, once finalized, is intended to provide a methodology for assessing the observance of the 24 principles and five responsibilities as defined in the CPSS-IOSCO report on *Principles for Financial Market Infrastructures* ("Principles"), published by CPSS and IOSCO in April 2012. The Principles provide standards for systemically important payment systems ("Payment Systems"), central securities depositories, securities settlement systems ("SSSs"), central counterparties ("CCPs") and trade repositories (together "FMIs").

CLS was established by the private sector as a payment versus payment ("PvP") system to mitigate settlement risk—loss of principal—associated with the settlement of payments relating to foreign exchange ("FX") transactions.[1] CLS is the predominant settlement system for FX transactions and provides a PvP settlement service for 17 currencies. These currencies represent a substantial majority of the total daily value of FX swaps and FX forwards traded globally.[2] Over the years, CLS has grown consistently with the FX market to mitigate settlement risk, which is generally considered to be the primary risk in FX transactions. Today, CLS serves over 60 Settlement Members, all of which are financial institutions subject to prudential supervision and regulation, and over 14,000 third-party users. While CLS is owned by many of the largest participants in the FX market, it continues to acknowledge and further the dual public-private purpose that gave rise to its creation.

The settlement service operated by CLS is viewed as a systemically important system for settling payment instructions relating to certain types of underlying foreign exchange and other transactions (i.e., FX contracts, NDF contracts and OTC credit derivative contracts) in specifically authorized currencies. As an Edge corporation, CLS Bank is regulated and supervised by the Federal Reserve under a program of ongoing supervision, combining full-scope and targeted on-site examinations with a variety of off-site monitoring activities.[3] In addition, the central banks whose currencies are settled in CLS have established a cooperative oversight arrangement for CLS (the "CLS Oversight Committee") as a mechanism for the fulfillment of their responsibilities to promote safety, efficiency, and stability in the local markets and payment systems in which CLS participates. The Federal Reserve organizes and administers the CLS Oversight Committee, which is the primary forum for the participating central banks to carry out their cooperative oversight of CLS, pursuant to the Protocol for Cooperative Oversight of CLS.[4]

I. General Comments on the Proposed Assessment Methodology

CLS recognizes the significant efforts of the regulatory community in creating the Proposed Assessment Methodology as a guide for the implementation of the Principles and broadly supports the Proposed Assessment Methodology. As a result, CLS's comments below are limited to those instances where CLS believes that the particular Key Element ("KE") or Question ("Q") relating to a Principle or Key Consideration ("KC") is either unclear or inappropriate when considered in light of the policy underlying the relevant Principle or KC.

CLS notes that many of its prior comments in response to the Consultative Report relating to the Principles were addressed in the adoption of the Principles.[5] Certain comments below mirror those comments to ensure that they are appropriately reflected in the corresponding KEs and Qs. In other cases, the comments below clarify CLS's earlier comments on the Consultative Report in cases where the comment is of continuing concern to CLS.

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1 *See* "Settlement Risk in Foreign Exchange Transactions," CPSS (March 1996) (the "Allsopp Report").

2 CLS provides other services to over-the-counter FX market participants, such as an Aggregation Service through CLS Aggregation Services LLC and an In/Out Swap Program through CLS Services Ltd.

3 CLS Bank operates pursuant to a charter issued by the Federal Reserve in accordance with Section 25A of the Federal Reserve Act of November 1999.

4 http://www.federalreserve.gov/paymentsystems/cls_protocol.htm

5 http://www.bis.org/publ/cpss101a.pdf

II. Specific Comments on the Proposed Assessment Methodology

Set forth below are CLS's comments and proposed changes relating to particular Qs and KEs.

A. Principle 1: Legal Basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

With respect to Q. 1.1.3, while CLS agrees that an FMI should strive to provide a high degree of legal certainty for material aspects of its activities in all relevant jurisdictions, CLS cautions that Q. 1.1.3 may be overbroad. Q. 1.1.3 suggests that an FMI must view material legal issues from its participants' perspectives as well as from its own perspective. An FMI is unlikely to have insight into all issues that are pertinent to each of its participants, save those that will have a monetary impact on a participant. It may also be difficult for an FMI to obtain legal opinions that provide a high degree of legal certainty on all of the material issues relating to its participants because the analysis of those issues may depend on information that is uniquely within the knowledge or control of the participants. As a result, CLS recommends that Q. 1.1.3 be revised as follows: "What is the legal framework and how does it provide a high degree of legal certainty for each material aspect of the FMI's activities in all relevant jurisdictions? Do/does the legal opinion(s)/analysis(es) examine all relevant legal aspects regarding the different perspectives (for example, the FMI's perspective or the participant's perspective if relevant)?"

For the sake of consistency with the Principle, KC 1.1, and the other KEs, CLS recommends that KE 1 to KC 1.1 and Q. 1.1.1 reference "a high degree" of legal certainty rather than the currently drafted "legal certainty." For example, KE 1 to KC 1.1 should read: "Identification of each material aspect of the FMI's activity requiring a high degree of legal certainty," and Q. 1.1.1 should read: "What are the material aspect(s) of the FMI's activities that require a high degree of legal certainty (for example, rights and interests in financial instruments, settlement finality, and netting)?"

CLS agrees that in order for an FMI to function as intended, it must adopt clear rules and procedures that are consistent with relevant laws and regulations. Nevertheless, CLS notes that with respect to Q. 1.2.1, it is not apparent how the term "clearly formulated" will be applied because the question does not identify from whose perspective the formulation of the rules, procedures, and contracts must be clear. CLS believes that it is implicit that "clearly formulated" rules, procedures, and contracts are to be evaluated in the context of the specialized and technical environment in which these rules operate, rather in the context of the general public. Those without knowledge of the FMI's operations may not easily understand rules that are clear and understandable to the FMI and relevant stakeholders. CLS suggests that Q. 1.2.1 might benefit from clarification in this regard. Additionally, it would be particularly onerous for an FMI to demonstrate that all of its rules, procedures, and contracts are clearly and understandably formulated. It would be more consistent with Principle 1 for Q. 1.2.1 and Q. 1.2.2 to address rules, procedures, and contracts that are material to the FMI's operation, its participants and its customers. Therefore, Q. 1.2.1 should be amended to read: "How has the

FMI demonstrated that its material rules, procedures, and contracts are clearly and understandably formulated?"

Additionally, with respect to Q. 1.2.2 generally, CLS recommends that references to inconsistencies in the FMI's rules, procedures and contracts be removed. For complex FMIs, it is burdensome and unnecessary to disclose each and every inconsistency. The vast majority of such inconsistencies are immaterial, alone or in the aggregate, to the operation of an FMI. Given that the Principle itself focuses on material aspects of an FMI's operation, the disclosure of immaterial inconsistencies would not further this purpose. Moreover, to the extent such inconsistencies have been remedied and are no longer outstanding (particularly if the inconsistency was immaterial to begin with) disclosure would not benefit participants. Therefore, CLS suggests that only those inconsistencies that have had or could have a material impact on an FMI should be disclosed.

Finally, with respect to Q. 1.2.2, CLS recommends that the question be amended to require an FMI to "demonstrate," rather than "ensure," that its "material rules, procedures, and contracts are consistent with relevant regulations." Given that Principle 1 itself requires a high degree of legal certainty rather than outright legal certainty, it is inconsistent to require an FMI to ensure compliance rather than demonstrate compliance to a high degree of certainty. An FMI cannot ensure that new regulations and laws, or their interpretations, will not conflict with its rules, procedures, and contracts. While CLS monitors the development of relevant laws, regulations, and interpretations in order to prevent such an occurrence, it is often unclear how courts or regulators will interpret new laws and issues, or how they will affect an FMI's rules, procedures, and contracts. Accordingly, CLS recommends that Q. 1.2.2 be revised to ask the following: "How does the FMI ~~ensure~~ demonstrate that its material rules, procedures, and contracts are consistent with relevant laws and regulations? For example, has a legal opinion confirmed that these are consistent with relevant laws and regulations? Are the FMI's material rules, procedures, and contracts reviewed or assessed by external authorities or entities? Do the FMI's rules, procedures, and contracts have to be approved before coming into force, by whom and how? ~~Have any inconsistencies been identified and remedied?~~"

Similar to the comments on Q. 1.2.1 and Q 1.2.2 above, CLS recommends that Q. 1.4.1, Q. 1.4.2, and Q 1.4.3 be revised to refer to "material" rules, procedures, and contracts. As previously noted, this construction is consistent with Principle 1 itself and with the Principles broadly (for example, Principle 23). Additionally, without this qualifier, the term "procedure" could be interpreted in an overly broad manner to include any aspect of an FMI's business. CLS believes that FMIs should generally obtain legal opinions only with respect to issues that are material to the operation of the FMI, and that these questions should be amended accordingly as follows:

- Q. 1.4.1 "How does the FMI achieve a high level of confidence that its material rules, procedures, and contracts related to its operations are enforceable in all relevant jurisdictions identified in KC 1.1? For example, has a legal opinion verified that the FMI's material rules, procedures (including default procedures), and contracts are enforceable in all relevant jurisdictions when a participant defaults or becomes insolvent, or when the FMI is implementing its plan for recovery or orderly wind down?"

- Q. 1.4.2: "What legal precedence, if any, could void or reverse the FMI's actions under its material rules, procedures, and contracts?"

- Q. 1.4.3: "How does the FMI achieve a high degree of certainty that its material rules, procedures, and contracts will not be voided, reversed, or subject to stays?"

Additionally, Explanatory Note 3.1.9. (at footnote 30) acknowledges that in certain circumstances rights triggered because of entry into resolution or the exercise of resolution powers may be subject to stays. CLS therefore suggests that Q. 1.4.3 be amended to reflect that possibility.

B. Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

With respect to Q. 2.2.4, CLS recommends that the disclosure of governance arrangements to the public occur "at a more general" level in order to maintain consistency between the question and KC 2.2, and therefore the question should be revised to ask: "How are the governance arrangements disclosed to owners, relevant authorities, users, and, at a more general level, the public?"

With respect to Q. 2.3.3, CLS agrees that a board of directors should have processes to address and manage conflicts of interest, however, the question appears to go beyond the scope of KC 2.3 and KE 3 by implying that there is a requirement that such processes be made public. CLS therefore recommends that the question be revised as follows so that it is consistent with the relevant KC and KE: "How does the Board identify, address, and manage conflicts of interest? What document describes these processes? Are such documents ~~public or~~ available to owners, relevant authorities, and users?"

C. Principle 3: Framework for the Comprehensive Management of Risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

CLS agrees that each FMI should have comprehensive risk management policies that encompass the risks related to each material aspect of an FMI's operation. Nevertheless, CLS notes that certain questions relating to Principle 3 may not be applicable to all of an FMI's operations. For example, it is not apparent from Q. 3.1.4 how an FMI's systems can always aggregate exposures across the FMI or other relevant parties. As a result, CLS suggests that the question should be revised to inquire: "How do these systems provide the capacity to aggregate exposures across the FMI or other relevant parties, where appropriate, such as the FMI's participants and their customers?"

Additionally, Q. 3.2.2 refers to information collected from a participant's customers. However, the corresponding KC 3.2 only encourages providing incentives to manage and contain risks to participants' customers "where relevant," and indeed CLS does not generally communicate directly with its participants' customers. Therefore, CLS recommends that Q. 3.2.2 be amended in the following manner: "What information does the FMI provide to its participants and their customers, where relevant, to monitor the risks they pose to the FMI? For example, does the FMI provide them information on their credit and liquidity exposures, overall credit and liquidity limits, and the relationship between the exposures and limits?"

CLS notes that Q. 3.2.3 refers to "policies and systems" for risk mitigation, while KE 3 to KC 3.2 refers to "policies, procedures, and systems." For the sake of clarity, this question should be amended to reflect the language of the KE. Moreover, similar to the comment on Q. 1.2.2 above, with respect to Q. 3.2.3, CLS notes that an FMI cannot "ensure" that its policies are effective. However, an FMI should "design" policies, procedures, and systems with the goal of effective risk mitigation, and thus CLS suggests that the question should be revised to read: "What policies and systems does the FMI have to enable participants to understand and manage risks? How does the FMI ~~ensure~~ design ~~that~~ its policies, procedures, and systems so that they are effective over time in allowing their participants and, as appropriate, their participants' customers to manage and contain their risks?"

Additionally, Q. 3.4.1 references processes used by an FMI to identify scenarios that may affect its critical operations or services. However, CLS notes that the use of "processes" is somewhat limited in scope and could be interpreted as referring to only to the high-level steps used by an FMI to identify scenarios affecting its critical operations and services. CLS proposes that the question should take a comprehensive approach and include all of the methods, rules, procedures, or otherwise, used by an FMI to identify such scenarios and therefore recommends the following amendments to Q. 3.4.1: "~~What are the FMI's processes to~~ How has the FMI identified~~y~~ scenarios that may potentially prevent the FMI from being able to provide its critical operations and services? What scenarios have been identified as a result of these processes?"

D. Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would

potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.

Q. 4.1.3 and Q. 4.1.4 ask the FMI to provide a description of its framework and evidence of the validity of its framework for managing the credit risks from its payment, clearing, and settlement processes. CLS notes that not all FMIs engage in payment, clearing, and settlement processes and thus are not subject to the attendant credit risks. For that reason, CLS recommends that these questions be amended as follows to require disclosure only as applicable:

- Q. 4.1.3: "What is the FMI's framework for managing credit risks from its payment, clearing and settlement processes, <u>as applicable</u>?"

- Q. 4.1.4: "What evidence supports the validity of the framework for managing credit risks from the FMI's payment, clearing, and settlement processes, <u>as applicable</u> (for example, backtesting)?"

With respect to Q. 4.3.1, CLS notes that the question implies that an FMI is required to have multiple types of financial resources to cover its current and future exposures. However, this is not reflected in KC 4.3, which provides that a payment system or SSS should cover its exposure to its participants "using collateral and other equivalent financial resources." Additionally, CLS notes that KC 4.3 is focused on the current and future exposures of each of the FMI's participants, rather than on the FMI's exposure generally. Therefore, CLS recommends that the question be revised as follows to both clarify this point and to reflect the language of the KC: "What composition of financial resources does the FMI use to cover its current and potential future exposures <u>to each participant</u>?"

KC 4.3 requires that a DNS payment system and a DNS SSS "maintain . . . sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system." Therefore, for the avoidance of doubt, CLS requests that Q. 4.3.4, which implements this portion of the KC, be amended as follows to reflect the language of KC 4.3 and KE 2: "If ~~the FMI~~ <u>a DNS payment system or DNS SSS</u> has credit exposures among its participants, do the FMI's financial resources cover, at a minimum, the default of the two participants and their affiliates that would create the largest credit exposure in the system?"

With respect to Q. 4.7.2, which asks about the rules and procedures related to the replenishment of an FMI's financial resources during a stress event, CLS notes that not every rule and procedure for dealing with a stress event will require the use of an FMI's funds. For example, an FMI may have rules or procedures that require its shareholders, participants, or customers to contribute capital in certain stress events. Therefore, CLS recommends that Q. 4.7.2 be amended as follows: "What are the FMI's rules and procedures on the replenishment, <u>as applicable,</u> of the financial resources that are exhausted during a stress event?"

E. Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

CLS appreciates the regulatory community's desire to require that FMIs be appropriately conservative in their acceptance, management and valuation of collateral. However, not every FMI is exposed to credit risk from its participants that requires attendant collateral. For example, CLS maintains a single multi-currency account in respect of each of its participants. While it permits negative balances in some currencies, it does so if and only if there are offsetting positive balances in the other currencies. Accordingly, under CLS' rules and procedures, the overall account balance for each participant must at all times remain positive for settlement to occur and CLS is therefore not subject to credit exposure resulting from participant liability in connection with a negative account balance. The laws of the jurisdictions in which CLS operates support this single account approach. Thus, FMIs such as CLS do not have credit exposures that require collateralization. For the sake of clarity, CLS therefore suggests the following amendment to question 5.1.1: "If applicable, what guidelines are used in determining whether a specific asset can be accepted as collateral, including for collateral to be accepted on an exceptional basis and the circumstances that would qualify as an exceptional basis?''

F. Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

With respect to Q. 7.7.2, CLS agrees that an FMI should be required to make available to its liquidity providers all relevant information that the liquidity provider may consider necessary to enable it to make an informed judgment about and manage the liquidity (and other) risks associated with the potential provision of liquidity to the FMI. However, it is impracticable and inappropriate to impose on the FMI the obligation to ensure that the liquidity provider adequately understands the risks associated with its liquidity commitment or that it has engaged in adequate due diligence. This obligation belongs to the liquidity provider, and, of course, would be an appropriate issue for its prudential regulator to consider as part of its supervisory activities with regard to the liquidity provider. Accordingly, CLS recommends that Q. 7.7.2 be amended to require that an FMI provide its liquidity providers with all information necessary to evaluate the risks associated with providing liquidity to the FMI, rather than requiring an FMI to ensure that the liquidity provider has actually engaged in its due diligence. This can be accomplished by changing the question as follows: "~~How, and on what basis, h~~ Has the FMI ~~determined that~~ provided each of its liquidity providers ~~has~~ with sufficient information to understand and to manage its associated liquidity risk in each relevant currency on an ongoing basis?"

Additionally, while CLS agrees that an FMI should have rules and procedures that are designed to enable the FMI to timely settle payment obligations following the default of any individual member, it would be exceedingly difficult for an FMI to ensure that its rules will enable timely settlement in every conceivable default scenario. Therefore, CLS recommends that Q. 7.10.1 be amended to as follows: "What are the rules and procedures that are designed to ~~would~~ enable the FMI to settle payment obligations on time following any individual or combined default among its participants?"

Moreover, for the sake of consistency, CLS suggests the following amendment to Q. 7.10.2 to reflect the language of KC 7.10 and Paragraph 3.7.18 of the Principles: "How, and to what extent, would these rules and procedures address unforeseen and potentially uncovered liquidity shortfalls aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations?" The current language suggesting an outright requirement does not reflect the Explanatory Note and would impose an unrealistic burden upon an FMI.

Finally, as discussed in reference to Q. 4.7.2 above, an FMI may have rules or procedures that do not require the use of its own capital in certain stress events. Therefore, CLS recommends that Q. 7.10.3 be amended as follows: "What rules and procedures does the FMI have in place for replenishing any liquidity resources employed during a stress event, if applicable?"

G. Principle 8: Settlement Finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

With respect to Q. 8.1.2, CLS notes that more than one body of insolvency law is relevant to CLS and many other FMIs and as a result recommends that Q. 8.1.2 be amended accordingly to ask: "How does the FMI's legal framework and rules, including applicable ~~the~~ insolvency law(s), acknowledge the discharge of a payment, transfer instruction, or other obligation between the FMI and its participants, or between participants?"

Moreover, with respect to Q. 8.1.3, CLS contends that it is not possible for an FMI to "ensure" settlement finality is achieved in the absence of an actual attempt to unwind a transaction in an actual insolvency. While CLS agrees that it is important to demonstrate settlement finality with a high degree of legal certainty, the question, as written, may suggest that FMIs must engage in guaranteed settlement, which is not the intent of the Principles or the Key Considerations. Therefore, CLS recommends that question Q. 8.1.3, be amended as follows: "How does the FMI demonstrate ~~ensure~~ that there is a high degree of legal certainty that finality will be achieved in all relevant jurisdictions?"

CLS agrees with the regulatory community's desire to ensure that an FMI completes final settlement no later than the end of the value date in normal circumstances. However, in unusual circumstances, such as during a market disruption, an FMI may not be able to ensure that settlement occurs on the value date and may determine that deferred settlement, pursuant to its rules and policies, is in the best interest of the FMI and/or its participants. Therefore, CLS recommends that Q. 8.2.1 be revised as follows: "Is the FMI designed, under normal circumstances, to provide final settlement on the value date (or same-day settlement)? How does the FMI attempt to ensure that final settlement occurs no later than the end of the intended value date?"

Additionally, CLS notes that deferral of final settlement can occur in circumstances that are not the result of the FMI's actions, and therefore suggests that the implication in Q. 8.2.2 that deferral is always preventable by an FMI is unwarranted. CLS recommends that Q. 8.2.2 be amended to encompass these circumstances and ask the following: "Has the FMI ever experienced ~~any~~ deferral of final settlement to the next business day that was not contemplated by its rules, procedures, and contracts? If so, under which circumstances? If deferral is a result of the FMI's actions, ~~W~~ what steps have been taken to prevent a similar situation in the future?"

With respect to Q. 8.2.3, CLS notes that not every FMI provides settlement on an intraday or real-time basis. Therefore, the question should be amended as follows to acknowledge that possibility: "~~How d~~ Does the FMI provide intraday or real-time final settlement? If so, how?"

Finally, with respect to Q. 8.2.5, CLS recommends that the question acknowledge instances where participants have access to their final account balances with the FMI, but the FMI does not affirmatively inform the participant of the balance. This concept can be incorporated by changing the question to ask: "Does the FMI inform participants of, or provide access to, final account balances as quickly as possible, preferably in real time?"

H. Principle 12: Exchange of Value Settlement Systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

As noted above, it is difficult for an FMI to "ensure" final settlement under all circumstances. However, CLS agrees that an FMI should "design" its settlement mechanisms to eliminate principal risk. Furthermore, CLS recommends that Q. 12.1.1, which asks about linked settlement, be broadened to reference "processes" in addition to "procedures." Thus CLS suggests that Q. 12.1.1 be amended as follows: "~~How does~~ Is the FMI's settlement mechanism designed so ~~ensure~~ that final settlement of relevant financial instruments eliminates principal risk? ~~What~~ Are the procedures or processes designed so ~~ensure~~ that the final settlement of one obligation occurs if and only if the final settlement of a linked obligation also occurs?"

Finally, with respect to Q. 12.1.3, CLS notes that the blocking of assets refers to

FMIs who do not engage in simultaneous settlement. As a result, CLS recommends that the question be amended as follows: "Is the finality of settlement of linked obligations simultaneous? If not, what is the timing of finality for both obligations? Is the length of time between the blocking and final settlement of both obligations minimized? If applicable, ~~A~~ are blocked assets protected from a claim by a third party?"

I. Principle 13: Participant-Default Rules and Procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

There are a variety of ways in which an FMI may use its own financial resources in the event of a participant default, if it uses them at all. Therefore, CLS suggests that Q. 13.1.4 and 13.1.5 be amended to clarify that the FMI's rules and procedures may afford discretion as to how the FMI allocates resources in a default scenario, and that Q. 13.1.4 should read: "How do the FMI's rules and procedures address the order in which, or provide discretion for how, financial resources can be used?" and Q. 13.1.5 should read: "How do the FMI's rules and procedures address the replenishment of resources, if applicable, following a default?"

Additionally, a number of questions, such as Q. 13.2.1, Q. 13.2.3, and Q. 13.3.2, would benefit from the following revisions, which would make each question consistent with the Explanatory Notes to the Principles—in particular Paragraphs 3.13.5 and 3.13.6:

- Q. 13.2.1: "Does the FMI's management have ~~clearly articulated~~ internal plans to address a participant default, which clearly delineate roles and responsibilities, including in respect to any discretionary procedures?"

- Q. 13.2.3: "How frequently are the internal plans ~~processes~~ to manage a default reviewed?"

- Q. 13.3.2 "Do they include: (a) the circumstances in which action may be taken; (b) who may take those actions; (c) the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds, and other assets; (d) the mechanisms to address an FMI's obligations to non-defaulting participants; and (e) where direct relationships exist with participants' customers, the mechanisms to help address the defaulting participant's obligations to its customers?"

With respect to Q. 13.4.2, CLS suggests further clarification. This question requires an FMI to "test the implementation of the resolution regime for its participants." A "resolution regime" describes a wide variety of potential "tools" at the disposal of regulators in different jurisdictions, which differ greatly depending on jurisdiction, facts and circumstances. An FMI cannot accurately predict which legal, financial, operational, or other requirements or practical issues will arise if such tool or tools were used and it is therefore unclear how an FMI would be able to test the implementation of a resolution regime. A more practical approach would be to require FMIs to address the extent to which they have incorporated the possibility of a participant's resolution regime into their rules and processes. Moreover, CLS notes that Q. 13.4.2 also appears to go beyond the scope of both the Principle and KC 13.4. While KC 13.4 requires an FMI to involve its participants in the testing and review of its default procedures, it does not require that the procedures test the implementation of a resolution regime as to its participants. Therefore, CLS recommends that Q. 13.4.2 be amended as follows: "To what extent does the FMI incorporate the possibility of a participant's resolution regime into its rules and/or processes? ~~What range of potential participant default scenarios and procedures do these tests cover? How does the FMI test the implementation of the resolution regime for its participants?~~"

J. Principle 15: General Business Risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

KC 15.3 states that "equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements." However, CLS notes that Q. 15.3.5, which reflects this portion of the KC, does not include the same "where relevant and appropriate" qualifier. For the sake of consistency, CLS suggests that the question should be rephrased to inquire: "If applicable, ~~W~~what guidelines are used in determining whether a specific asset can be accepted as collateral, including for collateral to be accepted on an exceptional basis and the circumstances that would qualify as an exceptional basis?"

K. Principle 16: Custody and Investment Risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

CLS agrees that an FMI should have procedures and safeguards in place to minimize delays and the risk of loss in its own investments. Therefore, the only comments CLS suggests would be changes to a number of questions, in particular, Q. 16.3.1, Q. 16.4.3, Q. 16.4.5 and Q. 16.4.6, to make each question consistent with Paragraphs 3.16.4 and 3.16.5 of the Explanatory Notes to the Principles:

- Q. 16.3.1: "How does the FMI evaluate and understand its exposures to its custodian banks? In managing those exposures, how does it take into account the full scope of its relationships with each custodian bank? For instance, does the FMI use multiple custodians for the safekeeping of its assets to diversify exposure to any single custodian? How does the FMI monitor concentration of risk exposures to its custodian banks?"

- Q. 16.4.3: "How does the FMI consider its overall exposure to an obligor in choosing investments? What investments are subject to limits to avoid concentration of credit risk exposures? Does the FMI invest participant assets in the participant's own securities or those of its affiliates?"

- Q. 16.4.5 and Q. 16.4.6: "How does the FMI ensure that its investments allow for quick liquidation~~?~~ ~~Q.16.4.6: How does the FMI ensure that its investments are exposed to~~ with little, if any, adverse price effects?"

CLS also notes that certain FMIs, such as CLS, may not have securities that are held by a custodian, and as a result Q. 16.2.2 should be amended to inquire: "How does the FMI ensure that it can have prompt access to its assets, including, if applicable, securities that are held with a custodian in another time zone or legal jurisdiction, in the event of participant default?"

L. Principle 17: Operational Risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfillment of the FMI's obligations, including in the event of a wide-scale or major disruption.

CLS agrees that all FMIs should establish a robust framework that is designed to identify the plausible sources of operational risk to which an FMI is exposed. However, while an FMI may design its system to identify operational risks with a high degree of certainty, it is not possible for an FMI to ensure that all risks will be identified. As a result, CLS suggests that a number of the questions would benefit from amendments that highlight this distinction:

- Q. 17.1.2: *See below for suggested amendments.*

- Q. 17.1.4: "What systems, policies, processes, and controls does the FMI employ that are designed to ensure that operational procedures are implemented appropriately? ~~To what extent~~ ~~d~~ Do the FMI's systems, policies, processes, and controls appropriately take into consideration relevant international, national, and industry-level operational risk-management standards?"

- Q. 17.1.6: "How, and to what extent, ~~do~~ are the FMI's change-management and project-management policies and processes designed to ensure that changes and major projects do not affect the smooth functioning of the system?"

- Q. 17.3.2: "How are ~~do~~ these objectives designed to ensure a high degree of security and operational reliability?"

- Q. 17.5.3: "How, and to what extent, are ~~do~~ the FMI's change-management and project-management policies and processes designed to ensure that changes and major projects do not affect the physical security of the system?"

- Q. 17.6.3: "How is ~~does~~ the contingency plan designed to ensure that the status of all transactions can be identified in a timely manner, at the time of the disruption and if there is a possibility of data loss, what are the procedures to deal with such loss (for example, reconciliation with participants or third parties)?"

- Q. 17.7.2: "If the FMI has outsourced some of its operations to an external service provider, how, and to what extent, ~~does~~ is the FMI designed to ensure that those operations meet the same reliability and contingency requirements they would need to meet if they were provided internally?"

Moreover, while an FMI's framework can be designed to identify extreme but plausible sources of operational risk, an FMI cannot design a framework to identify risks that are outside the realm of plausibility. The Principle itself recognizes this distinction by requiring an FMI to identify only "the plausible sources of operational risk." As a result, CLS suggest that Q. 17.1.1, Q. 17.1.2, Q. 17.5.1, and 17.5.4, which each refer to the "full range" of operational risks, be amended to refer to "plausible sources" of operational risks to reflect the language and intent of the Principle.

- Q. 17.1.1: "What are the FMI's policies and processes for identifying the ~~full range~~ plausible sources of operational risks on an ongoing basis?"

- Q. 17.1.2: "What are the sources of operational risks identified by the FMI? How are ~~do~~ the FMI's processes designed to identify ~~ensure that~~ the ~~full range~~ plausible sources of operational risks ~~is identified~~, whether these risks arise from internal sources (for example, the arrangements of the system itself, including human resources), from the FMI's participants, or from external sources? How has the FMI identified and addressed potential single points of failure, if any, in its operations?"

- Q. 17.5.1: "What are the FMI's policies and processes for identifying, monitoring, assessing, and managing the plausible sources ~~full range~~ of physical vulnerabilities and threats on an ongoing basis?"

- Q. 17.5.4: "What are the FMI's policies and processes for identifying, monitoring, assessing, and managing the ~~full range~~ plausible sources of information security vulnerabilities and threats on an ongoing basis?"

Likewise, CLS notes that KC 17.2 and the relevant Explanatory Notes do not require an FMI to have its operational risk management framework subject to an external audit. While certain FMIs may be required to engage in an external review of operational risk management framework by a regulator, a review is not always required, particularity when the

FMI has demonstrated proper operational risk management systems. Therefore, CLS recommends that Q. 17.2.4 be amended as follows: "To what extent, if necessary, is the FMI's operational risk-management framework subject to external audit?" This will clarify that although an external audit may be appropriate, it is not required to satisfy the Principles.

Additionally, to ensure proper focus with respect to KC 17.3 and KE 2, CLS recommends that Q. 17.3.5 refer to operational reliability objectives rather than to all of the FMI's objectives by asking: "What are the processes to review the FMI's operational reliability objectives and performance and take appropriate action as needed?"

With respect to Q. 17.5.2, CLS notes that the KC and the Explanatory Notes to the Principles do not require that the FMI document deviations from its security policies and risk mitigations. CLS therefore recommends the following amendment to the question: "~~To what extent d~~ Do the FMI's policies, processes, controls, and testing appropriately take into consideration relevant international, national, and industry-level standards for physical security? ~~How are deviations from the security policies and risk mitigations documented?~~"

Finally, with respect to Q. 17.5.6, the question as drafted might be read to imply that an FMI is required to test its systems' resilience with outside experts. However, as reflected in the Explanatory Notes to the Principle and the Key Consideration (which do not require such outside reliance testing), such testing may not always be appropriate. Therefore, CLS recommends that the question be amended as follows: "How, and to what extent, are ~~do~~ the FMI's change-management and project-management policies and processes designed to ensure that changes and major projects do not affect the information security of the system? What reliance, if any, is placed on outside expertise to test resilience?"

M. Principle 18: Access and Participation Requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

CLS supports fair and open access to FMIs. However, KC 18.1 and the Principle itself acknowledge that fair and open access must be based on risk-related participation requirements designed to ensure that participants "have the requisite operational capacity, financial resources, legal powers, and risk-management expertise to prevent unacceptable risk exposure for the FMI and other participants." Q. 18.1.2, which inquires whether there is any evidence that and FMI's open access requirements are successful, should therefore be amended as follows: "What evidence is there that these requirements allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements?"[6]

With respect to Q. 18.3.1, an FMI cannot ensure, under all circumstances, that the information used to monitor its compliance with the participation criteria is timely and accurate; although an FMI should certainly strive to have policies that are designed to ensure that the

[6] Paragraph 3.18.1 of the Final Principles.

information is as accurate as possible. CLS suggests that the question be amended as follows: "How does the FMI monitor the participants' ongoing compliance with the access criteria? How are ~~does~~ the FMI policies designed to ensure that the information it uses to monitor compliance with participation criteria is timely and accurate?"

Finally, Q. 18.3.1 addresses disclosure of the FMI's procedures for managing suspension and orderly exit of a participant. Because the question could be read to require disclosure, which goes beyond the requirements in KC 18.3, CLS suggests that the question be amended as follows: "~~How and to whom~~ Are the FMI's procedures for managing the suspension and orderly exit of a participant disclosed?"

N. Principle 22: Communication Procedures and Standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

CLS notes that, as drafted, Q. 22.1.1 could be read to require an FMI to communicate with customers of its participants. No such requirement is reflected in KC 22.1 and, moreover, certain FMIs are not designed to require direct communication between the FMI and its participants' customers. As a result, CLS recommends that the question be amended as follows: "How do the FMI's operational procedures, processes, and systems use or otherwise accommodate internationally accepted communication procedures to interact with participants~~,~~ ~~the customers of participants,~~ and other connected parties (including, where relevant, other linked FMIs or the customers of participants)?"

O. Principle 23: Disclosure of Rules, Key Procedures and Market Data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

CLS agrees that an FMI should have rules and procedures that provide sufficient information to enable its participants to have an accurate understanding of the FMI's business. However, CLS suggest revisions to a number of the questions in order maintain consistency with the Explanatory Notes to the Principles‒in particular Paragraphs 3.23.1, 3.23.2, 3.23.3, and 3.23.5. The suggested revisions are as follows:

- Q. 23.1.1: "Which documents comprise the system's rules and procedures so that participants can fully understand the system's design and operations, their rights and obligations, and the risks of participating in the system?"

- Q. 23.1.3: "What information do the FMI's rules and procedures contain on procedures it will follow in non-routine, though foreseeable, events?"

- Q. 23.2.4: “How and to whom does the FMI disclose the degree of discretion it can exercise over key decisions that directly affect the operation of the system?”

- Q. 23.3.3: “In the event that the FMI identifies a participant whose behaviour demonstrates a lack of understanding~~,~~ of the FMI’s rules, procedures, and risks of participation; what remedial actions are taken by the FMI?”

With respect to Q. 23.1.2, it is not apparent how the term “clearly articulated” is to be applied because the question does not identify from whose perspective the formulation of the relevant rules and key procedures must be clear. CLS avers that it is implicit that “clearly articulated” rules and procedures must be evaluated in the context of the specialized and technical environment in which these rules operate, rather than in the context of the general public. Parties without knowledge of the FMI’s operations may not easily understand rules that are clear and understandable to the FMI, its participants, and regulators. Thus, Q. 23.1.2 would benefit from clarification in this regard.

Likewise with respect to Q. 23.3.2, while an FMI should be required to provide its participants with sufficient information. It would be unduly burdensome to require an FMI to ensure that its participants actually understand the risks related to the FMI. Moreover, many FMIs’ participants are sophisticated financial institutions who are required by their regulator to understand and appreciate the risks related to the FMI. As a result, this burden appropriately lies with the participant, rather than the FMI, which may not have sufficient knowledge of its participants’ understanding. Therefore, given that there does not appear to be any basis in the Principle, the Key Considerations, or the Explanatory Notes for this requirement, CLS recommends that this question be deleted.

Finally, with respect to the latter portion of Q. 23.4.4 relating to the comparability of definitions, there does not appear to be any basis in the Key Considerations or the Explanatory Notes to the Principle for this requirement. While, subject to the comment above, an FMI is required to have clearly formulated rules and procedures that conform to the relevant regulatory requirements, it would be unduly burdensome to require that an FMI further conform its rules to match those of its competitors (assuming this is possible). CLS also notes that such coordination among competitors may raise legal issues, e.g., under antitrust or competition laws. As a result, CLS recommends that this portion of the question be deleted so that the question only asks: “How does the FMI define its priced services? ~~Is there evidence that service definitions are clearly described in a manner that allows for comparability?~~”

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CLS appreciates this opportunity to comment on the Proposed Assessment Methodology and remains available to answer any questions that CPSS and IOSCO may have concerning this letter.

Sincerely,

Gerard B.J. Hartsink
Executive Chairman

CME Group

Phupinder S. Gill
Chief Executive Officer

June 13, 2012

VIA ELECTRONIC MAIL

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Bank for International Settlements
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Secretariat
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Re: Consultative Reports: *Assessment methodology for the principles for FMIs and the responsibilities of authorities* and *Disclosure framework for financial market infrastructures*

Ladies and Gentlemen:

CME Group Inc. (CME Group), on behalf of its subsidiaries Chicago Mercantile Exchange Inc. (CME) and CME Clearing Europe Ltd. (CMECE), would like to express appreciation to the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) for the opportunity to comment upon their consultative reports: *Assessment methodology for the principles for FMIs and the responsibilities of authorities* (the Assessment Methodology), and *Disclosure framework for financial market infrastructures* (the Disclosure Framework). CME's clearing house division (CME Clearing) offers clearing and settlement services for exchange-traded futures contracts, and for OTC derivatives through CME ClearPort. CME is registered with the U.S. Commodity Futures Trading Commission (CFTC) as a derivatives clearing organization and as a designated contract market. CMECE is authorized by the U.K. Financial Services Authority (FSA) as a recognised clearing house. At present, CMECE offers clearing and settlement services for OTC commodity derivatives.

CME Group previously commented on the March 2011 CPSS-IOSCO consultation report on *Principles for financial market infrastructures* (PFMIs), which preceded the final version of the PFMIs issued in April 2012. In submitting the present letter, we are mindful that CPSS and IOSCO do not seek further comments on the PFMIs but have requested comments on the relatively narrow subjects of whether the Assessment Methodology and Disclosure Framework are "appropriately comprehensive", "sufficiently clear", and "include an appropriate level of detail".[1]

I. Assessment Methodology

Section 4 of the PFMIs sets forth responsibilities of central banks, market regulators and other relevant authorities for effective oversight, supervision and regulation of FMIs. The Assessment Methodology is

[1] *Cover note to final report and two consultative documents* (16 April 2012) (Cover Note), at 3, 4.

designed for use by national authorities (*e.g.,* the CFTC and FSA) and external assessors at the international level (*e.g.,* the World Bank and the International Monetary Fund) as "a tool to promote the implementation and ongoing observance of the principles and responsibilities to help ensure objectivity and comparability across all relevant jurisdictions."[2] National authorities are expected to utilize the Assessment Methodology, or develop an equally effective methodology, for oversight of FMIs in their own countries.

CME Group supports this approach, which aligns with the statement in our previous letter that "the consistent adoption of high standards on an international plane is of increasing importance", but "assessment on a national basis is appropriate."[3] We do not believe it is necessary or appropriate to attempt to superimpose any sort of international supervisory or enforcement regime on what is envisioned in the PFMIs and Assessment Methodology.

II. <u>Disclosure Framework</u>

The overarching purpose of the Disclosure Framework is "to help promote a better understanding of [each] FMI's operations and its impact on participants and the market it serves."[4] Toward this end, each FMI must create and make available on its web site a *Principle-by-principle narrative disclosure* (Narrative Disclosure). Preparation of this document will be a significant undertaking:

> An FMI should provide a comprehensive narrative disclosure for each key consideration for each relevant principle, including the key elements listed in the assessment methodology under each key consideration. For the disclosure to be considered complete, the FMI's must cover at a minimum all of these key elements.[5]

For CCPs, the content of the Narrative Disclosure includes 22 principles, approximately 95 key considerations, and approximately 200 key elements.

FMIs that are CCPs must also create and make public the *Key metrics for CCPs* (Key Metrics). This document addresses 24 subjects in the categories of margin, default fund, capital, uncovered credit losses, investment risk, liquidity risk and segregation arrangements. It is designed "to enable stakeholders, including the general public, to evaluate and facilitate cross-comparison of the systemic importance of FMIs in the market(s) they serve as well a[s] the risks they might bring to these markets and the costs and risks associated with becoming a member."[6]

A. *Content of Key Metrics for CCPs*

We appreciate that the underlying purpose of the Key Metrics is to enable people to compare CCPs by reviewing a fairly short and straightforward document prepared by each CCP that lists certain disclosable quantitative information and closely related short descriptive items. With that purpose in mind, we are

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[2] *Id.* at 2.

[3] Letter from CME Group (Kim Taylor, President of CME Clearing, Andrew Lamb, CEO of CMECE) to CPSS and IOSCO (July 28, 2011), at 1, n. 2.

[4] Cover Note at 3.

[5] *Disclosure Framework for financial market infrastructures* (April 2012) (Disclosure Framework), at 2.

[6] Cover Note at 4.

concerned that, in its current form, the Key Metrics mixes metrics with descriptions and contains double-counting of items that have natural homes in the Narrative Disclosure. The most notable non-metric item on the list is segregation arrangements (whose location, unaccompanied, at the end of the list seems indicative of an after-thought). The longer descriptive items under initial margining and segregation should be left to the Narrative Disclosure, under appropriate principles.

B. *Timing Requirements*

CME Group supports the transparency goals underlying the Disclosure Framework and Key Metrics and realizes the critical importance of providing market participants, regulators and the general public with thorough, accurate and meaningful information regarding each CCP and the markets it serves. Given the significance and scope of the Narrative Disclosure and Key Metrics, it would be helpful to provide clarity on the time frame in which CCPs are expected to make these documents available.

We note that the final version of the Disclosure Framework will not be published until "later in 2012", after the CPSS and IOSCO have reviewed all comments.[7] Furthermore, as explained in the co-chairs' summary note for the PFMIs, national authorities must take steps to implement the PFMIs in their own countries:

> CPSS-IOSCO members will strive to adopt the new principles by the end of 2012 and put them into effect as soon as possible. FMIs are also expected to observe the principles as soon as possible. In the coming months, the CPSS and IOSCO will conduct outreach activities to inform FMIs, authorities and the general public about the principles.[8]

In addition, for many FMIs, the recovery and resolution plans referenced in Principle 15 are not a current regulatory requirement and further guidance from national authorities is necessary. The CPSS and IOSCO have also indicated they are doing further work in this area:[9]

> …the CPSS and IOSCO are engaged in additional work on the resolution of FMIs. This work will aim to provide guidance for designing recovery and resolution regimes. This work will aim to provide guidance for designing recovery and resolution regimes for FMIs consistent with [the Financial Stability Board's] *Key attributes of effective resolution regimes for financial institutions* while taking into account special characteristics of FMIs.[10]

We believe the PFMI's public policy objective of efficiency would be undermined if FMIs were required to prepare comprehensive narrative disclosures regarding their compliance with the principles before (i) the Disclosure Framework is finalized, and (ii) regulators have promulgated the necessary implementing

[7] Cover Note at 2.

[8] *Co-chairs' summary note for the CPSS-IOSCO Principles for financial market infrastructures* (16 April 2012) (Summary Note), at 8.

[9] We look forward to the opportunity to comment on forthcoming guidance from the CPSS and IOSCO concerning FMI resolution and recovery regimes. We are particularly concerned that the regulatory requirements of such regimes focus on the FMI itself, and not extend beyond the FMI to each of its corporate affiliates without considering the costs and benefits of such an approach.

[10] Summary Note at 8.

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regulations.[11] We therefore ask for confirmation that, while FMIs are expected to observe the principles as soon as possible, they are not expected to make the Narrative Disclosure or the Key Metrics readily available until (i) the Disclosure Framework is finalized, and (ii) the requisite implementing regulations are put in place by the relevant national authorities.

C. *Frequency of Updates*

Given the depth and breadth of information required to be included in the Narrative Disclosure and Key Metrics, CCPs will need to update these documents to reflect changes in factual circumstances and applicable regulations. With regard to the Narrative Disclosure, the CPSS and IOSCO have advised that "[a] comprehensive review of the answer should be performed periodically (at least every two years) to ensure continued accuracy, expect in case of a material change in an FMI's design and risk management in which case the update should be conducted before."[12] We ask for confirmation that CCPs will be given reasonable discretion, subject to review by their national authorities, to determine which changes are "material" and, thus, necessitate an update of the Narrative Disclosure.

The CPSS and IOSCO have stated that the information contained in the Key Metrics "would need to be updated more frequently than that of the present disclosure framework to ensure it accurately reflects the situation of the FMIs."[13] We note that certain line items in the Key Metrics – such as total collateral held (cash and non-cash) and proportions of non-cash collateral held by collateral type – change daily. Others – such as size of the default fund – change regularly as clearing members join and/or withdraw and the fund is resized to reflect market activities. Some items – such as number of "non-routine" margin calls – are to be identified over the period of the past 12 months. We suggest that items relating to collateral held and default-fund sizing also be identified over the last 12 months. This would eliminate the need for CCPs to constantly update the Key Metrics document to reflect routine changes in collateral held and default-fund sizing, which would not be in keeping with the PFMI's public policy objective of efficiency.[14]

D. *Confidentiality*

The Disclosure Framework makes the important point that "[a]n FMI should be careful not to disclose confidential information" in the Narrative Disclosure.[15] We note, however, that certain items in the Narrative Disclosure could be interpreted to require FMIs to make public certain documents and information that may be considered confidential in the FMI's home country, either for regulatory or commercial purposes. As one example, key consideration 3 under Principle 19 (Tiered participation arrangements) requires a CCP to identify "key indirect participants" (*i.e.,* customers of its clearing members). While the identities of our clearing members are made public, we do not make public the identities of our clearing members' customers to the extent that we have such information. As another example, key consideration 5 under Principle 9 (Money settlements) requires each CCP to disclose provisions of its "legal agreements with its settlement banks." We consider such legal agreements to be confidential and non-public, subject to review by regulators who, in turn, are obligated to comply with various confidentiality provisions in national laws.

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[11] See *Principles for financial market infrastructures* (April 2012) (PFMIs), p. 11-12, ¶ 1.18 ("Efficiency as public policy objective").

[12] Cover Note at 4.

[13] *Id*.

[14] See PFMIs, p. 11-12, ¶ 1.18 ("Efficiency as public policy objective").

[15] Disclosure Framework at 3.

We ask for confirmation that FMIs will be given reasonable discretion, subject to review by their national authorities, to determine how best to respond to items in the Narrative Disclosure without revealing information that the FMI reasonably deems to be confidential.

E. *Principle 2: Governance*

Certain key considerations and key elements under Principle 2 relate to "the FMI's board of directors (or equivalent)."[16] These include, among other things, "review of board's performance" and identification of "procedures for the functioning of the board", "the appropriate skill sets for board members" and "appropriate incentives for board members."[17] As observed in the PFMI's, "[n]o single set of governance arrangements is appropriate for all FMIs and all market jurisdictions. Arrangements may differ significantly because of national law, ownership structure, or organisational form."[18]

As noted above, CME Clearing is a division of CME which, in turn, is a subsidiary of CME Group. Because of that corporate structure, our "equivalent" to the board of an FMI that is a defined legal entity is our risk committees, and our Narrative Disclosures will follow CPSS-IOSCO's recognition of equivalence and differences in organizational form.

F. *Opportunity for Review by National Authorities*

Finally, given the importance of the Narrative Disclosure and Key Metrics and the fact that the requirement to create them is new, we suggest that CCPs be afforded the opportunity to submit these documents in draft form to their national regulators for review and comment before making them public. We believe this would encourage a higher degree of consistency in these documents across FMIs. We ask the CPSS and IOSCO to urge national authorities to make themselves available to review Disclosure Framework documents in draft form if requested to do so by FMIs within their jurisdiction.

Again, we appreciate this opportunity to provide the Committee members with our comments. If you have any comments or questions about our submission, please feel free to contact me by telephone at (312) 930-3088 or by e-mail at Phupinder.Gill@cmegroup.com; or Lisa Dunsky, Executive Director and Associate General Counsel, by telephone at (312) 338-2483 or by e-mail at Lisa.Dunsky@cmegroup.com.

Sincerely,

Phupinder S. Gill

Phupinder S. Gill
Chief Executive Officer

[16] *Id*. at 6.

[17] *Id.* at 6-7.

[18] PFMIs, p. 27, ¶ 3.2.4.

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June 15, 2012

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Systems
Bank for International Settlements
Centralbahnplatz 2
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Technical Committee
International Organization of Securities
Commissions
C/ Oquendo 12
28006 Madrid
Spain

Ladies and Gentlemen:

The Depository Trust & Clearing Corporation ("DTCC") appreciates the opportunity to comment on the consultative report on "Disclosure Framework for Financial Market Infrastructures" (the "Consultative Report"), and the proposed framework for disclosure set forth in the Consultative Report ("Disclosure Framework") published in April 2012 by the Committee on Payment and Settlement Systems ("CPSS") and the Technical Committee of the International Organization of Securities Commissions ("IOSCO").

The Consultative Report was published in connection with the publication of the final "Principles for Financial Market Infrastructures," which sets forth 24 principles (the "Principles") constituting a single set of international standards for the oversight and regulation of financial market infrastructures ("FMIs"). Also published in connection with the Principles and the proposed Disclosure Framework was a consultative report on a proposed assessment methodology ("Assessment Methodology") that can be used to assess whether an FMI is observing the Principles. (Except as noted below in connection with the proposed Disclosure Framework, DTCC is not commenting on the Assessment Methodology.) Capitalized terms used in this letter have the meanings specified in the Principles.

As indicated in the Cover Note that accompanied the publication of the Principles, comments on the proposed Disclosure Framework and the proposed

Assessment Methodology are due by June 15, 2012. After that, CPSS and IOSCO expect to publish final reports on the Disclosure Framework and the Assessment Methodology by the end of 2012. The current CPSS and IOSCO expectation is that CPSS and IOSCO members will strive to adopt the new Principles by the end of 2012 and put them into effect as soon as possible. FMIs are expected to observe the Principles as soon as possible.

The Principles represent the culmination of an important effort to update, consolidate, strengthen and harmonize international standards for the oversight and regulation of systemically important FMIs, reflecting lessons learned from the recent financial crisis and new thinking about operations, governance, risk management, access and efficiency. DTCC supports the enhanced standards for FMIs reflected in the Principles, and supports the Principles as a framework for achieving desirable uniformity and consistency in the standards applicable to all FMIs, subject only to such variations in application as may be required by the constraints of applicable law, market practice and the financial asset classes eligible for an FMI's specific services. DTCC also broadly supports the proposed Disclosure Framework, although we note below those areas where we would recommend clarification or modification.

Structure of Proposed Disclosure Framework

The proposed Disclosure Framework sets forth the information that an FMI should publish in response to Principle 23: "Disclosure of rules, key procedures and market data," in order for the FMI to be transparent about the risks, fees and other material costs that participants and prospective participants incur by participating in the FMI. The proposed Disclosure Framework is comprised of five sections: (i) an executive summary; (ii) a general description of the FMI, including its organization, the market(s) it serves, and a table of "key metrics" of the FMI, for which a template for CCPs was provided as part of the proposed Disclosure Framework; (iii) a summary of major changes to the FMI's responses since the last update; (iv) a narrative disclosure on a Principle-by-Principle basis; and (v) an annex of additional publicly available resources.

The proposed Disclosure Framework would require each FMI to provide comprehensive narrative disclosure for each Key Consideration for each Principle that is relevant to the FMI. Such disclosure must address each Key Element listed in the proposed Assessment Methodology for each Key Consideration, and such disclosure should provide sufficient detail and context to enable the reader to understand the FMI's approach to or method for observing each Principle.

The proposed Disclosure Framework further provides that the FMI's responses should be thorough and at an appropriate level of detail to (i) provide substantive descriptions of key risks, policies, controls, rules and procedures on a Principle-by-Principle basis, (ii) provide current and prospective participants, other market participants, authorities and the general public with a comprehensive understanding of the FMI, its role in the markets it serves, and the range of its relationships, interdependencies and interactions (*e.g.,* key links, key service providers, and participants), and (iii) improve transparency of the FMI's governance, risk-management and operating structure in order to inform and facilitate comparisons among FMIs by current and prospective participants, other market participants, authorities and the general public.

The proposed Disclosure Framework provides that an FMI's responses must be updated following material changes to the FMI's system or its environment and that the section titled "Summary of Major Changes" must highlight material changes and updates to the FMI's design and services. The Cover Note and the proposed Disclosure Framework provide that the disclosure should be complete and accurate on an on-going basis, that FMIs should regularly review their responses to the Disclosure Framework and update their responses as soon as possible after significant changes, and that an FMI must perform a periodic comprehensive review of its responses no less than once every two years.

The proposed Disclosure Framework also provides that the FMI's responses are to be made readily available through generally accessible media, such as the Internet, and that an FMI should not disclose confidential information in its responses.

DTCC Comments on Proposed Disclosure Framework

DTCC broadly supports the proposed Disclosure Framework and respectfully submits the following comments that it believes will further enhance the goals of providing comprehensive disclosure that is user-friendly, has as little duplication and redundancy as possible, and promotes consistent disclosures of information by FMIs globally.

<u>General</u>

The proposed basis for disclosure using a Principle-by-Principle narrative and including a comprehensive discussion of each Key Consideration and each Key Element will entail an extensive undertaking by each FMI, even for those that currently provide a significant amount of information publicly. While CPSS and

IOSCO undoubtedly recognize the extensive nature of the changes in international standards reflected in the Principles, we believe that, in establishing global expectations with respect to the date by which FMIs will be required to provide their first set of responses to the Disclosure Framework, CPSS and IOSCO should also be cognizant of the extensive resources that FMIs will have to expend in order to prepare the initial set of responses (which will be coupled with the cumulative impact of the changes in systems and procedures — and the aggregate costs of such changes — that may also be required on the part of FMIs and their participants in order for FMIs to be fully compliant with the heightened standards reflected in the Principles).

Given that the Disclosure Framework is to be made publicly available, and thus will serve to provide information not only to the FMI's participants, applicants and regulators, but also to the general public, it should be made clear that the Disclosure Framework is intended to give an overview of the FMI and its organization, but not describe in detail all of its policies and procedures. CPSS and IOSCO recognize in the Consultative Report that an FMI's responses to the Disclosure Framework are intended to provide assessors with a basic set of information from which to *begin* their assessments of FMIs. DTCC believes that this recognition should be extended to all users of the FMI's responses. While an FMI's responses to the Disclosure Framework will be comprehensive, they will necessarily be an overview and should not be viewed as a substitute for a due diligence review of the FMI and its operations by applicants, participants or other stakeholders.[1]

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[1] In this vein, we question the practicality of some of the questions posed in the Assessment Methodology for Principle 23 — which asks an FMI whether there is evidence that the means by which the FMI facilitates its participants' understanding of the FMI's rules, procedures and risks of participating in the FMI enable and actually result in participants understanding the FMI's rules, procedures and risks they face from participation in the FMI and, should the FMI identify a participant that demonstrates a lack of understanding, what remedial actions would the FMI take. This puts the burden on the FMI to determine whether its participants have an appropriate level of understanding. While the Disclosure Framework should go a long way in providing a basic level of understanding, it should not be viewed as a substitute for review of the FMI's actual rules and procedures, or of the other materials an FMI makes available to applicants and participants.

DTCC also believes that, given the extensive amount and nature of the disclosures required, the process can and should be streamlined where practical to avoid duplicative or redundant disclosure. For example, there is considerable overlap in the Key Elements for each of the Key Considerations under Principle 2 (Governance), for Principle 6 (Margin) and for Principle 7 (Liquidity Risk). One way to streamline the process would be to permit an FMI to combine narratives for different Key Considerations, provided the disclosure is in a comprehensible narrative that addresses all of the relevant elements.

In addition, and very importantly, it should be made clear that if an FMI prepares a self-assessment based on the Assessment Methodology framework (including responding to the specified questions), then the publication of that report (other than any portion thereof that contains confidential, sensitive or proprietary information) would satisfy the FMI's obligation to provide responses under the Disclosure Framework.

As regards the disclosure of confidential or sensitive information, while the proposed Disclosure Framework acknowledges that FMIs should not disclose confidential information in their responses, there is some tension given the quantity and type of information required to be disclosed. The final Disclosure Framework should make clear that an FMI is not required to disclose information that is sensitive, proprietary or confidential. In some cases the disclosure of sensitive information may not promote market stability but rather possibly have an opposite effect (e.g., the disclosure of actual stress test results or non-routine margin collections for individual participants if that information is misunderstood or taken out of context). In other cases disclosure should be made only at a high level given an FMI's appropriate security concerns, as, for example, any discussion with respect to cyber security controls, specifics about business continuity sites and the like. In these instances it may be appropriate for the FMI's supervisor/assessor — who is going to form a conclusion as to the adequacy of the FMI's protections in these areas — to provide a statement (or permit the FMI to make a statement) to the public regarding the adequacy of the FMI's relevant protections. These matters should be covered by a high-level general discussion of the FMI's methods and procedures for compliance with the Principles in these areas.[2]

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[2] In this regard we support the approach advocated by the European Association of Clearing Houses (EACH) that "as a principle an FMI should be required to disclose the 'how' (procedures used to obtain qualitative and

List of Key Metrics

DTCC has the following comments on the list of key metrics provided for CCPs:

Limit list to numbers, currency amounts, and percentages. DTCC believes that the list of key metrics would be more useful to readers if it was limited to actual metrics, i.e., numbers, currency amounts and percentages. In particular, DTCC believes that this section of an FMI's responses to the Disclosure Framework should not require the FMI to describe policies or otherwise provide responses that require narrative disclosure or discussion, particularly where the narrative disclosure or discussion is provided elsewhere in the FMI's response to the Disclosure Framework. Examples of line items provided in the template for CCPs that require descriptions of policies or narrative disclosure or discussion include: "Summary description of margin methodology"; "summary of netting arrangements across positions/products"; "Discussion of ability to call additional contributions from participants"; "Explanation of the specific stress test or series of test from which the size of the DF was derived"; "Amount of own funds committed to waterfall"; "How uncovered credit losses will be allocated"; "Policy on how margin and default fund invested"; and "Arrangements to cover liquidity needs in event of failure to pay". These line items will be addressed by CCPs elsewhere in their responses to the Disclosure Framework.

In other cases it is not clear how the proposed "key metric" will be informative or useful, or whether it will provide the intended result. Examples of this category of disclosure are "Results of Simple Standardized Stress Tests" and "the initial margin requirement that would result from simple specified example trades/portfolios [so that participants, and regulators and market could compare the output]". Given that formulas for the calculation of margin will be based on a number of factors, as well as historical market data that is effective for the period of time when the calculation is done, it is not clear how such "simple" examples will be helpful or informative. In addition, we do not understand what is intended to be shown by "value of routine margin collection vs. non-routine margin calls over past 12 months." (This is an example of a metric disclosure that might be more misleading or confusing than illuminating.)

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quantitative sensitive information), while keeping confidential the 'what' (the actual information)."

Certain terms to be defined or explained. In order to ensure consistent disclosure, DTCC suggests that CPSS and IOSCO provide definitions for certain terms that do not have a consistent meaning across all FMIs. Such terms include: "summary measure of interest rate and fx risk in the investment portfolio" and "average aggregate intraday exposures of the FMI to its participants".

Frequency of updating data. DTCC believes that the Disclosure Framework should provide that the list of key metrics should be updated on a specific cycle; currently the draft Framework does not, implying that the key metrics should be kept current at all times. The Framework could provide that the key metrics would be updated on a cycle specified by the FMI, or provide that they should be updated on a standard cycle for all FMIs. If the latter, DTCC would suggest that that should not be more frequently than quarterly. The metric data listed therein should be data that is as of or for the FMI's most recently completed fiscal quarter, except where yearly statistics are required, in which case that data should be provided as of the most recent fiscal year end. While others may suggest that such data be updated more frequently, market metrics will change over time so it is not clear how useful more frequent updates would be.

Summary of Major Changes

The proposed Disclosure Framework provides that an FMI's responses must be updated following material changes to the FMI's system or its environment and that FMIs should update their responses as soon as possible after significant changes. The instructions require FMIs to provide in a separate section titled "Summary of Major Changes" a summary of changes since the FMI's last disclosure to highlight any material changes and updates to the FMI's design and services. DTCC believes that, because an FMI will have already provided elsewhere in its responses (viz., the executive summary, general description of the FMI and/or the Principle-by-Principle section) a discussion of the FMI's significant changes since the last update to its responses, the separate requirement to provide an additional discussion of such changes in the "Summary of Major Changes" section is redundant, thereby making the disclosure document unnecessarily long, more burdensome and costly to prepare, and less useful to the reader. Accordingly, DTCC suggests that the "Summary of Major Changes" section be limited to a listing of the sections of the FMI's responses to the Disclosure Framework that have changed since it was last updated.[3]

* * *

DTCC appreciates the opportunity to comment on the proposed Disclosure Framework and looks forward to working with CPSS and IOSCO and other FMIs in further enhancing and finalizing the Disclosure Framework.

Very truly yours,

Donald F. Donahue

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[3] As an alternative approach, the "Summary of Major Changes" section would be the only section that discusses the significant changes since the FMI's last update of its responses, and the FMI would indicate by footnote (or otherwise) the sections affected throughout its responses so that the reader would know to look to the "Summary of Major Changes" section for an update. Under this approach, the FMI would incorporate all of the changes discussed in the "Summary of Major Changes" section into the other sections of its responses only when it performed the comprehensive review of its responses, i.e., at least once every two years.

Response to CPSS-IOSCO Consultative Reports

Assessment methodology for the principles for FMIs and the responsibilities of authorities
and
Disclosure framework for financial market infrastructures

Date: 15 June 2012

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EACH – the European Association of Central Counterparty Clearing Houses – has a long history in promotion of Risk Management Standards: In November 2001 EACH issued the seminal «*Standards of Risk Management Control used by European Central Counterparty Clearing Houses*» with the aim of stimulating associated clearinghouses to provide an objective disclosure of their risk controls and of their fulfilment of the Standards.

The EACH Standards were subsequently recognised and cross-referenced by CPSS-IOSCO, ESCB-CESR, the European Central Bank and by the European Commission. In November 2009 the EACH Standards were superseded by the new EACH Supplementary Risk Recommendations.

In July 2007 EACH established its Risk Management Committee with the purpose to ensure ongoing communication between its members on risk management issues, to discuss and analyse Risk Management techniques and developments, and general risk management issues

General comments

A.1 In this paper we provide our comments per Principle and where applicable per Key Consideration or per Paragraph. However, we first provide some general observations and comments on the assessment methodology and the disclosure framework.

General comments on the assessment methodology

B.1 The assessment methodology framework defines the steps in an assessment, but as far as is possible to understand from the proposed framework, there is nothing mentioned about frequency of the assessment. As for CCPs domiciled in the EU-/EEA-area, where colleges are to be established for the authorisation and supervision of CCPs, there is no reference to this kind of structure - shall the assessment remain with the national supervisors, or shall colleges play a role? Furthermore, the assessment methodology envisages that assessments will be conducted by the CCP itself, by its regulator and by the International Financial Institutions ("IFIs"). However, it is not clear from the methodology which of these assessments would be the definitive one. For instance, what would be the consequence if the CCP's self-assessment differed from the assessment of its regulator, or if the regulator's assessment differed from one conducted by an IFI? Which assessment would take precedence and what is the process for one entity *"appealing"* against the findings of another? Furthermore, the role of the IFIs in ensuring international consistency should be made clear. For example, it would be helpful to clarify that the IFIs should conduct comparisons of the assessments produced by national regulators in order to ensure international consistency both in the application of the assessment methodology and the practical observance of the Principles.

B.2 The rating framework implies setting grades for the assessed CCP with respect to the observance of principles. The CPSS-IOSCO document provides a template for the purpose of performing an evaluation of each principle and each key consideration. This is further supported by a template for prioritised recommendations, for follow up action. However, given the importance of being compliant with the CPSS-IOSCO Principles (e.g. for the purposes of the capital treatment of bank exposures to CCPs under Basel III), it is surprising that the assessment methodology offers no or little information on the process to aggregate ratings or 'scores', nor is there indication of a hurdle or minimum, in order to receive the sought qualification. A central point in our hearing comments should thus be to provide more on the minimum requirements that shall be met and the scoring methodology. It is also not clear how long a CCP would be given to take any necessary remedial action and whether, in the meantime, it would be regarded as observing the Principles or not (and the consequences that this would have for the capital treatment of bank exposures to the CCP under Basel III).

B.3 Moreover, questions that CCPs are supposed to answer under each Key Element are in majority open ended questions, where CCP's and competent authorities will be challenged not only in providing a pertinent answer, but also in interpreting the answer. For example, how shall a CCP answer question 1.2.1: *"How has the FMI demonstrated that its rules, procedures, and contracts are clearly and understandably formulated?"* and even more interesting*, "how shall a* *competent authority interpret an answer, particularly if the methodology is to be applied consistently across CCPs?"*.

B.4 Questions are in general diffuse, however when the questions enter into a degree of precision, where it becomes possible to apply a quantitative assessment methodology (a simple binary yes/no approach), the level of detail is such that focus is shifted from the real issues relevant for a CCP to matters that in isolation have little or no significance, or requires a significant degree of judgement or interpretation. For example, question 7.3.1 *"What is the estimated size of liquidity shortfall in each currency that would need to be covered to effect settlement of payment obligations, following the default of the participant and its affiliates that would generate the largest aggregate payment obligation in each currency in extreme but plausible market conditions?".* Shall the number be computed on the day the assessment takes place, or is this supposed to be for a period? The relevant question is whether the CCP has a methodology in place so as to monitor the shortfall on a daily basis. Finally, for the purposes of clarity and consistency, references in the assessment methodology to "disclosure" should be replaced by references to *"disclosure as required by the disclosure framework".*

General comments on the disclosure framework

C.1 CCPs accept that they must be accountable to the regulatory authorities who supervise them and, in order to facilitate effective supervision, CCPs must engage in appropriate reporting of relevant information to those authorities on a confidential basis. CCPs also recognise that they must make certain information public, both in order to maintain public confidence in the conduct of their activities and to enable potential users of their services to make informed decisions about if and how to use them. Having said that, a clear distinction needs to be made between confidential disclosure to regulatory authorities to enable them to conduct effective supervision on the one hand and disclosure to the public on the other. EACH recommends that public disclosure should be guided by the principle that it should provide an adequate level of transparency about the general policies and procedures of the CCP, but it must be tempered by a need to avoid undermining the economic utility of CCPs or frustrating the efficacy of their risk management functions. In practice, this means that CCPs should not be required to publish any information which would have a market impact (e.g. information about the positions of clearing members and their customers, and the collateral held against them), details of an operational nature which, if they were made public, would undermine the ability of a CCP to conduct risk management in an effective manner, and the results of testing (e.g. back testing and stress testing) which, if taken out of context or misinterpreted, could inadvertently damage market confidence.

C.2 The disclosure of the principle-by-principle narrative seems to be a very detailed description of every key consideration from the CPSS-IOSCO principles. As there will be a formal review by the respective supervisor (see assessment policy) it would be beneficial if the documentation from this assessment (or parts of it) could be used as a first disclosure document. It should also be possible to combine narratives for different Key Considerations as there is substantial overlap (e.g. between the different KCs in principle 7).

C.3 Most of the guidance given in the disclosure framework is very general so gives room for interpretation as to the level of detail required. It should be made clear that the disclosure should give an overview of the FMIs organization and not describe all details of all the policies and procedures on all areas.

C.4 It should be ensured that the response to the disclosure framework should be made publicly available while respecting the requirement not to publish confidential information in the response.

C.5 Suggested approach: as a principle an FMI should be required to disclose the how (procedures used to obtain qualitative and quantitative sensitive information), while keeping confidential the what (the actual information).

Principle 1: Legal Basis

1.1 We have no comments on this Principle.

Principle 2: Governance

2.1 Key Consideration 1 of this Principle states, that *"An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations".*

2.2 The financial stability and public interest are diffuse goals. It might not be possible to put them into a measurable list of targets for a company or individuals.

2.3 Furthermore it remains unclear what "other relevant public interest considerations" should be. More definition would be needed to allow that disclosure frameworks of FMIs are also comparable across competitors.

2.4 Also the objectives of "relevant stakeholders" are not referred to here anymore. In addition a definition of "relevant stakeholder" would be useful.

2.5 Key Consideration 3 of this Principle states, that *"the roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly".*

2.6 It should be clarified that this means the process of the review, not the results of it.

2.7 Key Consideration 5 of this Principle states, that *"The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI".*

2.8 The definition of "appropriate experience" would be helpful to achieve common standards across FMIs.

Principle 3: Framework for the comprehensive management of risks

3.1 Key Consideration 1 of this Principle states, that *"an FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review".*

3.2 It should be clarified, that an overview of policies and procedures is sufficient and not every policy or procedure has to be disclosed.

3.3 Key Consideration 2 of this Principle states, that *"An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI".*

3.4 Furthermore Key Consideration3 of this Principle states, that *"An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks".*

3.5 An FMI has only limited influence on the risk management procedures of its participants. It should be clarified that these Key Considerations relate to the FMI offering tools to participants to manage risk

3.6 Furthermore without knowing the risk position of a third entity it will be impossible for a FMI to assess the risk it poses to others

3.7 Key Consideration 4 of this Principle states, that *"An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning".*

3.8 Please see our general comment on the disclosure framework C1.

Principle 4: Credit risk

4.1 Key Consideration 5 states that *"A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participant's increases significantly. A full validation of a CCP's risk-management model should be performed at least annually".*

4.2 A CCP should disclose details related to its stress testing program while being allowed to keep confidential the stress testing results. Disclosing such result could potentially destabilise the market, particularly when products cleared or markets served display high volatility or positions are large. As a result, the ability of the CCP to effectively measure, monitor and manage its credit exposure to participants as part of a robust risk framework would be undermined.

Principle 5: Collateral

5.1 Key Consideration 1 of this Principle states, that *"An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks".*

5.2 Eligible collateral should be transparent for Clearing Members ("CMs"). Acceptability checks should also be transparent and, ideally, conducted electronically.

5.3 Key Consideration 2 of this Principle states, that *"An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions".*

5.4 Please see our general comment on the disclosure framework C1.

5.5 Key Consideration 3 of this Principle states, that *"In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent".*

5.6 Please see our general comment on the disclosure framework C1.

5.7 Key Consideration 5 of this Principle states, that *"An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner".*

5.8 Key Consideration 6 of this Principle states, that *"An FMI should use a collateral management system that is well- designed and operationally flexible".*

5.9 Please see our general comment on the disclosure framework C1.

Principle 6: Margin

6.1 Key Consideration 6 of this Principle states, that "A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices".

6.2 Please see our general comment on the disclosure framework C1.

Principle 7: Liquidity Risk

7.1 Key Consideration 4 of this Principle states, that *"A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions".*

7.2 A CCP should not be required to disclose the quantification of minimum and additional liquid resources necessary to meet all its payments obligations under a wide range of potential stress scenarios. Potential stress scenarios may not be consistent across CCPs, and this could result in unfair comparison between CCPs.

7.3 Key Consideration 5 of this Principle states, that *"For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed".*

7.4 While respecting the requirement to limit its access to qualifying/ supplement liquid resources, a CCP should not be required to disclose what holdings a CCP has.

7.5 Key Consideration 7 of this Principle states, that *"An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider".*

7.6 Please see our general comment on the disclosure framework C1.

7.7 Key Consideration 9 of this Principle states, that *"An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains".*

7.8 Please see our general comment on the disclosure framework C1.

Principle 8: Settlement finality

8.1 We have no comments on this Principle.

Principle 9: Money Settlements

9.1 Key consideration 3 of this Principle states, that *"If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks".*

9.2 Please see our general comment on the disclosure framework C1.

Principle 10: Physical delivery

10.1 We have no comments on this Principle.

Principle 11: Central securities depositories

11.1 We have no comments on this Principle.

Principle 12: Exchange-of-value settlement systems

12.1 We have no comments on this Principle.

Principle 13: Participant-default rules and procedures

13.1 We have no comments on this Principle.

Principle 14: Segregation and portability

14.1 We have no comments on this Principle.

Principle 15: General business risk

15.1 Key Consideration 3 of this Principle states, that *"an FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements".*

15.2 Furthermore Key 5 of this Principle states, that *"an FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly".*

15.3 Please see our general comment on the disclosure framework C1.

Principle 16: Custody and investment risk

16.1 Key Consideration 1 of this Principle states, that *"An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets".*

16.2 Please see our general comment on the disclosure framework C1.

16.3 Key Consideration 2 of this Principle states, that *"An FMI should have prompt access to its assets and the assets provided by participants, when required".*

16.4 Please see our general comment on the disclosure framework C1.

16.5 Key Consideration 3 of this Principle states, that *"An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each".*

16.6 Please see our general comment on the disclosure framework C1.

16.7 Key Consideration 4 of this Principle states, that *"An FMI's investment strategy should be consistent with its overall risk- management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect".*

16.8 Please see our general comment on the disclosure framework C1.

Principle 17: Operational risk

17.1 Key Consideration 5 of this Principle states, that *"An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats".*

17.2 Furthermore Key Consideration 6 of this Principle states, that *"An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements".*

17.3 Please see our general comment on the disclosure framework C1.

Principle 18: Access and participation requirements

18.1 We have no comments on this Principle.

Principle 19: Tiered participation arrangements

19.1 Key Consideration 2 of this Principle states, that *"An FMI should identify material dependencies between direct and indirect participants that might affect the FMI".*

19.2 Furthermore Key Consideration 3 of this Principle states, that *"An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions".*

19.3 Disclosing the identity of clearing members' clients and the dependencies between members and clients would be difficult due to the confidential nature of the relationship between the two.

Principle 20: FMI Links

20.1 We have no comments on this Principle.

Principle 21: Efficiency and effectiveness

21.1 Key Consideration 3 of this Principle states, that *"An FMI should have established mechanisms for the regular review of its efficiency and effectiveness".*

21.2 There is no definition how to measure efficiency and effectiveness. So this leaves too much room for the FMIs and will not achieve comparability across the industry. Furthermore it is very vague how efficiency and effectiveness can be qualified.

Principle 22: Communications procedures and standards

22.1 We have no comments on this Principle.

Principle 23: Disclosure of rules and key procedures

23.1 Key Consideration 1 of this Principle states, that *"An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed".*

23.2 The definition of "relevant" rules and "key" procedures is missing and thus leaves room for interpretation. No homogeneous result across the industry can be achieved.

23.3 Key Consideration 5 of this Principle states, that *"An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO Disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values".*

23.4 What is the definition of “basic data”? It should be made clear what kind of data has to be disclosed to allow comparison through the FMIs.

Principle 24: Disclosure of market data

24.1 We have no comments on this Principle.

Annex 2: Key metrics for CCPs

The following should be excluded as it contains either confidential information or is not information that is useful to describe the risk of a CCP:

- Value of routine margin collection vs. non routine margin calls
- Initial Margin requirement of sample portfolios (if regulators want to compare the results an ad hoc request is more appropriate as many CCPs do not have an overlap in products. Also the number of examples would need to be high to reflect effects of cross margining between different products).
- Results of simple standardized stress tests: There is no definition of a standardized stress test.
- Uncovered credit losses and how they are allocated -> not clear what is actually meant as from clearing there should not be any uncovered exposures.
- Investment Risk: Without definition of a specific measure the requirement of disclosing interest rate and fx risk is not practical.

About EACH

EACH has 23 members:

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This document does not bind in any manner either the association or its members.

Responses to this paper should be addressed to:

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EBA CLEARING comments on the consultative report on Assessment Methodology for the principles for FMIs and the responsibilities of authorities of April 2012 by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organisation of Securities Commissions (IOSCO)

15 June 2012

Introduction

EBA CLEARING welcomes the invitation by the CPSS and IOSCO to reply to the consultation on the CPSS-IOSCO proposed assessment methodology for the principles for FMIs and the responsibilities of authorities (hereafter referred to as "Assessment Methodology").

EBA CLEARING is a privately owned company, incorporated in France, whose shareholders are the participants in the EURO1 system. EBA CLEARING has been formed in 1998. Since the launch of the EURO1 system on the first day of Stage III of European Monetary Union, EBA CLEARING acts as the system operator of EURO1.

EURO1 is a multilateral large value net payment system for payments denominated in euro operating alongside TARGET2, the real time gross transfer system of the central banks of the Eurosystem.

Since 2003, EBA CLEARING also provides the retail payment system STEP2. In January 2008 respectively November 2009, STEP2 services were built for handling bulk SEPA Credit Transfers and SEPA Direct Debits (Core and B2B), which settle in TARGET2 (STEP2-T System). STEP2-T is the Pan-European ACH for bulk payments in the Single Euro Payments Area (SEPA).

Since its launch, EURO1 is overseen by the European Central Bank (ECB). STEP2 is equally overseen by the ECB.

Reference is made to www.ebaclearing.eu for general information on EBA CLEARING and the systems it operates.

Comments on the Assessment Methodology

The Assessment Methodology states that it is primarily intended for external assessors at the international level, in particular the IMF and the Worldbank. EBA CLEARING would welcome an insight on the plans of the overseer of the systems it operates regarding the choice between using the Assessment Methodology as is or developing different methodologies for oversight assessments. In that connection, it may be worthwhile to underline that use of different methodologies should not lead to different requirements or different interpretations of requirements stemming from the application of the Principles for financial market infrastructures (hereafter referred to as "PFMIs").

Comments on the Assessment Methodology provided herein should be read to also apply to equivalent methodologies developed by the relevant regulatory, supervisory or oversight authorities.

1. Comments solicited on the comprehensiveness of the Assessment Methodology:

There are four areas on which EBA CLEARING would welcome more guidance in the Assessment Methodology, namely:

1. Guidance on the required cooperation between assessors and the to be assessed FMI is of the utmost importance. In particular, we believe that the assessors and the management of the FMI have to work in close cooperation to allow for an efficient and not too burdensome performance of the assessment for both parties. To this effect, the FMI which has to maintain ongoing business during the assessment period must be informed sufficiently in advance of the intended assessment and be provided with a detailed assessment plan including a clear description of the purpose and scope of the assessment (i.e. the system or service of the FMI to be assessed, the list of relevant Principles, key considerations, and key elements, etc.), the timeframe for the different steps of the assessment, etc. This would allow the FMI to prepare for the assessment and dedicate the required staff and means for cooperating with and assisting the assessors without affecting daily business.

2. The Assessment Methodology could usefully be complemented with a clarification that the information collecting process should be such that only information that is relevant should be provided by the assessed FMI.

3. As regards the timeframe for implementing changes in case there are issues of concern, the Assessment Methodology should state that such timeframe shall be set thereby taking into account change cycles and cycles and processes for decision making of the FMI. A FMI should be consulted on the timeframes to ensure these are feasible.

4. We believe that the report should include guidance for assessors' organisational aspects in order to ensure there are Chinese-walls between senior executives and staff carrying out the oversight and supervision functions and, if applicable, senior executives and staff dedicated to the operation of a public sector FMI.

We believe some elements are missing in the Assessment Methodology:

1. The Assessment Methodology should foresee a process to allow the assessed FMI to review the assessment reports in a draft form, to allow for corrections and suggestions.

2. It is noted that no guidance is given on cases where the assessed FMI would not agree with the conclusions or with certain summaries.

3. In case recommendations are provided by assessors, a degree of flexibility should be built in to allow the FMI to consider, if applicable, different means to address the issue of concern at hand, and also to evaluate the recommendation from an efficiency perspective.

4. The Assessment Methodology should be complemented with clear guidance on publication of assessment results. An FMI should be asked for agreement with the text that would be published in the public domain, and should have the right to object to certain information being published. In that connection, insufficient consideration is given to the fact that private sector FMIs, acting in a competitive environment and investing in the know-how and technical, legal, operational and risk design of the systems they operate, have different concerns relating to putting information in the public domain compared to public sector FMIs. EBA CLEARING has no problem with certain information being available in the public domain, but the level of information that is provided publicly should be left at the discretion of the FMI.

2. Comments solicited on the clarity of the Assessment Methodology:

EBA CLEARING would wish to point to the following:

1. The Assessment Methodology states that the questions are not intended to be exhaustive and that assessors could, at their discretion, pose additional or different questions as needed depending on the circumstances. EBA CLEARING believes this is a too open ended statement, in particular if this could lead to imposing additional requirements or more stringent requirements compared to the PMFIs, or, as applicable, the PMFIs as implemented by the relevant regulatory, supervisory or oversight authority.

2. The 2 payment systems operated by EBA CLEARING constitute a FMI with cross-border activity. EURO1, the large value payment system of EBA CLEARING, is overseen by the ECB as lead overseer with the voluntary participation by National Central Banks having an interest in the oversight of the system. In that connection, EBA CLEARING would wish to comment that a single set of requirements, in the form of key considerations and key questions, should form the basis of an oversight assessment. This point will also be very relevant if and when the STEP2-T System, catering for the processing of SEPA payment instruments, would become subject to the PFMIs and would become subject to a similar oversight regime.

3. With regard to external assessments to be conducted by international financial institutions out of the scope of the supervision and oversight of the FMI, we would like that clarification is provided on whether the outcome of such external assessments would be binding on the assessed FMI and would be given enforceable effects or taken into consideration by the relevant authority in charge of the supervision / oversight of the FMI. In particular, any room for confusion that could result from different assessments being carried out by different assessors on the basis of different assessment methodologies should be avoided.

4. More guidance and clarity on the assessment of FMI links and the methodology used on a per FMI basis would be welcomed.

5. As to the definition of the assessment perimeter, we would wish that the Assessment Methodology clarifies whether and, if so, which of and to what extent stakeholders are concerned / covered. For instance, participating financial institutions are included in the definition of FMI; would that mean that participants (or participants with the most important volumes or of a critical importance) would also be assessed? Is it intended that shareholders of the FMI are also included in the scope of the assessment? If so, we strongly advocate that it is specified in the assessment plan that will be notified in advance to the FMI.

3. Comments solicited on the level of detail in the Assessment Methodology:

The detailed questions call for the following observations on the part of EBA CLEARING:

1. EBA CLEARING would have appreciated that the proposed Assessment Methodology includes specific guidance on the assessment of payment systems such as a multilateral net system without a central counterparty. As previously shared, EBA CLEARING is of the opinion that a list of questions in itself does not provide sufficient guidance on the exact meaning and scope of the requirements the fulfillment whereof is assessed through such list of questions. A separate assessment methodology for each type of FMI would have been appreciated to avoid further interpretation issues and questions on the applicability of any of the key considerations or key elements.

2. If the questions are maintained as they are, room should be left to evaluate whether they are relevant / effective taking into account the specificities of a given FMI. Further, from an efficiency perspective, room should be left to conclude that certain requirements must not be met in the same manner by all FMIs. For specific types of FMI, flexibility should be given in relation to certain requirements the fulfillment of which will not bring any assurance that the initial purpose is reached.

3. Conversely, if the questions are meant to each relate to a requirement that must be met in all cases, more refinement is needed for some of those in that depending on the type of FMI some key considerations could not apply or call for a different focus.

4. EBA CLEARING has major concerns on two approaches that are embedded in the questions, from the viewpoint of a system operator of interbank payment systems:

   (i) For an interbank payment system, the relationships are among the participants and between the participants and the system operator. The relationships with customers should be kept outside of the context of the system, and should be left at the level of the financial institutions participating in the payment system. Communications with customers, and contractual and other relationships with customers should not be brought into the perimeter of the FMI, and this is believed to bring a new type of risk that is not necessary.

(ii) EBA CLEARING strongly believes that putting the rules of a payment system or parts thereof (e.g. default rules) in the public domain attracts risks that are unnecessary. Reference is made to the concerns raised in our reply to the public consultation on the PFMIs, which remain unchanged.

5. Both for EBA CLEARING and its participants, it is of the utmost importance that requirements are clear and predefined. We note that several sets of requirements are developed or being developed (e.g. the disclosure framework, the ECB oversight expectations for links between retail payment systems, the upcoming oversight expectations for stress testing, etc.), which seem to add requirements in addition to those contained in the PFMIs / Assessment Methodology. A clear view on the full set of requirements applicable to a given type of FMI should be provided, preferably in the form of a comprehensive single Assessment Methodology.

EBA CLEARING comments on the consultative report "Disclosure framework for financial market infrastructures" of April 2012 by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organisation of Securities Commissions (IOSCO)

15 June 2012

Introduction

EBA CLEARING welcomes the invitation by the CPSS and IOSCO to reply to the consultation on the CPSS-IOSCO proposed disclosure framework for financial market infrastructures (hereafter referred to as "Disclosure Framework").

EBA CLEARING is a privately owned company, incorporated in France, whose shareholders are the participants in the EURO1 system. EBA CLEARING has been formed in 1998. Since the launch of the EURO1 system on the first day of Stage III of European Monetary Union, EBA CLEARING acts as the system operator of EURO1.

EURO1 is a multilateral large value net payment system for payments denominated in euro operating alongside TARGET2, the real time gross transfer system of the central banks of the Eurosystem.

Since 2003, EBA CLEARING also provides the retail payment system STEP2. In January 2008 respectively November 2009, STEP2 services were built for handling bulk SEPA Credit Transfers and SEPA Direct Debits (Core and B2B), which settle in TARGET2 (STEP2-T System). STEP2-T is the Pan-European ACH for bulk payments in the Single Euro Payments Area (SEPA).

Since its launch, EURO1 is overseen by the European Central Bank (ECB). STEP2 is equally overseen by the ECB.

Reference is made to www.ebaclearing.eu for general information on EBA CLEARING and the systems it operates.

The present reply to the consultation is in 2 parts. In the first part, a reply to the specific points raised in the cover note to the report is provided. In the second part, input is provided on a number of major points in relation to which EBA CLEARING requires further clarification or would like to share views.

Part 1 – Comments on the specific points contained in the cover note to the consultative report

EBA CLEARING would wish to convey the following comments in relation to the points which are the subject matter of the cover note to the consultative report on Disclosure Framework:

We would appreciate it if clarification could be given on whether FMIs would have to prepare and publish separate disclosure framework papers for each of their systems or services (for example, would EBA CLEARING as system operator of the EURO1 System and STEP2-T System[1] have to complete and provide a disclosure framework for each system, or would one covering both systems be sufficient

[1] Should the STEP2-T System become subject to the PFMIs.

considering that such systems pertain to different categories of payment systems and are separately overseen[2]?).

In addition, a clear and detailed description would be required of the key metrics specific to payment systems and that will have to be included in the general description of the FMI.

Furthermore, clarification would also be needed on whether the principle-by-principle narrative disclosure would have to or could be provided at the occasion of the oversight assessment exercise carried out by the relevant overseers of the FMI or should be independently provided and updated.

PART 2 - Comments on major points and concerns regarding the proposed Disclosure Framework

EBA CLEARING would wish to convey a number of questions and points of concern which will need clarification, amendment or at least adjustment of the Disclosure Framework for each particular type of FMI.

1. General comment on the proposed Disclosure Framework:

While fully sharing the public policy objectives defined by the CPSS and IOSCO, EBA CLEARING does not see – in as far as interbank fund transfer systems are concerned -- the value of or the rationale for a transparency beyond the relevant FMI's stakeholders and authorities. The transparency and disclosure requirements have to be tailored to the type, importance, functioning of each FMI, and to the risks incurred or brought by each FMI to its participants and market. In this connection, consideration is also to be given to the fact that certain types of FMI have been and are more regulated and supervised than others; FMIs, such as systemically and prominently important payment systems, have been complying with relevant rules and requirements for the safety and stability of the financial markets in close cooperation with the relevant overseers. EBA CLEARING believes that the current practice as is followed for oversight of systemically important payment systems in relation to disclosure is sufficient and effective and doubts on the appropriateness of the proposed disclosure framework for (interbank) payment systems.

2. Comment on upcoming additional disclosure requirements:

Reference is made in the cover note to the consultative report to a set of key quantitative information under development by the CPSS and IOSCO that FMIs will have to provide and which will require more frequent updating than of the Disclosure Framework. EBA CLEARING strongly recommends a consistent and comprehensive unique disclosure program for each type of FMI.

[2] EURO1 is a large-value payment system classified as a SIPS while STEP2-T is a prominently important retail payment system.

3. Comment on the requirement for transparency and public disclosure:

As previously commented on the CPSS-IOSCO consultative report of March 2011, EBA CLEARING would like to restate that where disclosure to relevant market participants and to relevant regulatory / supervisory / oversight authorities is fully supported, it is believed that a requirement for public disclosure should be avoided for private sector-owned payment systems. Any requirement for disclosure to the general public of an FMI's strategic or sensitive information (e.g. the system's rules and procedures, admission criteria, suspension and exclusion procedures, default management, pricing, etc.) could entail potential risks for such FMI. Disclosure to third-party entities should be left to the discretion of the management of the FMI. Furthermore, any mandatory disclosure to prospective participants must be submitted to the signature of a confidentiality and non-disclosure agreement.

4. Comment on the FMI disclosure template:

EBA CLEARING supports the provision of a general description of the FMI, as currently available on its website[3] which provides substantive information for each of the systems or services it operates as well as the structure and management of the company. However, such transparency should not endanger the protection of the FMI's know-how, methods of doing business, trade and commercial secrets, specifications and technologies, etc. and must only take place provided the integrity of existing intellectual property rights and the protection of confidential information are preserved.

EBA CLEARING believes that the scope of disclosure that is proposed may attract new types of risk which are unnecessary, e.g. mal-interpretation including by non or less knowledgeable recipients of the information contained in the public disclosures that are made, legal risks stemming from reliance on narrative statements paraphrasing the actual legal and other relevant documentation, reliance on statements for making claims which otherwise would not be available, interpretations by the media and related overreactions in the markets, soliciting unwanted behaviour of participants in systems, inviting the markets to test weak points or alleged weak points. In that connection, EBA CLEARING would wish to submit the question what the intended legal effects of the imposed disclosure are, in particular taking into account the care to be taken by an FMI to ensure legal soundness and safety and stability of the systems it operates.

[3] https://www.ebaclearing.eu/

ECSDA
European Central Securities Depositories Association

15 June 2012

Comments on the CPSS-IOSCO assessment methodology and disclosure framework for financial market infrastructures

ECSDA welcomes the two CPSS-IOSCO consultative reports on the assessment methodology and disclosure framework released on 16 April 2012 together with the final version of the Principles for financial market infrastructures. ECSDA represents 41 (I)CSDs across Europe, thus our comments focus on CSD-relevant provisions and on the relationship between the proposed CPSS-IOSCO Principles and European standards.

European CSDs are fully committed to transparency and share the aim of global convergence. ECSDA itself encourages all its member institutions to regularly publish disclosure reports based on internally-recognised formats. Our website provides an overview of such reports at:
http://www.ecsda.eu/site/disclosures.html

1. General comments

ECSDA understands that the proposed assessment methodology (AM) and disclosure framework (DF) have two different purposes, being addressed to regulators and to infrastructures respectively. However we wonder whether the difference in formats (questions in the case of the AM, headings with narrative descriptions in the DF) will not create additional complexity and duplication when complying with the FMI Principles. In particular we fear that the narrative format being proposed in the new DF will not enhance transparency compared to the former disclosure framework as it relies entirely on "free text" responses which will make comparisons between different infrastructures quite difficult.

In fact, we believe that a more efficient and transparent solution for FMI disclosures would have been to use the AM as a basis for FMI self-assessments, possibly taking out some AM questions if the related responses require confidential information and thus cannot be made publicly available.
The question format has the advantage of achieving more standardised and comparable responses (e.g. yes/no questions with subsequent supplementary comments, multiple choice, etc.). It could also have facilitated efforts to achieve global convergence of existing disclosure questionnaires, including

the Association of Global Custodians (AGC) questionnaire which, in the case of CSDs, partly overlaps with the CPSS-IOSCO framework. CSDs are expected to publish a yearly (or at least biannual) update of both the AGC and CPSS-IOSCO disclosure frameworks, which for respondents represents a considerable administrative burden. Such a burden would be reduced if all disclosures would be required as part of a single questionnaire to be completed by CSDs on an annual basis, and in a standardised format to allow for easier comparison across countries and over time.

ECSDA thus fully supports the World Forum of CSDs (WFC)'s proposal to either redraft the proposed DF in such a way that it becomes a subset of the AM or to allow FMIs to use the AM questions as a basis for their annual disclosure exercise (rather than the DF template currently being proposed), especially if they are required to complete self-assessments by their national regulators and provided that they disclose the same level of information as they would under the proposed DF. ECSDA insists that it does not aim in any way to reduce the scope of the CPSS-IOSCO framework (DF and AM), but rather to avoid unnecessary duplication of the work.

At the European level, CSDs will soon be subject to a regulation of the European Union which will in part translate CPSS-IOSCO Principles into legally binding requirements.
For ECSDA, it is very important that the upcoming EU regulation on CSDs is fully consistent with the new CPSS-IOSCO Principles and that the supervisory framework to be put in place is in line with the CPSS-IOSCO assessment methodology to avoid inconsistencies in implementation. We would like to avoid a situation whereby national regulators could cherry-pick between the FMI Principles and the EU regulation when constructing their local regulatory regimes.

Finally, ECSDA would welcome an initiative to review and align the Eurosystem User Standards for SSSs with the new CPSS-IOSCO Principles.

2. Comments on the disclosure framework

The DF requires respondents to *"indicate the extent to which each response is relevant to each FMI category".* As most CSDs operate a securities settlement system (SSS) as part of their core business, responses to the DF should be considered to cover both the CSD and the SSS (e.g. governance, legal basis…) unless otherwise specified.

ECSDA supports CPSS-IOSCO's recommendation that FMIs should publish their responses to the DF on their websites. However, we note that in some cases, it could be difficult for FMIs to provide comprehensive responses to the DF without releasing confidential information. This will have to be taken into account for a number of "key elements" of the DF for which FMIs should only be expected to publish a high-level overview of methods rather than specific information (such as results, exact numbers or scenarios for questions concerning confidential information). This is especially true for the following:

- Principle 3 on a framework for the comprehensive management of risks: key elements 9 (identification of the scenarios that may potentially prevent the FMI from being able to provide its critical operations and services) and 10 (preparation of appropriate plans for recovery or orderly wind-down);
- Principle 4 on credit risk: key elements 6 (coverage of current and potential future exposure to each participant), 14 (analysis of stress-testing scenarios, models, and underlying parameters and assumptions), 16 (identification of scenarios for stress testing financial resources) and 18 (process for the replenishment of financial resources during a stress event);
- Principle 7 on liquidity risk: key elements 4 (quantification of the minimum liquidity resource requirement in each currency), 5 (quantification of additional liquidity resource requirements), and 20 (analysis of stress-testing scenarios, models, and underlying parameters and assumptions);
- Principle 17 on operational risk: key elements 11 (business continuity plan), 12 (crisis management and communication) and 13 (adequate secondary site)
- Principle 19 on tiered participation arrangements: key element 3 (identification of key indirect participants).

Regarding section II. B of the DF template on “key metrics”, ECSDA would like to suggest that, in case CSDs are expected to provide basic figures such as the volume and value of transactions they have settled in a given year, as well as the value of assets held in custody at year end, they should be encouraged to use a harmonised methodology, to ensure comparability of disclosure reports. For example, CPSS-IOSCO might consider whether to recommend that CSDs disclose a few basic indicators based on the “Red Book” methodology developed by the CPSS.

Since the Principles will be used for the first time by regulatory authorities in 2012 and given that the publication of disclosure reports based on the new DF template will require substantial work from FMIs, ECSDA suggests that CSDs and other FMIs should be expected to publish their first disclosure report based on the new DF as of end 2013.

As mentioned in the General remarks, ECSDA would like to draw CPSS-IOSCO’s attention to the benefits that could be gained from efforts to consolidate existing frameworks for the disclosure of CSD information, and in particular the CPSS-IOSCO DF and the annual AGC's depository information-gathering project (DIGP), in which all ECSDA members participate each year. The existence of parallel questionnaires and disclosure requirements represents a considerable administrative burden for CSDs, especially for smaller institutions. While it is not our intention to reduce the level of disclosure being provided or the number and scope of questions being asked, we strongly believe that the replacement of overlapping requirements by a single global annual disclosure questionnaire on CSDs would considerably enhance market transparency as well as the quality (rather than the quantity) of the information provided. The finalisation of the CPSS-IOSCO thus represents a unique opportunity to achieve a single global questionnaire satisfying both CPSS-IOSCO and AGC's requirements and to avoid creating yet another layer of complexity.

3. Comments on the assessment methodology

The AM foresees that *"FMIs may have to conduct formal period full or partial self-assessments of observance of the principles"*. Many European CSDs currently perform such self-assessments based on the CPSS-IOSCO framework but are worried that in the future they might need to duplicate the work if they are asked both to use the AM as a basis for self-assessments and the DF. Given that the objective in all cases is to provide evidence that the FMI is complying with the CPSS-IOSCO Principles, the AM and DF documents should clearly state that FMIs should only be requested either to provide self-assessments based on the AM or to provide self-assessments based on the DF.

As regards the rating framework, ECSDA believes that it plays an important role to ensure consistent implementation across jurisdictions. However, the effectiveness of the ratings will be reduced if national authorities opt to use a different rating system. Furthermore, the way in which "issues of concern" contribute to determine the appropriate rating should probably take into account, not only the number of issues, but also a certain degree of materiality as regards key considerations which are not fully observed.

Given the additional requirements contained in the PFMI compared to the former SSS recommendations, ECSDA also suggests that a review mechanism might need to be established in order to assess whether all Principles are working in practice, and which key considerations might need to be adjusted in light of the experience gained in the first years of implementation.

ECSDA represents 41 (I)CSDs in 37 European countries. We trust that our comments will be taken into consideration by the CPSS and the IOSCO Technical Committee when reviewing the Disclosure Framework and Assessment Methodology before final publication. For any questions on this paper, please contact the ECSDA Secretariat at +32 2 234 63 13 or email soraya.belghazi@ecsda.eu.

Okay, Can

From: Jackson, Kathie on behalf of CPSS, Service
Sent: Friday 08, June, 2012 10:28
To: Okay, Can
Subject: Comments on Assessment methodology for principles for FMI and and the responsibilities of authorities and Disclosure framework for FMI documents

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From: emin ali gundez [mailto:eminaligundez@gmail.com]
Sent: Thursday 07, June, 2012 20:07
To: CPSS, Service; fmi@iosco.org
Subject: Comments on Assessment methodology for principles for FMI and and the responsibilities of authorities and Disclosure framework for FMI documents

June 7, 2012

Dear Ladies and Sirs,

Assessment methodology for principles for FMI and and the responsibilities of authorities and Disclosure framework for FMI documents will be very important and substantial progress of financial market infrastructures.

As a former industry practitioner, I would like to share my opinions about **"Material change"** with you as below;

Material changes mostly arise from or affect risk and/or cost areas.

Targeting to achieve risk and/or cost reduction/minimization may unintentionally lead industry practitioners to a solution that may not be as comprehensive as it could be.

By gathering these two propositions we may easily reach to a recommendation that any assesment or disclosure must have special emphasize on **material changes** on rules, procedures, models and scenarios related almost to all of 21 principles.

So in short I believe that, a more detailed **assesment and/or disclosure** on **material changes** will help, a few of details are below;

At first, identification of the triggering event that resulted with the need for a **material change** must be examined,

Second, there is a need for a review and assurance of the method of estimation of threat related to the need for **material change** ,

Third, a review and assurance of the method of estimation of necessary safeguard must be done,

Fourth, it must be understood or estimated whether there is any remaning gap, shortcoming or loss possibility after the implementation of the **material change**,

Fifth, whether necessary controls for the identification of similar subsequent threats have been designed and added to existing processes, or not.

I wish a full success
Yours sincerely,

Emin Ali GUNDEZ
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Former ViceChairman of Istanbul Stock Exchange,
Former Board Member of ISE Settlement and Custody Bank Inc.

clear to trade

Eurex Clearing

Comments to the

CPSS-IOSCO Consultative Reports

"Assessment methodology for the principles for FMIs and the responsibilities of authorities"

and

"Disclosure framework for financial market infrastructures"

June 2012

A. Introduction

Eurex Clearing is a globally leading central counterparty clearinghouse (CCP) and the largest clearinghouse in Europe. Eurex Clearing is a subsidiary of Deutsche Börse Group providing central clearing services for cash and derivatives markets both for listed as well as certain over-the-counter (OTC) financial instruments. Eurex Clearing actively contributes to market safety and integrity with state-of-the-art market infrastructure both in trading and clearing services as well as with industry leading risk management services for the derivatives industry. Customers benefit from a high-quality, cost-efficient and comprehensive trading and clearing value chain.

Eurex Clearing AG is a company incorporated in Germany and licensed as a credit institution under supervision of the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) pursuant to the Banking Act (Gesetz für das Kreditwesen). The Financial Services Authority (FSA) has granted Eurex Clearing status as a Recognised Overseas Clearing House (ROCH) in the United Kingdom.

Eurex Clearing welcomes the opportunity to comment on the consultative reports on "Assessment methodology (AM) for the principles for FMIs and the responsibilities of authorities" and "Disclosure framework (DF) for financial market infrastructures" related to the final Principles for Financial Market Infrastructures" published by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in April 2012.

This comment paper combines the answers to both consultations and is arranged as follows. The first section contains a summary of our general observations on the CPSS-IOSCO consultation papers. The second section provides detailed comments for both consultation reports on each principle.

B. Comments

B 1: Summary of general observations

We acknowledge the efforts by the Committees of CPSS and IOSCO to provide a single set of standards aiming at consistency in the oversight and regulation of FMIs worldwide.

We understand that the assessment methodology (AM) is targeted to support external auditors whereas the disclosure framework (DF) aims at giving guidance to the FMI on the disclosure requirements to comply with the new principles. Both documents are closely linked, however a clear indication is missing with respect to the exact interdependencies of the information required.

- The AM outlines the key considerations, the key elements and poses open questions with respect to the key elements.
- The DF lists the key considerations and the key elements without questions to the key elements.

Given this close link between the two documents it should be stated in the final reports that the results of the AM can be used as a basis for the DF. For the latter confidential information should be excluded.

A duplication of work to answer both reports independently and potentially in two different formats would place tremendous administrative burden on the FMIs and should be avoided.

For most of the general description of the FMI the disclosure framework provides only very general guidance. Since the required level of detail is left open it should be made clear that the required disclosure should give an overview of the FMIs organization, market(s) served and key metrics only and is not required to depict all details of all areas.

It should also be possible to combine narratives in the AM as well as in the DF for different key considerations and key elements as there is substantial overlap in some cases (e.g. between key considerations in principle 1 or in principle 7).

In addition, it has to be ensured that the responses to the disclosure framework will be made publicly available only for those parts that do not contain confidential information.

B 2: Detailed comments

Principle 1: Legal Basis

Key considerations 1 - 4 define in the key elements criteria such as "legal certainty", "consistency with relevant laws and regulations", "enforceability" and "degree of certainty that actions will not be voided, reversed, or subjected to stays"

Comment Eurex Clearing does not have any comments on this principle.

Principle 2: Governance

Key consideration 1 of this principle states that "An *FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations*

Comment: It remains unclear what "other relevant public interest considerations" should be. More definition would be needed to allow that disclosure frameworks of FMIs are also comparable across market infrastructures/ CCPs.

For key element 1 of the AM *"Identification of the FMI's objectives"* question Q.2.1.2 asks: "*How is the FMI's performance in meeting its objectives assessed"?*

Comment: High level objectives (e.g. integrity, safety as well as financial stability) are hard to measure. More detailed objectives are not comparable across CCPs. Maybe this should read "How does the FMI assess its performance in meeting its objectives?"

Key consideration 4 of this principle states, that *"The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s)".*

Comment: To achieve comparability across the industry, it would be helpful if there are minimum definitions of what "appropriate skills" should mean. Every FMI would otherwise interpret appropriate differently and narrow it down to its own business but not to the functioning of a FMI in general.

Key consideration 5 of this principle states, that *"The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI"*.

Comment: A definition of "appropriate experience" would be helpful to achieve common standards across FMIs.

Key consideration 7 of this principle states, that "The board should ensure that the FMI's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public".

Comment: There is much room for interpretation of what "legitimate interests" shall mean and what "appropriately reflected" shall mean. This may result in some FMIs being much more responsive to the direct or indirect participants, whereas others simply define the member requests as not-legitimate?

Principle 3: Framework for the comprehensive management of risks

Comment Eurex Clearing does not have any comments on this principle.

Principle 4: Credit risk

Key consideration 5 states that *"A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by* *a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually"*.

Comment: A CCP should disclose details related to its stress testing program while being allowed to keep confidential the stress testing results. Disclosing such result could potentially destabilize the market, particularly when products cleared or markets served display high volatility or positions are large. As a result, the ability of the CCP to effectively measure, monitor and manage its credit exposure to participants as part of a robust risk framework would be undermined.

Principle 5: Collateral

Key consideration 2 of this principle states, that *"An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions"*.

Comment: Description of collateral valuation policies and haircut methodology should be made available to clearing members and the general public. However, this should be done on a high-level basis only. CCPs should not be forced to publish their valuation algorithms.

Principle 6: Margin

Key consideration 2 outlines that "*A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable".* The key element "Identification of valuation models for calculating margin requirements when market prices are not readily available or reliable" is assigned to this key consideration.

Comment The key element should be extended from pure identification of the respective valuation models into the direction of availability of the model. The implication of "unreliable prices" for the risk measurement, e.g. by naming "materiality" based on open interest or "adjustments for illiquidity" if data is flawed should be considered.

For key consideration 3, key element 2 *"Close out and sample periods for margin model*" the following question is posed in the AM consultation paper *"Q.6.3.6: How does the CCP consider the trade- off between prompt liquidation and adverse price effects?*"

Comment The question should rather ask how the margin methodology considers the adverse price effect resulting from a prompt liquidation, e.g. by the liquidity add-on. It cannot be considered as an option to defer the liquidation hoping for better market conditions.

Principle 7: Liquidity Risk

Comment Eurex Clearing does not have any comments on this principle.

Principle 8: Settlement finality

Comment Eurex Clearing does not have any comments on this principle.

Principle 9: Money Settlements

Key consideration 3 of this principle states, that "*If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks*".

Comment Please clarify in the final report that only the key aspects of the due diligence methodology must be disclosed and not the specific results of the due diligence itself.

Principle 10: Physical delivery

Comment Eurex Clearing does not have any comments on this principle.

Principle 11: Central securities depositories

Comment Eurex Clearing does not have any comments on this principle.

Principle 12: Exchange-of-value settlement systems

Comment Eurex Clearing does not have any comments on this principle.

Principle 13: Participant-default rules and procedures

Key consideration 4 of this principle states, that "*An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that* *they are practical and effective."* The DF report lists the following associated key element: "Testing and review of the default procedures with participants and other stakeholders."

Comment The key element should clearly define what information is required regarding "testing and review", e.g. a test schedule, broad scope of the tests, no test cases as well as responsibilities of the involved members. Also the resolution regime of a CCP should be disclosed and therefore added to the minimum disclosure requirements.

Principle 14: Segregation and portability

Key consideration 2, key element 2 *"Ability of the CCP to readily identify positions of its participants' customers and to segregate related collateral."* the following question is posed in the AM consultative paper: *"Q.14.2.3: Does the CCP rely on the participant's records containing the sub-accounting for individual customers to ascertain each customer's interest? If so, describe how the CCP ensures its access to this information. Is customer margin obtained by the CCP from its participants collected on a gross or net basis? Is a customer's collateral exposed to "fellow-customer risk"?"*

Comment When a CCP relies on the participants records and has access to the records, how shall the CCP ensures that the received records are correct? In addition, please specify what is meant with "fellow-customer risk" in that respect.

Principle 15: General business risk

Key consideration 3 of this principle states, that *"An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements".*

Key consideration 5 of this principle states, that *"An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly".*

Comment The disclosure of the detailed plan for orderly wind-down or raising additional capital should not be mandatory.

Principle 16: Custody and investment risk

Key consideration 1 of this principle states, that *"An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets".* The key elements to this key consideration require disclosure of the

- Characteristics of the entities at which the FMI holds it assets
- Ability of the entities to protect the FMI's and its participants' assets.

Comment Custody policy should be described on a high-level only. The criteria for the selection and monitoring of payment banks (non-central banks) could also be made public. It should be clarified, if CCPs should be required to list these entities by name. Furthermore, segregation procedures should be described and made public.

Key consideration 3 of this principle states, that *"An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each".*

Comment Information as required by key consideration 3 can be published on an aggregate level, however details, e.g.: exact names and numbers should not be required to be disclosed.

Key consideration 4 of this principle states, that *"An FMI's investment strategy should be consistent with its overall risk- management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect".*

Comment The disclosure of the investment strategy including tenor rules should be required only without naming amounts invested. However, the types of investments allowed and their tenors could be disclosed but without mentioning the specific investments. Also, general criteria for choosing investment partners may also be disclosed.

Principle 17: Operational risk

Key consideration 5 of this principle states, that *"An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats".*

Key consideration 6 of this principle states, that "*An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete* *settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements".*

Comment A CCP should not be required to disclose details of its business continuity plan (eg. location of secondary site) as well as the crisis management and communication.

Principle 18: Access and participation requirements

Comment Eurex Clearing does not have any comments on this principle.

Principle 19: Tiered participation arrangements

Key Consideration 2 of this Principle states, that "An FMI should identify material dependencies between direct and indirect participants that might affect the FMI".

Furthermore Key Consideration 3 of this Principle states, that "An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions".

Comment It should under no circumstance be required to disclose the identity of clearing member's clients and the dependencies between members and clients to the public. These relationships are of confidential nature.

Principle 20: FMI Links

Comment Eurex Clearing does not have any comments on this principle.

Principle 21: Efficiency and effectiveness

Comment Eurex Clearing does not have any comments on this principle.

Principle 22: Communications procedures and standards

Comment Eurex Clearing does not have any comments on this principle.

Principle 23: Disclosure of rules and key procedures

Key consideration 1 of this principle states, that *"An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed".*

Comment Please clarify the definition of "relevant" rules and "key" procedures. Without the definition the point leaves room for interpretation, thus a homogeneous result across the industry is endangered.

Key consideration 5 of this principle states, that *"An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO Disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values".*

Comment Please clarify the definition of "basic data". To allow a comparison through the FMIs it has to be clear what kind of data needs to be disclosed.

Principle 24: Disclosure of market data

Comment Eurex Clearing does not have any comments on this principle.

Annex 2: Key metrics for CCPs

The following should be excluded as it contains either confidential information or is no information that is useful to describe the risk of a CCP:

- Value of routine margin collection vs. non routine margin calls
- Initial Margin requirement of sample portfolios (if regulators want to compare the results than an ad hoc request is more adequate as many CCPs do not have an overlap in products. Also the number of examples would need to be high to reflect effects of cross margining between different products)
- Results of simple standardized stress tests: There are no standardizes stress tests defined in the regulation
- Uncovered credit losses and how they are allocated: It is not clear what is actually meant as from clearing there should not be any uncovered exposures

C. Closing

We hope that you have found these comments useful and remain at your disposal for further discussion. If you have any questions please do not hesitate to contact:

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15 June 2012

CPSS/IOSCO Consultations on the proposed Assessment Methodology and Disclosure Framework for Financial Market Infrastructures

Euroclear response

We are pleased to be given the opportunity to offer Euroclear's[1] views on the CPSS/IOSCO Consultations on the proposed Assessment Methodology and Disclosure Framework for Financial Market Infrastructures ('FMIs').

Euroclear supports not only the global convergence represented by the CPSS/IOSCO Principles that will apply to FMIs, but also the delivery of consistent Disclosure Frameworks for FMIs globally.

General Comments

(i) The Format of the Assessment Methodology

We note that the proposed assessment methodology (AM) and the disclosure framework (DF) have two different audiences; the first being primarily addressed to regulators and the second to FMIs.

The Consultation notes that *"FMIs may have to conduct formal periodic full or partial self-assessments of observance of the principles"*. However, it is unclear on what basis such a self-assessment should be conducted and whether all CSDs will be required to produce such an assessment. It is also unclear whether the self-assessment should be kept updated by the FMI between the regular assessments by the national authorities (in order to evidence progress in complying with the Principles).

We assume that such a self assessment would need to be undertaken by the FMI using the proposed AM. However, we are concerned at the duplication of effort required if an FMI is required to complete both the DF and an AM (as a self-assessment) on a regular basis. FMI's should not be required to complete both on a regular basis.

(ii) Convergence with other Questionnaires

The structure of the proposed AM actually facilitates industry efforts to achieve global convergence of existing disclosure questionnaires (including the Association of Global Custodians (AGC) questionnaire which, in the case of CSDs, partly

[1] The Euroclear group is the world's leading provider of domestic and cross-border settlement and related services for bond, equity, fund and derivative transactions. User owned and user governed, the group comprises the international central securities depository Euroclear Bank, based in Brussels, as well as the national central securities depositories (CSDs) Euroclear Belgium, Euroclear France, Euroclear Nederland, Euroclear UK & Ireland and Euroclear Finland and Euroclear Sweden. Euroclear also owns Xtrakter, which operates the trade and transaction reporting services.

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overlaps with the CPSS-IOSCO framework). CSDs are already expected to publish a yearly (or at least biannual) update of both the AGC and CPSS-IOSCO disclosure frameworks, which for respondents represents a considerable administrative burden.

Such a burden would be reduced if all disclosures would be consolidated into a single questionnaire to be completed by CSDs on a regular basis, and in a standardised format to allow for easier comparison across countries and over time.

(iii) The Disclosure Framework

We support the proposal that an FMI should perform a comprehensive review of its responses (whether through a DF or a Self Assessment, but not both) at least once every two years.

(iv) CPSS/IOSCO and the EU CSD Regulation

CSDs in the EU will soon be subject to a Regulation of the European Union which aims to deliver a consistent regulatory playing field for all CSDs within the EU.

it is vital that the supervisory framework within the Regulation is fully consistent with the new CPSS-IOSCO Principles and that CSDs are not subject to duplicate, and potentially inconsistent, regulatory regimes. We would like to avoid a situation in which EU Competent Authorities could choose whether to apply the FMI Principles in addition to the contents of the CSD Regulation.

(v) Review of the operation of the new Principles

Given the additional requirements contained in the new Principles compared with the former SSS recommendations, we suggest that a review mechanism should be established in order to assess whether all of the Principles are working in practice, and which key considerations might need to be adjusted, in light of the experience gained in the first year(s) of implementation.

(vi) Selected RSSS Recommendations

We note that in Annex C of the Principles (page 141) six Recommendations from the RSSS continue to "remain in effect". However, it is unclear how the AM will apply (if at all) to these six recommendations. CPSS/IOSCO should provide further guidance for FMIs.

Comments on the DF

(i) Transparency and Confidentiality

We fully support the CPSS-IOSCO recommendation that FMIs should publish their responses to the DF on their websites.

However, we note that in some cases, it could be difficult for FMIs to provide comprehensive responses to the DF without releasing confidential information. This will have to be taken into account for a number of "key elements" of the DF for which FMIs should only be expected to publish a high-level overview.

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Comments on the AM

(i) Application of the AM

The AM (consistent with the Principles) applies some Principles to SSSs, but not to CSDs. As we pointed out in our July 2011 consultation response, this distinction is artificial as these are almost always the same legal entity.

(ii) Principle 1

Principle 1 foresees a number of confirmations relating to the enforceability of *"rules, procedures and contracts"*. The explanatory notes to the Key Considerations give guidance on which rules, procedures or contracts should be the focus of each Key Consideration. We believe this guidance is not appropriately reflected in the AM.

More specifically, question 1.4.1 (enforceability) suggests that a legal opinion should confirm the enforceability of rules, procedures and contracts in case of a participant insolvency. We do not think such a confirmation would be useful nor, more importantly, would it be possible to obtain in practice, for example in relation to the operating rules of an SSS. We would expect insolvency law to give the liquidator the possibility to suspend or terminate such rules, procedures and contracts. We suggest therefore, either to delete the sentence starting with "For example" or to limit the scope of the required confirmation to the relevant default arrangements which the FMI would activate in case of a Participant default or insolvency. This would bring the question in line with Section 3.1.9 of the Explanatory text which expressly refers to close-out, position/asset transfers, collateral and similar default related measures.

We believe a similar clarification is required for question 1.4.3 which refers to voidance, reversal and stays.

Question 1.4.2 (legal precedence): If any legal precedence could prevent the enforceability of an agreement, we believe this would already have been covered by the relevant opinions discussed in question 1.4.1. Therefore, we propose to delete question 1.4.2.

(iii) Principle 9 – Money Settlement

Principle 9 explains that *"An FMI needs to conduct money settlements with or between its participants for a variety of purposes such as the settlement of individual payment obligations, funding ... and the collection and distribution of margin"*. This Principle is supposed to apply to all SSSs, but not to CSDs (but see comment above for the confusion that this artificial distinction creates). However, we believe that this Principle was drafted in relation to CCPs (and other FMIs) undertaking clean payments, not in relation to CSDs and DVP settlement (whether in commercial or central bank money). As we explained in our July 2011 consultation response, this confusion between clean payments and DVP could be avoided by referring to the nature of the cash settlement asset in DVP settlements. This would assist in being able to interpret how to apply Principle 9 in an environment where the CSD/SSS is a credit institution.

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June 15, 2012

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Re: Response to (1) Disclosure framework for financial market infrastructures and (2) Assessment methodology for the principles for FMIs and the responsibilities of authorities

The Global Financial Markets Association[1] ("***GFMA***") and the International Swaps and Derivatives Association, Inc.[2] ("***ISDA***") welcome the opportunity to submit comments to the Committee on Payment and Settlement Systems ("***CPSS***") and the Technical Committee of the International Organization of Securities Commissions' ("***IOSCO***") regarding two consultative reports related to the CPSS-IOSCO Principles for Financial Market Infrastructures (the "***FMI Principles***")[3]: the Disclosure Framework for Financial Market Infrastructures (the "***Disclosure***

[1] The Global Financial Markets Association (GFMA) brings together three of the world's leading financial trade associations to address the increasingly important global regulatory agenda and to promote coordinated advocacy efforts. The Association for Financial Markets in Europe (AFME) in London and Brussels, the Asia Securities Industry & Financial Markets Association (ASIFMA) in Hong Kong and the Securities Industry and Financial Markets Association (SIFMA) in New York and Washington are, respectively, the European, Asian and North American members of GFMA. For more information, visit http://www.gfma.org.

[2] ISDA's mission is to foster safe and efficient derivatives markets to facilitate effective risk management for all users of derivative products. ISDA has more than 800 members from 58 countries on six continents. These members include a broad range of OTC derivatives market participants: global, international and regional banks, asset managers, energy and commodities firms, government and supranational entities, insurers and diversified financial institutions, corporations, law firms, exchanges, clearinghouses and other service providers. For more information, visit www.isda.org.

[3] Committee on Payment and Settlement Systems and Technical Committee of the International Organization of Securities Commissions, *Principles for financial market infrastructures*, April 2012.

Framework")[4] and the Assessment Methodology for the Principles for FMIs and the Responsibilities of Authorities (the "***Assessment Methodology***").[5]

The FMI Principles make significant advances in promoting effective risk management and a stronger global financial infrastructure that is transparent to participants. For instance, we consider the principle that FMIs that settle linked obligations should eliminate principal risk by making the final settlement of one obligation contingent on the final settlement of the other (Principle 12) to be a key aspect of a more stable global settlement infrastructure. We note that the focus on operational risk under Principle 17 is particularly important in that such risks may be harder to identify and measure than market, credit or other financial risks. And we concur with the approach to links between FMIs taken in Principle 20, which recognizes that the interconnections among FMIs may present a further source of risk. We believe that a project such as the one CPSS-IOSCO has undertaken—to articulate a formal structure for risk management and key operational aspects for FMIs; establish a means for making such a structure transparent; and create consistent international standards to assess compliance—will have the effect of establishing strong foundations for the global financial infrastructure and support long-term stability.

The FMI Principles will only have these effects to the extent they are diligently observed. Transparency to market participants and frequent comprehensive assessments are essential to achieving the goals of the FMI Principles. We are therefore pleased to submit our comments regarding the guidelines set forth in the Disclosure Framework and Assessment Methodology, and we thank CPSS and IOSCO for their work in bringing this project to fruition.

Introduction

As an increasing number of swaps are cleared through central counterparties ("***CCPs***"), both buy-side and sell-side participants in the market will increasingly face CCPs as counterparties instead of each other. In the over-the-counter ("***OTC***") market, participants have had the ability to choose the parties with which they were willing to transact. Historically, they used a number of methods to assess their exposure to the credit of their OTC counterparties and had the ability to require the financial and other information they considered essential to making informed credit decisions. In addition, OTC market participants have been able to negotiate appropriate collateral packages to mitigate credit risks identified through this process and provisions that allow them to react quickly in response to changes in market conditions or a counterparty's credit risk.

To a large extent, however, these tailored practices will not be available in the clearing environment. Counterparties will be obligated by law and regulation to clear many of their swaps and may have very limited choices of venues for clearing. Counterparties that are regulated financial institutions will therefore have to be able to assess the risks of their clearing

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[4] Committee on Payment and Settlement Systems and Technical Committee of the International Organization of Securities Commissions, *Disclosure framework for financial market infrastructures*, April 2012.

[5] Committee on Payment and Settlement Systems and Technical Committee of the International Organization of Securities Commissions, *Assessment methodology for the principles for FMIs and the responsibilities of authorities*, April 2012.

arrangements, including the effects of such risks on their regulatory capital requirements.[6] It is therefore essential that counterparties be able to obtain sufficient information from CCPs to allow them to make appropriate risk assessments.

We believe enhanced disclosures and careful assessments are also crucial for the other types of FMIs covered by the Disclosure Framework and Assessment Methodology. Such entities play critical roles in settling financial transactions, safeguarding assets and maintaining important records. We believe that clear, comprehensive disclosures about and effective oversight of these entities is essential to the global financial markets.

We commend the steps that the Disclosure Framework and Assessment Methodology take toward promoting transparency and reducing risk. By adopting the FMI Principles and proposing the Disclosure Framework and Assessment Methodology, CPSS and IOSCO have assumed a vital role in promoting the safety and soundness of the global financial infrastructure. Our comments in this letter on the Disclosure Framework focus on further increasing transparency and providing more granular data to market participants. Our comments on the Assessment Methodology generally are designed to facilitate a more comprehensive review by regulators and external assessors under the Assessment Methodology.

One important goal of the Disclosure Framework should be that market participants will be able to compare the risks posed by different FMIs by evaluating standardized information produced through the required disclosures. In order to allow market participants to make such a comparison, however, the Disclosure Framework must supply sufficient direction and guidance to FMIs to ensure that information is disclosed and prepared in a consistent and comparable form. We recognize that the guidelines must be flexible in order to conform to multiple legal regimes, organizational structures and methodologies, and are suggesting a level of granularity that we believe will heighten comparability while still providing adequate flexibility, particularly for CCPs.

Although the purpose of the Assessment Methodology is to promote implementation and ongoing observance of the FMI Principles and not to provide market participants with information about FMIs, we believe that assessment reports will contain information that would be important to market participants. We acknowledge that there is inherent tension between ensuring full and frank communication with regulators and external assessors, on the one hand, and enhancing transparency by making assessment reports widely available, on the other. We request, however, that the Assessment Methodology specify the entities to which the assessment reports must be delivered and require that FMI participants be provided access to such reports through a secure, password-protected or otherwise restricted website. This is especially important for the participants in FMIs that will be providing guarantees, default funds or other financial support to those FMIs. In order to mitigate any concerns regarding inappropriate disclosure or misuse of confidential information included in such assessment reports, we believe participants should be prohibited from using any information from assessment reports for any purpose other than to assess and manage the risks inherent in their relationships with the FMI

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[6] *See, e.g.,* Basel Committee on Banking Supervision, *Capitalisation of bank exposures to central counterparties*, 25 November 2011 (proposing approaches to capitalize both trade risk and default fund risk for clearing members).

and should establish information walls and institute other procedures that they would customarily use to protect confidential information.

In addition, assessment reports on the observance of the responsibilities of central banks, market regulators, and other relevant authorities for FMIs would provide important information about the overall strength of the supervisory framework under which each FMI operates. Some supervisory entities do currently provide "oversight reports," and we suggest that the Assessment Methodology encourage the publication of such reports.

Discussion.

Disclosure Framework.

General. The Disclosure Framework should facilitate disclosures that reflect the following considerations:

- As stated in Principle 23, the disclosure should "provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI";
- Disclosures should be certified by senior management of the FMI and reviewed by the Board of Directors;
- Disclosures should, to the extent feasible, be comparable across entities or segments, as applicable;
- Disclosures should be updated on at least an annual basis with certain aspects updated quarterly or monthly, as described below, and promptly after material changes; and
- Disclosures should be easy to locate, clearly marked and easily accessible through the FMI's website.

To ensure provision of sufficient information and facilitate comparable disclosures, we believe the general instructions and template should be expanded to provide greater clarity regarding how the disclosures should be prepared and how and to whom they should be made. For your convenience, we have attached as Annex 1 to this letter a proposed revision to the introduction, template and general instructions for such disclosures. Some of our key proposed changes include (i) moving the guidance that appeared in the introduction into the general instructions; (ii) adding text detailing the considerations set forth above; (iii) revising Part V of the template to state that FMIs should include in the annex additional publicly available resources and make available to the public all rulebooks, manuals, charters, bylaws and similar governing documents; (iv) adding instructions to prepare disclosures on a system-by-system or segment-by-segment basis, as well as aggregate disclosures, for FMIs that offer multiple services and CCPs that clear a range of different product types and (v) including instructions to post these disclosures to the FMI's website.[7]

Updating Disclosures. The Disclosure Framework specifies that both the narrative disclosure and the key metrics should be updated following material changes to an FMI's system or its environment and that an FMI should, in any event, perform a comprehensive review of its responses to the Disclosure Framework to ensure they are up to date at least every two years.[8] However, financial disclosures will not be useful if only updated once every two years. Moreover, requiring general updates only every other year may reduce the usefulness of the disclosures. In order to ensure that market participants have up-to-date information, we believe that, in addition to prompt updates for material changes, FMIs should review and update all disclosures on an annual basis. Moreover, we believe that CCPs specifically should update disclosures regarding key metrics, including the information requested in Annex 2, and other key financial information on at least a monthly or quarterly basis.[9]

Principle-by-Principle Narrative.[10] We believe that the Disclosure Framework should in general provide more specific guidance to FMIs with respect to the principle-by-principle narrative. In the bullet points below, we describe several ways that we believe the guidance should be expanded or supplemented in order to ensure that disclosures are clearer, more detailed, and more consistent:

- Principle 1 (Legal basis). An FMI should (i) disclose whether it has obtained legal opinions regarding key aspects of the FMI's activities or operations, and the dates of those legal opinions; (ii) specify whether those legal opinions confirm the enforceability of the FMI's rules and procedures; (iii) make available copies of such legal opinions to participants; and (iv) state whether participants can rely on those opinions. The FMI should identify any legal regimes under which it is registered or that otherwise apply to it, describe how it complies with those legal regimes, and describe potential risks or consequences of failure to maintain full compliance. FMIs should disclose the applicable

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[7] In many circumstances, we have also identified further information or detail that we consider specific to CCPs. We believe it may be helpful to include a separate Annex 3 that could contain additional questions and instructions for CCPs that are linked to certain Key Elements in Annex 1 and that are designed to provide additional guidance and requirements to CCPs in preparing their narrative disclosures, without having to make CCP-specific modifications to the Key Elements in Annex 1. Some of the information currently requested by Annex 2 that is more narrative in nature, such as policies on investment risk and segregation disclosures, could then be requested under the new Annex 3, and the items in Annex 2 could be limited primarily to numerical, statistical or similar information whose disclosure would be required on a quarterly or monthly basis. We have not, however, tried to craft the additional Annex 3 for purposes of this letter.

[8] *See* Committee on Payment and Settlement Systems and Technical Committee of the International Organization of Securities Commissions, *Disclosure framework for financial market infrastructures* at 2, April 2012.

[9] See section regarding Key Metrics below for further discussion about updating the key metric disclosures.

[10] We note that the Key Elements throughout the Disclosure Framework (and Assessment Methodology) are confusing in that they occasionally require both "identification" and "disclosure" of information, and sometimes one or the other. For example, the Key Elements to Principle 2 require, among other things, "Identification of the governance arrangements under which the board and management operate" and also "Disclosure of the identified governance arrangements."[10] It is not clear how, exactly, these are different. Instead of "identify" or "disclose," we recommend that the Key Elements use the words "describe" or "provide."

resolution procedures that would be expected to apply to them and how they would be resolved or unwound if necessary.

- Principle 2 (Governance). FMIs should be required to identify their directors and explain those directors' qualifications; identify each committee of their boards and the directors who serve on each such committee; identify the responsibilities and roles of each committee; describe how often their boards of directors as a whole meets; describe how often each committee meets; and describe the policies and procedures they have in place to mitigate conflicts of interest involving members of their boards or any such committees. In connection with Key Consideration 7 to Principle 2, FMIs should identify whether and to what extent they seek stakeholder opinions through roundtables or any other type of open communication and, in particular, whether and to what extent they consult with market participants before implementing rule changes. Finally, FMIs should include organizational charts in their disclosures.

  In addition to the foregoing requirements that should apply to all FMIs, CCPs should be required to provide further disclosures regarding their risk committees. CCPs should describe the composition of their risk committees and provide copies of their risk committee charters and any policies and procedures that apply to them. They should also describe the responsibilities and role of their risk committees. Additionally, CCPs should disclose whether their risk committees are board or advisory committees and whether their members have a fiduciary duty to the CCPs. The CCPs should describe how they select members of their boards and risk committee(s) and the length of their terms.

- Principle 3 (Framework for the comprehensive management of risk). In addition to the disclosures that should apply to all FMIs, CCPs should be required to identify the senior members of their risk management teams and their qualifications, describe the role of the risk management teams, and disclose information about the CCPs' emergency powers, including the conditions under which it may exercise emergency powers. CCPs should also disclose the types of models they use in assessing risks and the types of risks tracked by those models, describe the types of risk limits that have been established (*e.g.*, limits on clearing members or limits on types of exposures), explain the processes for monitoring compliance with risk limits and backtesting risk assumptions, and describe the process, if any, for overriding risk limits (and how the CCPs will ensure that their override processes are not subject to conflicts of interest that may compromise risk management in a mandatory clearing environment).

- Principle 4 (Credit risk). CCPs, securities settlement systems ("***SSSs***") and payment systems ("***PSs***") should describe how they assess, monitor and collateralize the credit risk of their participants, counterparties, custodians and others to whom they have credit exposure. Importantly, they should also describe how losses are allocated in the event of a shortfall (*i.e.*, whether they are allocated out and, if so, to whom) in a way that fully satisfies the information required in Explanatory note 3.4.25 under Principle 4 of the FMI Principles. They should also describe their basis for concluding whether Cover 1 or Cover 2 applies to them. CCPs, SSSs and PSs should also disclose information regarding their interoperability agreements (if any), and make publicly available the agreements themselves. Disclosures should address how risks arising from an interoperable link are managed, including what actions would be taken in the event of the default of a CCP, SSS or PS with which they have an interoperable arrangement, and what impact such a default would have on the (solvent) CCP's, SSS's or PS's participants. Additionally, CCPs should disclose what assumptions on close-out or portability are made when stress-testing clients' positions (*i.e.*, whether all, some, or no client positions are included in the stress-testing exercise and default fund sizing).

- Principle 5 (Collateral). CCPs, SSSs and PSs should describe, for both house and client collateral:
  - the method used for transferring cash and securities (*e.g.*, pledge or title transfer);
  - details regarding the operational structure of collateral accounts, such as whether their collateral accounts are held on an omnibus or segregated basis and whether collateral is required on a gross or net basis;
  - what assets are considered to be eligible collateral and any standard haircuts applicable to such assets;
  - the method employed by the CCP to set haircuts, under what circumstances those haircuts would change, how the CCP communicates changes and how it addresses potential procyclical effects;
  - whether client collateral is segregated from or commingled with the CCP's, SSS's or PS's own assets; and
  - their legal certainty with respect to the segregation of collateral from the assets of settlement banks/custodians.

- Principle 6 (Margin). CCPs should describe the results of any reviews regarding their initial margin models, including the review's scope, results, recommendations and any changes made as a result of the review. CCPs should also describe the frequency and summary results of their backtesting of ***current*** positions against confidence levels established by the Board of Directors (or similar governing body) or risk committee.[11] CCPs should also describe how, if at all, they mitigate the impact of their intraday variation margin calls on the liquidity of their participants.

- Principle 7 (Liquidity risk). CCPs, SSSs and PSs should describe their liquidity resources, including assessing their stock of high quality liquid assets and their procedures for maintaining that stock, describing any encumbrances on such assets, evaluating their additional liquidity resources, assessing the reliability of those resources at times of market stress, and assessing the sufficiency of their liquidity resources to cover an extended liquidity crisis. They should describe whether they have committed liquidity facilities, the nature of the liquidity provider (*e.g.*, central bank or commercial bank), any conditions to draw that may compromise the viability of such facilities as contingent liquidity, and the amount of such facilities. They should also describe their basis for concluding whether Cover 1 or Cover 2 applies to them.

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[11] Maintaining ongoing records of potential losses of historical positions against historical margins is not backtesting, and does not indicate the adequacy of the CCP's current margin methodology for the clearing the members' current cleared positions.

- Principle 8 (Settlement finality). Each FMI should disclose (i) which BIS DvP settlement model it uses; (ii) how the FMI informs participants of final account balances; (iii) what the time lag is between the revocation point and the point of settlement finality and (iv) in the case of settlement procedures involving links to other FMIs, how and when settlement finality is ensured.

- Principle 12 (Exchange-of-value settlement systems). FMIs should be directed to provide diagrams and flowcharts illustrating the settlement process and the timing of each step in the process.

- Principle 13 (Participant-default rules and procedures). In addition to the disclosures that should apply to all FMIs, a CCP should be required to disclose how margin is applied in the event of a customer or clearing member default, any segregation or legal aspects to the CCP's treatment of margin that mitigate or enhance fellow customer risk, the order in which resources will be used (*i.e.*, the waterfall), whether the CCP has the right to make further assessments against its participants and any limits on such assessment rights, the role of the default fund or other resources, the circumstances in which the CCP's own capital will be applied, and the circumstances in which the CCP's own capital will *not* be applied (including any limitations on liability that the CCP may have). Finally, all FMIs should provide a general description of what would happen to customer and participant funds if the FMI were to default and whether, in the event of a participant's bankruptcy, other participants would potentially be liable to cover shortfalls even if they withdraw before they are called upon to contribute.

- Principle 14 (Segregation and portability). Disclosures as to whether clients are protected against simultaneous default of clearing member and fellow clients should be made in the narrative principle-by-principle disclosure, rather than as part of the key metrics disclosures required by Annex 2.

- Principle 15 (General business risk). FMIs should be required to provide annual audited financial statements, including an audit report in accordance with SAS 70 standards, quarterly unaudited financial statements and annual independent assessments of their internal controls over financial reporting requirements.

- Principle 16 (Custody and investment risks). FMIs should be required to disclose the criteria used to determine which specific entities the FMI uses to hold assets and cash of participants and their customers (without identifying any of the FMI's participants or customers),[12] the processes that the FMI uses to ensure proper segregation of custodial assets and cash on the books and records of the custodian, any legal regimes that would potentially constrain access to custodial assets and cash in the event of an insolvency of the custodian and whether or not each custodian is independent from the FMI. Additionally, FMIs should provide specific information about their investment policies such as restrictions on re-use of customer collateral.

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[12] FMIs should also not be required to disclose the identity of any counterparty to a repurchase agreement when disclosing custodial entities.

- Principle 18 (Access and participation requirements). FMIs, and CCPs in particular, should explain how they ensure that their capital reserves are sufficient to cover risk posed by new participants. FMIs should also demonstrate how they satisfy the requirements of Explanatory note 3.8.15 regarding risk-related participation requirements. Finally, CCPs should describe their requirements for new participants in connection with the default management process and the diligence performed by the CCP with regard to these requirements.[13]

- Principle 23 (Disclosure of rules, key procedures, and market data). In addition to other disclosures discussed above, CCPs should disclose any standard terms that apply to particular cleared products and describe any system or operational aspects that differ for different cleared products.

Key Metrics. In addition to the metrics already listed in Annex 2, we believe a CCP should provide monthly disclosures on a public website of aggregate information about its open positions and a valuation for its positions. The aggregate information should be tailored to individual product types so that CCPs disclose the gross notional value of cleared trades and notional value of net open positions for OTC products and the notional value of net open positions (open interest) for futures. For securities, CCPs should provide the market value of open trades and daily settlement value.

Finally, we believe that the description of the key metrics currently identified in Annex 2 should be revised to reflect the following concerns and should be updated at least monthly unless otherwise specified:

- Initial Margin
    - *Total non-cash collateral held* – this should be split out by type of security and method of transfer;
    - *Proportions of non-cash collateral held by collateral type* – the term "collateral type" should be further defined;
    - *Frequency of routine initial and variation margin collection* – this item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative disclosure required by Annex 1. Additionally, this item should include both intraday and end of day times;
    - *Number of non-routine margin calls over last 12 months* – this should be updated monthly on a 12-month rolling basis;
    - *Value of routine margin collection vs. non-routine margin calls over last 12 months* – same comment.
    - *Summary description of margin methodology and representative list of factors that would cause margin requirements to change. Should include summary of netting arrangements across positions / products* – this item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative

[13] We believe that new CCP participants must have the operational capacity and resources (including personnel with relevant expertise) to be able to quickly analyze, develop and execute on a plan for disposing of a portfolio of a defaulting fellow participant.

disclosure required by Annex 1 (*i.e.*, Principle 6). However, we strongly urge CPSS-IOSCO to require CCPs, whether in Annex 1, Annex 2 or (preferably) both, to provide details of their initial margin back-testing methodology and the results of their back-tests. Importantly, CCPs should be required to explain how their default management plan meets the appropriate confidence level based on the CCP's current positions.

- Default fund
  - *Size of pre-paid DF, including any segmentation by, e.g., type of product* – CCPs should update this disclosure whenever their default funds are resized, and this description should clarify whether "pre-paid" means "funded";
  - *Discussion of ability to call additional contributions from participants* – this item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative disclosure required by Annex 1 and that a CCP disclose the amount of additional contributions that may be called;
  - *Explanation of the specific stress test or series of tests from which the size of the DF was derived. (Implicitly, more severe tests would result in losses beyond the default capabilities of the CCP)* – this item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative disclosure required by Annex 1. We also believe that the parenthetical should be clarified;
  - *Results of simple standardized stress tests, e.g., parallel shift in relevant curves* – this should be broken out for various types of stress tests;
  - *Frequency of stress testing, backtesting and model reviews/validation* – this item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative disclosure required by Annex 1. We also believe that this item should clarify that "backtesting" is for initial margin and "model reviews" are for both initial margin and default funds.

- Capital
  - *Capital / own funds* – this should include several specific questions regarding the quality as well as the amount of capital and the types and amounts of assets held by the CCP representing such capital.

- Investment risk
  - *Policy on how margin and default fund invested* – this item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative disclosure required by Annex 1 and that CCPs disclose whether returns on invested collateral will be provided back to participants;
  - *Summary details of investments held at the CCP's own risk* – a standard report should be created for this disclosure;
  - *Summary measure of interest rate and fx risk in the investment portfolio* - a standard report should be created for this disclosure.

- Liquidity risk – CCPs should also evaluate the quality of their liquidity resources at a time of market stress. This item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative disclosure required by Annex 1.

- Segregation arrangements

    - *Whether clients are protected against simultaneous default of clearing member and fellow clients* – this item could be moved to Annex 3, which could instruct that it be addressed in the relevant narrative disclosure required by Annex 1. We also believe that the field should ask more granular questions regarding customer collateral protections. For example, CCPs should identify whether they can use non-defaulting customer funds to cover fellow-customer shortfalls, whether customer funds are individually segregated, and whether any specific bankruptcy rules would affect customer protections.

Assessment Methodology.

The Assessment Methodology provides a way to evaluate an FMI's observance of the FMI Principles. We believe that frequent internal and external reviews provided for by the Assessment Methodology will be helpful in reducing the risk posed by central counterparties. We note, however, that the Assessment Methodology does not specify the frequency with which assessments should be performed (by an FMI itself, national authorities or external assessors). Instead, Section 1.1 merely states that FMIs "may have to" periodically conduct self-assessments and that national authorities are "expected" to "regularly assess" FMIs.[14] We believe that, without frequent internal and external compliance reviews, FMIs will be more likely to fail to observe the principles and responsibilities dictated by the FMI Principles. We therefore believe that internal and external assessments should be mandatory, and that national authorities and FMIs should be required to conduct these assessments on at least an annual basis.

Additionally, while we appreciate the inclusion of timeframes for addressing any identified concerns,[15] we believe that the Assessment Methodology must prescribe a method for ensuring that these concerns are, in fact, addressed. In this regard, the Assessment Methodology should require recommendations to include a date for follow-up testing and should mandate that follow-up testing (by regulators, external assessors or the FMI, depending on who identified the relevant concern) actually occurs.

Similarly, in order to ensure that any potential problems identified during the assessment process are actually resolved, we urge CPSS-IOSCO to require that any material concerns be reported to the Financial Stability Board (the "***FSB***"). Additionally, we believe that the FSB should function as a centralized repository for all assessment reports by national authorities, evaluating such reports for consistency and providing external oversight with respect to developing issues. We also suggest that the Assessment Methodology include clear instructions for national authorities, as well as the International Monetary Fund and the World Bank (both of whom will function as external assessors under the Assessment Methodology), as applicable, to

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[14] *See* Assessment Methodology, p. 1.

[15] *See id.* at 11.

bring promptly to the attention of the FSB any issues with respect to an FMI or the oversight of the FMI that warrant the FSB's attention.

We also believe that the Assessment Methodology should identify how the assessment reports will be used. These reports will contain information that will be critical for regulators and market participants using FMIs. We therefore believe that all assessment reports (whether generated by FMIs or regulators) should be available to regulators and (although we earlier noted the inherent tension in such a requirement), to market participants that use the FMI in question. Assessments should also include a date range for the period of time that was reviewed.

Finally, we believe that the Assessment Methodology would further reduce risk if assessors were required to ask more granular questions and if the Assessment Methodology imposed more specific standards on FMIs. In this regard, below we provide several specific changes that we believe should be incorporated:

- Table 2 in Appendix 1 should identify the "Relevant parties" by name, title, and/or organization and should identify the reviewing authority (if applicable) by agency name;

- Table 2 in Appendix 2 should include a date for follow-up testing (*i.e.*, when the recommended action must be completed or implemented);

- Question 1.1.1 under Principle 1 (Legal basis) should specifically ask about legal certainty with respect to the following activities or operational aspects: (i) settlement finality; (ii) netting; (iii) interoperability (if applicable); (iv) immobilisation and dematerialisation of securities; (v) arrangements for DvP, PvP, or DvD; (vi) collateral arrangements (including margin arrangements); and (vii) default procedures;

- Question 1.1.3 under Principle 1 should require an assessor to ask: (i) whether the FMI has obtained any legal opinions regarding material aspects of the FMI's activities (and identify the date of those legal opinions);[16] (ii) whether those legal opinions confirm the enforceability of the FMI's rules and procedures; and (iii) whether the FMI has disclosed those legal opinions to market participants;

- Principle 2 (Governance) should require board members to have sufficient expertise in financial services and clearing services, and an assessor should question whether the board has identified an appropriate level of risk tolerance;

- Key Consideration 2.7 in Principle 2 should assess whether and to what extent the FMI involves its stakeholders in the risk management process by, for example, including participants in risk management committees or default management groups, publishing draft procedures for consultation or otherwise seeking participant input;

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[16] We note that Question 1.1.3 refers to "the legal opinion(s)/analysis(es)," but it is not clear which legal opinions or analyses this reference relates to. We believe that modifying question 1.1.3 as described above would eliminate any confusion.

- Question 4.5.2 under Principle 4 (Credit risk) asks how stress-testing results are communicated to "relevant parties." We believe that assessors should additionally ask who the relevant parties are for purposes of this question;

- We suggest modifying Question 7.7.2 under Principle 7 (Liquidity risk) by adding at the end of the question: "including under stressed circumstances";

- Principle 8 (Settlement finality) should be modified in the following ways: (i) in connection with Key Consideration 8.1, an assessor should ask which BIS DvP settlement model the FMI uses; (ii) Question 8.2.5 should ask how the FMI informs participants of final account balances; and (iii) in connection with Key Consideration 8.3, an assessor should ask what the time lag is between the revocation point and the point of settlement finality and, in the case of settlement procedures involving links to other FMIs, how and when settlement finality is ensured;

- In connection with Key Consideration 11.6 to Principle 11 (Central securities depositories), we believe that, if a CSD engages in activities other than central safekeeping and administration of securities and settlement, an assessor should ask whether the CSD legally separates those activities from each other and, if so, how;

- Question 13.3.1 under Principle 13 (Default rules and procedures) should ask whether the FMI's default rules are only disclosed to regulators or if they are also publicly available[17];

- Question 17.6.1 under Principle 17 (Operational risk) should ask what "wide-scale or major disruptions" the FMI's business continuity plan assumes; and

- In connection with Key Consideration A.1 to Responsibility A, relevant authorities should state whether or not they publicly publish an oversight report that provides information about the ratings for regulated FMIs.

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Thank you again for the opportunity to comment on the Disclosure Framework and Assessment Methodology. We would be pleased to discuss any of these comments in further detail, or to provide any other assistance that would help facilitate your review and analysis.

[17] Please note that we believe default rules should be publicly available.

Sincerely,

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Edwin Budding
Assistant Director, Risk and Research
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Annex 1

1 Introduction

Clear and comprehensive disclosures by financial market infrastructures (FMIs) support sound decision making by market participants, authorities, and the public. Such disclosures also support the main public policy objectives of the CPSS and IOSCO to enhance the safety and efficiency in payment, clearing, settlement, and recording arrangements, and more broadly, limit systemic risk and foster financial stability and transparency.

This disclosure framework was prepared to supplement the CPSS-IOSCO *Principles for financial market infrastructures* (PFMI report) and to assist FMIs in providing the comprehensive level of disclosure that is expected of them under Principle 23 on disclosure of rules, key procedures, and market data.

This disclosure framework was prepared in connection with the CPSS-IOSCO *Assessment methodology for the principles for FMIs and the responsibilities of authorities* to ensure a common framework for disclosure and assessment that will reduce burden on FMIs and provide assessors with a basic set of information from which to begin their assessments of FMIs.

2 FMI disclosure template

In order to facilitate the comparison of FMIs, an FMI's disclosure should follow the structure outlined below. The general instructions set forth below apply to all disclosures pursuant to this template.

Responding institution: *[name of FMI]*
Jurisdiction: *[name of primary regulator(s)]*

The information provided in this disclosure is accurate as of *[date]*. This disclosure can also be found at *[website address]*. For further information, please contact *[contact details]*.

I. Executive summary

II. General description of the FMI: (a) organization; (b) market(s) served; and (c) key metrics

A. General description

An FMI should provide basic, concise descriptions of the services offered and functions performed by the FMI. A clear description of the typical lifecycle of the transaction clearing and settlement process under normal circumstances may also be useful for participants and the public. The information should highlight how the FMI processes a transaction, including the timeline of events, the validation and checks to which a transaction is subjected, and the responsibilities of the parties involved.

B. Key metrics

An FMI should provide key metrics of its services and operations. For example, an FMI should provide basic volume and value statistics by product type, average aggregate intraday exposures of the FMI to its participants, and statistics on the operational reliability of the FMI's systems. An FMI should also provide statistics related to the financial resources it holds to meet the requirements of the PFMI report. For CCPs, a detailed list of key metrics is provided in Annex 2.

III. Summary of major changes since last update

An FMI should provide a summary of changes since its last disclosure to highlight any material changes and updates to the FMI's design and services.

IV. Principle-by-principle narrative disclosure

An FMI should provide a narrative response for each applicable key consideration with sufficient detail and context, as well as any other appropriate supplementary information, to enable the reader to understand the FMI's approach to or method for observing the principles. Cross-references to publicly-available documents should be included, where relevant, to supplement the FMI's discussion. Section 3 and Annex 1 provide specific guidance on the expected content of an FMI's narrative responses. [Annex 3 provides additional specific guidance and instructions that a CCP should follow in preparing its narrative responses.][18]

V. Annex of additional publicly available resources

The annex of additional publicly available resources must include all rulebooks, manuals, charters, bylaws and similar governing documents. Any amendments to such materials must be posted promptly after adoption. If not apparent on its face, the nature of the amendment should be described.

3 General instructions for completing the template

1. All disclosures should be prepared in accordance with the standards set forth in Principle 23, including by providing sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI In particular, FMIs should provide responses that are thorough and at an appropriate level of detail in order to:

   (1) provide substantive descriptions of key risks, policies, controls, rules, and procedures on a principle-by-principle basis, as required by Principle 23;

   (2) provide current and prospective participants, other market participants, authorities, and the general public with a comprehensive understanding of the FMI, its role in the markets it serves, and the range of its relationships, interdependencies, and interactions (for example, its key links, key service providers, and participants); and

   (3) improve transparency of FMI governance, risk-management, and operating structure in order to inform and facilitate comparisons among FMIs by current and prospective participants, other market participants, authorities, and the general public.

2. An FMI should provide a comprehensive narrative disclosure for each key consideration for each relevant principle, including the key elements listed in the assessment methodology under each key consideration. For the disclosure to be considered complete, the FMI's response must cover at a minimum all of these key elements.

[18] Annex 3 would set forth additional guidance and instructions that would be followed by CCPs in preparing their narrative disclosures, in order to elicit more granular detail, as discussed in footnote 7 above.

Descriptions of the key considerations and key elements, including guidance on necessary detail, are included below in Annex 1 [and Annex 3].

3. FMIs that offer multiple types of services, or comprise multiple infrastructure systems or business segments (such as an FMI that acts as both a CSD and an SSS) should provide separate disclosures for each service, system or segment and aggregate disclosures for all such services, systems and segments. CCPs with separate clearing systems for different product types should also prepare their disclosures separately for each clearing system and on an aggregate basis for all such clearing systems. Disclosures should be presented in a format that will facilitate comparison across affiliated legal entities and across services, systems or segments for such entities.

4. Disclosures must be certified by the FMI's Chief Executive Officer, Chief Accounting Officer or Chief Financial Officer, as applicable. All disclosures should be reviewed by the FMI's Board of Directors or equivalent governing body.

5. The applicability of each principle to particular types of FMIs is indicated in Annex 1 by the dots in the tabs attached to the headline principles. Disclosures described in Annex 2 [and Annex 3] are required only for CCPs.

6. Charts and diagrams should be included wherever they would be helpful. All charts and diagrams should be accompanied by a description that enables them to be easily understood.

7. In cases where multiple responses to a question are needed, for example if an FMI offers multiple types of services (such as, an FMI that acts as both a CSD and SSS), the FMI should provide a response covering each service and indicate the extent to which each response is relevant.

8. An FMI should not simply refer to or quote rules or regulations as a response to the disclosure framework. As a supplement to a response, however, an FMI may indicate where relevant rules or regulations may be found.

9. When addressing the timing of events, an FMI should provide responses relative to the local time zone(s) where it is located.

10. An FMI should update its responses to the disclosure framework following material changes to the system or its environment. General disclosures should be updated at least annually and promptly after any material change, financial disclosures should be updated at least quarterly, and metrics should be updated monthly unless otherwise indicated.

11. All disclosures should be made on the FMI's public website describing the services it offers, by way of a clearly labeled and highly visible link on the website's home page. If the FMI has more than one such website, the disclosures may be consolidated in a single location but each website should contain a clearly labeled and highly visible link on the website's home page to such location.

Response of ICE Clear Europe to the CPSS-IOSCO consultation papers concerning the assessment methodology and disclosure framework for the principles for financial market infrastructures

15 June 2012

Introduction

ICE Clear Europe welcomes the opportunity to respond to the CPSS-IOSCO consultative reports issued in April 2012 relating to the principles for financial market infrastructures, as follows:

- The consultative report concerning the assessment methodology
- The consultative report concerning the disclosure framework

ICE Clear Europe is recognised by the U.K. Financial Services Authority (FSA) and is the designated clearing house for ICE Futures Europe, ICE OTC and European credit default swap (CDS) contracts. ICE Clear Europe is also a CFTC-regulated Derivatives Clearing Organization (DCO) and SEC-regulated Securities Clearing Agency (SCA).

We are very supportive of the documentation of exacting global industry-wide principles as set out in the CPSS-IOSCO principles for financial market infrastructures, and believe that standards proposed will make a positive contribution to fostering financial stability. In a similar vein we are supportive of the assessment methodology and disclosure framework proposed.

As we expressed in our responses to previous consultation papers we believe that in a number of cases the level of detail of the principles for FMIs is excessive. Also, the additional cumulative burden on FMIs associated with the formal production of additional documentation and external audit or review of these arrangements will be substantial. This will add considerably to the cost to CCPs, and consequently to the cost of clearing for the CCPs' users. It will also require a considerable elapsed time to prepare such documentation. These concerns are accentuated in both the assessment methodology and disclosure framework documents. However, having already made these points in our previous responses, we have not re-iterated in this response. Instead we have limited our response to particular points specific to the draft assessment methodology and disclosure framework.

Section 1 - Assessment Methodology

Confidentiality

1.1. Section 3.9 of the proposed disclosure framework states that an FMI should be careful not to disclose confidential information is its response. There should also be a duty for the assessor to protect such confidential information. The assessor will need to review a great deal of such confidential information in order to conduct the assessment. There should be clear arrangements in place to ensure none of this confidential information is disclosed.

Practical considerations in conducting an assessment

1.2 Section 1.4,, sets out a range of people with whom an assessor will need to meet (including regulators, market participants, auditors, etc) when conducting an assessment. It is noticeable that this list does not include management of the FMI. This is clearly an omission.

1.3 Section 1.4 also highlights the importance of the assessor having 'appropriate knowledge and understanding of FMIs'. Given the considerable differences between different types of FMIs, the requirement should be sharpened to require the assessor to have ‘appropriate knowledge and understanding of the type of FMI being assessed'

Rating framework

1.4 In section 2.4, an 'issue of concern' identified by the assessor is defined as *'a risk management flaw, a deficiency, or a lack of transparency or effectiveness that needs to be addressed*'. In order to ensure consistency with definitions elsewhere in the framework, this definition should specifically exclude minor operational matters. In particular, an issue of concern' should be defined as *'a risk management flaw, a deficiency, or a lack of transparency or effectiveness that needs to be addressed, and is not minor, manageable and of a nature that the FMI could consider taking up in the normal course of its business*'.

Expansion of the principles and responsibilities

1.5 The cover note to the consultative documents states that there is no intention to amend or expand upon the principles and responsibilities of FMIs. In general the assessment methodology realises this intention. However, there are a number of cases where the questions included in the assessment request not just that the requisite arrangements are in place, but also evidence that they are having a specified effect. This effectively amends and expands the principles and responsibilities of FMIs. Examples include the following:

a) Principle 10, Question 10.1.4: the assessment requests not just that delivery procedures are documented, but also evidence that participants understand their obligations.
b) Principle 18, Question 18.1.2: the assessment requests not just that access policies are in place, but also evidence that they allow for 'fair and open access'.
c) Principle 23, Question 23.3.2: the assessment requests not just that the FMI documents and trains its participants, but also evidence that this leads to participants understanding of the FMIs rules, procedures and risks.
d) Principle 23, Question 23.4.4: the assessment requests evidence that service definitions are clearly described in a manner that allows for comparability.

Section 2 – Disclosure Framework

The only specific comment relating to the disclosure framework concerns the section entitled '*General instructions for completing the principle-by-principle narrative disclosure*'. Point 3.5 states: *'An FMI should not simply refer to or quote rules or regulations as a response to the disclosure framework*'. There are a number of situations where quoting a rule of the FMI should be a perfectly adequate response. Indeed, if this were not the case, it would be necessary to question whether the rules were sufficiently self-explanatory. Instead, the requirement should read: *'An FMI should not* ***necessarily*** *simply refer to or quote rules or regulations as a response to the disclosure framework'*.

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Re: IIF Response to CPSS-IOSCO Consultative Reports on Assessment Methodology and Disclosure Framework for the Principles for FMIs and the responsibilities of authorities

Dear Sirs,

On behalf of the Infrastructure Working Group of the Institute of International Finance (IIF), the global association of financial institutions, we welcome the opportunity to comment on the consultative reports, *"Assessment Methodology for the Principles for FMIs and the responsibilities of authorities"* and *"Disclosure Framework for financial market infrastructures"* – henceforth "the draft Assessment Methodology" and "the draft Disclosure Framework" prepared by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) and issued for comment in April 2012. In our response to your 2011 consultation on the draft financial market infrastructure principles – "FMI Principles" – we called for this and we therefore welcome the open and consultative approach.

Before moving to specific comments on the draft Assessment Methodology and draft Disclosure Framework, we also wish to acknowledge the efforts made by CPSS-IOSCO to respond to the comments made on the draft FMI Principles. We particularly welcome the way in which Responsibility E on cooperation with other authorities has been significantly expanded. However we are concerned that in a number of areas, reasonable comments or drafting suggestions were not acted on. In particular, we continue to believe that the FMI Principles would have been stronger if the guidance had been more detailed and had allowed for nuance in the treatment of different types of FMI. Whilst it is desirable to have consistent principles across the different types of FMI, such principles should take account of the distinct and inherent differences between types of FMIs and should therefore differentiate where necessary between them, especially as regards the details of implementation. We hope that you will review this approach in the coming years.

Therefore, in commenting on the draft Assessment Methodology and draft Disclosure Framework, we have looked at whether these apply fairly and practically the final Principles, key considerations and guidance as adopted, rather than the final Principles that we would liked to have seen adopted. This should not necessarily be taken as signalling our full agreement with those final adopted Principles.

Furthermore, although these are principles and not prescriptive rules, it would be useful to have some more guidance on the frequency of assessments. The framework does not mandate assessments, nor does it state they that should be performed annually. Without a clear and stated frequency, it is unclear how CCPs can be considered "qualifying" under Basel 3 on an ongoing basis.

To ensure compliance, sample testing should be carried out to confirm that what has been stated in the assessment is actually done in practice. There also needs to be follow-up testing to ensure that issues of concern have been adequately addressed. Dates of follow up testing and findings also need to be reported and disclosed.

On the disclosure framework we feel that the comprehensive two-year update requirement is insufficiently frequent, and that disclosure should be updated annually (or where appropriate, quarterly or monthly), with any material changes disclosed as soon as feasible.

Comments on the draft Assessment Methodology and draft Disclosure Framework

On Principle 1 on legal basis, in Q 1.1.1, we suggest that the list of examples of material aspects of an FMI's activities that require legal certainty given should be expanded to include a reference to "default procedures" at minimum, and ideally also some or all of the issues identified in the fifth sentence of Explanatory Note 3.1.2 of the Principles such as collateral arrangements (including margin arrangements), immobilization and dematerialization of securities, arrangements for DvP, PvP or DvD and the resolution of the FMI.

We would recommend that Q.1.1.3 be amended so that they clearly ask whether the FMI has obtained legal opinions covering the material aspects of an FMI's activities that require legal certainty and which opinions have been obtained. This is implied in the current drafting, but could usefully be brought out.

In all three cases, the disclosure framework could also be amended.

On **Principle 2,** we have concerns with two of the questions posed in the draft Assessment Methodology:

Q.2.1.5: "How are other relevant public interest considerations identified and how are they reflected in the FMI's objectives?"

Q.2.4.2: "What are the incentives that the FMI provides to members of the board, particularly incentives to attract and retain members of the board with appropriate skills?"

On 2.1.5, we find the wording "*other relevant public interest considerations*" extremely vague. In our July 2011 comments on the draft FMI Principles we called for greater clarity on "*other relevant public interests*" so that it did not become a "catch all", and for a definition of the types of public interest considerations that are appropriate for FMIs to consider. This clarity is more necessary than ever. One potential way of dealing with this, would be redraft 2.1.5 to read:

"How are other relevant public interest considerations identified ***by those responsible for FMI oversight or supervision*** *reflected in the FMI's objectives?"*

This would reflect the responsibility of FMI oversight or supervision authorities to identify public interest considerations and to communicate them to the FMI, but for the FMI in turn to incorporate them into their objectives.

On Q.2.4.2, we find the use of the word "*incentives*" confusing and undefined, and would suggest that this either be dropped or defined more clearly both here and in the relevant bullet of the draft Disclosure Framework.

We also wonder whether it is really practical to require the FMI to disclose under key consideration 5: "*skills, experience* ***and integrity*** *of management*". How exactly can one disclose integrity? We therefore suggest that the words "*and integrity*" be dropped here. If there were any material lapses of integrity of a board member or officer of an FMI, such lapses and actions taken with respect thereto would in any case need to be disclosed under most national rules.

Under key consideration 6 of the draft Disclosure Framework, we suggest that the third bullet:

"*Identification of authority, independence, resources and access to the board of the risk-management and internal control functions in governance arrangements*"

Be replaced with the more practical:

"*Explanation of how governance arrangements ensure that the risk-management and internal control functions have sufficient authority, independence, resources and access to the board.*"

Under KC 2.7, we think it would be helpful if Questions Q.2.7.1 and Q.2.7.2 could go further to the issue of participant involvement in the risk management process (e.g., participant representation in risk management committees or default management groups).

In the same vein as in Principle 2, under **Principle 3**, we were confused by Q.3.2.1 of the draft Assessment Methodology:

"What incentives does the FMI provide for participants and their customers to monitor and manage the risks they pose to the FMI?"

We do not believe that it is the proper role of an FMI (other than one that also acts as a legally mandated SRO) to provide incentives for participants and customers to manage their risks properly. Such participants will be subject to their own regulatory, supervisory and governance requirements and any further requirements an FMI might attempt to propose would be superfluous. What is essential is that the FMI provides them insofar as necessary at the FSB with the tools to assess and thus manage risks correctly. We therefore recommend that you replace the word "*incentives*" with the word "*tools*" here in both the draft Assessment Methodology and the draft Disclosure Framework.

On **Principle 4,** we believe that Questions 4.4.4 and 4.4.5 of the draft Assessment Methodology would be practically difficult for a CCP to answer.

Q.4.4.4 "If the CCP is systemically important in multiple jurisdictions or involved in activities with a more-complex risk profile, do the additional financial resources cover, at a minimum, the default of the two participants and their affiliates that would create the largest credit exposure in the CCP in extreme but plausible market conditions?

Q.4.4.5: Has the CCP considered whether it is systemically important in multiple jurisdictions when setting its level of financial resources?

These questions suggest that it would be up to the CCP to make the assessment as to whether it is systemically important, something that it is extremely difficult for the CCP itself to assess. We believe that the responsibility here should be with the supervisor or oversight body to make the judgment and communicate it to the CCP. Further, there is no guidance in the explanatory note as to how "more-complex" or "systemically important" are to be defined or understood. We therefore recommend dropping 4.4.5 and amending 4.4.4 to read:

"If ***the oversight body or supervisor has indicated to*** *the CCP* ***that they regard it as*** *systemically important in multiple jurisdictions or involved in activities with a more-complex risk profile, do the additional financial resources cover, at a minimum, the default of the two participants and their affiliates that would create the largest credit exposure in the CCP in extreme but plausible market conditions?*

In Q 4.5.2 it would be helpful to have a question asking "*Who are the "relevant parties" for the purposes of communicating stress test results?*"

We also recommend inserting guidance as to the definitions of "more-complex" and "systemically important".

On **Principle 5**, there are two questions in the draft Assessment Methodology that strike us as unreasonably difficult to answer:

Q.5.3.1: How does the FMI identify and evaluate the potential procyclicality of its haircut calibrations?

Q.5.3.2: How does the FMI incorporate periods of stressed market conditions during the calibration of haircuts to reduce the need for procyclical adjustments?

Whilst we support the use of stable and conservative haircuts, we do not believe that these questions are the right way of getting at the issue. As we argued in October 2010 in a joint response with ISDA to the paper by the Committee on the Global Financial System "*The role of margin requirements and haircuts in procyclicality* ('CGFS 36')" while margins and collateral have some procyclical characteristics, some element of procyclicality in normal economic circumstances is inevitable in the financial system. We believe that it is unrealistic for an FMI or any other economic actor to identify and evaluate the potential procyclicality of any calibrations or to incorporate macroprudential concerns into its decision process. A more reasonable requirement might be to require the FMI when setting haircuts to assess whether its haircuts are conservative and likely to be stable, including in periods of stressed market conditions. Indeed the draft Disclosure Framework already uses wording to this effect.

In the same vein for **Principle 6**, we have concerns on the practicality of 6.3.7 of the draft Assessment Methodology:

Q.6.3.7: How does the CCP address procyclicality in the margin methodology, in particular, does the CCP adopt forward-looking and relatively stable and conservative margin requirements to limit the need for destabilizing procyclical changes?

This could usefully be amended to read:

Q.6.3.7: How does the CCP ***ensure that it adopts*** *forward-looking and relatively stable and conservative margin requirements?*

We also recommend that the final bullet of Key consideration 3 in the draft Disclosure Framework be dropped for the same reason, or amended to delete the word "Procyclicality":

"*Procyclicality and specific wrong-way risk in the CCP's margin system*."

In **Principle 7** we have concerns on Question 7.4.5 of the draft Assessment Methodology:

Q.7.4.5: How, and to what extent, is the CCP involved in activities with a more-complex risk profile or systemically important in multiple jurisdictions?

Again, we believe that this should be for the oversight body to assess rather than the CCP. We therefore suggest that it be amended to read:

Q.7.4.5: How, and to what extent, is the CCP involved in activities ***deemed by the oversight body or supervisor to have*** *a more-complex risk profile or* ***to be*** *systemically important in multiple jurisdictions?*

In the same vein, the third key element under Key consideration 4 in the draft Disclosure Framework should be amended to read:

"*Consideration to cover the default of two participants by a CCP involved in activities* ***deemed by the oversight body or supervisor to have*** *a more-complex risk profile or* ***be*** *systemically important in multiple jurisdictions"*

As with Principle 4, both "more-complex" and "systemically important" will need to be clearly defined.

We suggest adding the phrase "*including under stressed circumstances*" at the end of Q 7.7.2. This would make it consistent with the aim.

In **Principle 8**, we believe that it – and Principle 20 on FMI links – are missing a critical point on the connection between settlement finality and FMI links. We would therefore suggest that both contain a question similar to the following;

"*How does the FMI ensure settlement finality in the case of linkages with other FMIs?*"

Under Key consideration 8.1 / KE 1, we suggest adding the following question: "*Which BIS DvP settlement model does the FMI use?"*

In Q.8.2.5, we suggest adding the word "How" at the start or adding a second sentence asking how the FMI informs participants of final account balances.

In Key consideration 8.3 / KE 1, we recommend that questions be added asking (i) what the time lag is between the revocation point and the point of settlement finality and (ii) in the case of links, how and when settlement finality is ensured.

In all these cases, similar changes could be made to the disclosure framework.

While we support **Principle 10** on physical deliveries, we believe that Question 10.1.4 in the draft Assessment Methodology is both onerous and is unnecessary:

Q.10.1.4: Is there evidence that the participants have an understanding of their obligations and the procedures for effecting physical delivery?

If an FMI has defined its obligations and responsibilities, and if it has disclosed these clearly as assessed by Q.10.1.2 and Q.10.1.3, we do not believe that it is reasonable for the FMI to be required to verify the understanding of participants. We suggest that you drop this question.

On **Principle 11** on CSDs, under Key consideration 11.6, we suggest adding a question about how the CSD has legally separated its other activities.

On **Principle 13** on default rules and procedures, whilst the explanatory notes make it more or less clear what kind of disclosure is required to the public, it is not clear about the level of disclosure that should be provided to participants. We recommend that you provide more details here.

KC 13.3 / KE 1 – Disclosure to participants and public: add something about distinguishing between disclosures to participants and disclosures to the public, query whether it would make sense to work in that distinction in the questions related to KE 1.

On **Principle 14** on segregation and portability, we accept that the questions as drafted are fair representations of the final Principle and key considerations as adopted. However, we continue to have reservations about the Principle and key considerations themselves. As we stated in our July 2011 response on the draft FMI Principles

"*We also understand the attraction of segregation and portability as being, all other things equal, the simplest and most direct means of ensuring that a high degree of protection and legal certainty exists. To the extent to which segregation and portability are both feasible in the interests of customers and do not have any potential negative consequences, we indeed support them.*

"However, the draft Principle is neither desirable nor feasible in all circumstances. There will be a large number of cases in which separating out the positions of individual underlying customers and keeping them segregated will be disproportionately difficult or inefficient. Equally, there will be cases in which a blanket application of the Principle would lead to perverse outcomes in which operational risk and settlement uncertainty would increase because liquidity would be "trapped" in individual positions or accounts. This would go against the principles of liquidity risk management and more generally risk management. Similarly, as discussed under Principle 4, the presence or absence of some degree of risk mutualization among indirect participants has a very significant effect on the risk, cost, and efficiency of any FMI, particularly a CCP."

On **Principle 17** on operational risk, we suggest amending Q.17.6.1 to specifically ask which "wide-scale or major disruptions" an FMI's business continuity plan assumes as often 'worst case scenarios' change over time.

In our July 2011 comments on **Principle 19** on tiered participation requirements, we called for the qualifier "*to the extent practicable*" to be explained further. It is disappointing that you have dropped this altogether, and believe that the final guidance would have been stronger with it included with a suitable explanation.

As noted above, we suggest that both the assessment methodologies for Principle 8 and **Principle 20** on FMI links contain a question similar to the following;

"*How does the FMI ensure settlement finality in the case of linkages with other FMIs?*"

While we do not have fundamental objections, we believe that the drafting of the Disclosure Framework for **Principle 21** on efficiency and effectiveness could usefully be reviewed. As it stands, the wording is extremely vague.

On **Principle 23** on the disclosure of risks, key procedures and market data. We have concerns over the practicality of the following questions in the draft Assessment Methodology:

Q.23.1.2: How does the FMI determine that relevant rules and key procedures are clearly articulated?

Q.23.3.2: Is there evidence that the means described above enable and actually result in participants' understanding of the FMI's rules, procedures, and the risks they face from participating in the FMI?

Q.23.3.3: In the event that the FMI identifies a participant who demonstrates a lack of understanding, what remedial actions are taken by the FMI?

We believe that 23.1.2 is unnecessary and places an excessive requirement on FMIs, and so should be dropped. What matters is that the FMI clearly articulates rules and key procedures rather than that it has a process for determining that they are clearly articulated.

In the same vein, and in line with our comments on Principle 10, Q.23.3.2 puts the burden on FMIs to determine whether participants understand the FMI's rules, procedures and risks. Provided that the FMI has provided clear and appropriate documentation on its rules and procedures, the burden should be on the participant to ensure that they understand them or seek clarity from the FMI.

On the **Responsibilities**, the assessment methodology looks to be a reasonable interpretation, in so far as they go. However, we believe that Q.D.3.1 as it stands is too vague and should be defined in more detail:

Q.D.3.1: How do authorities promote the consistent application of the principles within and across jurisdictions?

We would also welcome the addition of two further questions under **Responsibility E**:

Has the authority devoted a sufficient level of staff resources to allow it to cooperate fully with other authorities?

How did it assess its needs in this area?

These would ensure that sufficient staff resources were allocated to cooperation, an essential measure.

In addition, we think it could be helpful to add a question here (probably under Responsibility A) to ask if authorities regularly publish an "oversight report." Some regulators do this, and although not a lot of information is given, it at least gives an overview of the ratings, etc. for the different FMIs. All oversight bodies should usefully do this to improve transparency.

Whilst many of the comments above relate equally to the draft Disclosure Framework as well as to the draft Assessment Methodology, we have a specific set of comments on Annex 2 of the draft Disclosure Framework.

First, some items in Annex 2 seem to relate to topics that would be better covered in a CCP's narrative disclosure based on Annex 1 – e.g., "*whether clients are protected against* *simultaneous default of clearing member and fellow clients*" and "*policy on how margin and default fund invested.*"

Second, some items call for data that will be of extremely limited use (or no use at all) if updated only once every 2 years – e.g., "*size of pre-paid DF*" or "*number of non-routine margin calls over last 12 months.*"

We therefore believe that Annex 2 should be divided into at least 2 parts.

The first part should set out supplemental instructions to be followed by a CCP in completing the CCP's general description called for in Part II and the principle-by-principle narrative disclosure called for in Part IV of the template. For example, Annex 2 should require the following:

- When the CCP describes the typical transaction lifecycle (in its Part II general description), it should note the timing of trade acceptance and novation.

- The CCP should prepare its disclosure and reporting per clearing segment (e.g., LCH F&O, LCH Equities Clear, LCH Repo Clear, etc.).

- The CCP should update its disclosure at least annually (except for certain key metrics that must be updated monthly or quarterly, as described below), with any material changes reported as soon as feasible.

The first part of a revised Annex 2 should also set out additional questions that should be specifically answered, and call for additional documents to be provided, by the CCP when completing its Part IV principle-by-principle narrative disclosure, with the goal being to elicit more granular and consistent narrative disclosures by CCPs. For example, the first part of revised Annex 2 should mandate that CCPs describe or provide (as applicable):

- In connection with the Principle 1 narrative disclosure: netting/collateral legal opinions and for CCPs offering interoperability with other CCPs, interoperability collateral opinions;

- In connection with the Principle 5 narrative disclosure, with respect to both house and client collateral, the method of collateral transfer for cash/securities (pledge or title transfer), operational structure of collateral accounts (omnibus/segregated, gross/net), segregation of collateral from (or commingled with) CCP's own assets and confirmation of segregation of collateral from assets of settlement banks/custodians;

- In connection with the Principle 12 narrative disclosure, diagrams and flowcharts illustrating the settlement process; and

- In connection with the Principle 16 narrative disclosure, the CCP's investment policy, including restrictions on re-use of clearing member and client securities collateral.

This first part of revised Annex 2 could also be used to clarify, with respect to CCP disclosure, points in the key elements. For example, "identification" (e.g., Principle 1 Key consideration 1 and Principle 2 Key considerations 1 and 2), and we think "description" would be a preferable term to use. Annex 2 could effectively specify that "identification" of a particular feature or aspect of the CCP's structure or activities means a description of the structure or activities. We have a similar question about the meaning of the "features" of variation margin methodology on page 15. Annex 2 could be a tool for clarifying these types of questions for purposes of CCP disclosure without having to modify the key elements in Annex 1.

The second part of the revised Annex 2 should require disclosure of information that is essential for risk management purposes and that must be updated either on a monthly or quarterly basis. Such information should include, for example, the following:

- the aggregate value of a CCP's open positions (updated daily on a public website), with specific data dependent on product type – for OTC, gross notional value of cleared trades and notional value of net open positions (aggregate of open position (net) for each clearing member), for futures, notional value of net open positions (open interest) and for securities, market value of open trades and daily settlement value; and

- documentation of any independent initial margin model review, including scope, results, recommendations and any changes made as a result of review.

We also have some specific suggested amendments on items listed in draft Annex 2. We have identified suggested changes in *italics*, and comments in ***bold italics***:

<u>*Initial* Margin</u>

- Total cash collateral held *and method of transfer (title-transfer or pledge)*

- Total *non-cash* collateral held *(separated into securities, other – LC, gold, etc.) and method of transfer (title-transfer or pledge)*

- Proportions of non-cash collateral held by collateral type (%). ***[We do not understand this – how is the collateral type defined?]***

- List of eligible collateral accepted (Complete details in Principle 5). ***[Again we do not understand the meaning of "Complete details in Principle 5".]***

- Frequency of routine *initial and variation* margin collection *[including intraday and EoD times]*

- Number of non-routine margin calls over last 12 months. ***[As noted above, this item does not seem consistent with a biennial updating requirement.]***

- Value of routine margin collection vs. non-routine margin calls over last 12 months. ***[As noted above, this item does not seem consistent with a biennial updating requirement]***

- Summary description of margin methodology and representative list of factors that would cause margin requirements to change. Should include summary of netting arrangements across positions / products.

- The initial margin requirement that would result from simple specified example trades / portfolios [so that participants, and regulators and market could compare the output].

Default fund

- Size of pre-paid ***[does this mean funded?]*** aggregate DF, including any segmentation by, e.g., type of product [***if segmentation, explain if funds can be applied equally across all segments, as needed].***

- Discussion of ability to call additional contributions from participants *as well as the amounts that may be called.*

- *Total cash collateral held and method of transfer (title-transfer or pledge)*

- *Total non-cash collateral held (separated into securities, other – LC, gold, etc.) and method of transfer (title-transfer or pledge)*

- *Proportions of non-cash collateral held by collateral type (%)*

- *List of eligible collateral accepted*

- Explanation *and risk factors* driving the specific stress test or series of tests from which the size of the DF was derived. (Implicitly, more severe tests would be result in losses beyond the default capabilities of the CCP). ***[We do not understand the phrase between parentheses.]***

- Results of simple standardized stress tests, e.g., parallel shift in relevant curves. ***[We are not sure what this is related to.]***

- Frequency of stress testing *for financial safeguard adequacy*, back testing *of IM* and *IM and DF* model reviews/validation

Capital

Capital / own funds ***[We are not sure what this means – is "capital" meant to be aggregate financial safeguards?]***

Amount of own funds is committed to waterfall

Uncovered credit losses ***[if safeguards insufficient?]***

How these will be allocated

Investment risk

Policy on how margin and default fund invested *and whether returns on cash posted/provided back to members*

Summary details of investments held at the CCPs own risk. [***We suggest that you propose a standard report to be used for this purpose.***]

Summary measure of interest rate and fx risk in the investment portfolio. [***We suggest that you propose a standard report to be used for this purpose.***]

Liquidity risk

Coverage policy (cover one, cover two, etc.)

Arrangements in order of usage to cover liquidity needs in event of failure to pay

Arrangements to manage uncovered liquidity shortfalls

Conclusion

Once again, we welcome the opportunity to comment on the draft Assessment Methodology and draft Disclosure Framework. Should you have any questions on the issues raised in this letter, please contact Crispin Waymouth (cwaymouth@iif.com; +1 202-682-7447).

Very truly yours,

Japan Securities Depository Center, Inc. (JASDEC)
JASDEC DVP Clearing Corporation (JDCC)
June 15, 2012

Committee on Payment and Settlement Systems
International Organization of Securities Commissions

Comments on the CPSS/IOSCO Consultative report, "Assessment methodology for the principles for FMIs and the responsibilities of authorities", and "Disclosure framework for financial market infrastructures"

1. Introduction

Japan Securities Depository Center, Incorporated (JASDEC) is an institution authorized by the Prime Minister and the Minister of Justice to undertake book-entry transfer business under Act on Transfer of Bonds, Shares, etc. JASDEC was established as a non-profit foundation in 1984, and in 2002 became a joint stock corporation. JASDEC's book-entry transfer system currently includes stocks, commercial paper, corporate bonds and investment trusts, and the organization also handles such activities as custody services for foreign stocks, etc. and pre-settlement matching.

JASDEC DVP Clearing Corporation (JDCC) is a clearing house for transactions in financial products, authorized by the Prime Minister under the Financial Instruments and Exchange Act. Since May 17, 2004 JDCC has functioned as a financial products clearing institution to undertake clearing services for DVP settlement services for non-exchange transaction deliveries handled by JASDEC.[1]

This document contains our comments on the CPSS/IOSCO Consultative report, "Assessment methodology for the principles for FMIs and the responsibilities of authorities" and "Disclosure framework for financial market infrastructures", released on April 16, 2012. We would like to express our gratitude for being given the opportunity to participate in the consulting process.

At JASDEC and JDCC, we greatly respect the continuous efforts being made by CPSS-IOSCO to contribute to financial market stability. We hope that the methodology for using the Assessment Methodology and Disclosure Framework will be made clear through this consultation, and that as a result the "Principles for financial market infrastructures" will be introduced in an appropriate format.

---

[1] JDCC is a wholly owned subsidiary of JASDEC.

2. Comments

(1) Role of FMI in Assessment Methodology, and involvement of FMI in assessment process

The role of FMIs in AM (Assessment Methodology) is not clear.

Although in the middle section of page 2 it states that, "This AM is primarily intended for external assessors at the international level" and "National authorities should use this AM as it is or take it into consideration when developing equally effective methodologies", there is nothing here about FMIs. In the "Co-chairs' summary note" it says with regard to FMIs that, "The assessment methodology may also be used by FMIs for purposes of self-assessments of observance of the principles", but we would like the role of FMIs also to be noted clearly in the section on AM.

Moreover, it is not clearly defined how FMIs should be involved in the AM assessment process. We want to see clarification of FMI involvement, covering matters such as whether, when an FMI is being assessed, there will be an exchange of information and opinions between the assessor and the FMI, or if instead the assessment will be based on a self-assessment furnished in advance by the FMI.

(2) Involvement of FMIs in ratings

The role of FMIs in ratings is not clear.

In reports produced by FMIs in line with the "Disclosure framework", there is no requirement for a rating. Conversely, within the AM it states that, "Where consistent with national practice, FMIs should use this rating scheme". Further, even with regard to national authorities, there is no obligatory rating scheme recorded in the AM, and alternatives are deemed permissible. (National authorities may choose to use the AM rating scheme or may choose to use another rating scheme.)

Accordingly, we would like to see clarification of who undertakes ratings, how FMIs are involved in the rating process, and in what circumstances the AM rating scheme should be used.

(3) Elimination of duplicated processes

In cases where national authorities develop independent assessment principles with the same effect as the AM, FMIs are deemed to be respecting the principles if they undertake self-assessments in line with the independent principles of the authorities. However, in cases where an FMI is assessed separately by an international external assessment body in accordance with the AM, there is a possibility that the FMI may be required to produce an additional self-assessment report, even if the national principles and the AM have been made consistent. Accordingly, in cases of duplication like this, we would like the AM to clearly state that, because the FMI is under the jurisdiction of the national authority and has no direct relationship with the external assessor, rather than the FMI responding, the external assessors and the national authority should coordinate activities to avoid duplication of processes.

ENDS

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15 June 2012

Secretariat
Committee on Payment and Settlement System
Bank for International Settlements
Sent by e-mail to cpss@bis.org

Secretariat
Technical Committee
International Organization of Securities Commissions
Sent by e-mail to fmi@iosco.org

Response to the Consultative Documents "Assessment methodology for the principles for FMIs and the responsibilities of authorities" and "Disclosure framework for Financial Market Infrastructures" from Japan Securities Clearing Corporation (JSCC)

Dear Secretariats,

Following the consultative process on Principles for Financial Market Infrastructure (hereinafter "PFMI") last year, Japan Securities Clearing Corporation (hereinafter "JSCC") appreciates the opportunity to comment on the two additional consultative documents "Assessment methodology for the principle for FMIs and the responsibilities of authorities" (hereinafter "AM") and "Disclosure framework for Financial Market Infrastructures" (hereinafter "DF") proposed on 16 April 2012 by Committee on the Payment and Settlement System and Technical Committee of the International Organization of Securities Commissions.

JSCC would like to comment on issues regarding Principle 1, 5 and 13 on the AM and regarding Principle 7 on the DF as follows.

1. Comment on Q1.1.3 (Principle 1, AM)

Q.1.1.3: What is the legal framework and how does it provide a high degree of legal certainty for each material aspect of the FMI's activities in all relevant jurisdictions? Do/Does the legal opinion(s)/analysis(es) examine all relevant legal aspects regarding the different perspectives (for example, the FMI's perspective or the participant's perspective)?

JSCC thinks it is appropriate to have a legal framework providing a high degree of legal certainty for each material aspect of its activities. JSCC suggests that, however, the AM should leave assessors' discretion to determine the level of observance of this principle taking characteristics of the jurisdiction subject for the assessment into consideration. This is due to the meaning and importance of legal opinion differing based on characteristics and the written law of the individual jurisdiction. Hence, it is impractical to establish a unified requirement for obtaining legal opinion in each of them.

2. Comment on Q5.6.1 and Paragraph 3.5.10 of PFMI（Principle 5, PFMI and AM）

Q.5.6.1: How, and to what extent, does the FMI track the reuse of collateral and the rights of the FMI to the collateral provided, and accommodate the timely deposit, withdrawal, substitution, and liquidation of collateral? *PFMI Paragraph 3.5.10: ～In general, an FMI should not rely on the reuse of collateral as an instrument for increasing or maintaining its profitability. However, an FMI may invest any cash collateral received from participants on their behalf (see Principle 16 on custody and investment risks).*

While paragraph 3.5.10 of PFMI states *"an FMI may invest any cash collateral received from participants <u>on their behalf</u>"*, JSCC would like to clarify the condition of the investment, that PFMI would permit (i.e. relationship between FMI and the participant which posts cash collateral, attribution of investment results).

Does the phrase *"on their behalf"* mean investment of cash collateral is permitted only where an FMI acts as an agent of the participants which post cash collateral (in other words, the case where losses resulting from investment are incurred not by the FMI but by the participants which posts cash collateral)?

3. Comment on KE 1 and 2 of Key Consideration 7.4 and 7.5（Principle 7, DF）

KC7.4-KE1: Minimum liquidity resource requirement in each currency to cover a participant default. *KC7.4-KE2: Additional minimum liquidity resource requirements* *KC7.5-KE1: Composition of qualifying liquid resources* *KC7.5-KE2: Coverage and availability of qualifying liquid resources*

For the sake of good order, JSCC would like to clarify the scope of the information that DF expects FMIs to disclose. JSCC understands that those key elements do not necessarily require FMIs to disclose concrete amounts of liquidity but just require to disclose supposition (e.g. outline of stress-test scenarios) for calculating minimum amount of liquidity and outline of the employed funding arrangement.

JSCC thinks that disclosing concrete amount of liquidity can potentially lead to market participant taking educated guesses on;

- transactions of major clearing participants,
- composition of individual contracts, or on
- funding arrangements.

In some cases this can fuel unnecessary speculation amongst stakeholders. Therefore, JSCC suggests DF not require for FMIs to disclose such details.

4. Comment on Q13.3.2 and Paragraph 3.13.6 of PFMI（Principle 13, PFMI and AM)

Q.13.3.2: Do they include: ～(e) the mechanisms to help address the defaulting participant's obligations to its customers?

PFMI Paragraph 3.13.6: To provide certainty and predictability regarding the measures that an FMI may take in a default event, an FMI should publicly disclose key aspects of its default rules and procedures, including: ～(e) where direct relationships exist with participants' customers, the mechanisms to help address the defaulting participant's obligations to its customers.

Question 13.3.2 seemingly requires much more task than the text of PFMI Paragraph 3.13.6 expects. For nailing down the sense described in paragraph 1.0 of the AM (*"The AM avoids repetition of the discussions of the principles and responsibilities that are contained in the PFMI Report; any elaborating commentary is intended to help explicate practical considerations that arise when performing assessments, not to amend or expand upon those discussions."*), the phrase "*where direct relationships exist with participants' customers"* should be inserted at the front of (e) of Q13.3.2.

=End=

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Okay, Can

From:	Jackson, Kathie on behalf of CPSS, Service
Sent:	Friday 15, June, 2012 16:18
To:	Okay, Can; Lindley, Robert
Subject:	Comments on CPSS-IOSCO Assessment Methodology and DisclosureFramework for the PFMI

From: Samar Banwat [mailto:SamarB@nsdl.co.in]
Sent: Friday 15, June, 2012 15:23
To: CPSS, Service; 'fmi@iosco.org'
Subject: Comments on CPSS-IOSCO Assessment Methodology and DisclosureFramework for the PFMI

The CPSS Secretariat

The IOSCO Secretariat

Greetings from NSDL,

Our comments on the Consultative report for the CPSS-IOSCO Assessment Methodology and Disclosure Framework for Principles for Financial Market Infrastructure (PFMI) are given below:

1. The Disclosure Framework (DF) envisages the FMI to provide narrative disclosure for the key elements and key considerations for each of the Principles and the DF is expected to be publicly disclosed. The purpose of the DF document is to assist FMIs provide a comprehensive disclosure required under Principle 23. However, on a plain reading of Principle 23 (*reproduced below for reference*), there does not appear to be any clear requirement on the FMI to provide narrative disclosure on a principle-by-principle basis. Thus, if it is expected that the DF must be publicly disclosed in the form and manner envisaged in the DF document, it is imminent that the Principle 23 is amended to mandate such a clear requirement.

   "An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed."

2. The DF document envisages the FMIs to provide narrative disclosure for the key elements and key considerations for each of the Principles. The Assessment Methodology (AM) document also envisages responses for each question for the key elements and key consideration for each of the Principles. This would lead to duplication. Further, public disclosure by the FMIs in a narrative form for

each key element may require FMIs to disclose confidential information even though FMIs are careful not to disclose confidential information, as suggested at clause 3(9) of the DF document. Thus, it is suggested that the key findings of the AM (*such as Ratings summary for each Principle as described at Table 1 – page 15 of the AM*) are disclosed publicly rather than preparing a separate document (i.e. DF document) for public disclosure.

3. Currently, FMIs who are CSDs, are providing information to Thomas Murray and Association of Global Custodians on a regular basis. This involves the CSDs to provide responses to detailed questions. Considering that CSDs will have to provide such responses for the AM and DF documents also on a regular basis, it is suggested that these documents are reviewed so that all the questions required for the Thomas Murray and the AGC questionnaire are covered in the new AM and DF documents.

4. As per point no. (1) of the cover note to final report and two consultative documents, it is mentioned that CPSS and IOSCO members will strive to adopt the new principles by the end of 2012 and put them into effect as soon as possible. Considering the limited time available now, we would like to suggest that the aforesaid date be extended to end of the year 2013.

About NSDL:

India has a vibrant capital market which is more than a century old, the paper-based settlement of trades caused substantial problems like bad delivery and delayed transfer of title. The enactment of Depositories Act in August 1996 paved the way for establishment of National Securities Depository Ltd (NSDL), the first depository in India. This depository promoted by institutions of national stature responsible for economic development of the country has since established a national infrastructure of international standards that handles most of the securities held and settled in dematerialised form in the Indian capital market.

Using innovative and flexible technology systems, NSDL works to support the investors and brokers in the capital market of the country. NSDL aims at ensuring the safety and soundness of Indian marketplaces by developing settlement solutions that increase efficiency, minimise risk and reduce costs. At NSDL, we play a quiet but central role in developing products and services that will continue to nurture the growing needs of the financial services industry.

NSDL is the largest depository in India, holding about 85% of the value of securities held in electronic form and has more than 12.1 million Demat accounts which are serviced through more than 14,000 branches of its Participant spread across country in about 1,550 cities and towns.

With Best Regards,

Samar Banwat
Senior Vice President
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The Secretariat

CPSS-IOSCO

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COMMENTS ON THE ASSESSMENT METHODOLOGY FOR THE PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES AND THE RESPONSIBILITIES OF AUTHORITIES

South Africa welcomes the opportunity to comment on the consultative report on the assessment methodology ("the assessment methodology") for the principles for Financial Market Infrastructures prepared by the Committee on Payment & Settlement Systems ("CPSS") and the Technical Committee of the International Organization of Securities Commissions ("IOSCO").

We have found the assessment methodology clear and comprehensive and therefore wish to commend CPSS-IOSCO for the work of their technical and working committees who have drafted this lucid and thorough report.

Overall, South Africa is supportive of the scope and intent of the proposed assessment methodology and wishes to highlight some considerations (see Annexure A) that we believe should be reflected upon in the finalisation of the assessment methodology.

Yours sincerely

Norman Muller
Head: Capital Markets Department

ANNEXURE A

Appendix 3:

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

KC 1.2 An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

KE 2. Consistency of the FMI's rules, procedures, and contracts with relevant laws and regulations.

Q.1.2.2: How does the FMI ensure that its rules, procedures, and contracts are consistent with relevant laws and regulations? For example, has a legal opinion confirmed that these are consistent with relevant laws and regulations?

Are the FMI's rules, procedures, and contracts reviewed or assessed by external authorities or entities? Do the FMI's rules, procedures, and contracts have to be approved before coming into force, by whom and how? Have any inconsistencies been identified and remedied?

Comment: • **Will the committee provide any guidance on how inconsistencies would be remedied?**

KC 1.3 An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

KE 1. Ability of the FMI to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers.

Q.1.3.1: How does the FMI articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers?

Comment: • **The methodology for the measurement of this key element should be clearly articulated.**

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader

financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

KC 2.1 An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

KE 1. Identification of the FMI's objectives. Q.2.1.1: What are the FMI's objectives, and are they clearly identified?

Q.2.1.2: How is the FMI's performance in meeting its objectives assessed?

Comment:

- **It is not clear who assesses the performance of the FMI and how frequently is such an assessment undertaken?**

KC 2.3 The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

KE 2. Identification of procedures for the functioning of the board.

Q.2.3.2: What are the procedures of the board?

For example, describe how the board committees have been established to facilitate the functioning of the board. What are the roles, responsibilities, and composition of such committees?

Comment:

- **The question is too broad (i.e. "procedures of the board") and could be rephrased to provide more clarity.**

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

KC 3.4 An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.

KE 2. Preparation of appropriate plans for recovery or orderly wind-down.

Q.3.4.5: How and how often are the plans for the FMI's recovery and orderly wind-down reviewed and updated?

Comment: • **The question should also explicitly include testing of the systems.**

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

KC 5.6 An FMI should use a collateral management system that is well-designed and operationally flexible.

KE 1. Design of the FMI's collateral management system.

Comment: • **A question on the outsourcing of certain functions to a third party or other FMI, for the purposes of collateral management should be included.**

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

KC 8.1 An FMI's rules and procedures should clearly define the point at which settlement is final.

KE 2. Occurrence of intraday or real-time final settlement.

Comment: • **Add. Q.8.2.5: the question may be rephrased as follows: "Does the FMI inform participants of final account balances in real time? If not, when are participants informed?**

KC 8.3 An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

KE 1. Identification of the points after which unsettled payment, transfer instructions, or other obligations may not be revoked by a participant.

Comment:

- **Question Q.8.3.2: may be rephrased as follows "Under what circumstance can an instruction or obligation accepted by the system for settlement still be revoked (for example, queued obligations)? Who can** and what procedure must be followed to **revoke unsettled payment or transfer instructions**?"

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

KC 11.4 A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.

KE 1. Rules and procedures for protecting assets from custody risk.

Q.11.4.1: How do the CSD's rules and procedures protect participants' assets against custody risk, including the risk of loss because of the CSD's negligence, misuse of assets, fraud, poor administration, inadequate recordkeeping, or failure to protect participants' interests in their securities?

Comment:

- **The question may be rephrased to read as follows "How do the CSD's rules and procedures protect participant clients' assets against custody risk, including the risk of loss because of the participants' negligence, misuse of assets, fraud, poor administration, inadequate recordkeeping, or failure to protect clients' interests in their securities?"**

Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

Comment:

- **Please provide some clarity as to why "portability" was considered as applicable to CSDs.**
- **Provision should be made for segregation and portability arrangements in respect of customers' assets which are held with a failing CSD participant.**

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies,

procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

KC 17.7 An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.

KE 2. Identification, monitoring, and management of risks posed by the FMI to other FMIs.

Q.17.7.3: How, and to what extent, does the FMI identify, monitor, and mitigate the risks it may pose to another FMI?

Comment:

- **We are of the view that this should not be limited to another FMI as it could expose other entities to risk as well e.g. the Central Bank, a service provider, a participant or its clients.**

Q.17.7.4: How, and to what extent, does the FMI coordinate its business continuity arrangements with those of other interdependent FMIs?

Comment:

- **We are of the view that this should not be limited to another FMI as it could expose other entities to risk as well e.g. the Central Bank, a service provider, a participant or its clients.**

Principle 19: Tiered participation arrangements

- **An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.**

Comment:

- **The requirement that FMIs monitor risk exposures of from indirect participants may have severe operating cost implications on the FMIs.**
- **Allowance should be made for FMIs to rely on the controls of direct participants or the direct participants' regulatory authorities to monitor/manage and mitigate risks.**

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Comment:

- **The principles do not address instances where the FMI may have a link with a different type of FMI only links between same FMIs are questioned i.e. CSD to CSD, and CCP to CCP. (See 3.20.1 page 110 of the Principles)**

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

KC 23.1 An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

KE 1. Clarity and comprehensiveness of rules and procedures.

Q.23.1.1: Which documents comprise the system's rules and procedures?

Comment:

- **We are of the view that this question should apply to more than systems.**

Principle 24: Disclosure of market data by trade repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Comment:

- **It is not clear why this principle is limited only to trade repositories as it could be applicable to all FMIs**

General Comments

- The effectiveness of ratings will be reduced if national authorities chose to use different rating systems.
- The principles should recognise differences in various jurisdictions within which CCP's operate and be broad enough to accommodate such differences and should be aligned with the amendments required by other global regulatory standards such as Basel III. For example, In their paper titled Capitalisation of bank exposures to central counterparties, published in November 2011, the Basel committee on banking supervision indicated that they will rely on the application of the CPSS-IOSCO standards by CCP regulators to determine if exposures to a given CCP are eligible to receive the beneficial capital

treatment. The assessment methodology is not clear on how such qualification is to be achieved.

June 2012

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For the attention of:

The Committee on Payment and Settlement Systems

and

The Technical Committee of the International Organisation of Securities Commissions

By email to CPSS secretariat (cpss@bis.org) and to IOSCO secretariat (fmi@iosco.org)

Response to the CPSS-IOSCO consultative report on the "Assessment methodology for the principles for FMIs and the responsibilities of authorities" and "Disclosure framework for financial market infrastructures"

SWIFT has reviewed the consultative report on the "Assessment methodology for the principles for FMIs and the responsibilities of authorities" and "Disclosure framework for financial market infrastructures" issued by CPSS/IOSCO in April 2012, and welcomes the opportunity to provide feedback.

SWIFT is a member-owned, cooperative society that provides its community of banking, securities, market infrastructures and other regulated organizations, as well as corporations, with a comprehensive suite of messaging products and services. Through these products and services SWIFT supports every aspect of global financial services, including payments processing and securities post trading. SWIFT also has a proven track record of bringing the financial community together to work collaboratively, through its country National Member Groups, to shape market practice, define formal standards and debate issues of mutual interest.

SWIFT is organized under Belgian law and is owned and controlled by its shareholding Users, comprising over 2,300 financial institutions. The user community exceeds 9,600 connected firms, across 210 countries. A fundamental tenant of SWIFT's governance is to continually reduce the costs and risks borne by the industry.

SWIFT is not covered directly by the 24 principles as we do not fall into one of the defined categories of FMIs. SWIFT does, however, provide services of a critical nature to all of the defined categories of FMIs covered by the principles. SWIFT is therefore a critical service provider to the FMIs, as defined under Annex F in the FMI principles.

Please find below our feedback in respect of the specific points upon which we would like to comment.

Feedback on the "Assessment methodology for the principles for FMIs and the responsibilities of authorities" report

General Comment

SWIFT strongly supports standardisation as a critical mechanism to ensure consistency as well as the minimisation of the cost of compliance for Financial Market Infrastructures (FMIs) and their Critical Service Providers (CSPs) alike. Standardisation also helps to deliver a level playing field for FMIs and their critical service providers. Consequently, we endorse CPSS-IOSCO's efforts to standardise the assessment methodology relating to the principles. SWIFT has noted that no similar standardisation of the assessment exists for the expectations for critical service providers. As such the assessment of the CSPs may be left to the interpretation of individual governments, regulators or FMIs. The risks of this approach are clear and eventually may lead to failure to properly identify risks related to CSPs. To maximise efficiency and effectiveness, SWIFT recommends a single report to address the assurance requirements of all FMIs.

Principle 17

Principle 17 is focused on operational risk and in our view the contribution of critical service providers to the minimisation of operational risk is crucial. In Appendix 3 of the consultation paper on the Assessment framework, we suggest that the questions relating to principle 17 should be strengthened by including clear references to critical service providers used by the FMIs. In the questions for this principle in the current document, the only references to CSPs are found in questions 17.6.9 and 17.7.2. Whilst these questions are appropriate, we would recommend incorporating additional questions to require FMIs to comment on:

- the steps they have taken to ensure that they have identified correctly all their CSPs (internal and external); and,
- the due diligence they have undertaken to ensure that all their CSPs conform to the requirements for CSPs that are set out in Annex F of the principles.

As highlighted above, the contribution made by CSPs to the operational resiliency of FMIs needs to be prominently reflected in the assessment methodology. Annex F describes the oversight expectations that apply to critical service providers, and in our view FMIs should be required to evidence that they have taken appropriate steps to obtain reasonable assurance that their CSPs have adequately designed control activities to comply with Annex F, and that such controls were effective during the reporting period.

Principle 22

Whilst supporting the Assessment questions in this section we think it might be useful to ask FMIs to clearly identify which internationally accepted communication procedures and standards they are using. This would help to build up a better picture of the range of such standards that are used by FMIs and could facilitate a greater consolidation around a core set of standards and hence reduction of risk.

Feedback on "Disclosure framework for financial market infrastructures" report

General comment

We believe that it would be helpful to further ensure a level playing field by encouraging the development of a comprehensive industry standard for reporting with appropriate granularity and scope. The need for a single standard for CSP reporting could be described within the FMI disclosure template of FMI principle 17.

The consultative report states that FMIs should provide responses that are thorough and at an appropriate level of detail in order to provide current and prospective participants, other market participants, authorities, and the general public with a comprehensive understanding of the FMI.

While, we believe that sharing a CSP disclosure framework with the FMI, its participants and authorities will be not an issue for the type of information that the CSP report will contain, we recommend, however, that the CSP disclosure report is not shared with the general public, for reasons of privacy, security and commercial sensitivity.

We hope our comments will be useful to you in finalising the proposed assessment methodology and disclosure framework, and we are available should you wish to discuss our comments.

Yours sincerely

F. VANDENREYDT

H. NEWMAN

Copy: National Bank of Belgium, Lead Overseer of SWIFT

European Banking Federation

FEDERATION BANCAIRE DE L'UNION EUROPEENNE
BANKING FEDERATION OF THE EUROPEAN UNION
BANKENVEREINIGUNG DER EUROPÄISCHEN UNION
(aisbl)

ESBG

EUROPEAN SAVINGS BANKS GROUP
GROUPEMENT EUROPEEN DES CAISSES D'EPARGNE
UROPÄISCHE SPARKASSENVEREINIGUNG

EUROPEAN ASSOCIATION OF COOPERATIVE BANKS
GROUPEMENT EUROPEEN DES BANQUES COOPERATIVES
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DM/MT
EBF Ref. 0175

Brussels, 14 June 2012

To CPSS Secretariat e-mail cpss@bis.org
IOSCO Secretariat e –mail fmi@iosco.org

Subject*:** ***CPSS/IOSCO Principles for Financial Market Infrastructures
Consultative report - Assessment methodology for the principles for FMIs and the responsibilities of authorities – April 2012
Consultative report – Disclosure framework for financial market infrastructures – April 2012

Dear Sirs,

The TARGET Working Group (TWG) would like to thank CPSS and IOSCO for taking on board many of the comments we made on the original consultative report and for the opportunity to comment on the two new consultative reports dated April 2012.

The TWG represents the European payments industry in discussions with the ECB/Eurosystem on issues relating to the TARGET 2 payment system. Consequently, the remarks in this note are restricted to payment systems and no comment is offered in relation to other types of FMIs.

We consider both of the new reports to be comprehensive and have just the three sets of comments provided below.

Scheme and infrastructure

In Annex H of the PFMI report, financial market infrastructure (FMI) is defined as:

"A multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, derivatives or other financial instruments."

It is assumed, therefore, that where an FMI comprises two separate legal entities, one responsible for managing the scheme and one the infrastructure, the definition is intended to cover both of them. However, it is noted that Appendix 4 to the Assessment Methodology consultative report states in Responsibility A that authorities should clearly define and publicly disclose the criteria used to identify FMIs that should be subject to regulation and oversight by a central bank, market regulator, or other relevant authority. However, it is not clear whether when there are divided responsibilities this is intended to relate solely to the Scheme or to both the Scheme and Infrastructure. If only the

Scheme, is that body required to enter into legally binding contracts with the Infrastructure in respect of services provided by the latter. If so would such indirect control satisfy the requirements of the FMI Principles.

Two instances of where both entities are affected are Principle 2 Governance and Principle 15 General Business Risk. These are, of course, only high level examples and there are potentially a number of more specific issues dependent on the split of activity between Scheme and Infrastructure.

Consequently, it is recommended that guidance is provided on how authorities should categorise FMIs whose functions are split between two separate legal entities.

<u>Questions re public sector – owned FMIs</u>

Section 1.3 of the Assessment Methodology consultative report states inter alia, that:

- *public sector FMIs are out of scope of some assessment questions and require specific guidance under a few principles and responsibilities.*
- *appropriate questions have been formulated to help assess observance by public sector – owned FMIs for Principles 2 – 15 – 21 and Responsibility D.*

However, it is not clear which questions are out of scope for public sector FMIs. Also, apart from questions 2.1.4 re financial stability and 2.1.5 re public interest considerations, it is not clear which questions have been formulated to help assess observance by public – sector owned FMIs. Indeed, the questions relating to Responsibility D appear to be directed to relevant authorities, not FMIs themselves.

Clarity in the documentation with regard to both points would be appreciated.

<u>Disclosure framework</u>

Section 1.23 of the PFMI report states, inter alia,

"*However, there are exceptional cases where the principles are applied differently to FMIs operated by central banks due to requirements in relevant law, regulation or policy. For example, central banks may have separate public policy objectives and responsibilities for monetary and liquidity policies that take precedence. Such exceptional cases are referenced in (a) Principle 2 on governance, (b) Principle 4 on credit risk, (c) Principle 5 on collateral, (d) Principle 15 on general business risk and (e) Principle 18 on access and participation requirements. In some cases, FMIs operated by central banks may be required by the relevant legislative framework or by a central bank's public policy objectives to exceed the requirements of one or more principles.* "

This is recognised but the first paragraph of the Introduction to the Disclosure Framework consultative report reads

"*Clear and comprehensive disclosures by financial market infrastructures (FMIs) support sound decision making by market participants, authorities and the public. Such disclosures also support* *the main public policy objectives of the CPSS and IOSCO to enhance the safety and efficiency in payment, clearing, settlement and recording arrangements, and more broadly, limit systemic risk and foster financial stability and transparency*.

In order to comply with these comments, it is suggested that where central banks are applying over-riding public policy objectives, this should be noted in the report of the relevant authority including, where possible, a brief description of the applicable public policy.

Yours sincerely,

Roger Jones
Chairman
TARGET Working Group

Denisa Mularova
Secretary
TARGET Working Group

The Clearing House
At the Center of Banking Since 1853

Via electronic delivery June 15, 2012

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Re: Consultative Reports: *Assessment Methodology for the Principles for FMIs and the Responsibilities of Authorities* and *Disclosure Framework for Financial Market Infrastructures*

Dear Sirs:

The Clearing House Association L.L.C. ("Association") and The Clearing House Payments Company L.L.C. ("PaymentsCo," and, together with the Association, "The Clearing House")[1] are pleased to provide comments to the Committee on Payment and Settlement Systems ("CPSS") and the Technical Committee of the International Organization of Securities Commissions ("IOSCO") on their consultative reports *Assessment Methodology for the Principles for FMIs and the Responsibilities of Authorities* ("*Assessment Methodology*") and *Disclosure Framework for Financial Market Infrastructures* ("*Disclosure Framework*").

[1] Established in 1853, The Clearing House is the nation's oldest banking association and payments company. It is owned by the world's largest commercial banks, which collectively employ 1.4 million people in the United States and hold more than half of all U.S. deposits. The Clearing House Association is a nonpartisan advocacy organization representing—through regulatory comment letters, amicus briefs, and white papers—the interests of its owner banks on a variety of systemically important banking issues. Its affiliate, The Clearing House Payments Company L.L.C., provides payment, clearing, and settlement services to its member banks and other financial institutions, clearing almost $2 trillion daily and representing nearly half of the automated-clearing-house, funds-transfer, and check-image payments made in the United States. See The Clearing House's web page at www.theclearinghouse.org for additional information.

These consultative reports follow up on *Principles for Financial Market Infrastructures* ("*PFMI Report*"; the individual principles set out in the *PFMI Report* are referred to as "Principles") that CPSS and IOSCO released in April. The *PFMI Report* established 24 Principles that should be adhered to by and financial market infrastructures ("FMIs"), which include payment systems, central securities depositaries, securities settlement systems, central counterparties, and trade repositories. The *Assessment Methodology* aims at setting a common method for various stakeholders, including local supervisors, external assessors, and FMIs themselves, to assess an FMI's observance of each of the relevant Principles and key considerations set out in the *PFMI Report*. The *Disclosure Framework* sets out a template for the disclosure of each FMI's self-assessments to ensure that the FMI observes Principle 23, which calls for disclosure of rules, key procedures, and market data, including an FMI's completion and public disclosure of the *Disclosure Framework*.

PaymentsCo operates the Clearing House Interbank Payments System ("CHIPS"), the largest private-sector funds-transfer system in the world. CHIPS has been regarded as a systemically important system under the Federal Reserve Board's policy statement on payment system risk[2] and for years has been following previous CPSS standards such as the *Core Principles for Systemically Important Payment Systems* ("*Core Principles*"). The views expressed in this letter are informed by our experience operating CHIPS and observing global standards for systemically important payment systems and our expectation that PaymentsCo will be required to apply the Principles set out in the *PFMI Report* as they are eventually adopted by the Federal Reserve.

SUMMARY

1. The Clearing House supports the *Assessment Methodology* and the *Disclosure Framework*, but believes that the some of the details should be clarified.

2. FMIs should be given at least one year from the time their home-country supervisors adopt the Principles to come into compliance—longer if they are new to regulation as FMIs or if certain involve new issues or difficult actions.

3. After an FMI comes into compliance with the Principles, it should be given at least one year before its initial self-assessment is required.

[2] PaymentsCo expects to be designated as a systemically important financial market utility under Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act because of its operation of CHIPS.

4. Thereafter, FMIs should be expected to review its self-assessment every two years, but this should not require a completely new self-evaluation, except for those Principles where there have been material changes in circumstances or in order to correct a deficiency.

5. The Clearing House agrees with the proposed rating scheme and with the proposed templates for assessment report and public disclosure document.

6. While "reasoned" legal opinions may be appropriate to assess the legal basis for an FMI's operation as an FMI, they should not be required for other corporate transactions or operations.

7. Principle 7 (Liquidity Risk) should be clarified to ensure that it does not apply to FMIs that do not require liquidity in processing payments or other financial transactions.

8. In their analysis of Principle 15 (Business Risk), CPSS, IOSCO, and local regulators must take account of the costs involved in regulation and the threat that unwise or very costly regulations pose to the continued viability of private-sector FMIs.

9. In their analysis of Principle 8 (Access and Participation Requirements), CPSS, IOSCO, and local regulators should realize that regular, direct access to the central-bank liquidity facilities is an important risk-control feature for FMIs, and limiting participation to institutions that have access to central-bank liquidity does not violate this Principle.

10. Tiered participation arrangements do not include bank-customer arrangements in which the customer's only connection to an FMI is that the bank may execute the customer's payment orders by sending a corresponding payment order through the FMI.

11. Principle 20 (FMI Links) should not include informal dependencies, such as when participants fund their positions on an FMI by use of another FMI.

12. The Clearing House supports the full application of Principle 23 (Disclosure) and believes that it should apply equally to CPSS and IOSCO. We believe CPSS and IOSCO should adopt their own recommendation whenever they issue final papers and summarize comments received in response to their consultative papers, identifying the major comments, stating their reasons for accepting or rejecting those comments, and

identifying the significant changes made in a final paper from the one released for comment.

DETAILED COMMENTS

Frequency of Assessments

CPSS and IOSCO report that "CPSS and IOSCO members will strive to adopt the new principles by the end of 2012 and put them into effect as soon as possible. FMIs are also expected to observe the principles as soon as possible."[3] It would seem, however, that adoption by the end of 2012, while a worthy goal, will not be realistic for all countries.

Each member country will have to go through its legally required rulemaking procedures to adopt and enforce the Principles, and as part of that process, would be expected to adapt the Principles to the extent required to maintain consistency with its own legal, regulatory, and market conditions. Depending on the procedures that need to be followed and the amount of other work that needs to be done to conform the Principles to local conditions, it may take longer than currently forecast—perhaps as long as another year (i.e., the end of 2013)—before regulations are adopted in final form.

Once final regulations adopting the Principles become final in a country, we would anticipate that FMIs in that country would be accorded a reasonable time to come into compliance. The time needed will differ from one FMI to another and may depend on whether, or the extent to which, the FMI was regulated under a prior set of standards (e.g., the *Core Principles*), the extent to which the previously applicable principles have changed, and the difficulty of coming into compliance with those Principles that are completely new. The Clearing House believes that previously regulated FMIs should receive not less than one year after the final rules come into effect in the home country to come into complete compliance while not less than two years may be required if the FMI is to be regulated for the first time or if a new rule is applied to a previously regulated FMI requires considerable effort to attain compliance (e.g., raising capital under Principle 15). FMIs should also have an additional period following this deadline to complete their self-assessment process, document compliance, prepare the disclosure documents, submit draft disclosure documents to their regulators, make changes to respond to the regulators' comments, and obtain board approval. The Clearing House believes a minimum of period of six months (and perhaps longer if applicable regulators are unable to respond to requests for comment promptly, how extensive those comments are, and whether a second round of

[3] Co-chairs' Summary Note for the CPSS-IOSCO *Principles for Financial Market Infrastructures* (Apr. 16, 2012) at 8, available at http://www.bis.org/publ/cpss101e.pdf.

consultation is necessary). In order to allow reasonable time to address these contingencies, self-assessment by an FMI under the *Assessment Methodology* and release of a public report under the *Disclosure Framework* should not be mandatory until one year after the compliance date.

The Clearing House agrees that FMIs should be required to periodically review their self-assessment and believes a biannual review requirement would be reasonable, with an additional requirement for earlier or more frequent self-assessment if during the period there are substantial changes in the FMI's rules, operations, or legal environment, or if a regulator finds significant deficiencies that require correction.

We believe however, that effective periodic reviews need not require a "ground-up" reassessment of each Principle. For example, while an initial self-assessment of an FMI's legal basis would require a thorough review of all legal issues and the rendering of a legal opinion, subsequent self-assessments of this Principle could reasonably be limited to a review designed to ensure that there have been no significant changes to the legal environment (laws, regulations, or the FMI's rules or operations) and a review of the existing legal opinions to ensure that they are still applicable rather than a requirement for completely new legal opinions.

Frequency of an external assessment by regulators should depend on each regulator's assessment of an FMI's systemic importance and riskiness.

Principles Subject to Assessment

The Clearing House believes that an FMI's initial self-assessment should cover in depth all of the Principles that apply to it. As noted in the prior section, subsequent assessments should review all of the applicable Principles, but should focus on those that (i) require correction from the last self-assessment; (ii) have changed significantly from the last self-assessment; or (iii) have been affected by significant market, legal, or other conditions.

External assessments should be based on the regulator's assessment of the relative importance of each of the Principles to an FMI's operations and risk. Each country's regulator should determine how the Principles should be applied and whether its assessment of an FMI should evaluate the FMI's compliance with each key consideration for each of the Principles, or whether compliance should be based on the overall Principles.

Ratings

The Clearing House agrees with the proposed ratings framework: observed, broadly observed, partially observed, not observed, and not applicable, and we agree that local authorities should have flexibility to determine the time frame for addressing areas of concern that examiners have identified.

Template for Assessment Report

The Clearing House believes that the overall structure that has been proposed for the assessment report is reasonable for external assessments. For self-assessments, however, there should be no need for an overview of the payments, clearing, and settlement landscape or for recommendations, which are more appropriate for external assessors. The template for self-assessments should follow that set out in the *Disclosure Framework*, with the addition of the rating that the FMI has given itself for each of the Principles.

The approach of using the questions set out in Appendix 3 in the manner of an examination manual appears reasonable, although we have some points to make about the questions used for some of the individual Principles. These are set out in the next section.

Notes on Individual Principles

Principle 1—Legal Basis. This Principle requires a clear, well-founded legal basis for each material aspect of the FMI's activities in all relevant jurisdictions. The questions for this Principle set out in Appendix 3 lead the evaluator (i.e., the FMI itself or an external evaluator) to an identify the material aspects that require legal certainty and the extent to which the legal opinions adequately address those issues. The Clearing House believes that this requirement and its evaluation require some additional clarity.

While it may be advisable to have a reasoned legal opinion to allow all the relevant parties to assess the reasoning behind the opinion that cover core aspects of its operation as an FMI (e.g., finality of payments, enforceability of rules, participant defaults) because the legal rules underlying these activities may be unusually complex or may not be fully developed in all jurisdictions, The Clearing House believes that reasoned opinions should be required only with respect to the rules, laws, and agreements relating to the FMI's operation as such. While it may also be appropriate for other significant corporate activities (e.g., significant debt or equity issues, mergers, significant acquisitions) to be supported by legal opinions, the format for these opinions should follow local practice, which may customarily require delivery of "unexplained" opinions that do not set out the reasoning behind the opinion giver's conclusions. The reason for this preference is the belief that "reasoned" or "explained" opinions are considered appropriate and acceptable in situations where the law is uncertain or the legal question is novel.[4] Use of a reasoned opinion could thus be seen as suggesting the

[4] Comm. on Legal Opinions, American Bar Assoc., *Guidelines for the Preparation of Closing Opinions*, 57 Bus. Law. 875, 879 (2002).

existence of some level of uncertainty that is not in fact present in a transaction that counsel would customarily cover with an unexplained opinion. We believe that it would be a mistake to suggest this level of uncertainty with respect to well-settled legal questions into more routine corporate transactions that do not specifically related to the company's operation as an FMI.

Other material contracts (e.g., software licenses, hardware leases) should be subject to the FMI's comprehensive contracting policy providing for levels of executive approval or legal review commensurate with the significance of the contract, but should recognize that in many cases would not require a formal legal opinion.

Principle 7—Liquidity Risk. This Principle deals with the FMI's own liquidity risks, not the liquidity risks incurred by the FMI's participants through their participation in the system. Accordingly, we believe that the analysis for this Principle should make clear that the Principle does not apply to an FMI that does not incur liquidity risks as a result of its operations. As a separate matter, we agree that an FMI has a responsibility to assist its participants understand and manage the liquidity risks they incur by participating on the system, and those responsibilities should be covered under Principles 13 (Principal Default Rules and Procedures) and 23 (Disclosure of Rules, Key Procedures, and Market Data).

Principle 13—Participant Default Rules and Procedures. This Principle has two aspects: (i) clarity of the rules and (ii) the ability of an FMI to contain its losses and liquidity pressures and continue to meet its obligations. As to the first aspect, we agree that every FMI should have clear rules regarding participant defaults and that all participants should know and understand the rules so that they will understand and be able to anticipate the risk of, and prepare for, either their own default or the default of another participant, which may be a major counterparty. The second aspect, however, should not apply where an FMI has no financial obligation with respect to the payment orders it processes.[5]

Principle 15—General Business Risk. This Principle deals with threats to an FMI's viability as a going concern. These can include the possible obsolescence of an FMI's business model in the face of changing technologies and payments practices (e.g., migration of payments away from the FMI to lower-cost alternatives), competition from other existing FMIs (including central-bank systems), and new entrants. The Clearing House believes it should also be clear that overregulation may create a significant threat

[5] We also note that for CHIPS, the failure of a participant to fund at the end of the day is not a default. A sending participant has no obligation with respect to a CHIPS payment message until CHIPS releases the payment message to the receiving participant and settlement of the sending participant's obligation to pay the amount of the payment message to the receiving participant is accomplished at the same time the payment message is released through the CHIPS settlement process.

to FMIs, as regulators may underestimate the cost of their rules. Regulatory compliance is a significant overhead cost that must be recovered in the fees that an FMI charges its participants, and higher costs may inhibit its ability to compete with lower-cost alternatives (e.g., unregulated new entrants that have not yet been designated systemically important or public-sector systems).

Principle 18—Access and Participation Requirements. The Clearing House supports fair and open access and believes that and FMIs should effectively reflect this Principle. Nevertheless, this Principle should be interpreted in light of the legal structures and payment services that exist in each country. For example, depending on how an FMI is structured, an FMI may require its participants to have regular direct access to the central bank's discount window, and access in some countries is limited to certain classes of financial institutions (e.g., commercial banks and other depository institutions but not securities brokers or dealers). In these circumstances, The Clearing House believes that direct access to the discount window by participants is vital to an FMI's risk-control procedures. Thus the principle of "open access" is not inconsistent with an FMI limiting access to its services to institutions with regular direct access to the discount window.

Principle 19—Tiered Participation Arrangements. Our comment letter on the proposed *PFMI Report*, suggested that the definition of tiered participation arrangement be clarified to provide more information about what exactly is covered and to avoid any suggestion that traditional correspondent banking arrangements represent tiered participation or that a FMI participant's customer becomes an "indirect participant" of an FMI simply because the participant elects to process some of the customer's transactions through the FMI.[6] Unfortunately, the final *PFMI Report* remains unclear on these points.

In a footnote, the *PFMI Report* states that FMIs can have two kinds of "relationships." The first are with "direct participants" that are bound by the FMI's rules and agreements. "The second type of relationship is with entities that are not bound by the rules of the FMI, but whose transactions are cleared, settled, or recorded by or through the FMI. These entities are defined as 'indirect participants' in the FMI in this principle."[7] The Principle goes on to state that monitoring of the risks from tiered participation arrangements would normally be "focused on financial institutions that are the immediate customers of direct participants and depend on the direct participant for access to an FMI's services."[8]

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[6] *See*, Letter from Joseph R. Alexander, The Clearing House Payments Co., to CPSS & IOSCO (July 29, 2011) ("2011 Comment Letter") at 9–11.

[7] *PFMI Report* at 105, n. 148.

[8] *Id*. at 106.

U.S. regulators have told us informally that this Principle is intended to cover situations in which a major nonbank financial institution "connects" to an FMU through a "direct participant," for example, Bank X clears for Broker Y. The regulators maintain that the FMI should understand the risks inherent in this situation. But this example points out both the difficulty of performing this analysis and the lack of any real connection between Broker Y and the FMI.

Suppose Broker Y orders Bank X to pay an amount of money to Customer A at Bank B. The first thing Bank X will do is determine whether it will accept the order and it will check to see if Broker Y has a sufficient balance in its account or a sufficient line of credit to accommodate the payment. If balances or credit lines are insufficient, the payment order will be rejected and the payment will not be made. If Bank X decides to accept Broker Y's payment order, it will then have to decide how the funds transfer will be routed to Bank B. If Bank B has an account at Bank X or Bank X has an account with Bank B, Bank X will process the payment internally as a book transfer and it will never be sent to any FMI. If the payment cannot be sent as a book transfer, Bank X may be able to execute Broker Y's payment order by sending a corresponding payment order through one of several FMIs, and the decision of which FMI to use will be made based on a number of factors and may change from time to time and even from minute to minute. It seems highly unusual, to say the least, to take the position, as the *PFMI Report* appears to do, that this state of affairs makes Broker Y an indirect participant of any FMI through which Bank X might chose to route Broker Y's payments. In any case, the risk to Bank X that arises through these transactions results not from Bank X's "direct" or Broker Y's "indirect" participation in the FMI but from the fact that Bank X is dealing with Broker Y. Bank X will mitigate this risk not by doing anything with respect to the FMI, but by monitoring Broker Y's transactions and setting credit limits on Broker Y. Conversely, Broker Y may rely on Bank X to execute its transactions, but any risks that it incurs results from its reliance on Bank X, not the fact that some or all of its transactions may be routed through a particular FMI. Broker Y will mitigate this risk, not by taking any action with respect to the FMI, but by having relationships with more than one bank so that if one of its banks runs into operational or financial trouble it will have other options for completing its payments.

On the receipt side, receiving banks like Bank B or their customers, like Customer A, may expect to receive payments from other banks through an FMI or otherwise, and failure to receive a payment may cause problems for the customers. Nevertheless, payments fail every day for reasons that are largely (and typically) wholly unrelated to the FMI (e.g., insufficient balances or credit lines, violations of economic-sanctions laws, attachment or garnishment), and except for risks that arise directly from problems at the FMI (which are dealt with by other Principles, such as Principle 17 on operational risk), those risks result from their dealings with their counterparties, not from the fact that some payments may be made through the FMI. Moreover, as Bank B receives the payment order from Bank X over the FMI, the obligation to pay the amount of the payment order is owed by Bank X, which provides an additional level of protection for the receiving bank.

Because of the foregoing, we submit that when an FMI is confronted with Q.19.1.1 ("What tiered participation arrangements does the FMI have?") the proper answer is "none" if the only connection that nonparticipants have to the system is that their banks may send their transactions through the FMI.

Principle 20—FMI Links. This Principle covers "contractual and operational arrangements between two of more FMIs that connect the FMIs directly or through an intermediary."[9] It should be clear that this covers only formal arrangements and that informal dependencies, for example where an FMI's participants fund their positions by funds transfers through another FMI, are not covered.

Principle 22—Communication Procedures and Standards. The point of this Principle is that an FMI should "use, or at a minimum accommodate, relevant international communication procedures and standards." CPSS and IOSCO should make it plain that this Principle is not attempting to enforce on all FMIs and their participants the ISO 20022 standard, and that an FMI that uses a format that can easily map other standard formats (e.g., SWIFT) will meet the Principle.

Principle 23—Disclosure. The Clearing House fully supports the disclosure of rules and key procedures. It also supports the template for disclosure that is set out in the *Disclosure Framework* with its summary of changes since the last update. We also believe that those recommendations apply with equal force to CPSS and IOSCO themselves, and that each should adopt its own recommendations and increase transparency by summarizing comments received in response to their consultative papers, identifying the major comments, stating their reasons for accepting or rejecting those comments, and identifying the significant changes made in a final paper from the one released for comment.

CPSS and IOSCO released the *Consultative Report* in March 2011 and received 116 comments. They then spent the better part of a year revising the work in light of the comments. In publishing the final *PFMI Report*, however, CPSS and IOSCO did not show how the final principles differ from the consultative report, did not summarize the comments, and did not discuss their reactions to substantial comments. The result is a lack of transparency that frustrates the goal of public understanding of the Principles. While there are a number of places in the *PFMI Report* where this problem occurs, one example will demonstrate this point.

[9] *Id*. at 109.

In discussing the need for a well-founded legal basis, the *Consultative Report* stated that "One recommended approach to articulating the legal basis for each aspect of an FMI's activities is to obtain well-reasoned and independent legal opinions or analyses."[10] The Clearing House's comment letter noted that for practicing lawyers the term "reasoned opinion" refers not to an opinion that has sound reasoning behind it but one in which the lawyer giving the opinion has explained the reasoning behind his or her conclusions. We went on to explain that in some jurisdictions a reasoned opinion is thought to be less desirable than an unexplained opinion because reasoned opinions are use only where the law is uncertain or the case involves an uncertain matter of professional judgment.[11] Nevertheless, the final *PFMI Report* repeats the *Consultative Report's* wording verbatim.[12] The comment was thus apparently considered and rejected, but CPSS and IOSCO have not said why, leaving their readers to guess at the reason. Moreover, since the wording is not "reasoned opinion" but "well-reasoned opinion," we are left to wonder whether CPSS and IOSCO are looking for what lawyers would call a reasoned opinion or merely want an opinion that is supported by sound legal reasoning whether or not that reasoning is explained in the opinion. A comment summary and analysis in which CPSS and IOSCO say that they considered this comment and decided to keep the original wording for the stated reasons would clear up this confusion; as matters stand readers are left with unresolved questions.

* * * * *

We hope these comments are helpful. If you have any questions about the issues raised in this letter, please contact me at joe.alexander@theclearinghouse.org or 212-612-9234.

Very truly yours,

Joseph R. Alexander
Senior Vice President, Deputy
General Counsel, and Secretary

[10] *Consultative Report* at 20.

[11] 2011 Comment Letter at 6.

[12] *PFMI Report* at 22.

To: CPSS-IOSCO Working Group
cpss@bis.org and fmi@iosco.org

From: Mr Mohammed Abdel Salam, WFC Chair
on behalf of the five regional CSD associations
(ACG, ACSDA, AECSD, AMEDA and ECSDA)

15 June 2012

Joint WFC Comments on the CPSS-IOSCO PFMI assessment methodology and disclosure framework

This paper represents the contribution of the World Forum of CSDs (WFC) to the CPSS-IOSCO public consultation on the assessment methodology and disclosure framework aimed at facilitating the implementation of the new Principles for financial market infrastructures.

Due to the diversity of CSDs' business models around the globe, this joint paper focuses on those issues of common interest to all associations from a CSD perspective. In addition to this joint letter, some CSDs and individual regional CSD associations will be sending to CPSS-IOSCO their own responses to the public consultation, including more details on their specific situation and concerns.

(1) General remarks

The WFC understands that the proposed assessment methodology (AM) and disclosure framework (DF) have two different purposes, being addressed to regulators and to infrastructures respectively. However we wonder whether the different formats being proposed (questions in the case of the AM, headings with narrative descriptions in the DF) will not create additional complexity and duplication[1] when complying with the FMI Principles. In particular **we fear that the narrative format being proposed in the new DF will not enhance transparency when compared with the former disclosure framework as it relies entirely on "free text" responses which will make consistency, and therefore comparisons between infrastructures, quite difficult.**

In fact, we believe that a more efficient and transparent solution for FMI disclosures can be achieved by using the AM as a basis for FMI self-assessments, and then possibly removing some AM questions if the related responses include confidential information which should not be made publicly available.

[1] Both the DF and AM templates require FMIs to provide explanations for the key elements and key considerations for each of the Principles, which clearly leads to a duplication between the two.

The question format has at least two advantages over "narrative descriptions" from a disclosure point of view:
(a) It helps achieve more standardized and comparable responses, both across countries and over time (e.g. yes/no questions with subsequent supplementary comments, multiple choice);
(b) It would facilitate efforts to support global convergence of existing disclosure practices, including the Association of Global Custodians (AGC) questionnaire which, in the case of CSDs, contains overlaps with the CPSS-IOSCO framework.

The WFC in no way aims to reduce the scope of the CPSS-IOSCO framework (DF and AM) nor the number of questions to be answered. We would in fact like CPSS-IOSCO to reconsider its decision to impose two different templates (and formats) for the DF and AM, where there was previously a single "self-assessment" template, and possibly to expand the number and range of questions. We acknowledge that the DF and AM have different purposes and that the AM will by nature require more detailed responses, but we also expect that a number of national regulators will require CSDs to complete the AM questions as part of annual "self-assessments", which will in large part duplicate with the annual DF exercise, thus creating an additional burden on CSDs without any clear benefits in terms of transparency.

The WFC therefore suggests:

- either a redrafting of the proposed DF in such a way that it would become a subset of the AM and would be translated into question format so as to better "match" the structure of the AM template (for example, questions of the AM to be used for the DF could be tagged in a certain way while questions aimed for assessors only would not be tagged; it is also possible to envisage that in certain cases the responses provided in the DF will be shorter and less detailed than the ones provided to assessors);

- or to allow FMIs to use the AM questions as a basis for their annual disclosure exercise (rather than the DF template currently being proposed), especially if they are required to complete self-assessments by their national regulators and provided that they disclose the same level of information as they would under the proposed DF;

- and that the AM should provide a greater number of specific questions to guide responses and define metrics to be supplied by FMIs, which would be valuable to the disclosure exercise.

(2) The assessment methodology

The AM foresees that *"FMIs may have to conduct formal periodic full or partial self-assessments of observance of the principles"*. Many CSDs currently perform such self-assessments based on the CPSS-IOSCO framework but are concerned that in the future they will need to duplicate the work if they are asked to use both the AM as a basis for self-assessments and the DF. Given that the objective in all cases is to obtain evidence of the level of the FMI compliance with the CPSS-IOSCO Principles, the AM and DF documents should clearly state that **FMIs should be requested to provide self-assessments <u>either</u> based on the AM <u>or</u> on the DF** (see our comments in the "General remarks" above).

Furthermore, we assume that when FMIs undertake self-assessments, these will be based on the AM or on equally effective guidelines for supervision developed by national authorities. In the latter case, it is important to avoid situations where an FMI would necessarily undertake assessments based on national guidelines and also based on the AM, simply because national authorities have developed guidelines for supervisory assessments which, although inspired by the AM, differ from the AM template used by external assessors at the international level (e.g. IMF, World Bank).

As regards the rating framework, the WFC believes that it plays an important role to ensure consistent implementation across jurisdictions. However, **the effectiveness of the ratings will be reduced if national authorities opt to use a different rating system.**

Furthermore, because each market is at a different stage of development, in cases where CSDs are not conforming identically with respect to FMI Principles, we can expect a wide range of effects in terms of the impact of non-conformance on each market, the degree to which a response is necessary, and the speed with which action needs to be taken. Accordingly, regardless of which entity is the assessor (e.g. external assessors at the international level such as the World Bank and the IMF, national authorities, or the FMIs themselves), ratings and timeframe for addressing each identified concern under FMI Principles need to take into account not only the degree of conformance with each principle but also broad consideration of the overall circumstances and stage of market development.

In this regard, it would greatly benefit the entire process if there was:
(1) guidance provided as to the nature of the evidentiary information likely to be required by an assessor in support of declarations by the FMI, and;
(2) a process of disclosure and consultation in connection with the FMIs adopted by the assessors to facilitate understanding of how the FMI has been rated, and the steps that should be taken to address any shortcomings identified in the review process.

Given the additional requirements contained in the PFMI compared to the former SSS recommendations, we also suggest that **a review mechanism be established** in order to assess whether all Principles are working in practice, and which key considerations might need to be adjusted in light of the experience gained in the first years of implementation.

(3) The disclosure framework

The DF requires respondents to *"indicate the extent to which each response is relevant to each FMI category"*. As most CSDs operate a securities settlement system (SSS) as part of their core business, responses to the DF should be considered to cover both the CSD and the SSS (e.g. governance, legal basis…), unless otherwise specified.

Regarding section II. B of the DF template on "key metrics", the WFC suggests that, in case CSDs are expected to provide basic figures such as the volume and value of transactions they have settled in a given year, as well as the value of assets held in custody at year end, they should be encouraged to use a harmonized methodology, to ensure comparability of disclosure reports. For example, **CPSS-IOSCO might consider whether to recommend that CSDs disclose a few basic indicators based on the "Red Book" methodology developed by the CPSS.**

Furthermore, we note that for some key elements, it could be difficult for FMIs to provide comprehensive responses to the DF without releasing confidential information (even though FMIs should be careful not to disclose confidential information as per clause 3(9) of the DF document).

Since the Principles will be used for the first time by regulators in 2012 and given that the publication of disclosure reports based on the new AM or DF template will require substantial work from FMIs, **the WFC suggests that CSDs and other FMIs should be expected to publish their first disclosure report on the new CPSS-IOSCO Principles as of the fiscal year starting in 2013.**

Finally, the WFC would like to draw CPSS-IOSCO's attention to the benefits to be gained from the harmonization of disclosure requirements of CSDs at a global level. Indeed, CSDs are not only expected to publish a yearly (or biannual) disclosure report based on the CPSS-IOSCO framework, but in many cases they also have to fill in other disclosure questionnaires such as that of the Association of Global Custodians (AGC), whose contents overlaps with the CPSS-IOSCO disclosure requirements to a great extent.

The existence of parallel questionnaires and disclosure requirements represents a considerable administrative burden for CSDs, especially for smaller institutions. **While it is not the WFC's intention to reduce the level of disclosure being provided or the number and scope of questions being asked, we strongly believe that the replacement of overlapping requirements by a single global annual disclosure questionnaire on CSDs would considerably enhance market transparency as well as the quality (rather than the quantity) of the information provided.** The adoption of a new CPSS-IOSCO DF represents a unique opportunity to streamline the production of disclosure reports by CSDs through the consolidation of existing questionnaires. If such consolidation does not happen now, the risk is that FMIs, and CSDs in particular, will continue having to deal with multiple questionnaires for the next decade.

The WFC and AGC have initiated joint efforts to pursue harmonization of disclosure, believing that in doing so, the overall process will be improved and transparency enhanced. The WFC and AGC are committed to these efforts, confident that they are in the best interest of all concerned. We recognize however, that concluding these efforts to maximum affect requires the cooperation and consideration of CPSS-IOSCO as these efforts will certainly not be concluded in advance of the June 15 deadline for comments.

About the WFC

Launched in April 2011 at the CSD11 conference in Cape Town, South Africa, the World Forum of CSDs (WFC) provides a forum for regional CSD associations to exchange information, discuss issues of common interest and increase their influence and engagement on cross-regional and global developments.

It is composed of the following five regional CSD associations which together represent around 125 member CSDs:

- Asia - Pacific CSD Group (ACG)
- Americas' Central Securities Depositories Association (ACSDA)
- Association of Eurasian Central Securities Depositories (AECSD)
- Africa & Middle East Depositories Association (AMEDA)
- European Central Securities Depositories Association (ECSDA)

The Forum has a Board composed of 10 members, namely the Chairs and Vice-Chairs of each of the five regional associations. Mr. Mohamed Abdel Salam of MCDR (Egypt) is currently acting as WFC Chairman with Mr. Yoshinobu Takeuchi of JASDEC (Japan) as Vice-Chair.

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Ref:ZNPI/1/H24

14th June 2012

Comments on the CPSS-IOSCO Consultative Report *"Assessment methodology for the principles for FMIs and the responsibilities of authorities"*

The Japanese Banks' Payment Clearing Network (Zengin-Net) is a general incorporated association set up by the Japanese Bankers Association to operate domestic retail fund transfers system. Zengin-Net operates Zengin System which handles customer credit transfer advises among its participants (most of the deposit-taking financial institutions in Japan) with a daily average of 5 million transactions, amounting to 11trillion JPY. It also clears funds arising from the above transactions among its participants through book transfers between their Bank of Japan accounts. Zengin-Net is the only Fund Clearing Agency licensed by the Japanese Government under the Payment Services Act.

Zengin-Net wishes to express its appreciation for the opportunity to comment on the consultative report "Assessment methodology for the principles for FMIs and the responsibilities of authorities" released on April 16th by the Committee on Payment and Settlement Systems, and the Technical Committee of the International Organization of Securities Commissions. Zengin-Net hopes that its comments below will help you to prepare the final document with more clarity.

Comments:

The assessment methodology (AM) "1.0 Introduction" states that any elaborating commentary is not to amend or expand upon those discussions of the principles that are contained in the PFMI Report. Also, "1.1. Use of the Assessment Methodology" states that national authorities should use the AM as it is or take it into consideration when developing equally effective methodologies for their national supervision and oversight processes.

Therefore, descriptions in the AM shall be kept within requirements written in the PFMI reports. With that context, Zengin-Net wishes to raise the three points below to be taken into consideration. All comments are regarding the Questions in appendix 3. "Questions by key consideration for the principles for FMIs"

1. Q.2.1.2: How is the FMI's performance in meeting its objectives assessed?
(Regarding Principle 2: Governance KE 1. Identification of the FMI's objectives.)

Comment:
It seems that there is no explicit requirement in Principle 2 of the PFMI report to which this question is addressing. Although explanatory note 3.2.1 of the PFMI report states "Governance provides the processes through which an organisation sets its objectives, determines the means for achieving those objectives, and monitors performance against those objectives", it is not clear that this sentence provides a basis for requiring assessment of performance against the objectives. If this sentence does not provide the basis, what does provide the basis?
In general, objectives are not suitable for practical performance assessments, as such objectives tend to be high-level abstract goals.

Suggested Change:
Delete Q2.1.2, as Q2.1.1 covers the question related to KE1.

2. Q.17.5.3: How, and to what extent, do the FMI's change-management and project-management policies and processes ensure that changes and major projects do not affect the physical security of the system?
(Regarding Principle 17: Operational risk, KC 17.5-KE 1. Physical security policies)
Q.17.5.6: How, and to what extent, do the FMI's change-management and project-management policies and processes ensure that changes and major projects do not affect the information security of the system?
(Regarding Principle 17: Operational risk, KC 17.5-KE 2. Information security policies)

Comment:
The above questions are about change-management. However, it is not obvious which part of the PFMI report provides the basis for the questions. If it is based on 3.17.12 of the report, "These policies, standards, practices, and controls should include the identification, assessment, and management of security threats and vulnerabilities for the purpose of implementing appropriate safeguards into its systems," these questions are irrelevant because the section 3.17.12 is the requirement/ expectation in the design phase of physical and information security, but does not relate to the change management.
As questions about change management are written in Q17.1.6 based on 3.17.8 of the PFMI report, the above questions should be integrated into Q17.1.6.

Suggested Change:
Delete Q17.5.3 and Q17.5.6. Amend Q17.1.6 as needed.

3. Q.23.4.1: What fee and other material cost information on its pricing (i.e. services and associated fees and discounts) does the FMI publicly disclose?
(Regarding Principle 23: Disclosure of rules, key procedures, and market data, KC23.4-KE 1. Public disclosure of service fees and discounts.)

Comment:
Although the PFMI report requires fee information to be publicly disclosed, other material cost information is out of scope. Additionally, "Disclosure framework for financial market infrastructures" defines readers of disclosure as (1) current and prospective participants, (2) other market participants, (3) authorities, (4) general public, but there are no specific guidelines regarding the scope of each disclosure item. Moreover, while notes in the general instructions state that "An FMI should be careful not to disclose confidential information in its response", there is no definition of confidential information.
Considering the above, Q23.4.1, the question, whether fees are publicly disclosed, is appropriate, but the remaining part of the question about material cost information is not because it is out of the scope of the PFMI report. Moreover, it will contradict the requirement not to disclose confidential information considering that the cost information could be regarded as confidential information by the FMI in certain cases.

Suggested Change:
Amend Q23.4.1 to exclude other material cost information from publicly disclosure items from the question.

(END)

Response to the CPSS and the IOSCO's Consultative Documents of *Disclosure framework for financial market infrastructures* and *Assessment methodology for the principles for FMIs and the responsibilities of authorities* from Financial Competitive Regime Perspective

Zhen Li*

Kunming Sub-branch of the People's Bank of China

1. **All views in this submission are presented on behalf on the writer, and may not necessarily be construed as those of the People's Bank of China.**
2. **For the writing tradition and reading convenience, this paper is drafted in English and Chinese. The meaning shall be construed as the same.**

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June 2012

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* Zhen Li is an economic analyst and attorney

从金融竞争制度视角评述国际支付结算体系委员会和国际证监会组织技术委员会联合公布的《金融市场基础设施公开框架》及《金融市场基础设施原则和当局责任测评方式》征求意见稿

李　震*

【中国人民银行昆明中心支行】

1、　本文仅代表作者个人观点，并不必然代表中国人民银行观点。

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I. General Comments

Dear Sir or Madam:

I welcome the opportunity to provide comments on the April 2012 consultative documents on *Disclosure framework for financial market infrastructures* and *Assessment methodology for the principles for FMIs and the responsibilities of authorities* issued by the CPSS and the IOSCO.

In July 2011 I provided comments on the March 2011 consultative report on *Principles for financial market infrastructures* issued by the CPSS and the technical committee of the IOSCO. Please see *Response to the CPSS and the Technical Committee of the IOSCO's Consultative Report on Principles for Financial Market Infrastructures from Financial Competitive Regime Perspective.*[1]

This comment integrating the Financial Competitive Regime (FCR) is submitted along with relevant suggestions on two consultative documents and some key affairs about the FCR in China. It is hopeful that the CPSS and the IOSCO can consider them in issuing

[1] Zhen Li, "*Response to the CPSS and the Technical Committee of the IOSCO's Consultative Report on Principles for Financial Market Infrastructures from Financial Competitive Regime Perspective*", July 2011. Available at: www.bis.org/publ/cpss94/cacomments/zhenli.pdf or http://www.iosco.org/library/pubdocs/pdf/IOSCOPD357.pdf

the final document of *Disclosure framework for financial market infrastructures* and *Assessment methodology for the principles for FMIs and the responsibilities of authorities*.

II. Disclosure framework for financial market infrastructures

1. Page 1, paragraph1, "…limit systemic risk and foster financial stability and transparency."

1.1 **Comment:** Since competition plays an essential role in the financial market, fostering competition should be considered as well.

1.2 **Amendment:** "…limit systemic risk and foster financial stability**, competition** and transparency."

2. Page 4, "Principle 1: Legal basis"

2.1 **Comment:** A level playing field is indispensable for the sustainable and inclusive growth of financial market. As a result, ensuring a fair and effective competition environment is the first priority for the legal system.

3. Page 10, "…the size or concentration of positions held by a CCP's participants increases significantly".

3.1 **Comment:** Significant increase in the positions probably results from manipulation and insider trading, which are the

[2]

4. Page 27, “Principle 15: General business risk”.

4.1 Comment: Fierce competition is the main business risk for a financial institution.

5. Page 32, “Principle 18: Access and participation requirements”.

5.1 Comment: In general, access means potential participators enter the financial market and compete fairly. Therefore, participation requirements form an integral part of the FCR.

6. Page 34, “Principle 20: FMI links”.

6.1 Comment: When FMI establishes a link between FMIs, the same linking standard should be implemented. Anticompetitive practices such as discrimination and group boycott should be prohibited.

7. Page 36, “Key consideration 3: An FMI should have established mechanisms for the regular review of its efficiency and effectiveness”.

7.1 Comment: These mechanisms should include the one to

[2] Zhen Li, “*Response to the Financial Stability Board's Consultative Document of Effective Resolution of Systemically Important Financial Institutions from Financial Competitive Regime Perspective*”, September 2011. Available at: http://www.financialstabilityboard.org/press/c_110909fff.pdf

regularly review the efficiency and effectiveness in the competitive market.

8. Page 38, "…operations, as well as the FMI's and participants' rights and obligations,"

8.1 Comment: The rights should cover the privilege of fair competition, and meanwhile the obligations should cover the prevention against anticompetitive behaviors.

III. Assessment methodology for the principles for FMIs and the responsibilities of authorities

9. Page 3, paragraph 1.2. "This AM is designed to cover all of the types of FMIs to which the principles apply, that is, systemically important payment systems…"

9.1 **Comment:** Systemically important payment systems often enjoy the dominant position. Authorities should enforce the FCR so as to prevent the abuse of a dominant position and the occurrence of any "too-big-to-fail" systemically important payment system.

10. Page 6. "Which authorities to assess"

10.1 **Comment:** The assessment performed by financial supervisor from the risk perspective likely differs from the one by competition authority from the competition perspective. It is crucial for these government agencies to establish a coordination mechanism.

11. Page 12, paragraph 3.2. "In general, the assessment report

11.1 **Comment:** The impact on competition should be included likewise.

11.2 **Amendment:** "In general, the assessment report should identify the main areas of concern that impact financial sector stability, **competition** …"

12. Page 74, KE 1. "Access policies of the FMI"

12.1 **Comment:** Access policies should be fair, open and non-discriminatory.

13. Appendix 4: "Questions by key considerations for the responsibilities of central banks, market regulators, and other relevant authorities for FMIs"

13.1 **Comment:** Competition authorities act as important regulators. For more details, please see *Response to the CPSS and the Technical Committee of the IOSCO's Consultative Report on Principles for Financial Market Infrastructures from Financial Competitive Regime Perspective.*[3]

[3] Zhen Li, "*Response to the CPSS and the Technical Committee of the IOSCO's Consultative Report on Principles for Financial Market Infrastructures from Financial Competitive Regime Perspective*", July 2011. Available at: www.bis.org/publ/cpss94/cacomments/zhenli.pdf or http://www.iosco.org/library/pubdocs/pdf/IOSCOPD357.pdf

14. Page 92, KC E.1 “…wind-down, or resolution of an FMI.”

14.1 **Comment:** Because wind-down and resolution are closely related to the competition in financial market, financial supervisors and competition authorities should intensify cooperation to promote a reasonable competition environment.

14.2 **Addition:** Q.E.1.6: How does the cooperation between financial supervisors and competition authorities promote the reasonable competition environment?

IV. Key Affairs about Financial Competitive Regime in China

Zhen Li submitted one proposal on establishing the FCR to the national decision makers in December 2010. [4] Finance is the lifeline of the national economy, modern economy is institutional one, and sufficient and effective financial market competition will play a significant role in fulfilling national strategies such as containing inflation, transforming the mode of economic growth, macroprudential supervision, job creation and stepping out. In conclusion, in the coming economic development of the twelfth Five-Year Plan period, the FCR should be established as soon as possible. After three months, "The National Economic and Social Development twelfth Five-Year Plan Compendium" was promulgated. The compendium adopts Zhen Li's opinion and explicates the strategic principle of **Enhancing the Competition to Promote the Development**.

In March 2011, the fourth session of 11th NPC was convened in Beijing. During the period, Zhen Li helped Deputy Yang Xiaoping

[4] Zhen Li, "*Enhancing the Financial Competition to Promote the Scientific Development in the 12th Five-Year National Plan*", China Economic Herald, December 21, 2010. Available at: http://www.ceh.com.cn:8080/epaper/ceh/20101221/B05/B05_56.htm

draft a proposal on setting up the FCR. In the proposal Mr. Yang analyzed realistic values of the FCR for Chinese economic development, suggested to amend the legal framework of the FCR, and sketched a new framework for the executive mechanism of the FCR. [5]

National People's Congress of China, an official journal of National People's Congress, published an article on "Establishing Financial Competitive Regime to Protect Financial Consumers" in November 2011, which indicates China's supreme legislature recognizes the realistic values of the FCR for the first in history. [6]

The 4th National Financial Work Conference was convened on January 6th 2012 in China. Premier Wen Jiabao attended and announced to deepen financial institutions' reform and to break the monopoly effectively. [7] In fact, the financial anti-monopoly is the core for the FCR.

On 28th March 2012 China State Council approved Wenzhou

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5 Yang Xiaoping, "*Proposal on Establishing Financial Competitive Regime*", Financial News, March 11, 2011. Ou Yang and Dong Xiao, "*Financial Representatives of NPC & CPPCC Discuss Over Domestic Issues*", Financial Analyst, March 2011.

6 "*Establishing Financial Competitive Regime to Protect Financial Consumers*", National People's Congress of China, issue 19, November 2011. Available at: http://www.npc.gov.cn/npc/zgrdzz/2011-10/27/content_1677259.htm

7 "*The National Financial Work Conference was convened in Beijing*". Please visit China government website. Available at: http://www.gov.cn/ldhd/2012-01/07/content_2038988.htm

financial reform zone. From on 1st April through 3rd April Chinese Premier Wen Jiabao conducted a field research in Fujian province and emphasized the Central Committee of the Communist Party of China and Central Government have already reached consensus over breaking the monopoly in financial sector. In essence, the Wenzhou financial reform program encourages private capital into the financial sector with the ultimate intent to unprecedentedly break up bank monopoly by enforcing financial antimonopoly policy.[8]

[8] Zhen Li, "*Establishing Wenzhou financial zone to explore a path to Chinese financial reform*", the Study Times affiliated with the Party School of the Communist Party of China Central Committee, April 9, 2012. Available at: http://www.studytimes.com.cn:9999/epaper/xxsb/html/2012/04/09/01/01_40.htm

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一、总　评

尊敬的女士和先生：

非常感谢有机会对国际支付结算体系委员会和国际证监会组织技术委员会在 2012 年 4 月联合公布的《金融市场基础设施公开框架》及《金融市场基础设施原则和当局责任测评方式》征求意见稿发表评论。

我曾在 2011 年 7 月就国际支付结算体系委员会和国际证监会组织技术委员会在 2011 年 3 月联合公布的《金融市场基础设施准则（征求意见稿）》进行评论。请见《从金融竞争制度视角评述国际支付结算体系委员会和国际证监会组织技术委员会联合公布的<金融市场基础设施准则>征求意见稿》。[9]

本评论从金融竞争制度的视角分别就两份征求意见稿的相关内容提出建议，并简要介绍了中国金融竞争制度主要事件，希望国际支付结算体系委员会和国际证监会组织技术委员会在最终颁布《金融市场基础设施公开框架》及《金融市场基础设施原则和当局责任测评方式》时能够采纳。

[9] 李震，“从金融竞争制度视角评述国际支付结算体系委员会和国际证监会组织共同公布的《金融市场基础设施原则》征求意见报告”，载于“巴塞尔委员会”和“国际证监会”，2011 年 7 月。网址：http://www.bis.org/publ/cpss94/cacomments/zhenli.pdf 或者 http://www.iosco.org/library/pubdocs/pdf/IOSCOPD357.pdf

二、金融市场基础设施公开框架

1. 第 1 页，第 1 段，“……限制系统风险，培育金融稳定和透明。”

1.1 评论：因为竞争对于金融市场起到了关键的作用，还应当考虑培育竞争。

1.2 修改：“……限制系统风险，培育金融稳定、竞争和透明。”

2. 第 4 页，“原则 1：法律基础”

2.1 **评论：**公平的竞争平台对于金融市场的可持续包容发展至关重要。所以，培育公平有效的竞争环境是法律体系的第一要务。

3. 第 10 页，“中央结算对手参与者大幅增加持有头寸的规模或者集中度。”

3.1 **评论：**头寸的大幅增加有可能是由于操纵或者内幕交易所致。而操纵及内幕交易是金融反垄断规制目标。

4. 第 27 页，“原则 15：总体的商业风险”

4.1 **评论：**对于金融机构而言，激烈竞争是主要的商业风险之一。

5. 第 32 页，“原则 18：准入和参与条件”

5.1 **评论：**总体而言，准入意味着潜在参与者进入金融市场公平竞争。所以参与条件形成了金融竞争制度的组成部分。

6. 第 34 页，“原则 20：金融市场基础设施连接”

6.1 **评论：**在金融市场基础设施相互连接时，应当执行相同的连接标准。诸如“歧视”和集体抵制等的反竞争行为应被禁止。

7. 第 36 页，“关键考虑 3：金融市场基础设施应当建立对效率和效果的定期审查机制”

7.1 **评论：**该机制应包括对竞争性市场的效率和效果的定期审查机制。

8. 第 38 页，“关键考虑 2：……，以及金融市场基础设施和参与者的权利义务”

8.1 **评论：**权利包括公平竞争的基本权利；义务包括防止实施反竞争行为。

三、金融市场基础设施原则和当局责任测评方式

9. 第 3 页，第 1.2.段，“设计本测评方式覆盖原则使用的所有金融市场基础设施种类，那就是，系统重要性支付系统，……”

9.1 **评论：**系统重要性支付系统享有市场支配地位，应通过实施金融竞争制度，防止系统重要性支付系统滥用支配地位，同时，防止任何“大而不倒”系统重要性支付系统的出现。

10. 第 6 页，“测评当局”

10.1 **评论：**金融当局从风险角度进行的测评可能与竞争当局从竞争角度进行的测评出现分歧。这些政府部门间建立协调机制是非常关键的。

11. 第 12 页，第 3.2.段“通常，测评报告应当明确影响金融业稳定……等主要领域的问题”

11.1 **评论：**也应包括影响金融市场竞争

11.2 **修改：**“通常，测评报告应当明确影响金融业稳定，金融市场竞争……等主要领域的问题”

12. 第 74 页，KE1.“金融市场基础设施准入政策”

12.1 **评论：**准入政策应当公平、公开，且非歧视。

13. 附录 4,“中央银行、市场监管者和金融市场基础设施其它当局主要考虑的责任问题”

13.1 **评论：**竞争监管部门是重要的市场监管者。其它内容请参考《从金融竞争制度视角评述国际支付结算体系委员会和国际证监会组织技术委员会联合公布的<金融市场基础设施准则>征求意见稿》。[10]

14. 第 92 页，KC E1.“……金融市场基础设施的停业或者处置”

14.1 **评论：**停业或者处置与金融市场竞争关系密切，所以，金融当局与竞争部门应加强合作促进合理的竞争环境。

14.2 **增加：**Q.E.1.6:金融当局和竞争当局的合作是如何促进合理的竞争的环境？

[10] 李震，“从金融竞争制度视角评述国际支付结算体系委员会和国际证监会组织共同公布的《金融市场基础设施原则》征求意见报告”，载于“巴塞尔委员会”和“国际证监会”，2011 年 7 月。网址：http://www.bis.org/publ/cpss94/cacomments/zhenli.pdf 或者 http://www.iosco.org/library/pubdocs/pdf/IOSCOPD357.pdf

四、中国金融竞争制度主要事件

2010 年 12 月，李震向国家决策层提交了建立金融竞争制度的建议。金融是经济的命脉，现代经济又是制度经济，而充分且有效的金融竞争对于遏制通货膨胀、转变经济发展方式、实施宏观审慎监管、增加就业、执行“走出去”等国家战略有着不可或缺的重要作用。所以，在经济发展的第十二个五年规划阶段，应尽快考虑建立金融竞争制度。[11] 三个月后，《国民经济和社会发展第十二个五年规划纲要》出台，《规划纲要》采纳了李震的观点，明确了“**以竞争促发展**”的战略准则。

2011 年 3 月，十一届全国人大四次会议在北京召开。其间，李震协助杨小平代表草拟并提出了建立金融竞争制度的建议。杨先生在建议中分析了金融竞争制度对于中国经济发展的现实价值，建议修改金融竞争制度的法制框架，并勾勒了金融竞争制度执法机制的新框架。[12]

2011 年 10 月，《中国人大》杂志 （2011 年第 19 期）登载了“建立金融竞争制度 保障金融消费者权益”一文，标志着中

[11] 李震，“以金融竞争促‘十二五’科学发展”，载于《中国经济导报》，2010 年 12 月 21 日，B05。网址：http://www.ceh.com.cn:8080/epaper/ceh/20101221/B05/B05_56.htm
[12] 杨小平，“关于建立金融竞争制度的建议”，载于《金融时报》，2011 年 3 月 11 日。
欧阳、冬晓，“金融界部分两会代表委员为‘十二五’建言献策”，载于《中国金融家》，2011 年 3 月，第 3 期。

国最高立法当局在历史上首次认可金融竞争制度的现实价值。[13]

2012 年 1 月 6 日，中国召开了第四次全国金融工作会议。温加宝总理出席并宣布，“深化金融机构改革……切实打破垄断”。[14] 事实上，金融反垄断是金融竞争制度的核心所在。

2012 年 3 月 28 日，中国国务院批准温州金融综合改革试验区。4 月 1 日至 3 日，温家宝总理在福建省调研时强调，中央已经统一思想要打破金融垄断。本质上看，温州金融改革计划鼓励民间资本进入金融领域，其最终目标就是通过实施金融反垄断政策来史无前例地打破银行垄断。[15]

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13 “建立金融竞争制度 保障金融消费者权益”，载于《中国人大》杂志， 2011 年 10 月，第 19 期。网址：http://www.npc.gov.cn/npc/zgrdzz/2011-10/27/content_1677259.htm

14 “全国金融工作会议在京召开”，中国政府网。网址：http://www.gov.cn/ldhd/2012-01/07/content_2038988.htm

15 李震，“设立温州金融试验区为金融改革探路”，载于《中共中央党校学习时报》，2012 年 4 月 9 日，第 1 版。网址：http://www.studytimes.com.cn:9999/epaper/xxsb/html/2012/04/09/01/01_40.htm

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6. 李震，“以金融竞争促‘十二五’科学发展”，载于《中国经济导报》，2010 年 12 月 21 日，第B05 版。网址：http://www.ceh.com.cn:8080/epaper/ceh/20101221/B05/B05_56.htm
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