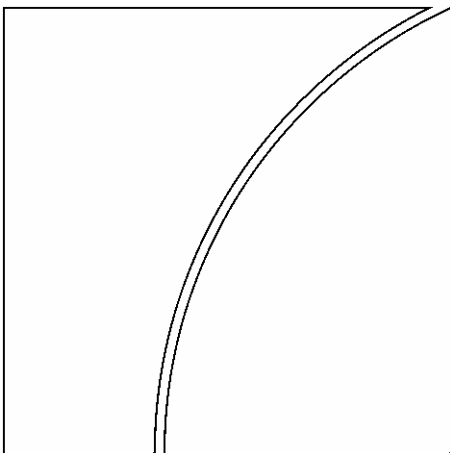


Committee on Payment and
Settlement Systems

Technical Committee of the
International Organization of
Securities Commissions



Recommendations for Central Counterparties

Consultative Report

March 2004



BANK FOR INTERNATIONAL SETTLEMENTS



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Foreword

This is the third report prepared by the Task Force on Securities Settlement Systems, which was jointly established by the Committee on Payment and Settlement Systems (CPSS) of the central banks of the Group of Ten countries and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in December 1999. *Recommendations for Central Counterparties* aims to set out comprehensive standards for risk management of a central counterparty (CCP). CCPs occupy an important place in securities settlement systems (SSSs). A CCP interposes itself between counterparties to financial transactions, becoming the buyer to the seller and the seller to the buyer. A well designed CCP with appropriate risk management arrangements reduces the risks faced by SSS participants and contributes to the goal of financial stability. CCPs have long been used by derivatives exchanges and a few securities exchanges. In recent years, they have been introduced into many more securities markets, including cash markets and over-the-counter markets. Although a CCP has the potential to reduce risks to market participants significantly, it also concentrates risks and responsibilities for risk management. Therefore, the effectiveness of a CCP's risk control and the adequacy of its financial resources are critical aspects of the infrastructure of the markets it serves. In the light of the growing interest in developing CCPs and expanding the scope of their services, the CPSS and the Technical Committee of IOSCO concluded that international standards for CCP risk management are a critical element in promoting the safety of financial markets.

The present consultative report includes 14 headline recommendations and accompanying explanatory text that cover the major types of risks CCPs face. The report also includes a methodology for assessing implementation of the recommendations, which identifies key issues and key questions and provides guidance on assignment of an assessment category.

The CPSS and IOSCO are now releasing the recommendations in this report for consultation, and are seeking public comments from all interested parties by 9 June 2004. We believe that wide participation in the public consultation process would be beneficial, and we therefore encourage any interested parties to submit their comments to the Task Force. The Task Force will review the comments and develop the final recommendations based upon the information gained in the consultative process.

The CPSS and the Technical Committee of IOSCO are grateful to the members of the Task Force and its Co-Chairmen, Patrick Parkinson of the Board of Governors of the Federal Reserve System and Shane Tregillis of the Monetary Authority of Singapore, for their excellent work in preparing this consultative report in a timely manner. We are looking to them to take the lead in completing this important initiative.

Tommaso Padoa-Schioppa, Chairman
Committee on Payment and Settlement Systems

Andrew Sheng, Chairman
Technical Committee, IOSCO

Note to readers

The consultation period will last until 9 June 2004 (inclusive). Interested parties are invited to comment on any aspect of the report. However, views and suggestions on the topics set out below are particularly welcome:

- Do the Recommendations adequately cover all the relevant topics? Please describe any issues which you feel have been missed and should be addressed in the report.
- Does the explanatory text for each Recommendation provide an adequate rationale for the Recommendation and elaborate its implications sufficiently clearly? Please indicate any areas which you think deserve further clarification.
- Does the assessment methodology concerning each Recommendation in the report address the relevant issues in such a way as to enable an accurate evaluation of whether the recommendations have been implemented?

In several particular areas, the Task Force solicits the reactions of reviewers:

- The Task Force concluded that the recommendations should be applied to guarantee arrangements as well as CCPs. Do reviewers agree? Should all or a subset of the recommendations be applied to these arrangements?
- In further considering the scope of the recommendations, the Task Force discussed their application to clearing participants that serve as intermediaries allowing other market participants to access the CCP's services. The Task Force concluded that individual national authorities should make judgments about the application of particular recommendations to clearing participants that clear for substantial numbers of market participants, but that the recommendations need not be applied to such participants in every jurisdiction. Do reviewers agree with this judgment? If not, should some or all of the recommendations be applied to such clearing participants in every jurisdiction? Or should the recommendations not be applied to clearing participants in any jurisdiction?
- Recommendation 3, Collateral Requirements, covers both derivatives and cash markets. Is this approach appropriate for both types of market? If not, what is the rationale for differential treatment? Do reviewers agree that a minimum coverage ratio should be set for collateral requirements?
- The Task Force has made a distinction between a CCP's steps to protect itself in the event of losses in normal market conditions (Recommendation 3, Collateral Requirements) and its potential need for resources in more extreme market conditions (Recommendation 4, Financial Resources). Is this distinction clear and useful? If not, how should the Task Force distinguish these different risk management needs?
- Do CCPs currently meet these recommendations? If not, are they too stringent or is there a need for CCPs to strengthen their practices and procedures in order to attain appropriate levels of safety and efficiency?

Comments in English are invited by 9 June 2004 (inclusive) from all interested parties. They may be sent to:

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E-mail: cpss@bis.org (please mention "Recommendations for CCPs" in the subject line of the message)

We strongly recommend that you send comments by e-mail (or fax) first, to avoid possible delays in postal delivery; the Secretariat will send an acknowledgment immediately upon receipt. Please note that it may not be possible to give consideration to comments received after the deadline.

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1. Introduction

1.1 A central counterparty (CCP) interposes itself between counterparties to financial contracts traded in one or more markets, becoming the buyer to every seller and the seller to every buyer. CCPs have long been used by derivatives exchanges and a few securities exchanges and trading systems. In recent years they have been introduced by many more securities exchanges and have begun to provide their services to over-the-counter markets, including markets for securities repurchase agreements and derivatives.

1.2 A CCP has the potential to reduce significantly risks to market participants by imposing more robust risk controls on all participants and, in many cases, by achieving multilateral netting of trades. It also tends to enhance the liquidity of the markets that it serves, not only because it tends to reduce risks to participants but also, in many cases, because it facilitates anonymous trading. However, a CCP also concentrates risks and responsibility for risk management in the CCP. Consequently the effectiveness of a CCP's risk controls and the adequacy of its financial resources are critical aspects of the infrastructure of the markets it serves.

1.3 A risk management failure by a CCP has the potential to disrupt the markets that it serves and also other components of the settlement systems for instruments traded in those markets. Those disruptions may spill over to payment systems and to other settlement systems. Because of the potential for disruptions to securities and derivatives markets and to payment and settlement systems, securities regulators and central banks have a strong interest in CCP risk management.

1.4 In November 2001 the Committee on Payment and Settlement Systems (CPSS) of the central banks of the Group of Ten countries and the Technical Committee of the International Organization of Securities Commissions (IOSCO) issued a report entitled *Recommendations for Securities Settlement Systems* (RSSS). That report sets out and discusses 19 recommendations for promoting the safety and efficiency of securities settlement systems (SSSs). Recommendation 4 addressed to CCPs calls for each CCP to rigorously control the risks that it assumes, but does not set out detailed or comprehensive standards for CCP risk management.

1.5 The report's discussion of Recommendation 4 noted that the European Association of Central Counterparty Clearing Houses (EACH) had developed risk management standards and that CCP-12, a group that includes CCPs from Asia, the Americas and Europe, was working to revise the EACH standards and broaden their acceptance among CCPs. The discussion suggested that securities regulators and central banks might draw on the revised standards when evaluating observance of Recommendation 4. However, CCP-12 later decided not to develop its own risk management standards.

1.6 The CPSS and the IOSCO Technical Committee concluded that international standards for CCP risk management are essential because of CCPs' large and growing role in SSSs and the potential for risk management failures by CCPs to disrupt markets and payment and securities settlement systems. Accordingly, in February 2003 they directed their Task Force on Securities Settlement Systems to develop such standards. The standards were to address all the major types of risk that CCPs face. The Task Force was to draw upon prior work by private and public sector bodies, including the EACH standards. Work on a methodology for assessing implementation of the standards was to proceed in parallel with development of the standards.

1.7 This consultative report provides the public with an opportunity to comment on the Task Force's work. The recommendations presented here are intended to supplement the November 2001 RSSS. These recommendations provide far more detailed and comprehensive guidance on CCP risk management than the RSSS. Several other issues that are relevant to CCPs were addressed in the RSSS - governance, transparency, and regulation and oversight. The text of these other relevant recommendations has been reviewed, supplemented where appropriate, and presented along with the entirely new recommendations, so that all of the recommendations relevant to CCPs are included here. Exhibit 1 lists the recommendations.

1.8 The scope of application of the recommendations is set out in Section 2. Section 3 discusses the risks faced by CCPs and provides an overview of common elements of the approaches CCPs typically take to management of risks. The heart of the report is Section 4, which presents the recommendations and the methodology for assessing them. Each recommendation is accompanied by text that explains and motivates it. The assessment methodology takes the same approach as the November 2002 *Assessment methodology for "Recommendations for Securities Settlement*

Systems”. Key issues that need to be evaluated to determine the extent of observance of each recommendation and the key questions corresponding to those key issues are identified. Guidance is then provided on how to translate the answers to the key questions into the assignment of an assessment category. This guidance on the assignment of rating categories is not intended to be applied in a purely mechanical fashion. In some instances, a CCP may not strictly meet the assessment criteria for observance of a recommendation but may successfully address the safety or efficiency objectives that underlie the recommendation and the key issues and key questions. Nonetheless, the guidance is intended to establish a presumption as to what the appropriate rating should be, given the circumstances indicated by the answers to the key questions. This approach is intended to foster discipline in the ratings process while allowing some flexibility to deal with special circumstances. The guidance also includes explanatory notes to clarify certain issues that seem likely to arise in the course of an assessment.

1.9 A glossary is provided in Annex 1. Annex 2 is a list of the members of the Task Force.

Exhibit 1:
CPSS-IOSCO Technical Committee
Recommendations for Central Counterparties (CCPs)

1. Legal risk

A CCP should have a well founded, transparent and enforceable legal framework for each aspect of its activities in all relevant jurisdictions.

2. Participation requirements

A CCP should require participants to have sufficient financial resources and robust operational capacity to meet obligations arising from participation in the CCP. A CCP should have procedures in place to monitor that participation requirements are met on an ongoing basis. A CCP's participation requirements should be objective, publicly disclosed, and permit fair and open access.

3. Collateral requirements

A CCP should calculate its credit exposures to participants on a daily basis and hold collateral that in normal market conditions covers its potential losses from closing out positions held by a defaulting participant.

4. Financial resources

A CCP should maintain sufficient financial resources to withstand a default by the participant to which it has the largest exposure in extreme but plausible market conditions that produces losses not fully covered by collateral requirements.

5. Default procedures

A CCP's default procedures should be clear and transparent, and they should ensure that the CCP can take timely action to contain losses and liquidity pressures and to continue meeting its obligations.

6. Custody and investment risks

A CCP should hold assets in a manner whereby risk of loss or of delay in its access to them is minimised. Assets invested by a CCP should be held in instruments with minimal credit, market and liquidity risks.

7. Operational risk

A CCP should identify sources of operational risk and minimise them through the development of appropriate systems, control and procedures. Systems should be reliable and secure, and have adequate, scalable capacity. Business continuity plans should allow for timely recovery of operations and fulfilment of a CCP's obligations.

8. Money settlements

A CCP should employ money settlement arrangements that eliminate or strictly limit its settlement bank risks, that is, its credit and liquidity risks from the use of banks to effect money settlements with its participants. Funds transfers to the CCP should be final when effected.

9. Physical deliveries

A CCP should clearly state its obligations with respect to physical deliveries. The risks from these obligations should be identified and managed.

10. Risks in links between CCPs

CCPs that establish links either cross-border or domestically to clear trades should design and operate such links in ways that observe the other recommendations in this report.

11. Efficiency

While maintaining safe and secure operations, CCPs should be cost-effective in meeting the requirements of users.

12. Governance

Governance arrangements for a CCP should be effective, clear and transparent to fulfil public interest requirements and to support the objectives of owners and users. In particular, they should promote the effectiveness of the CCP's risk management procedures.

13. Transparency

A CCP should provide market participants with sufficient information for them to identify and evaluate accurately the risks and costs associated with using its services.

14. Regulation and oversight

A CCP should be subject to transparent and effective regulation and oversight. In both a domestic and an international context, central banks and securities regulators should cooperate with each other and with other relevant authorities.

2. Scope of application of the recommendations

2.1 A CCP is typically defined as an entity that interposes itself between counterparties to contracts in one or more financial markets, becoming the seller to every buyer and the buyer to every seller. In some markets a CCP extends an “open offer” to act as counterparty to market participants and is interposed between participants at the time trades are executed. In other markets, the participants themselves initially are the counterparties. Subsequently the trades may be submitted to a CCP, which is substituted as the seller to the buyer and the buyer to the seller. Substituting a CCP discharges the original obligations between market participants.

2.2 CCPs were first introduced for trading on exchanges. Exchange rules often require that trades be executed at the best bid or offer, regardless of the creditworthiness of the party making the best bid or offer. Market participants in such exchanges cannot effectively manage their counterparty credit and liquidity risks with other participants. The use of a CCP makes such bilateral risk management unnecessary because the CCP is counterparty to every trade. In over-the-counter (OTC) markets, in which CCP services have been introduced more recently, use of those services is typically optional. Counterparties may agree to submit their trades to a CCP, thereby substituting the CCP as counterparty, or they may not agree to do so, in which case they must manage their counterparty risks with each other. Whether it serves an exchange or OTC markets, a CCP typically concentrates risks and risk management responsibilities. Even where use of a CCP is optional, its services are often used intensively by the largest market participants.

2.3 On many securities exchanges, a CCP has not yet been introduced. Participants on such exchanges remain the counterparties to the trades. However, in many such markets, especially in eastern Europe and Latin America, performance of the trades is guaranteed by the stock exchange or some other entity (a guarantor). The guarantor typically establishes a fund (a guarantee fund) that would be used to compensate non-defaulting participants from losses they may suffer in the event that one or more participants default on their obligations as counterparties. (Aggregate compensation is typically limited to the value of the assets in the guarantee fund.) The guarantor typically relies on its participation requirements to limit potential losses, although some guarantors also impose collateral requirements on participants. Although such arrangements do not involve a CCP, they do create a concentration of responsibility for risk management. A risk management failure by the operator of such a guarantee fund would have effects similar to those of a risk management failure by a CCP - the liquidity of the markets for which it guarantees trades would be disrupted, and possibly the payment and settlement systems used to settle trades in those markets. Therefore, the Task Force concluded that these recommendations should be applied to guarantee arrangements as well as CCPs. In what follows the term CCP should be understood to include guarantee funds as well as true CCPs.

2.4 In many cases only a subset of market participants are also participants (counterparties) of the CCP. Other participants (usually but not exclusively smaller participants) access the CCP's services through an intermediary (a “clearing” participant of the CCP). Where many market participants rely on the same clearing participant, counterparty risk and responsibility for risk management may be concentrated to a significant degree in that clearing participant. Thus, a risk management failure by such a clearing participant could have effects similar to a risk management failure by a CCP. In some jurisdictions, such clearing participants are subject to capital requirements and other regulations that explicitly address the risks arising from clearing. Where such regulations are not in place, authorities may wish to consider whether such clearing participants' policies and procedures are consistent with certain of these recommendations, notably those addressing collateral requirements, investment and custody risk, operational risk and physical deliveries.

3. Overview of a CCP's risks and risk management

Risks

3.1 The exact risks that a CCP must manage depend on the specific terms of its contracts with its participants. Still, many CCPs face a common set of risks that must be controlled effectively. There is the risk that participants will not settle obligations either when due or at any time thereafter (counterparty credit risk) or that participants will settle obligations late (liquidity risk). If a commercial bank is used for money settlements between a CCP and its participants, failure of the bank could create credit and liquidity risks for the CCP (settlement bank risk). Other risks potentially arise from the taking of collateral (custody risk), the investment of clearing house funds or cash collateral (investment risk), and deficiencies in systems and controls (operational risk). A CCP also faces the risk that the legal system will not support its rules and procedures, particularly in the event of a participant's default (legal risk). If a CCP's activities extend beyond its role as central counterparty, those activities may amplify some of these risks or complicate their management.

Counterparty credit risk

3.2 CCPs face the risk of loss from default by a participant, typically as a consequence of its insolvency. This counterparty credit risk may have two dimensions: pre-settlement or replacement cost risk, which is the loss from replacing open contracts with the defaulting participant, and settlement or principal risk, which is the risk of loss on deliveries or payments to the defaulting participant.

3.3 If a participant were to default, a CCP typically would terminate the defaulter's contracts. But a CCP still has an obligation to other participants, and it thus would need to take steps to avoid assuming market risk. A CCP would enter the market and purchase or sell contracts identical to those held by the defaulting participant at current prices. Replacement cost risk arises because the contracts may be sold at prices lower than the original traded prices or purchased at prices higher than the original traded prices.¹ The magnitude of this replacement cost risk depends on the volatility of the contract prices, the amount of time that has elapsed between trade dates and default, and the size of the positions being replaced.

3.4 In addition to replacement cost risk, CCPs also face settlement risk. CCPs can incur large credit exposures on settlement days when the full principal value of transactions may be at risk. This occurs when contracts are settled through delivery, but delivery versus payment (DVP) is not achieved. If an instrument is delivered prior to receipt of payment, the deliverer risks losing its full value. If payment is made prior to delivery, the payer risks losing the full value of the payment.

Liquidity risk

3.5 Depending upon the terms of its contracts with its participants, a CCP may have an obligation to make a wide variety of payments, including pass-through of profits on outstanding contracts, pass-through of dividend or interest payments, return of collateral surpluses or payments for deliveries. A CCP must fulfil its payment obligations to non-defaulting participants on schedule, even if one or more participants default, and as a result it is exposed to liquidity risk.

3.6 A CCP has a range of resources to draw upon in fulfilling its payment obligations. These include assets of the defaulting participant as well as a CCP's own capital and retained earnings or possibly assets of non-defaulting participants. But often few of these resources are cash assets. Non-cash assets must be liquidated or pledged in order for a CCP to meet its obligations, and this process may be difficult or costly to complete in the time required. Furthermore, for CCPs that effect settlements in multiple currencies or accept collateral denominated in multiple currencies, foreign exchange transactions might also be necessary to convert the proceeds of borrowings or asset sales into the required currency.

¹ A CCP may have periodically marked the trades to market and collected cash or collateral to cover exposures that had arisen after the date of the original trade. In this case, the size of replacement cost risk is a function of the price change since the last collection.

Settlement bank risk

3.7 In addition to the risk associated with a counterparty's default, a CCP faces the risk that the bank that provides cash accounts for money settlements with its participants may fail. Such an event would create credit and liquidity pressures for a CCP, with the size of these pressures dependent upon the amounts owed by the participants using the failed bank, the timing of the bank's failure, and the terms of the settlement agreement between the CCP and the settlement bank. Multiple participants may use an individual settlement bank, and the total exposures of a CCP to a settlement bank could far exceed the largest exposure of any single participant. The effect of such a failure thus may be particularly severe.

Custody risk

3.8 A typical device for a CCP's management of its counterparty credit risk is the requirement that participants post collateral to secure the exposures they present. This process generates custody risk. If a CCP invests its capital or retained earnings in securities that are held at a custodian, similar custody risk arises. The holder of the collateral for a CCP may act negligently, commit fraud or perhaps become insolvent, resulting in loss of the collateral. Alternatively, a CCP's ability to use the collateral may be temporarily impaired because of inadequacies in the holder's operations.

Investment risk

3.9 A CCP has resources such as equity and reserves that are typically invested in order to generate revenues to offset partially the costs of operations. These funds would usually be invested in very short-term bank deposits or highly liquid short-term securities that have minimal market risk. But a CCP faces credit and liquidity risks relative to the banks or issuers of these obligations. If a CCP also has a programme to invest cash collateral that is posted with it, similar investment risk could arise.

Operational risk

3.10 Operational risk is the risk of unexpected losses as a result of deficiencies in systems and controls, human error, management failure or disruptions from external events such as natural disasters, terrorism or health crises. Of particular concern is the breakdown of systems that would impair a CCP's ability to monitor and manage its risks or complete its settlements.

Legal risk

3.11 Legal risk is the risk that a party suffers a loss because laws or regulations do not support the rules and contracts of a CCP or the property rights and other interests associated with a CCP. CCPs face a variety of such risks that have the potential to substantially increase losses from default. Perhaps most significant is the risk that bankruptcy administrators might challenge a CCP's right to close out or transfer positions and liquidate a defaulting participant's assets. In a cross-border context, particularly that of links between CCPs, evaluation of legal risk becomes more complicated because the laws of more than one jurisdiction apply or can potentially apply to a contract. A CCP may face losses resulting from the application of a different law than it had expected. Legal risk may thus amplify the risks a CCP typically manages.

Approaches to risk management

Counterparty credit and liquidity risks

3.12 CCPs have a range of tools that can be used to manage the risks to which they are exposed, and the tools that an individual CCP uses will depend upon the nature of its obligations. Nonetheless, there are a common set of procedures that are implemented by many CCPs to manage counterparty credit and liquidity risks. Broadly, these procedures enable CCPs to manage their risks by limiting the likelihood of defaults, by limiting the potential losses and liquidity pressures if a default should occur, and by ensuring that there are adequate resources to cover losses and meet payment obligations on schedule. In designing their risk management procedures, CCPs generally seek to create incentives for participants to manage their risks prudently in the first instance.

3.13 *Participation requirements.* The most basic means of controlling counterparty credit and liquidity risks is to deal only with creditworthy counterparties. CCPs typically seek to reduce the likelihood of a participant's default by establishing rigorous financial standards for participation. Most commonly, participants are required to meet minimum capital requirements both for admission and for continuing participation. These capital requirements are often related to the riskiness or scope of a participant's activities. Some CCPs limit participation to supervised firms; others establish a minimum acceptable credit rating. CCPs generally do not impose specific liquidity requirements for participation, but some CCPs review participants' access to funding, especially their lines of credit from banks.

3.14 Because values of participants' positions can change quickly, CCPs often have reporting and surveillance programmes. These programmes supplement a CCP's knowledge about participants from regulatory reporting systems when CCPs have access to this information, and provide an essential source of information about non-regulated participants when regulatory information is not available. CCPs generally require participants to provide notice of any marked deterioration in financial condition, and in that event, a CCP may initiate heightened surveillance of the participant's activities and possibly impose restrictions on its dealings.

3.15 In addition to financial requirements, some CCPs establish standards of operational reliability that address a participant's ability to submit deal-related information in a timely fashion and to continue operations even if a participant's primary operating system is disrupted.

3.16 *Collateral requirements.* Participation requirements cannot reasonably be expected to eliminate the possibility of default, and thus CCPs require participants to post collateral with the aim of limiting the CCP's losses and liquidity pressures in the event that default occurs. A CCP typically imposes requirements that participants provide collateral (or guarantees) to cover potential future losses on open positions. These requirements are often set to cover some high percentage of likely price movements (say 95-99%). CCPs for derivatives transactions generally refer to these requirements as margin requirements.² A few CCPs refer to the collateral posted to cover potential future losses as a guarantee fund or clearing fund. This latter terminology for the collateral posted is more commonly employed by CCPs for cash markets. Regardless of the terminology, the common risk management tool is a requirement to post collateral that serves to protect a CCP against some high percentage of potential future losses on its contracts with its participants. In this report, we refer to such requirements as collateral requirements.

3.17 The effectiveness of collateral requirements depends on a CCP's ability to measure and manage the build-up of exposures. CCPs regularly mark contracts to market and measure the exposures that have arisen as a result of price changes since the last valuation. They generally require participants to cover these current exposures in one of two ways. Some CCPs require participants to pay cash equal to the amount of losses to the CCP; these cash payments are passed to participants whose positions have gained in value. Other CCPs require participants to post collateral to cover mark-to-market losses. (In this latter methodology, participants whose positions have gained in value do not receive explicit payments; rather their holdings are now over-collateralised, and the excess collateral can be withdrawn.) These types of payments are often referred to as variation margin payments. Regardless of the method used by a CCP, the effect either of the cash payment or of the collateral posting is to eliminate the current exposure on the position.

3.18 The key determinants of the protection against credit losses provided by any type of collateral system are: (1) the procedures used to determine the level of collateral required, including the percentage of potential losses that a CCP intends to cover and the methodology it uses to estimate potential losses; (2) the frequency of updating position information; (3) the frequency of marking positions to market, collecting collateral and cash payments and eliminating current exposures; and (4) the price stability and liquidity of the assets accepted as collateral.

3.19 *Financial resources.* The collateral system is but one component in the package of techniques available to a CCP to mitigate credit and liquidity risks. While collateral requirements provide substantial protection to a CCP, losses in the event of a participant's default might exceed the collateral posted for several reasons. Collateral requirements cover a high percentage of likely price movements, but they are not set at a level that is intended to cover all price movements. More time

² Some CCPs use the term "initial" margin and others the term "original" margin for this collateral requirement.

might elapse before a CCP could liquidate a defaulting participant's positions (for instance because of illiquid markets) than was assumed in setting the requirement. Furthermore, a defaulting participant may have increased its positions since the last settlement. CCPs thus maintain resources to cover their uncollateralised losses and to provide liquidity while realising the proceeds of a defaulting participant's assets. These resources, together with the collateral system and risk management tools such as participation requirements, determine the overall level of protection provided by the system and how risks and costs are shared among the stakeholders of a CCP.

3.20 For the purposes of this discussion, collateral requirements will refer to those requirements set to cover a large proportion of a CCP's likely exposures to its participants. Other financial resources that a CCP holds, by contrast, are recognition that market conditions may occur that fall outside the bounds of exposures a CCP normally seeks to cover, and thus a CCP needs additional resources for these contingencies. Some CCPs hold a single blended pool of resources that is intended to cover both a large proportion of likely exposures and exposures resulting from more unusual market conditions.

3.21 Many CCPs use stress tests to assess the adequacy and liquidity of their financial resources. In these tests, a CCP assumes price moves substantially larger than those the collateral requirements are designed to cover. It examines the magnitude of uncollateralised exposures that result from such price moves and assesses whether a CCP's resources would be large enough to cover exposures from one or more defaults.

3.22 Financial resources can take the form either of assets held directly by a CCP or of contingent claims. Resources commonly held directly include a CCP's capital, reserves and clearing funds. The latter are collateral pools provided by participants for a CCP's use in the event of default by any participant. Some CCPs have contingent claims on participants' resources. For example, a CCP may have the authority to assess non-defaulting participants to cover losses. Other contingent claims include a guarantee provided by a parent organisation (either of the CCP itself or of participants) or a default insurance contract. The balance between resources held directly versus those that represent contingent claims varies greatly from one CCP to another.

3.23 The liquidity of financial resources and the manner in which they are held is also of issue because CCPs generally commit that their obligations will be met without delay. But many of a CCP's resources cannot be mobilised within a trading day. CCPs thus obtain committed credit lines that allow borrowing against assets as part of planning for liquidity needs.

3.24 *Default procedures.* In the event of a default, a CCP must take steps to contain and ultimately to eliminate its exposure to its defaulting participant. The longer the positions carried by a defaulting participant remain open, the larger are the potential credit exposures on those positions. A CCP's primary safeguard in this event is the ability to transfer, close out or hedge positions of a defaulting participant quickly. In this regard, a CCP might be constrained by the size of a defaulting participant's positions and the liquidity of the markets in which they were held. If a participant is also carrying positions for customers, those positions are typically transferred to a non-defaulting participant, or in some instances the customer positions also are closed out.

3.25 The rules of CCPs specify the order in which resources will be used in the event of a default. To create proper incentives for participants to manage their own exposures, the first resources tapped are those of a defaulting participant - the collateral it has posted with a CCP and any other assets that a CCP might have a claim on. If a defaulter's resources are insufficient to cover a CCP's losses, a CCP will turn to its own resources or those of non-defaulting participants. How these latter resources are tapped varies widely, with some CCPs first seeking resources from participants that dealt with a defaulter and others mutualising losses. (The rules of some CCPs also specify different resource pools for defaults occurring in different products.)

Settlement bank risk

3.26 Some CCPs eliminate the risk of settlement bank failure by using the central bank of issue as the sole settlement bank. If the central bank is not used, a CCP typically manages the credit and liquidity risks arising from the failure of a settlement bank through choice of the settlement bank or banks and contractual arrangements that minimise the amounts and durations of its exposures to those banks.

Custody risk

3.27 By carefully selecting custodians and monitoring the quality of accounting and safekeeping services provided by those custodians, CCPs seek to limit custody risk. A key concern is that the custodian's procedures protect a CCP's collateral against the claims of the custodian's creditors. A CCP typically requires that custodians demonstrate strong internal controls and an ability to move collateral promptly in accordance with legitimate instructions from it.

Investment risk

3.28 CCPs face credit, market and liquidity risks from investing their own financial resources and from investing cash collateral posted by participants. To limit these risks, investments may be secured. CCPs usually establish standards for the creditworthiness of obligors and limit investment to relatively liquid instruments. Limits on concentrations of investments by obligor may also be utilised.

Operational risk

3.29 CCPs face a variety of operational risks related to the functioning of both personnel and systems. Typical safeguards include programmes to ensure adequate expertise, training and supervision of personnel as well as establishing and regularly reviewing internal control procedures. Operational safeguards for CCPs also address both the availability and the capacity of a CCP's computer systems, communications systems, power sources and data feeds. Fundamental is a CCP's business continuity plan that addresses events posing a significant risk of disrupting operations and enables a CCP to continue to meet its obligations on time.

Legal risk

3.30 CCPs manage legal risk through a well founded legal framework that supports each aspect of a CCP's operations and through careful review of relevant law and design of contracts and rules, both at creation and on an ongoing basis. Depending upon the legal structure of the jurisdiction where a CCP is established, legislation specific to a CCP may be the most effective means of ensuring it has a well founded legal basis. Some jurisdictions, for example, have special legislation addressing netting or a CCP's ability to take actions in the event of a participant's default. Other tools for mitigating legal risk are careful drafting of a CCP's rule book and contracts to ensure that the obligations of a CCP, its counterparties and agents are clear and that laws of relevant jurisdictions support the application of its rules.

3.31 As cross-border participation and product offerings of CCPs have grown, along with links between CCPs, the need for legal analysis in multiple jurisdictions has also grown. In some instances, CCPs can choose the law intended to apply to parts of their operations. In other instances, a conflict of laws may exist. CCPs manage such legal risk in the first instance through adaptations to their rules and contracts. For example, if a CCP is unsure that its rules may be upheld in another jurisdiction, it may require participants from that jurisdiction to hold more collateral or to hold collateral only in the CCP's own jurisdiction.

4. Recommendations

Recommendation 1: Legal risk

*A CCP should have a well founded, transparent and enforceable legal framework for each aspect of its activities in all relevant jurisdictions.*³

4.1.1 A well founded legal framework should support each aspect of a CCP's risk management and operations. The legal system (including bankruptcy laws) should clearly support: novation, netting, default procedures, collateral and clearing fund arrangements, enforceability of a CCP's rules with regard to its participants, conflict of laws determinations, and access to information. Further, the laws and regulations governing a CCP, a CCP's rules, procedures and contractual arrangements, and a CCP's timing of assuming its obligations should be clearly stated, internally coherent and accessible to participants and the public. If the legal framework is underdeveloped, opaque or inconsistent, the resulting legal risk will undermine a CCP's ability to operate effectively. Financial market participants will face the dilemma of either: (1) using a CCP with an incomplete ability to assess their risk of participation; or (2) declining to use a CCP. Under either circumstance, the risk reduction benefits of a CCP may not be realised and, depending on the significance of weaknesses in the legal framework, the activity of a CCP could be a potential source of systemic risk.

4.1.2 In most jurisdictions, the legal concept that enables a CCP to become the counterparty is either novation or open offer. 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. If all pre-agreed conditions are met, there is never a contractual relationship between the buyer and seller in an open offer system. Either novation or open offer gives market participants legal certainty that a CCP is obligated to effect settlement if the legal framework is supportive of the method used.

4.1.3 The legal framework should support the essential steps that a CCP takes to handle a defaulting or insolvent participant, including closing out a participant's positions. A CCP must act quickly in the event of a participant's default, and ambiguity over the enforceability of these procedures could delay, and possibly prevent altogether, a CCP from taking actions that fulfil its obligations to non-defaulting participants or minimise its potential losses. Insolvency law should support isolating risk and retaining and applying collateral and cash payments previously paid into the CCP, notwithstanding a default or the commencement of an administration or bankruptcy proceeding by or against a participant. It is important that the legal framework provide certainty as to how the insolvency of a CCP would be handled.

4.1.4 The legal framework must enable a CCP to clearly establish its interest in collateral. Generally, collateral arrangements involve either a pledge or a title transfer. If a CCP accepts a pledge, it must have a high degree of assurance that the pledge has been validly created in the relevant jurisdiction and validly perfected, if necessary. If a CCP relies on a title transfer, it should have a high degree of assurance that the transfer will be enforced as written and not recharacterised as a pledge (which would probably be an invalid or unperfected pledge).

4.1.5 A strong legal framework will support the rapid deployment of the collateral held by a CCP when a participant defaults on its obligations or becomes insolvent. This aspect of the legal framework is critical because delay in the use of collateral may prevent a CCP from meeting its obligations as expected. The legal framework will accomplish this goal if the rules and contracts for operating a CCP and the obligations of its participants are enforceable, and a CCP has the unimpeded ability to liquidate collateral and close out transactions.

4.1.6 The enforceability of a CCP's netting arrangements must also have a sound and transparent legal basis. Netting involves the offsetting of obligations by trading partners or participants. CCPs often bilaterally net their obligations with each participant. Netting reduces the number and value of deliveries and payments needed to settle a set of transactions and significantly reduces the potential losses to a CCP in the event of a participant's default. Some CCPs also net gains and losses from the

³ The term central counterparty (CCP) includes a guarantor, as described in Section 2.

closeout of positions in different securities or derivatives. Netting arrangements must be enforceable against a CCP's failed participants in bankruptcy. The legal framework should support the CCP's netting arrangements. Without such legal underpinnings, net obligations may be challenged in judicial or administrative insolvency proceedings. If these challenges are successful, the CCP or its participants would be obligated for gross amounts - potentially a huge, even devastating, change because the gross obligations could be many multiples of the net obligations.

4.1.7 A critical issue in a CCP's money settlement arrangements is the timing of the finality of funds transfers between the CCP's accounts and the accounts of its participants at the banks used to effect such settlements. The funds transfers should be final, ie irrevocable and unconditional, when effected, that is, when accounts are debited and credited. The laws of the relevant jurisdictions must support the provisions of the CCP's legal agreements with its settlement banks relating to finality.

4.1.8 Where a CCP crosses borders through linkages, remote participants or the taking of collateral, the rules governing the CCP should clearly indicate the law that is intended to apply to each aspect of the CCP's operations. Potential conflict of laws should be identified and the CCP must address conflict of laws issues when there is a difference in the substantive laws of the jurisdictions that have potential interests in a CCP's activities. In such circumstances, each jurisdiction's conflict of laws rules should specify the criteria that determine the law applicable to the activity. CCPs should take into account the conflict of laws issues when structuring their rules and choosing the law that governs the CCPs. Both CCPs and participants also should be aware of applicable constraints on their ability to choose the law that will govern a CCP. A jurisdiction ordinarily does not permit CCPs and participants to circumvent the fundamental public policy of that jurisdiction by contract.

4.1.9 In some markets, trade guarantees are not provided by a CCP but through an alternative arrangement that does not involve either novation or closing out a participant's positions. The most common arrangement is when the stock exchange or other entity (a guarantor) has established a default or guarantee fund to "guarantee" all trades between market participants. Generally, a guarantor is not a counterparty and, therefore, is not obligated to fulfil the settlement obligations of a defaulting participant. Rather, a guarantor undertakes to indemnify its participants against losses incurred when they close out and replace contracts with a defaulting participant. The legal framework should provide a high degree of assurance that rules and procedures are enforceable by the guarantor. A well founded legal framework should also support a guarantor's obligations to non-defaulting participants and the guarantor's procedures for using the fund's assets. These procedures should be transparent and consistent.

4.1.10 A CCP or a guarantor and the appropriate regulatory authorities should organise and license a CCP or guarantee fund in a manner that enables it to take advantage of all of the legal protections available in the jurisdiction. Regardless of its organisation or regulatory status, a CCP or a guarantor should have the legal authority to establish requirements for direct access to its services and deny access to entities that fail those requirements. Further, legal, regulatory or confidentiality restrictions should not prevent market participants from providing information about themselves germane to their participation in a CCP or guarantee fund.

Key issues

1. The laws and regulations governing the operation of a CCP and a CCP's rules, procedures and contractual provisions for its participants should be clearly stated, internally coherent and accessible to participants and the public.
2. The legal framework should provide a high degree of assurance for each aspect of a CCP's operations and risk management procedures.
3. The rules, procedures and contracts of a CCP should be enforceable when a CCP participant defaults or becomes insolvent.
4. A CCP should identify and address any potential conflict of laws issues arising from cross-border arrangements.

Key questions

1. Are the laws and regulations governing the operation of a CCP and the rules, procedures and contractual provisions for its participants clearly stated, internally coherent and accessible to participants and the public?

2. Does the legal framework demonstrate a high degree of assurance that there is a clear and effective legal basis for:

- The CCP to act as counterparty.
- The timing of assumption of liability as CCP or guarantor trade guarantee.
- Netting arrangements.
- The CCP's interest in collateral that a participant pledges or transfers to the CCP and that this interest cannot be defeated by the participant or a third party.
- Default procedures.
- Finality of funds transfer.
- Other significant aspects of the CCP's operations and risk management procedures.

3. Are the rules, procedures and contracts of the CCP enforceable when a CCP participant defaults or becomes insolvent, notwithstanding the particular provisions of the insolvency laws?

4. Is there a significant level of cross-border participation in the CCP? Has the CCP determined whether there are other jurisdictions relevant for determining the adequacy of the legal framework? Has the legal framework been evaluated for the other relevant jurisdictions? Do laws and rules support the design of any cross-border arrangement and provide adequate protection to both CCPs in the operation of the arrangement? Are there conflict of laws issues and, if so, have they been addressed? Have cross-border collateral arrangements been evaluated?

Assignment of an assessment category

1. *Observed*

- (a) The laws and regulations governing the operation of the CCP and the CCP's rules, procedures and contractual provisions for its participants are clearly stated, internally coherent and accessible to participants and the public. (Q1)
- (b) The legal framework demonstrates a high degree of assurance that there is a clear and effective legal basis for all of the CCP's operations and risk management procedures. (Q2)
- (c) The rules, procedures and contracts of the CCP are enforceable even in the case of the insolvency of a CCP participant and notwithstanding the particular provisions of the insolvency laws. (Q3)
- (d) The CCP has identified the relevant jurisdictions and has taken steps to address conflict of laws issues. Or: it is not necessary to address conflict of laws issues in assessing risks because cross-border participation is insignificant. (Q4)

2. *Broadly observed*

- (a) 1(a), 1(b) and 1(c) are satisfied with only very minor exceptions that do not risk undermining the safety and soundness of the CCP. (Q1, 2, 3)
- (b) 1(d) is not satisfied. (Q4)

3. *Partly observed*

- (a) The legal framework does not demonstrate a high degree of assurance for some aspects of the CCP's operations or risk management procedures that, while important and posing some risks, do not jeopardise the overall safety and soundness of the CCP. (Q2)
- (b) Or: there are some limited cases where the rules and procedures of the CCP may not be fully enforceable in the event of the default or insolvency of a CCP participant. (Q3)

4. *Non-observed*

- (a) Aspects of the CCP's operations or risk management procedures are not supported by the legal framework and this poses risks to the overall safety and soundness of the CCP. (Q2)

- (b) Or: there is no demonstrated assurance that the rules and contracts are enforceable in the event of the default or insolvency of a CCP participant. (Q3)

Explanatory note

1. In addition to supporting the core CCP activities discussed in this section, a well developed legal framework should have a well defined system of property, contract, securities, trust, bankruptcy and tax laws. Also, the legal framework must permit relatively speedy access to the court (and, if applicable, arbitration) systems, must produce final judgments, and must provide a relatively convenient mechanism to enforce judgments.
2. In assessing legal risk, the phrase “high degree of assurance” is used frequently. This is because statutes and rules are often untested in court, and so CCPs and participants rely on opinions of legal counsel as to the likely outcome of possible challenges to the scope and enforceability of such provisions.

Recommendation 2: Participation requirements

A CCP should require participants to have sufficient financial resources and robust operational capacity to meet obligations arising from participation in the CCP. A CCP should have procedures in place to monitor that participation requirements are met on an ongoing basis. A CCP's participation requirements should be objective, publicly disclosed, and permit fair and open access.

4.2.1 A CCP seeks to control the risks to which it is exposed by dealing only with sound and reliable counterparties. Participation requirements established by a CCP are its primary means to ensure that participants have sufficient financial resources and robust operational capacity to meet obligations arising from participation. Requirements should be clearly stated and publicly disclosed so as to promote certainty and transparency. To avoid discriminating against classes of users and introducing competitive distortions, participation requirements should be objective and avoid limiting competition through unnecessarily restrictive criteria, thereby permitting fair and open access. Participation requirements that limit access on grounds other than risks should be avoided. A CCP may include indirect indicators of risk in its requirements, such as whether an institution is supervised, but these indicators should be related clearly to the risks the CCP is managing. Furthermore, participation may be limited to entities located in jurisdictions in which the CCP's rules are enforceable if the legal risks cannot be mitigated in other ways.

4.2.2 To reduce the likelihood of a participant's default, a CCP should establish rigorous financial requirements for participation. Participants are typically required to meet minimum capital standards. Some CCPs impose more stringent capital requirements if exposures of a participant are large or if it is a clearing participant. Capital requirements for participation may also take account of the types of products cleared by a CCP. In addition to capital requirements, some CCPs impose standards such as a minimum credit rating or minimum total assets.

4.2.3 A CCP should establish requirements to ensure that participants have robust operational capacity, including appropriate procedures for managing risks. Participants should be able to process the expected volumes and values of transactions within the required timeframes, including at peak times and on peak days. They should also have arrangements to effect collateral, payment and delivery obligations to the CCP. Participants should have proper risk management policies and procedures, including credit policy and credit monitoring. Robustness of operational capability and risk management policies should be reviewed regularly by the senior management of participants. Participants should have an independent internal audit function that periodically reviews operational risk controls and IT systems.

4.2.4 A CCP also needs to ensure that directors and senior management of participants meet relevant fit and proper standards, as appropriate. If participants are regulated entities, this may have already been evaluated by public authorities.

4.2.5 A CCP should have procedures and allocate sufficient resources for effective monitoring of compliance with participation requirements on an ongoing basis. A CCP should have the authority to receive timely and accurate information on participants' compliance with its standards, through either access to regulatory reports filed by the participants with regulators (if permitted by law) or directly from the participants. Participants should be required to report any developments that may affect their ability to comply with participation requirements, and the CCP should be able to impose more stringent

restrictions on individual participants, especially in situations where it determines that the participant poses heightened risk. Some CCPs also have the authority to conduct on-site visits to participants. A CCP should have in place arrangements for the suspension and orderly exit of participants that no longer meet participation requirements, and those arrangements should be publicly disclosed.

Key issues

1. A CCP should establish requirements for participation to ensure that participants have sufficient financial resources and robust operational capacity.
2. A CCP should have procedures in place to monitor that participation requirements are met on an ongoing basis.
3. Participation requirements should be objective, permitting fair and open access; requirements that limit access on grounds other than risks should be avoided. Participation requirements, including arrangements for orderly exit of participants, should be clearly stated and publicly disclosed.

Key questions

1. Does the CCP establish requirements for participants' financial resources and creditworthiness? How? What factors are considered (for example, size, clearing for indirect participants, products cleared)? Does the CCP assess participants' operational capability? How? What factors are considered (for example, arrangements to meet payment obligations, risk management policies, staffing, internal audit of risk controls and IT systems)?
2. Does the CCP monitor that participation requirements are met on an ongoing basis? How? Under what conditions can the CCP suspend and terminate participants' membership? What arrangements does the system have in place to facilitate the suspension and orderly exit of participants that no longer meet the participation requirements?
3. Do participation requirements limit access on grounds other than risks? Are they objective and do they permit fair and open access? Are participation requirements, including arrangements for orderly exit of participants, clearly stated and publicly disclosed?

Assignment of an assessment category

1. *Observed*
 - (a) The CCP establishes requirements for participation to ensure that participants have sufficient financial resources and robust operational capacity. (Q1)
 - (b) The CCP has procedures in place to monitor that participation requirements are met on an ongoing basis. (Q2)
 - (c) (i) Participation requirements are objective, permitting fair and open access, and requirements that limit access on grounds other than risks are avoided. (ii) Participation requirements are clearly stated and publicly disclosed. (Q3)
2. *Broadly observed*
 - (a) 1(a) and 1(b) are satisfied. (Q1, 2)
 - (b) 1(c) (i) is satisfied but 1(c) (ii) is not fully satisfied. Some requirements are not available to the public. (Q3)
3. *Partly observed*
 - (a) 1(a) and 1(b) are satisfied. (Q2)
 - (b) But: neither 1(c) (i) nor 1(c) (ii) is satisfied. (Q3)
 - (c) Or: 1(b) and 1(c) are satisfied but 1(a) is not fully satisfied as there are some weaknesses in participation requirements with respect to participants' financial and operational capacity. (Q1)

4. *Non-observed*
- (a) 1(a) is not satisfied. (Q1)
- (b) Or: 1(b) is not satisfied. (Q2)

Recommendation 3: Collateral requirements⁴

A CCP should calculate its credit exposures to participants on a daily basis and hold collateral that in normal market conditions covers its potential losses from closing out positions held by a defaulting participant.

4.3.1 A CCP should maintain sufficient financial resources to meet its obligations on time, not withstanding a default by any of its participants, under both normal and extreme but plausible market conditions. This recommendation addresses the collateral requirements to be imposed on participants and calls for those requirements to be sufficient to cover a default in normal market conditions. Recommendation 4 addresses the total resources available to the CCP to cover defaults, which include other resources in addition to collateral posted by the defaulting participant. It calls for the CCP's total resources to be sufficient to cover losses from a default that occurs in abnormal (extreme but plausible) conditions.

4.3.2 No matter how stringent, the participation requirements imposed by CCPs cannot assure that clearing participants would never default on any of their obligations to CCPs. A CCP should therefore require participants to collateralise their future obligations through the use of risk-based methodologies that fairly reflect the risks the participants introduce.

4.3.3 A CCP should revalue the positions of its participants and recalculate its credit risk exposures to them at least daily. Based on these calculations, a CCP should call for collateral or a cash payment whenever required to achieve the coverage called for by this recommendation.⁵

4.3.4 To mitigate intraday risks, a CCP should establish procedures to make intraday collateral calls on a routine basis or at a minimum when prespecified thresholds are breached (for example, when price changes reach predetermined levels set by a CCP or when large positions have been built up by a participant during a trading day). Collateral calls may be met either through cash payments or through transferring collateral. If current market prices do not fairly represent the value of positions, for example due to illiquidity, a CCP should have the authority to use predefined valuation models to revalue the positions for purposes of determining exposures.

4.3.5 Collateral requirements should be sufficient to cover price risk for the period between the last collection of collateral and the complete liquidation of the defaulting participant's positions. The frequency of calculation and the liquidity of the market are thus key factors determining the collateral requirement set by a CCP. For example, if the CCP calculates collateral requirements on a daily basis, it might use one day as the period for measuring price risk of liquid products. However, if a product is illiquid, price risk should be measured over a longer period to cover the potential losses should liquidation of the positions take longer. Once it chooses this time period, a CCP also needs to decide how much price risk is likely to occur in the interval and also how much price risk⁶ any collateral requirements are to cover. Collateral requirements impose opportunity costs on CCP participants. Therefore, a CCP needs to strike a balance between greater protection for itself and higher opportunity costs for its participants. For this reason, collateral requirements are not designed to cover price risk in all market conditions. Nonetheless, collateral requirements should be set at a minimum to cover 95% of potential price movements during the interval between the collateral collection before

⁴ Some CCPs call the collateral requirements that they impose on their participants "margin" requirements. Others may call them required "clearing fund" contributions or use other terminology. The terminology is unimportant. What is important is that a CCP's requirements address the key issues.

⁵ In calculating its risk exposures and collateral required, the CCP should take into account the cash payments that have been made by the participants.

⁶ The price risk is assessed by examining historical price movements and making inferences about potential future price movements.

default and liquidation of the position. “Normal” market conditions are those that produce changes in the values of positions that are expected to exceed collateral requirements only 5% of the time.

4.3.6 Over time, the risk parameters or other assumptions used to calculate the collateral requirements should be adjusted to reflect changes in price risk so that collateral continues to provide the intended coverage level. Also, a CCP should regularly review its collateral methodologies and perform backtesting that includes periods of market turbulence to assess the reliability of the methodologies in achieving the desired coverage.

4.3.7 While the methodology for setting collateral requirements is applied uniformly to participants, a CCP should have the authority to require additional collateral from an individual participant when its activity poses particular risk. For example, if a participant holds large positions relative to its financial resources or to total positions in a market, higher collateral requirements are likely to be warranted. Similarly, if the aggregate exposure to a participant and its affiliates gives rise to concern, a CCP might impose higher requirements. Alternatively, the CCP should have the authority to require the participant to reduce its exposure.

4.3.8 Some CCPs provide guarantee or central counterparty services to both securities and derivatives markets. In calculating collateral requirements a CCP may allow offsets or reductions in required collateral between products for which it is counterparty if the position in one product hedges the price risk of the position in another. Such offsets should only be allowed for products that are highly and consistently interrelated, that is, the products should exhibit a strong and stable correlation relationship.

4.3.9 A CCP should ensure that the collateral taken from participants is of high quality and appropriately valued. A CCP should generally limit the acceptance of collateral to assets with high liquidity, low market risk and minimal credit risk,⁷ and establish procedures to assess the risks inherent in an asset before it is accepted as collateral. In some instances, a CCP will accept collateral that does not meet all of these criteria because it nonetheless is an excellent hedge for a participant’s positions. Such would be the case, for example, if a stock (which has significant credit risk) were posted to meet the collateral requirement for a call option written on that same stock. If a CCP accepts assets in foreign currencies as collateral, the foreign exchange risk should also be taken into consideration. Haircuts should be applied so that the value of collateral adequately reflects the potential for its value to decline over the interval between its last revaluation and the time by which it can reasonably be assumed to be liquidated in the event of a participant’s default; these haircut procedures should be reviewed regularly. Because of potential concerns about the ability to liquidate collateral quickly and without significant price effects, a CCP may impose a cap on the total amount of assets (for example, securities issued by individual obligors and bank guarantees) accepted as collateral to minimise concentration risk. A CCP should also carefully monitor its aggregate credit exposures to individual banks, recognising banks’ diverse activities as participants, settlement banks and providers of guarantees, letters of credit and liquidity facilities. A CCP should revalue collateral at market prices at least daily. If the market prices do not fairly represent the value of collateral, a CCP should have the authority to revalue the collateral according to its predefined pricing models.

Key issues

1. Collateral requirements should be sufficient to cover at least 95% of potential changes in the value of a participant’s positions for the interval between the last collection of collateral and the complete liquidation of the defaulting participant’s positions. (Thus, “normal” market conditions are those that produce changes in the values of positions that are expected to be exceeded only 5% of the time.)
2. The exposures of participants should be recalculated at least daily and collateral collected whenever required to maintain the required coverage. The CCP should have the authority to make intraday collateral calls to mitigate unanticipated intraday credit exposures arising from new positions

⁷ Cash, government debt securities, high quality corporate debt securities, blue-chip stocks and bank guarantees are the most commonly acceptable forms of collateral. CCPs should not accept a participant’s own securities or those of affiliated companies as collateral.

or from price changes. A CCP should have the authority to impose higher collateral requirements on high-risk participants.

3. The collateral that a CCP accepts should be limited to assets with high liquidity, low market risk and minimal credit risk. Haircuts should be applied to collateral asset values that reflect the potential for their value to decline over the interval between their last revaluation and the time by which they can reasonably be assumed to be liquidated in the event of a default.

Key questions

1. What is the time interval over which potential price movements are measured? Is the interval consistent with a reasonable assumption about how quickly a defaulting participant's positions could be closed out? Is the intended coverage of collateral requirements at least 95% of price changes over this interval? How does the CCP validate the models used to determine the collateral levels consistent with the intended coverage? Does it backtest the coverage of collateral? How frequently does it review and validate the models? Does the CCP have authority to demand collateral when required to maintain the desired coverage?

2. Are the exposures of participants recalculated at least daily and collateral collected whenever necessary? Does the CCP have the authority to recalculate and collect collateral more frequently? Under what circumstances? Does the CCP have authority to impose higher collateral requirements on high-risk participants?

3. What types of assets does the CCP accept as collateral? What types are actually held? How frequently are the assets revalued? Are haircuts applied to the value of the assets that adequately reflect the potential for declines in their value between their last revaluation and when they could be liquidated?

Assignment of an assessment category

1. Observed

(a) The collateral requirements set by the CCP are sufficient to cover at least 95% of price risk during the interval between the last collection of collateral and the complete liquidation of the defaulting participant's positions. (Q1)

(b) (i) The potential exposures of participants are recalculated daily and collateral collected whenever required. (ii) Intraday collateral calls can be issued when prespecified thresholds are breached. (Q2)

(c) (i) The CCP limits the acceptance of collateral to assets with high liquidity, low market risk and minimal credit risk, as set out in the discussion of the recommendation. (ii) The CCP applies appropriate haircuts to its collateral that reflect the potential for their value to decline. (Q3)

2. Broadly observed

(a) 1(a) and 1(b) are satisfied. (Q1, 2)

(b) 1(c) (i) is satisfied but 1(c) (ii) is not satisfied. (Q3)

3. Partly observed

(a) 1(a) is satisfied. (Q1)

(b) 1(b) (i) is satisfied but not 1(b) (ii). (Q2)

(c) Or: 1(c) (i) is not satisfied. (Q3)

4. Non-observed

(a) 1(a) is not satisfied. (Q1)

(b) Or: 1(b) (i) is not satisfied. (Q2)

Explanatory note

1. The recommendation requires collateral to be collected whenever required to maintain the required coverage. In assessing whether this has been met, the CCP should be able to demonstrate that its rules and practices provide a high degree of assurance that the minimum level of coverage will be maintained.
2. The recommendation requires that collateral requirements set by CCPs should be sufficient to cover at least 95% of price risk. However, some CCPs may set a coverage level lower than 95% for a few products if additional risks to the CCP are minimal. For example, collateral requirements for new products may be set at lower coverage level as the overall exposure may be lower due to lower volumes of the new products. Because trading activities of new products are usually low at their inception, the lower collateral requirements may not increase the CCPs' risk exposure except marginally. If the assessor is confident that there are no obvious gaps or problems with the imposition of a lower coverage level and any additional risks to the CCP are minimal, he can consider that the CCP satisfies the criterion in 1(a). In assessing whether additional risks will arise, the assessor can ask the CCP to provide its own risk assessment.
3. Collateral requirements can be collected based on either net positions or gross positions held by participants. Under a net collateral system, collateral requirements are charged for net long or net short positions, that is, long and short positions held by a participant in the same security or derivative contract are offset against each other to arrive at the net long or net short positions. In contrast, collateral requirements are calculated based on the aggregate of long and short positions under a gross collateral system. For the purpose of this recommendation, both systems are acceptable as long as CCPs understand the risks inherent in these systems and have taken appropriate measures to minimise them. For example, a CCP using a net collateral system should recognise that participants' net positions can change substantially during a trading day and reflect this in its monitoring procedures. If a participant has closed out most of its positions used to net off the collateral requirement during a trading day, the CCP's net exposure to the participant will increase substantially and as a result the collateral requirement may become seriously inadequate to cover the risk. In such a situation, the CCP's frequency of net position calculations and its ability to make intraday collateral calls become very important. A gross collateral system, because of the relatively larger flows of cash and collateral required, may create liquidity pressure on participants. CCPs with such a system should thus be cognisant of participants' liquidity arrangements.

Recommendation 4: Financial resources

A CCP should maintain sufficient financial resources to withstand a default by the participant to which it has the largest exposure in extreme but plausible market conditions that produces losses not fully covered by collateral requirements.

4.4.1 Although risk management tools are designed to ensure that defaults are unlikely and that losses will usually be covered by collateral requirements, a CCP must nonetheless plan for the possibility that a default occurs and that losses exceed the amount of collateral posted by the defaulting participants. In the event of a default, a CCP has an obligation to continue to make payments to non-defaulting participants on time. Therefore, it must maintain financial resources both to provide it with liquidity to make timely payments in the short term and to enable it to cover the losses that result from defaults.

4.4.2 Assessing the adequacy of resources can be difficult because it rests on assumptions about which participant or participants may default and about market conditions at the time of the default. Many CCPs focus on a default by the participant to which the CCP has the largest exposure. This should be viewed as a minimum standard in a CCP's evaluation of its resources. However, market conditions that typically accompany a default put pressures on other firms (particularly related group members or affiliates), and a default itself tends to heighten market volatility, further contributing to stresses. Planning by a CCP should thus consider the potential for two or more firms to default on the same day.

4.4.3 Stress testing is used by CCPs to assess the adequacy of their financial resources. A CCP assumes extreme market conditions (that is, price changes significantly larger than those that collateral requirements are designed to cover), and evaluates the potential losses in individual participants' positions. Stress testing provides insights into several aspects of the financial resources the CCP may need. The largest debit from such a test helps a CCP evaluate its potential liquidity

needs. Calculations taking into account the value of collateral that has been posted by the potential defaulter and the distribution of positions between the participant itself and its customers provide a perspective on the potential size of the losses that a CCP might face.

4.4.4 Key elements of stress testing are the market conditions assumed and the frequency with which the tests are conducted. A CCP must make judgments about what constitutes “extreme but plausible” market conditions. The conditions evaluated should include the most volatile periods that have been experienced by the markets for which a CCP provides its services. For example, CCPs whose product mix includes equities should consider the types of price declines observed during the 1987 stock market crash. A CCP should also evaluate the losses that would result if levels of volatility observed in related products were also experienced in its products and if the usual patterns of correlations in prices among its products changed. Stress tests should be performed at least quarterly, and more frequently when markets are unusually volatile or illiquid or if the size of positions held by its largest participants increases significantly.

4.4.5 A CCP should have clear policies for the actions it would take if stress testing indicates that its resources may not be adequate either for meeting liquidity demands or for covering an exposure resulting from default. The actions that a CCP might take will vary, but the ultimate effect must be either to reduce the potential exposure of the CCP (perhaps by requiring a participant to reduce its positions or increase the resources on which the CCP has a claim) or to increase the resources of the CCP. These policies, as well as the circumstances and timing of their use, should be clearly stated by the CCP.

4.4.6 The financial resources of a CCP can take a variety of forms. Most CCPs have their own capital and retained earnings from operations. Many CCPs require participants to post assets in a clearing fund that can be used in the event of a default. Other resources can include contingent claims on non-defaulting participants, parent organisations or insurers. For example, a CCP’s rules may require non-defaulting participants to provide additional funds to it in the event of default. The parents of some CCPs provide a guarantee, and other CCPs obtain default insurance that covers a certain amount of losses after a deductible has been met.

4.4.7 Both the extent that a CCP can rely on the availability of these non-collateral financial resources and their liquidity vary. The CCP’s own capital, retained earnings or clearing funds are under its immediate control, while insurance contracts, parental guarantees or rights to call for funds from non-defaulting participants are likely to be available only after specific conditions are met. Even retained earnings are generally invested, and the proceeds of the investments may not be immediately available. In assessing its financial resources, a CCP should consider the reliability and liquidity of the assets it holds, as well as possible concentration risk.

4.4.8 In meeting this recommendation, a CCP should include only those financial resources that it can reliably draw on in the event of a default. For example, possible payouts from insurance contracts should be counted only if there is high degree of certainty that the terms of the contracts would be payable in the event of a default. The precise circumstances under which a CCP can draw upon any resources that require conditions to be met should be carefully evaluated in judging the overall adequacy of its resources.

4.4.9 Even if there is assurance that the CCP can draw on these resources in a default, some types of financial resources held by the CCP may still suffer a loss in value, due to either market or liquidity risks. Resources should only be counted to the extent that their value can be predicted with a high degree of certainty. Where it is possible to reliably estimate the decline in value over the interval between the last revaluation and the time by which the resources can reasonably be assumed to be liquidated, only the value subject to the appropriate haircut should be counted as part of the financial resources of the CCP.

4.4.10 It is also important that financial resources that are intended to be used in the event of participants’ defaults are not used by the CCP for any other purposes. Two elements are essential to achieve this insulation. First, the financial resources should be placed in a trust or earmarked. Second, the rules of the CCP should clearly state that the financial resources earmarked to support participants’ defaults are not permitted to be used for any other purposes, and the rules should expressly set out the situations in which the resources can be used.

4.4.11 Because a function of the financial resources of a CCP is also to enable it to face immediate liquidity demands, a CCP should obtain irrevocable and unconditional credit lines that allow it to borrow against resources that are not immediately available. The presence of such credit lines,

allowing the CCP to meet immediate demands until less liquid resources can be mobilised, is an important consideration in assessing the adequacy of a CCP's resources.

4.4.12 A CCP must have a clear and transparent method for determining participants' contributions to its financial resources that reinforces incentives for participants to manage the risk that they pose for the CCP. Generally such incentives involve a system in which contributions are linked to the riskiness of participants' activity as measured by collateral posted and sometimes by stress-testing results. A CCP also should establish rules that enable it to replenish its resources following a default because it is essential that the markets served by a CCP have confidence in its continuing viability.

Key issues

1. A CCP should assess its observance of this recommendation through stress tests that estimate its potential credit exposures on its current contracts with participants in extreme but plausible market conditions. The market conditions evaluated should include the most volatile periods that have been experienced by the markets for which a CCP provides its services. While the recommendation focuses on a default by the participant to which a CCP has the largest exposure in a specific scenario, the potential for defaults by two or more participants should be evaluated (particularly related group members or affiliates). Stress tests should be performed at least quarterly, and more frequently when markets are unusually volatile or illiquid or if the size of positions held by its largest participants increases significantly. A CCP should have a clear policy on the actions it would take in the event of a failed test; either its exposure should be reduced or its resources should be enhanced.
2. Although a CCP's financial resources can take a variety of forms, for purposes of assessing observance of this recommendation, resources should be counted only if there is a high degree of assurance that a CCP can draw on them for the anticipated value in the event of a participant's default. Also, these financial resources are insulated from use for any purposes other than covering losses or liquidity pressures from a participant's default.
3. If any of the resources that are being relied upon are not immediately available to a CCP, the CCP should obtain irrevocable and unconditional credit lines that allow it to borrow against those assets to meet its needs for liquidity.

Key questions

1. Has the CCP established procedures to stress test its exposures to its participants in extreme but plausible market conditions? What scenarios are evaluated? Do the scenarios include the most volatile periods that have been experienced by the markets for which the CCP provides services? Has the potential for multiple simultaneous defaults been evaluated? Are stress tests performed at least once a quarter? Does the CCP have a clear policy on actions to be taken in the event of a failed test? Has it adhered to that policy?
2. What are the types and values of resources that the CCP has available to cover losses and liquidity pressures from participants' defaults? Is there a high degree of assurance that the CCP will be able to draw on those resources for the anticipated value in the event of a participant's default? Are there arrangements to insulate the financial resources from use for other purposes?
3. Are any of the resources that the CCP is relying upon to cover losses from defaults not immediately available to meet the CCP's obligations? If so, has the CCP obtained irrevocable and unconditional credit lines that allow it to borrow against those assets? If so, can those lines be drawn upon sufficiently quickly to ensure that the CCP can meet its obligations when due?

Assignment of an assessment category

1. *Observed*
 - (a) The CCP uses an appropriate stress test procedure to evaluate the adequacy of its resources:
 - (i) The procedure is performed at least once a quarter and more frequently when markets are unusually volatile or illiquid or the size of positions held by its largest participants increases significantly.

- (ii) Scenarios include the most volatile periods that have been experienced by the markets for which the CCP provides services as well as appropriate theoretical scenarios.
 - (iii) At a minimum, resources cover the default of the CCP participant with the largest potential obligation; the stress testing procedure also evaluates potential losses in defaults by two or more participants (particularly related group members or affiliates).
 - (iv) The procedure includes a clear and transparent policy on actions to be taken in the event resources are potentially not adequate. (Q1)
- (b) There is a high degree of assurance that the CCP can draw on the anticipated value of its financial resources in the event of a default, and the financial resources are insulated from being used for purposes other than a participant's default. (Q2)
 - (c) The CCP has unconditional credit lines that allow it to borrow against assets not immediately available. (Q3)
2. *Broadly observed*
- (a) 1(a) and 1(b) are satisfied. (Q1, 2)
 - (b) But: 1(c) is not fully satisfied. (Q3) There are plausible circumstances in which the liquidity facilities of the CCP are not adequate.
3. *Partly observed*
- (a) The CCP does stress tests of its exposure to its participants, but there are some weaknesses in its stress testing procedures. (Q1)
 - (b) Or: 1(b) is not satisfied. (Q2) There are plausible circumstances in which the resources on which the CCP depends would fall short of the required level or that the CCP would not be able to draw upon all of those resources or the financial resources are not insulated from being used for other purposes.
4. *Non-observed*
- (a) The CCP does not perform stress tests for its exposure to participants. (Q1)

Explanatory note

1. Financial resources must be liquid, or assets should be suitable collateral to secure a credit line. Careful consideration should be given to the maturity of the assets accepted. Also the effect on market values of collateral if the form of collateral held by a CCP is relatively concentrated should be taken into account. There should be clearly stated maximum thresholds for those assets where concentration might be a concern. A CCP should use appropriate haircuts to compensate for the risks associated with particular types of collateral. In case a CCP uses an insurance policy, letter of credit or parental guarantee as part of its financial resources, the precise circumstances under which it can draw on them and the speed of payout should be carefully evaluated in judging the overall adequacy of the resources.

2. The CCP should carefully consider its reliance on letters of credit, credit lines or securities of a participant or the affiliate of a participant. In case of a default of the participant itself, financial resources that were obligations of the participant could not be used and the availability of those provided by an affiliate could be questionable. Also the aggregate value of different types of guarantees taken from the same organisations should be monitored and limited.

Recommendation 5: Default procedures

A CCP's default procedures should be clear and transparent, and they should ensure that the CCP can take timely action to contain losses and liquidity pressures and to continue meeting its obligations.

4.5.1 The purpose of default procedures is to protect the continuing functioning of the CCP by limiting the potential for the effects of a default to spread beyond the defaulting participant. Key objectives of default procedures include minimising further losses at the defaulting participant, winding

down its positions in an orderly way, enabling the CCP to continue performing its obligations and preserving other participants' and users' ability to manage their portfolios.

4.5.2 A priority, of course, should be to avoid defaults. As noted above, a CCP's participation requirements should include financial requirements that reduce the likelihood of defaults. Furthermore, a CCP should identify situations that it determines may pose a threat of default and develop early warning pre-default plans and procedures, such as increasing monitoring or imposing restrictions on a CCP participant. To permit heightened risk management and avoidance of disruption of CCP functions, these procedures should provide an incentive to participants for early notification of potential financial, liquidity or systems problems that could lead to a default.

4.5.3 A CCP's default procedures should clearly define an event of default and the method for identifying a default. The procedures should specify whether the default event is automatic or whether a specific decision must be taken to declare the default, and who is authorised to make such decisions. The procedures should set out broadly the measures a CCP can take when a default is declared; the extent to which the actions are automatic or whether a decision is necessary; changes to normal settlement practices; the expected treatment of the proprietary account, and of the customers' account; the sequencing of actions; the information that will be needed; and the roles, obligations and responsibilities of the various parties (such as clearing participants, authorities and the CCP itself) and the existence of mechanisms other than those of the CCP itself that may be activated to contain the impact of a default.

4.5.4 In the event of default, a CCP should have arrangements or mechanisms to facilitate the transfer, closeout or hedging of a defaulting participant's proprietary positions promptly. The longer these positions remain open, the larger are the potential credit exposures from them. A CCP should have the ability to apply the proceeds of liquidation, as well as all other funds and assets of the defaulting participant, to meet the defaulting participant's obligations to it. Typically a CCP will attempt to liquidate positions quickly, but in some instances a CCP may determine that its exposure would be minimised by hedging positions and managing the liquidation over time. What is critical is that the CCP has the authority to act promptly in the manner it thinks best to contain its exposure.

4.5.5 The default procedures or mechanisms other than those of the CCP should provide for the handling of positions and collateral of customers of the defaulting participant. The rules should identify the circumstances under which positions may be liquidated or transferred, which positions are eligible for liquidation or transfer, who may exercise this authority, and what are the applicable time frames with which actions would be taken. At a minimum, a liquidation of positions should not be prevented.

4.5.6 A CCP's procedures should permit it to use promptly any financial resources that it maintains for covering losses and liquidity pressures resulting from defaults, including use of liquidity facilities. The rules of a CCP should specify the order in which different types of resources will be used. This information enables participants to assess their potential exposures from using a CCP's services. Typically, a CCP will look first to assets posted by the defaulting participant to provide incentives for participants to manage prudently the risks they pose for a CCP.

4.5.7 Relevant national law should provide certainty that actions taken by a CCP as part of its default procedures are enforceable and that actions taken under such procedures may not later be stayed, avoided or reversed. To facilitate the transfer of positions and assets, national insolvency law should permit the identification and separate treatment of customer and proprietary assets.

4.5.8 A CCP's management should be well prepared and have sufficient discretion to implement default procedures in a flexible manner. The exercise of this discretion needs to be subject to appropriate arrangements to minimise any conflict of interests issues that might arise. Management should have internal plans that clearly delineate the roles and responsibilities for addressing a default, and provide guidance to its staff on how the default procedures should be implemented, in particular for promptly closing out or hedging a defaulting participant's contracts and for closing out or transferring customers' contracts, for liquidating a defaulting participant's collateral and other assets (such as any contributions to a clearing fund) and for drawing on financial resources other than collateral. The internal plan should also address documentation, the CCP's information needs and coordination when more than one CCP or authority is involved; the plan should be reviewed at least once a year.

4.5.9 A CCP's default procedures should be publicly available to provide certainty and predictability to all market users about the measures that may be taken by it and other relevant entities in the event of a default. This transparency helps the orderly handling of defaults, enables

non-defaulting participants to understand their obligations to a CCP and to their customers, and gives market users the information they need to make an informed assessment about whether to trade in a given market and how best to structure their customer account agreements.⁸ The widespread availability and understanding of default procedures may also help to foster confidence in the market should a major default occur and help to sustain market liquidity by avoiding or minimising withdrawals by other market participants.

Key issues

1. A CCP's default procedures should clearly state what constitutes a default and permit a CCP to promptly close out or effectively manage a defaulting participant's contracts and to apply collateral or other resources. There should be clear procedures, or mechanisms other than those of the CCP, for handling customers' positions and collateral. Default procedures should also permit a CCP to utilise promptly any financial resources that it maintains for covering losses and liquidity pressures resulting from the defaults.
2. The legal framework applicable to a CCP should provide a high degree of assurance that its default procedures are enforceable, despite the insolvency of a participant. The national insolvency law should permit the identification and separate treatment of customer and proprietary assets.
3. A CCP's management should be well prepared to implement its default procedures in a flexible manner, and management should have internal plans for such an event.
4. Default procedures should be clearly stated and publicly available.

Key questions

1. Do the CCP's default procedures state clearly what constitutes a default? If a default occurs, do the CCP's default procedures provide it with authority promptly to close out or manage the contracts of a defaulting participant and to apply the defaulting participant's collateral or other collateral? Do the CCP's procedures, or mechanisms other than those of the CCP, permit the transfer or (as an alternative) liquidation of the positions and collateral of customers of the defaulting participant? Do the procedures empower the CCP to draw promptly on any financial resources?
2. Does the legal framework provide a high degree of assurance that the decisions to liquidate or transfer a position, to apply collateral or to draw down liquidity resources in the event of the insolvency of a participant would not be reversed? Does national insolvency law permit identification and separate treatment of customer and proprietary assets?
3. Does the CCP's management have internal plans for implementing its default procedures? Does the plan maintain a measure of flexibility for the CCP in deciding how best to implement its default procedures? Does the plan address the need for coordination in cases where more than one CCP or authority is involved?
4. Are the default procedures clearly stated and publicly available?

Assignment of an assessment category

1. *Observed*
 - (a) Default procedures are stated clearly and explicitly permit the CCP to close out or manage the positions of a defaulting participant. The CCP's procedures, or mechanisms other than those of the CCP, permit the liquidation or transfer of the customers' positions and assets. The procedures allow the CCP to promptly draw on any financial resources, including liquidity facilities. (Q1)
 - (b) (i) National insolvency law provides a high degree of assurance that decisions to liquidate or transfer a position, to apply collateral or to draw down liquidity resources would not be

⁸ See eg *Report on Cooperation between Market Authorities and Default Procedures* (IOSCO 1996).

- reversed. (ii) National insolvency law permits the identification and separate treatment of customer and proprietary assets. (Q2)
- (c) (i) The CCP has an internal plan for implementing its default procedures that clearly delineates roles and responsibilities for addressing a default, including plans to draw on any financial resources. (ii) The plan addresses the CCP's information needs as well as any coordination issues and is reviewed at least once a year. (Q3)
- (d) Default procedures are clearly stated and readily available (i) to the CCP participants and (ii) to the public. (Q4)
2. *Broadly observed*
- (a) 1(a) and 1(b) are satisfied. (Q1, 2)
- (b) 1(c) (i) is satisfied but 1(c) (ii) is not. (Q 3)
- (c) Or: 1(d) (i) is satisfied but 1(d) (ii) is not. (Q4)
3. *Partly observed*
- (a) 1(a) and 1(b) are satisfied. (Q1, 2)
- (b) 1(c) (i) is not satisfied. (Q3)
- (c) Or: 1(d) (i) is not satisfied. (Q4)
4. *Non-observed*
- (a) 1(a) is not satisfied. (Q1)
- (b) Or: Default actions are reversible or can be interfered with by legal or administrative proceeding; or liquidation of positions can be stayed; or open positions can be frozen; or customer and proprietary assets and positions cannot be distinguished. (Q2)

Explanatory note

1. In order to avoid disrupting the market and to preserve portfolio relationships in the account being liquidated to the extent possible, a special auction may be necessary to obtain a liquidation price or to liquidate positions in some cases. Procedures should be appropriate to the types of market and product cleared.
2. The recommendation for written procedures does not imply rigidity in approaching a default. It is essential that the CCP be permitted some degree of flexibility in addressing a default because it is difficult to predict with certainty the best approach to contain risk. When discretion is provided, the procedures should be transparent as to the general framework for the exercise of this discretion. Transparency should not be interpreted in a way that would compromise a CCP's effectiveness in implementing its default procedures; for example, in liquidating a defaulting participant's positions, a CCP would not necessarily want to disclose its strategy.
3. A delay in settlement caused by a systems or other operational problem might require the CCP to call on a firm to guarantee its customers' positions or a parent to guarantee proprietary positions, to draw down funds from the CCP's capital, or to liquidate clearing fund contributions, or to draw on lines of credit in order to make settlement. Procedures should be structured to provide enough flexibility to take the least disruptive approach (for example, the procedures should not precipitate a default if it appears that steps are available to permit settlement to occur).
4. In some jurisdictions, even without a supportive insolvency regime, it may be possible to transfer funds and accounts pursuant to a CCP's rules and subject to indemnification of the transferee by the transferor against any claim against transferred funds in bankruptcy. In the absence of an appropriate insolvency regime, this type of interim solution provides some mechanisms for a CCP to be able to manage its risks in a default.
5. A participant's default may be caused by losses in its proprietary account or by a customer default which exceeds the participant's financial resources. Where customers' collateral is held on an omnibus basis at a CCP, it may be used to cover losses arising from any customer within the account,

but should not be used to cover losses in the proprietary account, unless other protections are available.

Recommendation 6: Custody and investment risks

A CCP should hold assets in a manner whereby risk of loss or of delay in its access to them is minimised. Assets invested by a CCP should be held in instruments with minimal credit, market and liquidity risks.

4.6.1 A CCP has the responsibility of safeguarding assets that secure participants' obligations to it. These assets can be cash or securities, and they must be held in such a manner that their timely availability is assured if a CCP needs to draw on them. Further, assets that are invested must be placed in instruments with minimal credit, market and liquidity risks so that a CCP knows the amount of resources at its disposal and can realise that value promptly.

4.6.2 If a participant has posted securities as collateral, a CCP needs a custodian, which may be a central securities depository (CSD) or a financial institution, to hold those securities. Entities providing custodial services must employ procedures that protect the securities, as described in Recommendation 12 of RSSS. In this regard, a CCP must ascertain that its custodian's accounting practices, safekeeping procedures and internal controls protect the securities against the custodian's insolvency, negligence, misuse of assets, fraud, poor administration or inadequate record keeping. Of particular concern is that assets held in custody be protected against claims of a custodian's creditors. Generally, this is accomplished through a legal framework supporting segregation of customer assets and through supervisory enforcement of effective segregation. Failures in any of these areas could jeopardise a CCP's ability to retrieve the securities promptly. The custodian must also have a strong financial position to be able to sustain losses from operational problems or non-custodial activities. A CCP must confirm that its interest in the securities can be enforced and that it can have prompt access to the securities when required; such issues are particularly challenging when securities are held at custodians in different time zones or jurisdictions. A CCP should monitor the financial condition of its custodians on an ongoing basis.

4.6.3 The investment strategy should be consistent with the overall risk management strategy of the CCP. In some instances, a CCP may invest cash that participants have posted. Also, it must make decisions about investing its own resources. A CCP has the responsibility to ensure that such investments do not compromise its ability to use the funds for their intended purpose. Cash posted by a participant represents a resource a CCP may need to call upon in the event of a default. Similarly, some CCPs may plan to use their own resources as a means for covering losses exceeding a defaulting participant's resources. If the CCP intends for its own resources to be used to cover losses and liquidity pressures from a default, its investment of those resources should comply with this recommendation so that the resources are readily available if the CCP needs to draw on them. (Some CCP resources will be invested in physical assets such as computers and buildings, which are not the subject of this recommendation.) Investments should be secured or they should be claims on high-quality obligors to mitigate the credit risk to which a CCP is exposed. Because the value of these investments may need to be realised quickly, they should be of a type that would enable a CCP to liquidate them with little or no adverse price effect. Investments in illiquid or volatile instruments are not appropriate.

4.6.4 Often a CCP has several types of relationship with major financial institutions. For example, an institution might offer a CCP settlement bank services, custodial services and a liquidity facility; it might be a participant itself or offer clearing services to other participants, as well as being a place where a CCP deposits cash. A CCP should carefully consider its multiple relationships with institutions in evaluating its exposure to obligors. In making investments, a CCP should take into account its overall credit risk exposures to individual obligors, whether from cash investments or other relationships, and ensure that its overall credit risk exposure to any individual obligor remains within acceptable concentration limits.

Key issues

1. As described in the RSSS, a CCP should hold securities in custody at entities that employ accounting practices, safekeeping procedures and internal controls that fully protect these securities; the legal framework should also be such that the securities are protected against the claims of a

custodian's creditors. A CCP should have prompt access to securities when required. A CCP monitors its custodians' financial condition on an ongoing basis.

2. Investments should be secured or they should be claims on high-quality obligors. Investments should be capable of being liquidated quickly with little or no adverse price effect.

3. In making investment decisions, a CCP should take into account its overall credit risk exposures to individual obligors, whether from cash investments or other relationships, and ensure that its overall credit risk exposure to any individual obligor remains within acceptable concentration limits.

Key questions

1. At what types of entities is collateral held? Does the CCP verify that these entities' procedures and practices conform to RSSS Recommendation 12? How? Does the CCP confirm that its interest in the securities can be enforced and that it can have prompt access to the securities in the event of a participant's default, even if these securities are held in another time zone or jurisdiction? Does it monitor the financial condition of its custodians on an ongoing basis?

2. How is cash invested? Are investments secured? What standard does the CCP use to ensure that obligors are highly creditworthy? What standard does the CCP use to ensure that investments have minimal market and liquidity risks?

3. Does the CCP consider its overall exposure to an obligor in choosing investments? Are investments limited to avoid concentration of credit risk exposures? How?

Assignment of an assessment category

1. *Observed*

(a) Custodians for the CCP employ accounting practices, safekeeping procedures and internal controls to fully protect securities; the legal framework protects securities against the claims of a custodian's creditors; there is little risk of delay in the CCP's access to securities held with the custodians. (Q1)

(b) Investments are secured or claims on high-quality obligors; investments can be liquidated quickly with little or no adverse price effect. (Q2)

(c) The CCP takes into account its overall exposure to an obligor in setting concentration limits for investments with these obligors. (Q3)

2. *Broadly observed*

(a) 1(a) and 1(b) are satisfied. (Q1, 2)

(b) 1(c) is not satisfied. (Q3)

3. *Partly observed*

(a) 1(a) is satisfied or 1(b) is satisfied, but not both. (Q1, 2)

4. *Non-observed*

(a) Neither 1(a) nor 1(b) is satisfied. (Q1, 2)

Recommendation 7: Operational risk

A CCP should identify sources of operational risk and minimise them through the development of appropriate systems, controls and procedures. Systems should be reliable and secure, and have adequate, scalable capacity. Business continuity plans should allow for timely recovery of operations and fulfilment of a CCP's obligations.

4.7.1 Operational risk is the risk that deficiencies in information systems or internal controls, human errors, management failures or disruptions from external events such as natural disasters result in unexpected losses. The importance of operational risk lies in its capacity to impede the

effectiveness of measures adopted to address other risks and to cause participants to incur unforeseen losses, which, if sizeable, could have systemic implications. Operational failures can also lead to legal liability, reputation loss and business loss.

4.7.2 Sources of operational risk to a CCP include inadequate control of systems and processes; inadequate management more generally (lack of expertise, poor supervision or training, inadequate resources); inadequate identification or understanding of risks and the controls and procedures needed to limit and manage them; and inadequate attention to compliance procedures. External events of terrorism or health crises, as well as natural disasters, are also sources of operational risk that a CCP must manage.

4.7.3 Potential operational failures include errors or delays in message handling, transaction processing, system deficiencies or interruption, fraudulent activities by staff and disclosure of confidential information. Errors or delays in transaction processing may result from miscommunication, incomplete or inaccurate information or documentation, failure to follow instructions or errors in transmitting information. These problems are particularly common in manual processes, but automation brings its own risks of system deficiencies, interruptions and computer crime that may arise from factors such as inadequate security, capacity, testing of software or resilience of backup systems.

4.7.4 To minimise operational risk, CCPs should identify sources of risk, whether arising from the arrangements of the CCP itself, from those of its participants or from external factors, and establish clear policies and procedures to address those risks. Sound internal controls are essential to a CCP's management of operational risk. There should be adequate management controls and sufficient (and sufficiently well qualified) personnel to ensure that procedures are implemented appropriately. Operational policies and procedures should be reviewed periodically and after modifications to systems. Information systems should be subject to periodic independent audit, and external audits should be seriously considered.

4.7.5 All key systems should be secure (that is, have access controls, be equipped with adequate safeguards to prevent external intrusions, and provide audit trails), reliable, scalable and able to handle stress volume. CCPs are dependent on electronic communications and need to ensure the integrity of messages by using reliable networks and procedures (such as cryptographic techniques) to transmit data accurately, promptly and without material interruption. Core Principle VII of the Core Principles for Systemically Important Payment Systems provides more details on operational issues.⁹

4.7.6 Before a CCP embarks on other activities, it should be satisfied that these activities do not divert resources required to support its CCP functions. Where such a concern exists for current operations, it should either reduce its activities or increase its resources to a level that supports all of its activities adequately.

4.7.7 A CCP should have a business continuity plan that addresses events posing a significant risk of disrupting operations. Responsibility for business continuity planning within the CCP should be explicit, adequate resources should be devoted to this planning, and the commitment to planning should come from the highest levels of management. Business continuity plans should have clearly stated objectives, policies and procedures that allow for rapid recovery and timely resumption of critical operations and that allow a CCP to continue to monitor the risks of its participants. Ideally, backup systems should commence processing immediately. While it may be possible to recommence operations following a system disruption with some data loss, contingency plans should, at a minimum, provide for the recovery of all transactions at the time of the disruption to allow systems to continue to operate with certainty. Several key jurisdictions regard two hours as the time by which critical systems should recommence operations. But depending upon the nature of problems, the recovery time may take longer. At a minimum, the recovery of operations and data should occur in a manner and time period that enables a CCP to meet its obligations on time. Business continuity plans should be regularly reviewed and tested with participants, and appropriate adjustments should be made to plans based on the results of such exercises.

4.7.8 Some CCP operations may be outsourced to third parties. In these circumstances, operational failures by the outside service providers can create operational risk for a CCP. CCPs that

⁹ See CPSS, *Core Principles for Systemically Important Payment Systems* (BIS, 2001).

outsource operations should ensure that those operations meet the same standards as if they were provided directly. Further, a CCP should evaluate its vulnerability arising from reliance on one or a small number of outside providers for utility and similar services. If such a service provider stops operating, a CCP's ability to operate could be compromised, possibly causing uncertainty in financial markets if it occurred with little or no warning. A CCP should seek to achieve diversity in key systems such as electricity and telecommunications to the extent possible.

Key issues

1. A CCP should identify sources of operational risk and should establish clear policies and procedures to address those risks, including those arising from operations that are outsourced to third parties, or from its other activities.
2. A CCP should have a business continuity plan that addresses events posing a significant risk of disrupting operations and allows for timely resumption of critical operations to enable the CCP to meet its obligations on time. Business continuity plans should be regularly reviewed and tested with participants, and appropriate adjustments should be made to plans based on the results of such exercises.
3. There should be adequate management controls and sufficient (and sufficiently well qualified) personnel to ensure that procedures are implemented appropriately. Information systems should be subject to periodic independent audit.
4. All key systems should be reliable, secure and able to handle stress volume.

Key questions

1. Does the CCP have a process for identifying and managing its operational risk, including risks arising from its outsourced operations and its other activities?
2. Does the CCP have a business continuity plan that addresses events posing a significant risk of disrupting operations? Do plans ensure that critical information can be recovered in a timely manner? Is the business continuity plan regularly reviewed and tested with participants? Have appropriate adjustments to operations been made based on the results of such exercises?
3. Are there adequate management controls and sufficient (and sufficiently well qualified) personnel to ensure that procedures are implemented appropriately? Are operational reliability issues reviewed regularly by senior management, including review by persons not responsible for the relevant operations? Is there an independent internal audit function and does it review operational risk controls?
4. How many times during the last year has a key system failed? What is the most common cause of failures? How long did it take to resume processing? How much transaction data, if any, was lost? How does the CCP ensure the integrity of messages? Does the CCP have capacity plans for key systems and are key systems tested periodically to determine if they can handle stress volume?

Assignment of an assessment category

1. *Observed*
 - (a) The CCP identifies sources of operational risk and establishes policies related to it, including risk arising from those operations that are outsourced to third parties, or from its other activities. (Q1)
 - (b) All key systems have appropriate business continuity plans for timely resumption of critical operations, and plans are tested regularly with participants. (Q2)
 - (c) There are adequate management controls and sufficient personnel to ensure that procedures are implemented accordingly and operational risk controls are subject to periodic independent audit. (Q3)
 - (d) There are no or few key system failures and recovery of operations is adequate where there is failure, and all key systems are able to handle stress volume. (Q4)

2. *Broadly observed*
 - (a) 1(a), 1(b) and 1(c) are satisfied. (Q1, 2, 3)
 - (b) But: more than a few key system failures occur, though recovery of operations is adequate. (Q4)
3. *Partly observed*
 - (a) 1(a) is satisfied. (Q1)
 - (b) But: few or occasional key system failures occur and difficulties in recovery of operations indicate that business continuity plans need to be upgraded. (Q2, 4)
 - (c) Or: 1(c) is not satisfied. (Q3)
4. *Non-observed*
 - (a) 1(a) is not satisfied. (Q1)
 - (b) Or: there are frequent key system failures, and business continuity plans are not appropriate. (Q2, 4)

Recommendation 8: Money settlements

A CCP should employ money settlement arrangements that eliminate or strictly limit its settlement bank risks, that is, its credit and liquidity risks from the use of banks to effect money settlements with its participants. Funds transfers to a CCP should be final when effected.

4.8.1 CCPs need to make money settlements with their participants for a variety of purposes, including the collection and payment of cash used to meet collateral requirements.¹⁰ (Payments against delivery of securities or commodities are covered by Recommendation 9 on physical deliveries rather than this Recommendation.) To make such money settlements a CCP must make arrangements with its participants and one or more banks (its settlement banks).

4.8.2 The details of the money settlement arrangements used by CCPs vary considerably. Nonetheless, two basic models can be identified: a central bank model and a private settlement bank model. In the central bank model, the central bank of issue (the central bank that issues the currency in which the payments are being made) is the sole settlement bank used by a CCP, and all money settlements between a CCP and its participants are effected in central bank money. A CCP's participants may have accounts with the central bank or may effect settlements with the CCP through banks with accounts at the central bank (a tiered settlement arrangement). In the private settlement bank model a CCP selects a group of private banks as its settlement banks, establishes an account with each of these settlement banks, and requires each of its participants to establish an account with one of them. Money settlements between a CCP and its participants are effected in private bank money through their accounts at the settlement banks. To the extent necessary, a CCP's accounts at the settlement banks can then be balanced by transfers between the settlement banks, which typically are effected in central bank money through the national payment system.

4.8.3 Use of the central bank model eliminates a CCP's settlement bank risks and therefore unambiguously meets this recommendation.¹¹ However, use of the central bank model may not always be practicable because it requires a CCP to have access to an account with the central bank of issue. Even in a single currency system, a CCP may not have such access. In a multicurrency system, a CCP seldom (if ever) has remote access to accounts at all the central banks of issue. Even if a CCP

¹⁰ This recommendation covers money settlements arising from the CCP function. In instances in which a CCP is also the CSD, money settlements arising from the CSD function should be assessed against Recommendation 10 of the RISS (Cash Settlement Assets) rather than against this recommendation.

¹¹ It is the CCP's settlement bank risks that are the focus of this recommendation. Although use of the central bank model eliminates settlement bank risks to the CCP, the CCP's participants face settlement bank risks if they effect settlements with the CCP through accounts at private banks (in a tiered settlement arrangement) rather than through their own accounts at the central bank.

has such access, the relevant central banks' payment systems often do not operate (or provide finality) at the times when a CCP needs to make money settlements.

4.8.4 Use of the private settlement bank model exposes a CCP to the risk of a settlement bank's failure. Nonetheless, a CCP that uses the private settlement bank model can and should take steps to satisfy this recommendation by limiting the probability of being exposed to a settlement bank's failure and limiting the potential losses and liquidity pressures to which it would be exposed in the event of a failure. These steps should include: (1) the establishment and ongoing monitoring of strict criteria for use of a private bank as a settlement bank; and (2) where practicable, the use of multiple settlement banks and the ongoing monitoring of concentration of payment activities among those banks.

4.8.5 A CCP should establish strict criteria for private banks used as settlement banks that address their creditworthiness, access to liquidity and operational reliability. Settlement banks should be subject to effective banking supervision and regulation and should be well capitalised. They should have access to ample liquidity in the marketplace or from the central bank of issue. They should have the technical capacity to provide reliable payment services at the times and on the terms required by the CCP. A CCP should monitor adherence by its settlement banks to its criteria on an ongoing basis.

4.8.6 However, credit judgments are inevitably fallible and a CCP using the private settlement bank model should take further steps to limit its exposures in the event of settlement bank failures. Ideally, a CCP should use multiple settlement banks to diversify the risks of settlement bank failure. In some jurisdictions, however, only a single private bank may meet appropriate criteria for creditworthiness and operational reliability. In any event, even with multiple settlement banks, the extent to which risks are actually diversified depends upon the number of settlement banks and the distribution among the different banks of participants and of amounts owed by those participants. Despite the use of multiple settlement banks, a CCP's exposures to its settlement banks may remain concentrated if many participants (or even a few of its largest participants) choose to use the same settlement bank. Concentration of exposures to a CCP may be exacerbated if a settlement bank is also a clearing participant, or if a CCP has invested all or a part of the resources it maintains to cover participants' defaults with this settlement bank. Therefore, a CCP should closely monitor the distribution of exposures among settlement banks and assess its potential losses and liquidity pressures in the event that the bank with the largest share of settlements were to fail.

4.8.7 In both the central bank model and the private settlement bank model a critical issue is the timing of the finality of funds transfers to a CCP's account or accounts. In the central bank model participants' obligations to a CCP are not discharged (and therefore a CCP's counterparty exposures are not reduced) until the transfers are final, ie irrevocable and unconditional. In the private settlement bank model participants' obligations are not discharged until transfers to a CCP's accounts at its settlement banks are final, and a CCP's exposures to its settlement banks cannot be reduced or eliminated until a CCP can make final transfers of funds from its accounts at the settlement banks. Thus, such transfers (both on the books of individual settlement banks, including the central bank of issue, and between settlement banks) should be final when effected (that is, at the time that credits are first posted to the CCP's accounts). To this end, a CCP's legal agreements with its settlement banks should state clearly when transfers on the books of individual settlement banks are to occur and that they are to be final when effected and should permit immediate retransfer of funds received. If a CCP is to have the capacity to make intraday collateral calls (as called for in Recommendation 3) the payment systems for the currencies used will need to provide real-time finality or intraday finality at the times at which a CCP wishes to make such intraday calls. The laws of the relevant jurisdictions must support the provisions of a CCP's legal agreements with its settlement banks relating to finality. Finally, a CCP should confirm that funds transfers are effected as and when required.

Key issues

1. A CCP uses the central bank model or it uses the private settlement bank model and takes additional steps (see key issues 3 and 4) to limit the probability of exposure to a settlement bank's failure and limit the potential losses in the event of such a failure.
2. Funds transfers to a CCP should be final when effected. A CCP should routinely confirm that funds transfers have been effected as and when required by its agreements with its settlement banks.
3. A CCP should establish and monitor adherence to strict criteria for private banks used as settlement banks that address their creditworthiness, access to liquidity and operational reliability.

4. A CCP should closely monitor the distribution of its exposures among its settlement banks, and assess its potential losses and liquidity pressures in the event that the private bank with the largest share of settlements were to fail.

Key questions

1. Does the CCP use the central bank model or the private settlement bank model?
2. Do the CCP's legal agreements with its settlement bank or banks provide that funds transfers to its accounts are final when effected? Do the laws of the relevant jurisdictions support these provisions? Do the payment systems for the currencies used support intraday finality? Does the CCP routinely confirm that funds transfers have been effected as and when required by those agreements?
3. If the private settlement bank model is used, does the CCP establish and monitor strict criteria for the banks used that address their creditworthiness, access to liquidity and operational reliability?
4. If the private settlement bank model is used, does the CCP actively monitor the concentration of exposures among the settlement banks, and routinely assess its potential losses and liquidity pressures from a settlement bank's failure?

Assignment of an assessment category

1. *Observed*
 - (a) The CCP uses the central bank model and funds transfers to the CCP's accounts are final when effected. (Q1, 2)
 - (b) Or: the CCP uses the private settlement bank model and (i) funds transfers to the CCP's accounts are final when effected (Q2); (ii) the CCP establishes and monitors strict criteria for the banks used that address their creditworthiness, access to liquidity and operational reliability (Q3); and (iii) the CCP actively monitors the concentration of exposures among the settlement banks, and routinely assesses its potential losses and liquidity pressures (Q4).
2. *Broadly observed*
 - (a) 1(b) (i) and 1(b) (ii) are satisfied but 1(b) (iii) is not fully satisfied. The CCP monitors the concentration of exposures among the settlement banks but this is not done actively, or its potential losses and liquidity pressures are not assessed routinely. (Q2, 3, 4)
3. *Partly observed*
 - (a) 1(b) (i) and 1(b) (ii) are satisfied but 1(b) (iii) is not satisfied. (Q2, 3, 4)
4. *Non-observed*
 - (a) The CCP uses the central bank model but funds transfers to the CCP's accounts are not final when effected. (Q1, 2)
 - (b) Or: 1(b) (i) or 1(b) (ii) is not satisfied. (Q2, 3)

Explanatory note

1. In the RSSS the term "cash settlement" was used to refer to the settlement of payment obligations arising from deliveries of securities within a CSD. The term cash settlement is avoided here because of its alternative use to describe a method for settling derivative contracts through payment of cash rather than delivery of the underlying asset.

Recommendation 9: Physical deliveries

A CCP should clearly state its obligations with respect to physical deliveries. The risks from these obligations should be identified and managed.

4.9.1 The obligations that CCPs assume vary, and this is particularly true with respect to obligations arising at delivery.¹² Settlement of many contracts cleared by CCPs requires (or permits) physical settlement, that is, delivery by the seller to the buyer of the deliverable assets against payment of cash - for example, equities, bonds, foreign currency or non-financial commodities. These contracts include cash market trades and derivatives trades that do not require cash settlement on the delivery date or expiration date. At settlement or exercise, a CCP might assume an obligation to make and to receive delivery of a physical instrument. Alternatively, a CCP might assign deliver and receive obligations to specific participants but, in the event one fails to perform, indemnify the non-defaulting participant for any loss incurred. In this latter arrangement, a CCP would not guarantee receipt or delivery of the physical instrument itself or the associated payment. Many other variations of a CCP's delivery obligations are possible. Regardless of the obligation assumed, a CCP should clearly state to its participants the obligations that it assumes with respect to deliveries of physical instruments.¹³

4.9.2 A CCP faces both credit and liquidity risks from the delivery process that it must manage. At delivery, the entire principal value of a transaction is at risk, thus this form of credit risk is often termed principal risk. Both the buyer (receiver of the physical instrument) and seller (deliverer of the physical instrument) are exposed to principal risk. Liquidity risk arises because, if the buyer defaults, a CCP must still make payment to the (non-defaulting) seller. If a CCP guarantees delivery of a physical instrument, it faces a form of liquidity risk associated with acquiring that instrument should the seller default. A CCP should identify and mitigate the credit and liquidity risks to which it is exposed in the delivery process. The steps necessary to mitigate risks depend on the obligations a CCP assumes, the mechanisms available for settlement of the physical instrument being delivered and the importance of the risks from physical settlement to the operations of the CCP as a whole. For some CCPs these may be a relatively minor source of risk.

4.9.3 Principal risk can be eliminated through use of a delivery-versus-payment (DVP) mechanism. A DVP mechanism links a system for transferring funds (payment) to a system for transferring the physical instrument (delivery) in a way that ensures payment occurs if and only if delivery occurs. If a CCP has an obligation to make a delivery, it should eliminate principal risk through the use of a DVP mechanism.

4.9.4 In some instances, a CCP may assume obligations related to deliveries of physical instruments for which there is no DVP mechanism for settlements, and a CCP must take other steps to mitigate principal risk. Generally, a CCP holds collateral posted to support the pre-settlement price risk of a position. This collateral should be held until delivery is complete. But the value of this collateral is generally less than the principal value at risk in delivery, so a CCP must build additional protections into the delivery process. Some CCPs require participants to pre-fund payments associated with deliveries or to provide some form of guarantee of payment through an agent bank. (The latter instrument might be an irrevocable commitment on the part of a participant's bank to guarantee payment to the CCP's bank.) For the physical instrument, a CCP might designate an approved entity to which delivery must be made. Only when proper evidence of delivery to this entity exists are funds released to the seller. The physical instrument is released to the buyer only if it has pre-funded its payment obligation or provided an acceptable guarantee of payment.

4.9.5 Liquidity risk must be managed by a CCP even when DVP mechanisms are available for delivery of the physical instrument. A CCP must have a liquidity facility in order to guarantee the availability of funds to pay a seller in the event a buyer defaults on delivery. Typically this facility would be collateralised by the physical instrument delivered by the seller. In addition, a CCP must have arrangements for selling the instrument delivered. When a CCP assumes the obligation of delivering a physical instrument to buyers, it must also have a facility that allows it to borrow or purchase that instrument in the event the seller defaults on delivery.

4.9.6 Apart from credit and liquidity risks, a CCP may also have to manage the risks associated with storage and delivery of the physical instruments for settlement. If the CCP is responsible for warehousing and transportation of the instruments, it should make arrangements taking into account

¹² This Recommendation does not cover free movements of collateral to satisfy collateral requirements.

¹³ A CCP's obligation with respect to delivery will differ from product to product. In assessing compliance with this Recommendation, the focus should be on the delivery mechanism for the most actively traded products.

the particular characteristics of these instruments (eg storage under specific conditions of temperature and humidity for perishables). The CCP should also consider other measures (eg physical security measures and insurance coverage) to mitigate its storage and delivery risks. In some instances, the CCP may match participants with delivery obligations with those who are due to receive the instruments, thereby relieving the CCP from direct involvement in the storage and delivery process. In such instances, the legal obligations for delivery of the instruments should be clearly expressed in the rules. In particular, it should be clear whether the receiving participant should seek compensation from the CCP or the delivering participant should there be any losses. The CCP should also have the power to check that its participants have the necessary systems and resources to be able to competently fulfil their delivery obligations.

Key issues

1. A CCP's rules should clearly state its obligations with respect to deliveries of physical instruments, including whether it has an obligation to make and to receive delivery of a physical instrument or whether it indemnifies participants for losses incurred in the delivery process.
2. If a CCP has an obligation to make a delivery of a physical instrument, it should eliminate principal risk through the use of a DVP mechanism.
3. If a CCP has obligations to make physical deliveries, it should take steps to identify and mitigate all the credit, liquidity, storage and delivery risks to which it is exposed in the delivery process for the physical instruments.

Key questions

1. Does the CCP have rules that clearly state its obligations with respect to deliveries of physical instruments? Does the CCP assume an obligation to make and receive delivery of a physical instrument?
2. Does the CCP have obligations to make physical deliveries? If yes, does the CCP use DVP mechanisms that eliminate principal risk?
3. Has the CCP identified the credit, liquidity, storage and delivery risks to which it is exposed because of the delivery obligations that it assumes? Does the CCP take steps to mitigate these risks? What steps does it take?

Assignment of an assessment category

1. *Observed*
 - (a) The CCP clearly states its obligations with respect to deliveries of physical instruments. (Q1)
 - (b) The CCP uses DVP mechanisms for deliveries of physical instruments. (Q2)
 - (c) The CCP identifies the credit, liquidity, storage and delivery risks to which it is exposed and takes effective steps to mitigate these risks. (Q3)
2. *Broadly observed*
 - (a) 1(a) and 1(b) are satisfied. (Q1, 2)
 - (b) But: 1(c) is not fully satisfied. There are weaknesses in the CCP's arrangements for managing credit, liquidity, storage and delivery risks associated with settlements involving physical instruments. (Q3)
3. *Partly observed*
 - (a) 1(a) is satisfied. (Q1)
 - (b) But: 1(b) is not satisfied. The CCP does not use DVP mechanisms for physical deliveries. (Q2)

4. *Non-observed*

(a) 1(a) is not satisfied. (Q1)

Explanatory note

1. If a CCP does not have any obligation to make physical deliveries and clearly states this, an assessor should consider the CCP as having observed this recommendation.

Recommendation 10: Risks in links between CCPs

CCPs that establish links either cross-border or domestically to clear trades should design and operate such links in ways that observe the other recommendations in this report.

4.10.1 CCPs engage in links to facilitate more efficient clearing. A link enables the participants of a CCP for one market to trade in another market while clearing that trade 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 markets. A link may also reduce the costs of systems development and operation faced by CCPs because it enables them to share these expenses.

4.10.2 Links between CCPs may take a variety of forms. The different types of links can be distinguished according to the degree to which the systems of the linked CCPs are integrated and whether the obligations of the CCPs to their clearing participants are shifted. In the most straightforward type of link, one CCP becomes a general clearing participant of another CCP without any further integration of systems, but links also may take a form in which the CCPs effectively merge their systems to offer a single clearing platform.

4.10.3 The type and level of risks presented by a link will depend on the degree of integration. For example, a cross-participation link with only limited system interdependencies may not entail major changes to the way the linked CCPs manage the risks of a participant's default. Nonetheless, the default of a linked CCP is likely to have more complex and wider implications than the default of an ordinary participant or even another large general clearing participant. Although each link will present a unique risk profile a number of generic risks can be identified relating to legal, operational, credit and liquidity risks, as well as generic challenges to effective regulation and oversight. Before entering into a link, CCPs should evaluate all the potential sources of risks arising from the link. The resulting arrangements should be designed so as to manage these risks effectively, such that a CCP is still able to observe these recommendations. A CCP participating in a link should be able to meet in a timely manner all of its obligations to its linked CCP partner and to its participants that use the link. Furthermore, a CCP's participation in a link should not compromise its ability to meet in a timely manner its obligations to its participants that are not using the link.

4.10.4 Links may present legal risk arising from differences between the laws and contractual rules governing the linked systems and their participants, including those relating to novation or open offer, netting, collateral arrangements and settlement finality as well as conflict of laws. For example, differences in laws or rules may create uncertainties regarding the enforceability of CCP obligations assumed by novation or open offer in jurisdictions where these concepts are not recognised. Also, differences in laws or rules may unintentionally give the participants of one CCP a claim vis-à-vis the linked CCP in the event of the first mentioned CCP's default. Further, differences between the criteria and timing of finality also create risks as transfers regarded as final in one system are not necessarily final in the linked CCP. To limit these uncertainties, the respective obligations and rights of the linked CCPs should be clearly defined in the link agreement, which should also set out an unambiguous choice of law. Thus, the laws and contractual rules governing the linked systems, and governing the link itself, should support the design of the link and provide adequate protection to both CCPs and their participants in the operation of the link.

4.10.5 Links may present operational risk due to inefficiencies associated with the operation of the link. For example, such inefficiencies may arise because of differences in time zones and operating days and hours, particularly as these affect staff availability and the operations of other connected systems or institutions such as CSDs. Systems and communications arrangements between the CCPs should be reliable and secure so that the operation of the link does not pose significant operational risks to the linked CCPs.

4.10.6 Links may also create significant credit and liquidity interdependencies between systems. For example, if a CCP becomes a participant of another CCP through a link, the two CCPs have direct credit and liquidity exposures to each other, and the terms of the link agreement should set forth how these exposures will be managed. Additional exposures may arise through participant concentrations, cross-margining arrangements and pooled financial resources (if applicable) so that a default in one system may precipitate losses and liquidity pressures in the linked system. These interdependencies may lower the probability of a default, but enhance the impact should one occur. Potential sources of credit and liquidity risks to the CCP arising from the operation of the link, and in particular from cross-margining arrangements, should be identified, monitored and effectively managed.

4.10.7 Cross-border CCP links may also create uncertainties about the respective responsibilities of the relevant regulatory and oversight authorities. For example, it may be uncertain which authority regulates a particular aspect of the link, or the CCPs may be subject to duplicative and possibly conflicting regulation. To limit some of these uncertainties, a link should be subject to prior notification to the relevant regulatory and oversight authorities, so that they can satisfy the authorities that the link does not undermine the effectiveness of regulation and oversight. There should also be a framework for cooperation and coordination between the relevant authorities, including provisions on appropriate information sharing and the division of responsibilities in the event of any need for joint regulatory action.

Key issues

1. Before entering into a link relationship with another CCP, a CCP should evaluate all the potential sources of risks arising from the link. The resulting arrangements should be designed such that the CCP remains able to observe the other recommendations contained in this report.
2. The national laws and contractual rules governing the linked systems, and governing the link itself, should support the design of the link and provide adequate protection to both CCPs in the operation of the link.
3. Potential sources of operational, credit and liquidity risks to a CCP arising from the link should be effectively monitored and managed on an ongoing basis.
4. For the purposes of regulation and oversight of the link, there should be a framework for cooperation and coordination between the relevant regulatory and oversight authorities, including provisions on information sharing and the division of responsibilities in the event of any need for regulatory action.

Key questions

1. What kinds of link are in operation? Has the CCP carried out a risk analysis of all the potential sources of risks arising from the link? Are the resultant risk management arrangements designed to minimise or contain these risks, such that the CCP remains able to observe the other recommendations contained in this report?
2. Which laws and contractual rules govern the link? What steps have the CCPs taken to satisfy themselves that these laws and rules support the design of the link and provide adequate protection to both CCPs in the operation of the link?
3. What are the potential sources of operational, credit and liquidity risks arising from the link? Are effective mechanisms in place, including arrangements between the linked CCPs, to monitor and manage the risks identified?
4. For the purposes of regulation and oversight of the link, is there a framework for cooperation and coordination between the relevant regulatory and oversight authorities, including provisions on information sharing and the division of responsibilities in the event of any need for coordinated regulatory action?

Assignment of an assessment category

1. *Observed*
 - (a) A risk analysis of the design of the link has been undertaken. (Q1)

- (b) Laws and contractual rules support the design of the link and provide adequate protection to both CCPs in the operation of the link. (Q2)
 - (c) The operational, credit and liquidity risks to the CCP arising from the link have been identified, and arrangements between the CCPs have been put in place to ensure that these risks are monitored and effectively managed. (Q3)
 - (d) There is an appropriate framework for cooperation and coordination between the relevant regulatory and oversight authorities. (Q4)
2. *Broadly observed*
- (a) 1(a), 1(b) and 1(c) are satisfied. (Q1, 2, 3)
 - (b) But: the framework for cooperation between the securities regulator and the central bank and with other relevant authorities is not in place or does not work well. (Q4)
3. *Partly observed*
- (a) 1(a) and 1(b) is satisfied. (Q1, 2)
 - (b) But: 1(c) and 1(d) are not satisfied. (Q3, 4)
4. *Non-observed*
- (a) 1(a) or 1(b) is not satisfied. (Q1, 2)

Explanatory note

1. In the most straightforward type of link arrangement, the clearing participants of a linked CCP continue to look to that CCP for performance on obligations. The CCPs have exposures to each other that must be managed, however. The “participant” CCP typically posts collateral to support its obligations arising from the link just like other clearing participants. If both CCPs become participants of the other, the link operates in both directions. An implication of links organised in this manner is that exposures exist between the CCPs as long as any positions remain open.

2. Other links have been designed to facilitate the transfer of positions between CCPs. In such links, market participants may open positions in a product cleared by one CCP (the “host” CCP) but subsequently all these positions are transferred to the “home” CCP for that product. The “host” CCP takes on the counterparty risk of its participants until the positions are transferred to the “home” CCP, generally at the end of the trading day. After the transfer, the “home” CCP becomes the counterparty to the “host” CCP for the positions that are transferred. In addition, the “home” CCP also takes on the counterparty risk of the participant to whom the positions have been transferred.

3. Another type of link is where transactions between participants of the linked CCPs are jointly managed by the linked CCPs. In this type of link, the opening of a position in one CCP automatically leads to the immediate creation of an equal and opposite position at the linked CCP. The participant of a linked CCP retains counterparty risk vis-à-vis its CCP. The linked CCPs participate in each other’s systems as equals, necessitating agreement on a common risk management methodology on a product by product basis.

4. The most integrated form of link is where the CCPs effectively merge their systems to offer a single clearing platform. In such links, the participant of one CCP will continue its relationship with that CCP, but all risk management is effected by the wholly integrated systems of the linked CCPs. The participation, default, collateral requirements, financial resources and operational requirements to which CCP participants are subject become harmonised and thus differ from the requirements in place at one or both of the CCPs prior to the link.

Recommendation 11: Efficiency

While maintaining safe and secure operations, CCPs should be cost-effective in meeting the requirements of users.

4.11.1 In assessing the efficiency of CCPs, the needs of users and the costs imposed on them must be carefully balanced with the requirement that the CCPs meet appropriate standards of safety and

security. If CCPs are inefficient, financial activity may be distorted. However, the first priority of a CCP is to assure market participants that its obligations will be met in a timely fashion, notwithstanding the default of a participant. If market participants view a CCP as unsafe, they will not use it, regardless of the efficiency provided.

4.11.2 Efficiency has several aspects, and it is difficult to assess the efficiency of a particular CCP in any definitive manner. Accordingly, the focus of any assessment should largely be on whether a CCP operator has in place the mechanisms to review periodically the service levels, costs, pricing and operational reliability.

4.11.3 CCPs should seek to meet the service requirements of users in a cost-effective manner. This includes meeting the needs of its users, operating reliably and having adequate system capacity to handle both current and potential activity. When looking at the overall costs of CCPs, it is important to include both the direct costs of operating any facilities, such as costs to users, and indirect costs, such as liquidity costs.

4.11.4 The primary responsibility for promoting the efficiency and controlling the costs of a CCP lies with the designers, owners and operators. In some jurisdictions, regulatory authorities may have a responsibility to review the costs imposed on users, particularly where a CCP enjoys some form of monopoly over the service it provides. Antitrust and competition law principles may also be relevant. In the absence of a monopoly, market forces are likely to provide incentives to control costs.

4.11.5 CCPs may use a variety of mechanisms to improve efficiency, for example: developing technical capabilities to meet operational service requirements of users; where relevant, reducing the requirements for market participants to maintain multiple interfaces by the creation of consistent communication standards and system interface arrangements across different systems for market participants; and establishing communication procedures and standards that support straight through processing of transactions, wherever appropriate.

Key issues

1. A CCP operator or other relevant party should have in place the mechanisms to review regularly costs and pricing of the CCP.
2. A CCP operator or other relevant party should have in place the mechanisms to review regularly the service levels and operational reliability of the CCP.

Key questions

1. Does the CCP operator have in place procedures to control costs (for example, by benchmarking its costs and charges against other CCPs that provide a similar service and analysing the reasons for significant differences)? Does the CCP operator have in place procedures to regularly review its pricing levels against its costs of operation?
2. Does the CCP operator regularly review its service levels, including by regularly surveying its users? Does the CCP operator have in place procedures to regularly review operational reliability, including its capacity levels against projected demand?

Assignment of an assessment category

1. *Observed*
 - (a) The CCP operator or other relevant party has in place various procedures to review pricing and costs, and does so regularly. (Q1)
 - (b) The CCP operator regularly reviews its operational reliability and service levels, including by regularly surveying its users. (Q2)
2. *Broadly observed*
 - (a) Either 1(a) or 1(b) is satisfied. (Q1, 2)

3. *Partly observed*
 - (a) The CCP operator has procedures to review capacity, pricing, costs and services but does not regularly review them. (Q1, 2)
4. *Non-observed*
 - (a) The CCP operator does not have in place procedures to review capacity, pricing and costs, nor does it have procedures to review service levels. (Q1, 2)

Explanatory note

1. In assessing the efficiency of CCPs, the needs of users and costs imposed on them must be carefully balanced with the requirement that the CCP meets appropriate standards of safety and security.
2. Efficiency in CCPs is very difficult to assess. Assessors should talk to as many market participants as possible about their views on the CCP's efficiency and on whether the CCP meets the needs of its users. It is also important to determine whether the pricing structure allows the CCP to cover fixed and variable costs.

Recommendation 12: Governance

Governance arrangements for a CCP should be effective, clear and transparent to fulfil public interest requirements and to support the objectives of owners and users. In particular, they should promote the effectiveness of the CCP's risk management procedures.

4.12.1 Governance arrangements encompass the relationships between owners, managers and other interested parties, including users and authorities representing the public interest. The key components of governance include the ownership structure; the composition and role of the Board; the structure and role of audit, nominating and other key Board committees; the reporting lines between management and the Board; and the processes for ensuring management is accountable for its performance.

4.12.2 This Recommendation focuses on CCPs. These entities, with CSDs, are at the heart of the settlement process. Moreover, because their activities are subject to significant economies of scale, many are sole providers of services to the market they serve. Therefore, their performance is a critical determinant of the safety and efficiency of those markets, which is a matter of public interest.

4.12.3 No single set of governance arrangements is appropriate for all institutions within the various securities markets and regulatory schemes. However, an effectively governed institution should meet certain requirements. Governance arrangements should be fully transparent and provide for proper accountability. Objectives, those principally responsible for achieving them and the extent to which they have been met should be disclosed to owners, users (including applicants for participation) and public authorities. Management and Board should have the appropriate skills and incentives to achieve those objectives, should be effective in pursuing them and should be fully accountable for their performance. Reporting lines between management and the Board should be clear and direct, and the Board should contain suitable expertise and take account of all relevant interests. In particular, the Board should be responsible for directing and advising management and selecting, supporting, evaluating and, if necessary, removing the senior managers.

4.12.4 Governance arrangements are particularly important because the interests of a CCP, participants, exchanges and trading platform providers, owners and the public related to risk management are different and may conflict. While exchanges, trading platform providers and CCP participants share a common interest in the efficiency and stability of a CCP, participants may be less enthusiastic about enhanced risk management or default procedures that directly impose costs on them, for example, than owners or exchanges. Or, for example, exchanges may favour steps that boost trading volume through relaxed risk standards. Also, a CCP itself could be less stringent in requiring compliance with its risk management standards for participants that are also customers of the CCP's other businesses. Such behaviour compromises a CCP's risk management and creates added risks for other CCP participants. A CCP has access to sensitive information on participants' positions, and this could be exploited for its other business activities if a CCP does not take steps to prevent misuse. Therefore, clear mechanisms should be in place as part of the governance

arrangements to balance the interests and possible conflicts of the relevant parties related to risk management and default procedures. A key part of these mechanisms is the composition of the Board and the objectives that the Board sets for management.

4.12.5 It is essential that there be a clear separation in the reporting lines between risk management and other operations of a CCP. In many cases, this may involve the creation of an independent risk committee. The mandate and operational procedures of any risk committee or other groups established to manage risks should be clearly spelled out and disclosed.

4.12.6 The basic governance requirements of this recommendation should be met regardless of the corporate structure of the CCP, ie whether it is a mutual or for-profit entity.

Key issues

1. Governance arrangements should be clearly specified and transparent.
2. Objectives and major decisions should be disclosed to owners, users (including applicants for participation) and public authorities.
3. The Board and management should have the appropriate skills and incentives to ensure that safe and efficient services are provided to the markets a CCP serves, should effectively pursue these objectives and should be fully accountable for a CCP's performance.
4. The governance arrangements should support the effectiveness of risk management and default procedures. There should be a clear separation in the reporting lines between risk management and other operations of a CCP.

Key questions

1. What are the governance arrangements for the CCP? What information is publicly available about the system, its ownership and its Board and management structure, and the process by which major decisions are taken, and is the Board made accountable?
2. Are the CCP's public interest, financial and other objectives clearly articulated and public? What are they? Do the CCP's objectives reflect the needs of users as well as owners? How is the public interest taken into account? How are the CCP's participants, stakeholders and authorities taken into account in the system's decision-making process? How are the major decisions communicated to owners and users?
3. What steps are taken to ensure that management and the Board have the adequate skills and incentives to achieve the CCP's objectives of delivering sound and effective services and are accountable for its performance? How is the composition of the Board determined? What steps are taken to ensure that the interests of participants not represented on the Board are taken into account?
4. How is the effectiveness of risk management and default procedures supported by governance arrangements? What is the reporting line for relevant parties responsible for risk management of the CCP, and is this separate from the other operations of the CCP?

Assignment of an assessment category

1. *Observed*
 - (a) Governance arrangements are clearly specified and information about them is publicly available. (Q1)
 - (b) Objectives and major decisions are disclosed to owners, users and public authorities. (Q2)
 - (c) The Board and management have the expertise and skills needed to achieve objectives and are fully accountable for its performance. (Q3)
 - (d) The governance arrangements support the effectiveness of risk management and default procedures and there is a separate reporting line between risk management and other operations of the CCP. (Q4)

2. *Broadly observed*
 - (a) 1(a), 1(c) and 1(d) are satisfied. (Q1, 3, 4)
 - (b) But: 1(b) is not satisfied. (Q2)
3. *Partly observed*
 - (a) 1(a) and 1(d) are satisfied. (Q1, 4)
 - (b) But: 1(b) or 1(c) is not satisfied. (Q2, 3)
4. *Non-observed*
 - (a) 1(a) or 1(d) is not satisfied. (Q1, 4)

Explanatory note

1. If the CCP is wholly owned by another entity, the governance arrangements of that entity should also be examined to see that it does not have adverse effects on the CCP's observance of this recommendation.
2. Governance arrangements are likely to be effective when decision-makers have the skills and information to make decisions which promote the objectives of owners and users and fulfil public interest requirements, but these aspects are difficult to observe directly. The assessment categories are based on indirect, but more measurable, aspects of governance such as whether the decision-making processes are transparent. If, however, there was clear evidence of the lack of effectiveness of the governance arrangements, an assessor could take that into account in assigning an assessment category if the evidence was set out in the explanation of the assessment.

Recommendation 13: Transparency

A CCP should provide market participants with sufficient information for them to identify and evaluate accurately the risks and costs associated with using its services.

4.13.1 Informed market participants are better able to identify and evaluate the risks and costs to which they are exposed as a result of participation in a CCP and, therefore, can take actions to manage their risks and costs. A CCP should disclose to market participants its rules, regulations, relevant laws, governance procedures, risks, steps taken to mitigate risks, the rights and obligations of participants and the costs of using its services. It should make clear when and in what circumstances it assumes counterparty exposure and any restriction or limitations on its fulfilment of its obligations. A CCP should also disclose appropriate quantitative information on its clearing, netting and settlement activities and risk management performance. Types of information that are particularly useful in assessing the risks and costs of participating in a CCP include the coverage realised by collateral requirements, the "extreme but plausible" market conditions used in evaluating the adequacy of financial resources and other stress testing information. The effort by a CCP to improve transparency fosters the confidence of market participants in its safety and efficiency. The information should be publicly available and clear enough for market participants to understand the steps to be taken by a CCP and other relevant entities in the event of a default.

4.13.2 Information should be readily accessible, for example through the internet. It should also be current, accurate and available in a language commonly used in financial markets as well as the domestic language(s) of the jurisdiction in which a CCP is located.

4.13.3 Completion of the answers to the key questions set out in this report will serve not only as a basis for assessment of the implementation of the recommendations but as a basis for public disclosure to provide market participants with the complete and accurate information they need. The accuracy and completeness of disclosures should be reviewed periodically by a CCP.

Key issues

1. A CCP should provide market participants with sufficient information to evaluate the risks and costs of using its services.

2. Information should be accessible, for example through the internet. Information should be available in a language commonly used in financial markets that a CCP serves as well as the domestic language(s) of the jurisdiction in which it is located.
3. The answers to the key questions of this report should be completed and disclosed. The accuracy and completeness of disclosures should be reviewed periodically by a CCP.

Key questions

1. Does the CCP disclose to market participants its rules, regulations, relevant laws, governance procedures, risks, steps taken to mitigate risks, the rights and obligations of participants and the costs of using the CCP services? Does the CCP make clear when and in what circumstances it assumes counterparty exposure and any restriction or limitations on its fulfilment of its obligations? Does the CCP disclose appropriate quantitative information on its clearing, netting and settlement activities? Does the CCP provide market participants with sufficient information on default procedures and stress testing?
2. How is information made available? In what language or languages? In what form?
3. Has the CCP completed and disclosed the answers to the key questions set out in this report? Are there regular reviews to ensure the information contained in the disclosures remains current, complete and accurate?

Assignment of an assessment category

1. *Observed*
 - (a) The CCP provides market participants with sufficient information for them to evaluate the risks and costs of using its services. (Q1)
 - (b) Information is easily accessible, for example through the internet. Information is available in a language commonly used in financial markets as well as the domestic language(s) of the jurisdiction in which the CCP is located. (Q2)
 - (c) The answers to the key questions in this report are completed and disclosed. The accuracy and completeness of disclosures are regularly reviewed by the CCP. (Q3)
2. *Broadly observed*
 - (a) 1(a) and 1(c) are satisfied. (Q1, 3)
 - (b) But: 1(b) is not satisfied. (Q2)
3. *Partly observed*
 - (a) 1(a) is satisfied. (Q1)
 - (b) But: 1(c) is not satisfied. (Q3)
4. *Non-observed*
 - (a) 1(a) is not satisfied. (Q1)

Recommendation 14: Regulation and oversight

A CCP should be subject to transparent and effective regulation and oversight. In both a domestic and an international context, central banks and securities regulators should cooperate with each other and with other relevant authorities.

4.14.1 Securities regulators (including, in this context, banking supervisors where they have similar responsibilities and regulatory authority for CCPs) and central banks share the objective of enhancing the safety and efficiency of CCPs. The division of responsibilities for regulation and oversight of CCPs among public authorities varies from country to country depending on the legal and institutional framework.

4.14.2 While the primary responsibility for ensuring a CCP's observance of the recommendations lies with its designers, owners and operators, regulation and oversight are needed to ensure that designers, owners and operators fulfil their responsibilities. The objectives, responsibilities, roles and major policies of securities regulators and central banks should be clearly defined and publicly disclosed, so that designers, owners, operators and participants of a CCP are able to operate in a predictable environment and to act in a manner that is consistent with those policies.

4.14.3 Securities regulators and central banks should have the ability and the resources to carry out their regulatory and oversight responsibilities effectively. Regulation and oversight should have a sound basis, which may or may not be based on statute, depending on a country's legal and institutional framework. The authorities should have adequate resources to carry out their regulatory and oversight functions, such as gathering information on a CCP, assessing its operation and design, acting to promote its observance of the recommendations and conducting on-site visits or inspections if necessary. To enable them to carry out their activities, securities regulators and central banks should require CCPs to provide them with the information necessary for regulation and oversight in a timely manner, including information on operations that have been outsourced to third parties or where a CCP proposes to undertake new activities. Access to information is particularly important when the authorities need to take extraordinary actions in relation to a default.

4.14.4 Securities regulators and central banks should cooperate with each other and with other relevant authorities to achieve the safe and efficient operation of CCPs and to achieve the implementation of risk management practices and procedures consistent with these recommendations. Cross-border regulatory issues should be addressed in a way that delivers regulation/oversight consistent with each relevant authority's responsibilities and avoids unnecessary cost. Regulators/overseers can consider a variety of approaches including (1) information sharing arrangements; (2) coordination of regulatory/oversight responsibilities for specific matters; and (3) other cooperation arrangements.¹⁴ The approach selected may vary, depending on such issues as the law and regulatory approach in each jurisdiction. Option 2 might entail a cooperative agreement for allocating regulatory/oversight responsibility in line with the recommendation in the 1990 Lamfalussy Report. The principles governing these cooperative arrangements should be set out in a formal framework, which in the interests of transparency should be publicly disclosed.

Key issues

1. The CCP should be subject to effective regulation and oversight. Securities regulators and central banks should have the ability and the resources to carry out their regulatory and oversight responsibilities effectively.
2. Securities regulators and central banks should clearly define and publicly disclose their objectives, their roles and major policies for CCPs.
3. Securities regulators and central banks should require CCPs to provide information necessary for regulation and oversight in a timely manner, including information on operations that have been outsourced to third parties or where the CCP proposes to undertake new activities.
4. Securities regulators and central banks should cooperate with one another both domestically and internationally to achieve the safe and efficient operation of CCPs. The principles governing these cooperative arrangements should be publicly disclosed.

¹⁴ Where a CCP provides services in more than one jurisdiction, consultation and cooperation among relevant regulators/overseers will be essential to avoid duplicative (or conflicting) requirements, regulatory/oversight gaps and unnecessary costs. Within the context of the requirements of individual national laws and a firm foundation for the sharing of information, this process could include an allocation of regulatory/oversight roles to satisfy the responsibilities and objectives of each relevant authority. See the *Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries* (BIS, November 1990) (known as the Lamfalussy Report) at pages 53-56. See also *Principles for the Oversight of Screen-based Trading Systems for Derivative Products - Review and Additions* (Technical Committee of IOSCO, October 2000).

Key questions

1. How is the CCP regulated/overseen? Describe the laws that authorise and govern the CCP's operation, the applicable regulatory bodies and their respective authority for the CCP's operation. Do the securities regulator and central bank have sufficient legal capacity and resources (including experienced staff and funding) to carry out effective regulation and oversight?
2. Are the objectives, responsibilities and main policies of the securities regulator, central bank and, where relevant, banking supervisor, clearly defined and publicly disclosed? Are the regulations, roles and policies written in plain language so that they may be fully understood by CCPs and their participants?
3. What information is the CCP required to provide, including information on operations that have been outsourced? How frequently is this information provided? Are there specific information requirements for participants' defaults and CCP financial difficulties? Is the CCP required to report significant events, such as rule changes, outages and changes in risk management procedures?
4. Is there a framework for cooperation between relevant authorities for the CCP, including domestic and non-domestic? If so, describe the principles underlying this/these framework(s) and their main contents, including any information sharing arrangements and decision-making procedures.

Assignment of an assessment category

1. *Observed*
 - (a) The CCP is subject to effective regulation and oversight. The securities regulator and central bank have the ability and the resources to carry out regulation and oversight activities effectively. (Q1)
 - (b) The responsibilities as well as roles and major policies of the securities regulator and central bank are clearly defined and publicly disclosed. (Q2)
 - (c) The securities regulator and central bank require the CCP to provide the information necessary for regulation and oversight in a timely manner, including information on operations that have been outsourced to third parties, and to monitor whether those third parties comply with these standards. (Q3)
 - (d) The securities regulator and central bank cooperate with each other and with other relevant authorities. (Q4)
2. *Broadly observed*
 - (a) 1(a), 1(b) and 1(c) satisfied. (Q1, 2, 3)
 - (b) But: the framework for cooperation between the securities regulator and central bank and with other relevant authorities is not in place or does not work well. (Q4)
3. *Partly observed*
 - (a) 1(a) satisfied. (Q1)
 - (b) 1(b) or 1(c) is satisfied, but not both. (Q2, 3)
4. *Non-observed*
 - (a) 1(a) is not satisfied. (Q1)
 - (b) Or: 1(b) and 1(c) are not satisfied. (Q2, 3)

Annex 1: Glossary

backtesting	An ex post comparison of observed outcomes with expected outcomes derived from use of models for the purpose of judging the accuracy of the models.
central counterparty (CCP)	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.
central securities depository (CSD)	An institution for holding securities that enables securities transactions to be processed by means of book entries. Physical securities may be immobilised by the depository or securities may be dematerialised (so that they exist only as electronic records).
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. See conflict of laws.
clearing fund	A fund composed of assets contributed by a CCP's participants that may be used by the CCP in certain circumstances to cover losses and liquidity pressures resulting from defaults by the CCP's participants.
clearing participant	A participant in a CCP that serves as an intermediary through which other market participants access the CCP's services.
collateral	An asset that is accepted by a CCP to ensure performance on potential obligations to it or cover market movements on unsettled transactions.
conflict of laws	An inconsistency or difference in the laws of jurisdictions that have a potential interest in a transaction. Each jurisdiction's conflict of laws rules specify the criteria that determine the law applicable in such a case.
correlation	A statistical measure of the relationship between two variables, measuring the extent of their mutual variation.
counterparty	A party to a trade.
counterparty credit risk	The risk that a counterparty will not settle an obligation for full value, either when due or at any time thereafter. Counterparty credit risk includes replacement cost risk and principal risk.
cross-margining agreement	An agreement between CCPs to consider positions and supporting collateral at their respective organisations as a portfolio for participants that are members of both organisations. Positions held in cross-margined accounts are subject to lower collateral requirements because the portfolio of positions held at the two CCPs is less risky than the positions held at either CCP. In the event of default by a participant whose account is cross-margined, the agreement allows either CCP to use any excess collateral in the cross-margined account at the other CCP to cover losses.
custody risk	The risk of loss on securities in safekeeping (custody) as a result of the custodian's insolvency, negligence, misuse of assets, fraud, poor administration or inadequate record keeping.
default	Failure to satisfy an obligation on time. A CCP may specify certain other events, for example insolvency, that constitute default for purposes of triggering its default procedures.

delivery versus payment (DVP)	A link between transfer systems that ensures delivery occurs if, and only if, payment occurs.
final transfer	An irrevocable and unconditional transfer that effects a discharge of the obligation to make the transfer.
financial resources	The combination of resources that a CCP maintains for use in the event of a default by a participant. Financial resources generally include collateral posted by participants to meet various CCP requirements, as well as a CCP's capital and retained earnings or a CCP's contingent claims on non-defaulting participants, parent organisations or insurers.
gross collateral system	A system in which the collateral posted at a CCP by a participant for its customers' positions is the sum of the requirements for individual customers.
guarantee fund	A fund to compensate non-defaulting participants from losses they may suffer in the event that one or more participants default on their obligations as counterparties. This arrangement does not involve a CCP, although it concentrates responsibility for risk management in the entity that establishes the fund (the guarantor).
guarantor	An entity that establishes a guarantee fund used to compensate non-defaulting participants from losses they may suffer in the event that a participant defaults on its obligation as counterparty.
haircut	The difference between the market value of a security and its value when used as collateral.
insolvency	A condition in which a firm's assets, at fair valuation, are not sufficient to discharge its debts.
investment risk	The risk of loss faced by a CCP when it invests its own resources or cash collateral posted by its participants in obligations with market, credit and liquidity risks.
legal risk	The risk that a party will suffer a loss because laws or regulations do not support the rules of the CCP or the property rights and other interests held through the CCP. Legal risk also arises if the application of laws and regulations is unclear.
liquidity risk	The risk that a counterparty will not settle an obligation for full value when due, but on some unspecified date thereafter.
market risk	The risk of losses from movements in market prices.
marking to market	The practice of revaluing securities and financial instruments using current market prices.
net collateral system	A system in which the collateral posted at a CCP by a participant for its customers' positions is the net of the requirements for the individual customers, that is, in determining how much collateral must be passed through to a CCP by a participant, its customers' positions can offset each other.
netting	An agreed offsetting of obligations by participants in a CCP.
novation	A process through which the original obligation between a buyer and seller is discharged through the substitution of the CCP as seller to buyer and buyer to seller, creating two new contracts.
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 controls, human errors or management failures will result in unexpected losses.

pre-settlement risk	The risk that a counterparty to a transaction for completion at a future date will default before final settlement. The resulting exposure is the cost of replacing the original transaction at current market prices and is also known as replacement cost risk.
principal risk	The risk that the seller of an asset delivers it but does not receive payment or that the buyer of an asset makes payment but does not receive delivery. In such an event, the full principal value of the asset or funds transferred is at risk.
replacement cost risk	The risk that a counterparty to a transaction for completion at a future date will default before final settlement. The resulting exposure is the cost of replacing the original transaction at current market prices.
repurchase agreement	A contract to sell and subsequently repurchase securities at a specified date and price.
securities settlement system	The full set of institutional arrangements for confirmation, clearance and settlement of securities trades and safekeeping of securities.
settlement bank	A bank that is used to effect money settlements between a CCP and its participants.
settlement bank risk	The risk that a settlement bank could fail, creating credit losses and liquidity pressures for a CCP and its participants.
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.
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 institution to meet its obligations when due will cause other institutions to be unable to meet their obligations when due. Such a failure may cause significant liquidity or credit problems and, as a result, might threaten the stability of, or confidence in, markets.
variation margin	Funds that are paid by (or received by) a counterparty to settle any losses (gains) resulting from marking open positions to market. In some markets the term is also used to describe the posting of collateral by a counterparty to cover a margin deficit.

Annex 2: Members of the CPSS-IOSCO Task Force on Securities Settlement Systems

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