Regulatory Issues Raised by Changes in Market Structure

Consultation Report

THE BOARD
OF THE
INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIONS

CR03 **MARCH 2013**

This paper is for public consultation purposes only. It has not been approved for any other purpose by the IOSCO Board or any of its members.

Foreword

The International Organization of Securities Commissions (IOSCO) has published for public comment this Consultation Report on *Regulatory Issues Raised by Changes in Market Structure* (Consultation Report). The Committee on Secondary Markets (C2) drafted this Consultation Report. It discusses a number of issues and sets out possible future recommendations designed to assist market authorities in relation to issues raised by market fragmentation. The Consultation Report will be revised and finalised after consideration of comments received from the public. Following the consultation process, C2 will submit a final report for approval.

How/When to Submit Comments

Comments may be submitted by one of the following three methods on or before **Friday 10 May 2013 COB CET.**

Important: Due to the extremely tight timelines associated with IOSCO's work in this area, any responses received after this deadline will not be considered. To help us process and review your comments more efficiently, please use one the following method:

1. E-mail

- Send comments to **marketstructure@iosco.org**;
- The subject line of your message must indicate "Public Comment on Consultation Report: Regulatory Issues Raised by Changes in Market Structure";
- If you attach a document, indicate the software used (e.g. WordPerfect, Microsoft Word, ASCII text, etc.) to create the attachment; and
- Please do not submit any attachments as HTML, GIF, TIFF, PIF, ZIP or EXE files.

2. Facsimile Transmission

Send a fax for the attention of Teresa RODRÍGUEZ ARIAS, using the following fax number: + 34 91 555 93 68.

3. Post

Send your comment letter to:

Teresa RODRÍGUEZ ARIAS
International Organization of Securities Commissions (IOSCO)
Calle Oquendo 12
28006 Madrid
Spain

Important: All comments will be made available publicly, unless anonymity is specifically requested. Comments will be converted to PDF format and posted on the IOSCO website. Personal identifying information will not be edited from submissions. Your comment letter should indicate prominently that it is a "Public Comment on the Consultation Report: "Regulatory Issues Raised by Changes in Market Structure".

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1. Introduction

At their November 2010 meeting in Seoul, the G20 leaders requested IOSCO to "…*develop […] recommendations to promote markets' integrity and efficiency to mitigate the risks posed to the financial system by the latest technological developments.*" [1] In response to the G20 request, the IOSCO Board published, in October 2011, a report entitled "*Regulatory issues raised by the impact of technological changes on market integrity and efficiency*" [2] that sets out recommendations to assist regulators of securities markets in addressing these issues. In a press statement issued after its meeting in Paris in October 2011, the G20 emphasized its endorsement of these recommendations and called for "*further work by mid-2012*". IOSCO had already indicated in its letter (5 July 2011) to the Financial Stability Board (FSB) that it would "***analyze the evolving markets' macro-structure, in order to assess what specific issues such structural developments raise with regard to market efficiency and integrity; and consider whether and what recommendations may be needed to address any risks.***"

In light of the above, the IOSCO Board requested its Committee 2 (C2) to conduct an analysis of the current market structure and its evolution in C2 members' jurisdictions and identify issues raised within these jurisdictions on market efficiency and integrity, including any evidence of the impact of market fragmentation and in particular on the efficiency of the price formation process.

The issue of transparency and market fragmentation was first studied by IOSCO in 2001[3] (*Transparency and Market Fragmentation* Report). That report highlighted the then ongoing debate, both within industry and academics, as to whether or not the benefits of competition between trading venues outweighed any adverse effects. In particular, the report highlighted the potential benefit of promoting competition between venues[4] where trading can take place, as a means to increase market efficiency by, for example, reducing transaction charges, and fostering innovation so that market participants would have a wider range of trading methods that were more tailored to their individual needs.

Nevertheless, the 2001 IOSCO Report underlined a number of potential effects associated with market fragmentation, including, inter alia:

- Duplication of operating and regulatory costs;
- Cost of information searches;
- Introduction of new trading methods and business practices that could also diminish market efficiency and would not be in the best interest of all market participants and investors; and

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1 The G20 Seoul Summit Declaration, 11-12 November 2010, available at http://www.g20.utoronto.ca/2010/g20seoul-doc.pdf.

2 See FR09/11 *Regulatory issues raised by the impact of technological changes on market integrity and efficiency,* Final Report, Report of the Technical Committee of IOSCO, October 2011, available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD361.pdf.

3 See *Transparency and Market Fragmentation,* Report of the Technical Committee of IOSCO, November 2001, available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD124.pdf.

4 Given the different trading structures that exist amongst C2 jurisdictions and to avoid any confusion, the report therefore generally refer to the term 'trading spaces'which includes all trading methods (exchange trading market systems, non-exchange trading market systems and OTC trading).

- Fragmentation of liquidity, which could reduce firstly price competitiveness, undermines the concept of time priority and increase volatility.

The 2001 Report concluded that in practice, the overall impact of fragmentation on market quality was likely to depend on the nature of the existing market structure, the types of emerging competition and the degree of transparency appropriate for each market. The 2001 Report also underlined the importance of a number of other issues, over and above transparency, that may also affect the quality of execution and the overall quality of price formation in a fragmented market. These included access to liquidity pools, the consolidation of information and incentives that foster best execution.

This report updates IOSCO's 2001 Report, to the extent that it provides an overview of the current state of market fragmentation and regulatory steps taken since 2001 in various members' jurisdictions.

The new project's scope includes the trading of equities and exchange-traded funds (ETFs)[5] on the most common trading spaces identified in a C2 survey, in particular: exchange trading market systems, non-exchange trading market systems (*i.e.*, ATSs and MTFs[6]) and trading over the counter (OTC, which for purposes of this report is trading that does not occur on an exchange or non-exchange market system).[7] However, the scope of the project and this report does not extend to the trading of derivatives products.[8] For the purpose of this report, market fragmentation refers to the existence of multiple trading spaces through which the same securities are bought and sold within a regulatory jurisdiction. As a result, the location of buying and selling interest for individual securities is *fragmented* to the extent that quotations and orders in different trading venues may not have an opportunity to interact.

The analysis carried out included the following fact finding exercise:

- A mapping of the various types of trading spaces that exist in C2 member jurisdictions;
- An overview of the regulations and rules that apply to the various types of trading spaces (*e.g.*, admission/approval requirements, transparency requirements, requirements for the price formation process)[9] and ultimately the factors that fostered the establishment of multiple trading spaces for the same product;

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5 For the purpose of analyzing market fragmentation, American Depositary Receipts (ADRs) are understood as falling within the scope of this report, as they are close substitutes for their underlying shares.

6 Please refer to section 3 hereafter for a definition of MTFs and ATSs.

7 The adopted classification for the purposes of this report tries to capture the essence of the different trading spaces existing in C2 jurisdictions. It might therefore not exactly match current regulatory and legal classification implemented within the various jurisdictions. The descriptions and numbers of exchange trading market systems, non-exchange trading market systems and OTC are included in Appendix C.

8 The Technical Committee of the IOSCO formed a Task Force on OTC Derivatives Regulation (Task Force) in order to coordinate securities and futures regulators' efforts in the development of supervisory and oversight structures, for OTC derivatives markets http://www.iosco.org/news/pdf/IOSCONEWS191.pdf.

9 In order to avoid any duplication of effort and conserve resources, C2 used information that members had obtained during the course of recent projects.

- An analysis on how liquidity has been dispersed among these different trading spaces in equities and ETFs, including trading volumes (where that information is available) and how this has changed over time;[10] and
- A dialogue with the industry, including consultation with the IOSCO Self-Regulatory Organization (SRO) Consultative Committee (SROCC) and the other relevant IOSCO committees.

On the basis of the information gathered and the analysis carried out, this report updates the 2001 Report. It identifies possible outstanding issues and risk posed by existing or developing market structures, and includes recommendations to address the identified potential risks.

2. Current market structure developments for equities and ETFs

Between 2001 and 2012, the market structure of most C2 members evolved from a single (or few) trading space within the same jurisdiction to multiple trading spaces for the same financial instrument.

In several jurisdictions, regulatory reforms had a clear and significant impact on the number and variety of trading spaces. At the same time, there were other developments which affected the market structure, such as greater economic and financial integration or the emergence of new asset classes and the removal of barriers preventing competition in the provision of market services. Technology has also played a critical role in not only reducing the cost of creating and accessing many pools of liquidity but also facilitating the collection and consolidation of pre-and post-trade information. For example, today, automated execution management services provide investors with efficient and cost-effective access to a variety of pools of liquidity in much the same way as smart order routers.

All of these developments impacted each other and resulted in greater competition between trading spaces.

The most common "Trading Spaces" identified in the C2 survey are:

1. Exchange trading market systems;
2. Non-exchange trading market systems (*i.e.*, ATSs and MTFs); and
3. Trading over-the-counter (OTC) (which for purposes of this report is trading that does not occur on an exchange or non-exchange market system).[11]

C2 collected data from its members on post 2001 structural changes in their markets.[12] More specifically, data was gathered on the total annual share trading volume (*i.e.*, number of

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[10] These changes may be the result of specific developments in the various jurisdictions at different points in time. For example the introduction of a new legislative framework - e.g. in the US the introduction of Regulation NMS (National Market System) in the US, the introduction of MiFID in Europe and the introduction of the Marketplace Rules in Canada– all allowed for more competition between different trading venues.

[11] The adopted classification for the purposes of this report tries to capture the essence of the different trading spaces existing in C2 jurisdictions. It might therefore not exactly match current regulatory and legal classification implemented within the various jurisdictions. The descriptions and numbers of exchange trading market systems, non-exchange trading market systems and OTC are included in Appendix C.

[12] Please refer to the Appendix C.

shares) and value (in US dollars) broken down for equities and ETFs for the period 2001-2011. A request was also made for the data to distinguish between the trading volumes and values for (1) exchanges; (2) non-exchanges; and (3) OTC. In addition, C2 had the benefit of several presentations from representatives of industry and the academic world on the development of different trading spaces in C2 jurisdictions.

The survey of C2 jurisdictions did provide for a picture of the evolution of trading spaces in C2 jurisdictions since 2001, including the market share thereof, which is described in Appendix A.[13]

Survey responses revealed that equities and ETFs are traded today in most C2 jurisdictions on different trading spaces competing for market share. In a few C2 member jurisdictions, trading on non-exchanges occurred well before the drafting of IOSCO's 2001 Report (*e.g.*, ATSs and dealer trading systems existed in the United States before 2001), where in others, it occurred in the last 5-7 years[14] or even very recently.[15]

Gathering and analysing data on trading activity carried on different trading spaces is complex and challenging. The existence of different regulatory regimes across IOSCO members suggests that particular care should be exercised when comparing data between jurisdictions, especially with regard to OTC trading. Besides, changes in regulatory regimes within jurisdictions should also be taken into account before drawing firm conclusions about trends. Finally, data availability depends on reporting requirements being in place on trading venues and other market participants, which are not always present or similar for all financial instruments.

For example, in Canada, the Investment Industry Regulatory Organization of Canada (IIROC) does collect and publish market share statistics on a monthly basis. In other jurisdictions such as Australia, the development of new trading spaces is a relatively recent phenomenon and it is therefore not possible for such jurisdictions to come to any definitive and comprehensive conclusions on the impact of the resulting market fragmentation. Furthermore, even where a single exchange appears to maintain a domestic monopoly in terms of market share, it may not take into account any movement of trading of domestic issuers' securities to other trading spaces in a foreign jurisdiction. For example, in the EU where this occurs within a single economic zone, there may be some merit to viewing the entire economic zone as a single jurisdiction when determining the degree of market fragmentation.

3. The regulatory framework

In most C2 jurisdictions, specific regulatory regimes may apply for each type of trading spaces. Others (such as Australia and Switzerland) have not established distinct regulatory frameworks. A number of respondents to the IOSCO survey indicated that the level of supervision applicable to a particular kind of trading spaces varies, depending on the

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[13] Please refer to appendix A for a more detailed description of the market structure developments for equities and ETFs, since 2001.

[14] *E.g.*, Europe, Canada.

[15] This point of view on the fragmentation of trading on Regulated Markets (RMs) and ATSs is confirmed by data provided by some market participants (please refer to the annexes). Please note that ATS are not authorised in Mexico and in Brazil.

importance of a venue within that market and the risk it may impose on overall market integrity.

3.1 Licensing regimes and on-going supervision of the operation of trading spaces

a) Exchanges

In all C2 jurisdictions, exchanges must be formally authorised or registered prior to being permitted to operate. However, the type of authority with whom the exchange must register, or by whom the exchange must be approved can differ, depending on the jurisdiction. Of the IOSCO Survey respondents, nearly half indicated that the securities supervisory authority was responsible for exchange approval or registration. In six jurisdictions, the Ministry of Finance is responsible, often in consultation with the securities supervisory authority. In Germany, the competence rests with the exchange supervisory authorities on the federal state level.

Most C2 member jurisdictions impose similar requirements in order for an exchange to be approved or registered. This includes:

- Skills, expertise, and capacity to satisfy each of its obligations on a continuous basis;
- Sufficient financial, technological and human resources to operate the market properly;
- Adequate operating rules and procedures to operate a fair, orderly and transparent market;
- Monitoring (or has established arrangements for the monitoring of) compliance by members with rules of the facility;
- Arrangements for transaction clearing; and
- Market rules that are in accordance with statutory requirements.[16]

Survey responses reveal that the ongoing supervision of exchanges or exchange operators generally rests with the statutory regulator or SRO. Responsibilities are sometimes divided between different authorities. For example, in France, the Autorité des Marchés Financiers (AMF) carries out the ongoing market rules supervision, yet the prudential regulator ensures that a market operator has sufficient financial resources to enable the proper functioning of the trading space. In Germany, the competence to supervise the exchange operator and to approve market rules rests with the exchange supervisory authorities at the federal level and not the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin).

In most C2 jurisdictions, oversight responsibilities would include, among other things, the following:

- Assessment of the exchange's governance;
- Assessments and reviews of a market's organization, including in some jurisdictions (particularly European) that the management be "fit and proper";[17]
- Approval of trading rules and rules relevant for granting access to the market or for the admission of financial instruments to trading; and
- Supervision of the outsourcing of activities that have strategic relevance.

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[16] In addition, some C2 members noted that exchanges are not allowed to act "*contrary to the public interest*". Also note that in Hong Kong, only Hong Kong Exchanges and Clearing Limited and the companies that belong to it are permitted to operate a stock market in Hong Kong, although there is a possibility for brokers that are exchange participants to provide automated trading services.

[17] For instance in Malaysia, the chairman and the members of the board of directors, (including the CEO of the exchange) need to be approved.

In some jurisdictions, system requirements are also part of the regulatory framework, including system reviews, business continuity planning and disaster recovery, capacity and stress testing, and incident reporting.

b) Non-Exchange Trading Market Systems

The operation of non-exchange trading market systems is, where permitted by law, generally also subject to an approval or verification process. In the EU, MTFs can be operated by an exchange or by an investment firm. Therefore, entities operating MTFs must either be authorized as operator of a regulated market (RM) or as an investment firm authorized to provide that investment activity. In any case, the statutory regulator is required to verify that the MTF complies with the requirements laid down in the MiFID directive. In Canada and the U.S., ATSs must be registered broker-dealers, comply with additional rules (*e.g.*, Regulation ATS in the US) and be members of an SRO.

Where an approval is necessary, the responsibility rests generally with the statutory regulator, with the following exceptions:

- In Germany, BaFin is usually the competent authority. However, the relevant stock exchange supervisory authority has oversight responsibility as far as the regulated unofficial market (Freiverkehr) is concerned. This market segment also falls under the definition of an MTF;
- In France, the AMF is the competent authority for RMs that operates MTFs, whilst the Autorité de Contrôle Prudentiel, the prudential control authority, is the competent authority for MTFs that are operated by investment service providers;
- In the Netherlands, although the Authority for the Financial Markets (AFM) is normally the competent authority, the Dutch Central Bank is responsible instead if the MTF is already authorised as a credit institution;
- In the United States, each ATS must be registered as a broker-dealer. As such, they are subject to regulation and supervision by both the SEC and FINRA. In addition to broker-dealer registration, all ATSs must become members of FINRA, which must complete a comprehensive assessment of each broker-dealer before granting membership. A broker-dealer must not engage in any securities business until it has completed the FINRA's membership application process and received the approval of FINRA;
- In Canada, ATSs must be registered as a dealer and be a member of an SRO. As such, they are subject to regulation and supervision by the securities regulatory authorities and IIROC; and
- In Hong Kong, ATSs should be licensed or authorised by the Securities and Futures Commission (SFC) in accordance with the standards set out in the *Guidelines for the Regulation of Automated Trading Services*. They must also be exchange participants. Some of ATSs are broker crossing systems.

The responses of several C2 member jurisdictions reveal that the respective legal requirements to obtain approval to operate an exchange or non-exchange-trading market system are similar. In the case of non-exchanges this may also include skills, expertise, and capacity to satisfy each of its obligations on a continuous basis, sufficient financial, technological and human resources to operate properly, adequate operating rules and procedures to operate a fair, orderly and transparent market, monitoring compliance by members with rules of the facility and arrangements for clearing transactions. However, some survey respondents noted different requirements to obtain approval to operate.[18] Several C2 jurisdictions also noted differences in the ongoing supervision of the operations of non-exchanges.

In the EU, as already mentioned, investment firms may operate non-exchange trading systems. As a consequence, prudential and solvency controls apply and, in some jurisdictions, the departments in charge of prudential supervision supervise the operation of these systems. In the US, an ATS must register as a broker-dealer and comply with Regulation ATS. Regulation ATS also includes rules and obligations that provide the SEC and FINRA with the information necessary to monitor trading activity.[19] In Canada, the level of supervision of ATSs varies across Canadian provinces. The task is generally shared between the statutory regulators and IIROC. Operational forms detailing the structure and products and services offered by the ATS are filed and reviewed by the statutory regulators. In some provinces, changes to those forms require approval.[20]

c) OTC trading systems[21]

In many jurisdictions, it is not necessary to obtain formal authorisation to establish an "OTC trading" network. However, several C2 member jurisdictions require a registration or authorisation process before such a network can offer specific services:

- In the EU, there is no specific requirement for firms or investors to operate within OTC spaces. A registered investment firm may operate a "broker crossing network"within the OTC space but there is no specific EU authorisation for operating a "broker crossing network"as such. On the other hand, some investment firms are authorised as "systematic internalisers" to execute client orders OTC, under very specific conditions.[22]

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[18] In Japan a Proprietary Trading System (PTS) whose trading share is not less than 10% of all listed securities or 20% of any listed security must obtain a license to be a Financial Instruments Exchange.

[19] In the US, an ATS must: (1) file with the SEC an initial operations report, quarterly amendments on Form ATS, and comply with additional reporting and record-keeping requirements, including maintaining an audit trail of transactions; (2) under certain circumstances, comply with order display, execution access, and fair access requirements for traded securities; (3) under certain circumstances, follow procedures to ensure the capacity, integrity and security of the ATS system; (4) submit to the examination, inspection, and investigation by the SEC or FINRA; and (5) refrain from using the terms "exchange," "stock market" or similar terms in its name. Some of these requirements vary depending on the ATS's activities and trading volume.

[20] The ATS must also file its last annual audited financial statements with the initial form, and annually thereafter. In addition, an ATS must comply with various requirements, including fair access (and a related prohibition on restricting trading on another marketplace), pre and post-trade transparency requirements, outsourcing, systems and business continuity requirements and the prohibition from using the terms "exchange," "stock market", "bourse" or any derivations of these terms. An ATS must also submit itself to the examination, inspection, and investigation by the statutory regulators or IIROC as well as complying with the rules that prevent trade-through from occurring on the Canadian market places and that govern the execution of orders. In addition, IIROC performs examinations both from a financial and business compliance perspective and monitors trading on the ATS.

[21] By OTC trading systems we understand all trading that does not occur on exchange trading market systems, and non-exchange trading market systems (*i.e.*, ATSs and MTFs). We also exclude all dark pools.

[22] See Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments, available at http://eur- lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0039:EN:NOT.

- In Brazil, the securities supervisory authority is responsible for approving an OTC operator.[23]
- In the US, the OTC market consists of trading by registered broker-dealers, including ATSs, which occurs off of the registered exchanges. OTC trading can occur in listed equities, non-listed equities and corporate bonds, among other products. FINRA, along with the SEC, has statutory responsibility to regulate and oversee the US OTC market.
- In Canada, a broker crossing system is required to be an ATS and is subject to "fair access" requirements applicable to marketplaces.[24]
- In Malaysia, an operator of a 'REF'[25] is required to be registered by the securities supervisory authority (Securities Commission), and to comply with the Guidelines on the Regulation of Markets issued by the authority.

As regards OTC ongoing operations, there seems to be no specific regulatory requirements in most jurisdictions. Instead, several C2 jurisdictions noted that entities offering such services would be subject to an overall supervision.[26] Some jurisdictions noted particular requirements:

- In Australia, crossing networks have been required since May 2011 to register with ASIC and to report to ASIC aggregate daily order/trade statistics on a stock-by-stock basis. ASIC publishes the list of crossing networks from time to time. The statistics themselves are not publically available. The statistics help to understand, *inter alia*, ASIC's policy on market structure developments;
- In the US, FINRA, as the SRO for the OTC market, uses its electronic surveillance tools to monitor OTC trading. In addition, FINRA rules require transaction reporting to FINRA and this data is filtered for evidence of trading violations. FINRA uses automated tools and on-site exams to buttress compliance with OTC trade reporting through FINRA's transparency systems. This is essential to ensure the integrity of data processed by its surveillance systems. In general, FINRA rules require registered broker-dealers to report trade details within 30 seconds and report the details of the order to FINRA's order audit trail system, OATS. FINRA rules require such reports whether the trade is "customer facilitation" or a "proprietary trade". These trade reporting requirements have existed for many years and recognise that there are occasions when a broker-dealer executes a trade in house with a client, or matches off two client orders.

3.2 Market supervision and oversight

Supervision arrangements vary according to the jurisdiction and the type of trading spaces concerned. It has also been noted that in some jurisdictions the market surveillance function

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23 In Brazil, an OTC trading system is a regulated market operated or managed by a market operator that, in comparison to an exchange operator, has mitigated obligations. An organized OTC trading system may operate as a (i) multilateral system; (ii) a market maker system; or (iii) a registrar of trades previously carried out. The first option (multilateral system) is normally used to trade equities. The last one (registrar of trades previously carried out) is used for derivatives.

24 Under Rule 6.4 of UMIR, subject to certain exceptions, a trade in a listed security is not considered to have occurred until it has been executed on a marketplace. As such, a registered investment dealer is not able to "internalize" trading activity in listed securities.

25 *Registered Electronic Facility* (REF). For more details, see *Guidelines on Regulation of Markets,* Securities Commission Malaysia at
http://www.sc.com.my/main.asp?pageid=278&menuid=305&newsid=&linkid=&type=.

26 For instance, firms may be subject to regulatory reporting.

depends on where the financial instrument is first admitted for trading, rather than on the trading space where the financial instrument is traded. In light of this, many survey respondents noted that OTC trading of listed instruments was subject to market surveillance.

As regards **exchange** and **non-exchange trading market systems** many survey respondents noted that operators or SROs function are the front line oversight authorities, who must report suspected violations of regulations and laws to the securities supervisory authority for further investigations. For example, Canada noted that IIROC conducts market surveillance for all equities whether traded on an exchange or on an ATS, the only difference being that an exchange has the option to undertake surveillance activities in-house rather than to outsource this function to the SRO since exchanges, unlike ATSs, do bear a regulatory responsibility. However, where a breach of securities legislation is found (trade-through or fraud, for example), the case is referred to the securities regulatory authorities. In the U.S., SROs have market surveillance responsibilities and primary surveillance authority over their marketplaces. Moreover, as noted above, FINRA, along with the SEC, has the regulatory responsibility to oversee the U.S. OTC market in addition to overseeing ATSs. In the EU, operators of exchanges and non-exchange market systems feed the so called "*Suspicious Transaction Reports*" (STRs) to statutory regulators to help identify possible instances of market abuse. In Australia, the Australian Securities and Investment Commission (ASIC), the statutory regulator, performs real-time surveillance of trading on markets such as ASX and Chi-X.

3.3 Access to trading venues, order handling and rules of conduct

(a) Fair access

C2 member jurisdictions generally indicated the importance given to ensuring fair access to trading venues, particularly to **exchanges** and **non-exchange trading market systems.**

In Canada, all trading venues are required to provide fair access and they may not unreasonably impose conditions or limit access to their services. This however does not require the trading venue to provide access to every person; it requires them to create transparent access requirements that do not discriminate between comparable clients. The fair access requirements also apply to products and services offered by the exchange or ATS, including the imposition of fees, the offering of co-location, routing and data. A Canadian ATS must make publicly available a description of its access standards, fees, products and services.

In the U.S., a national securities exchange must have rules that permit any registered broker-dealer or natural person associated with a broker-dealer to become a member of the exchange. Accordingly, the ability to trade on a national securities exchange is readily attainable by those qualified, registered broker-dealers who seek membership. In addition, SROs are prohibited from imposing unfairly discriminatory terms that prevent or inhibit any person from obtaining efficient access through a member of the SRO to the quotations in a national market system stock displayed in the SRO trading facility. Certain registered ATSs are also subject to certain fair access standards in the United States. In particular, ATSs that account for 5% or more of the average daily trading volume in any National Market System (NMS) security, must comply with the fair access requirements set forth in Regulation ATS. Such ATSs must establish written standards for granting access to trading on their systems and maintain these standards in their records. ATSs, like exchanges, are free to have reasonable standards for access. When trading exceeds the 5% volume threshold, however, an ATS is prohibited from unreasonably prohibiting or limiting any persons having access to services of the ATS with respect to any such securities, and must not apply these standards in an unfair or discriminatory manner.

In the EU, rules governing access to RMs must be transparent, non-discriminatory and based on objective criteria. Similar requirements apply to the rules governing access to MTFs.

As regards trading taking place outside exchange and non-exchange trading systems, there are generally no applicable fair access rules in the EU. However, some EU C2 members highlighted that there are specific rules for systematic internalisers. While they are allowed to decide who is permitted to trade on their internal proprietary systems (*e.g.*, on the basis of their commercial interests), this decision must be taken in an objective, non-discriminatory way.

(b) Order handling rules

Exchanges and non-exchange trading systems are generally required to handle orders in a fair and non-discriminatory manner**. Price and time priority** are usually the two most important factors guiding how orders should be handled. Such rules may also apply to OTC trades handled by regulated intermediaries.

In the EU, MiFID defines RMs and MTFs as multilateral systems that bring together multiple buying and selling trading interests according to non-discretionary rules. MiFID also requires investment firms (but not regulated markets or MTFs) to execute client orders on terms most favourable to their client. In other words, they must take all reasonable steps to obtain best execution. In addition, investment firms must also handle client orders appropriately, by having in place procedures and arrangements that provide for the prompt, fair and expeditious execution of client orders, relative to other client orders or the trading interests of the investment firm. Given the bilateral nature of their trading, systematic internalisers may treat orders of wholesale customers differently from those of retail customers, although it nonetheless requires a "fair" treatment of orders.

In the US, the SEC evaluates whether an exchange's order handling procedures are consistent with relevant securities requirements. It does so with its initial evaluation of an application of an entity seeking to register as a national securities exchange, in accordance with the Securities Exchange Act (Exchange Act) and in its continuing oversight through the rule filing process and examination program.[27] Furthermore, SRO's rules must be designed to prevent fraudulent and manipulative acts and practices and promote fair and equitable principles of trade. Specifically, the SROs have rules that govern how a broker-dealer may trade for its own account when representing customer orders. Pursuant to these SRO rules, broker-dealers are generally prohibited from trading for their own account when they hold an order for the same security that may be executed at the same price. Failure to execute the customer's order first can result in a violation of SRO rules. The SEC carefully reviews any changes to these rules to evaluate whether and how they affect investor protection. As in the U.S., the Canadian securities regulatory authorities and IIROC evaluate whether the proposed

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[27] At a minimum, an exchange's rules must be consistent with the requirements set forth in Sections 6, 11, 11A and 19 of the Exchange Act.

operations and order handling procedures of an exchange or ATS, and any subsequent changes thereto, comply with securities legislation and UMIR.[28]

In some jurisdictions, specific order handling rules apply in certain circumstances. For example, the existence of a rule to prioritise the treatment of displayed orders over dark orders at the same price in an order book was mentioned by some jurisdictions (*e.g*. Australia and Canada). In Canada, a rule requires, subject to certain exceptions, that orders for 5000 shares or less must be entered onto a transparent marketplace.[29] In Brazil, Singapore, Malaysia and Hong Kong, orders from clients must have priority over orders from intermediaries for their proprietary trading.

(c) Best execution and Trade through rule

In addition, and especially for those jurisdictions where several trading spaces are permitted by law, specific rules have been implemented that seek to limit the potentially negative impact of fragmentation, like "best execution" and "trade through" rules, although these rules have often predated the evolving fragmentation of markets over the last decade.

The concept of "best execution" has been defined in similar, but distinct ways in almost all C2 member jurisdictions.

In the US, the duty of best execution requires broker-dealers to execute customers' trades, in accordance with the conditions of the order, at the most favourable terms available under the circumstances (*e.g.*, at the best available price). In Australia, a best execution rule was introduced in 2011, as part of the new market structure that permits competition between exchange markets. It is a similar principles-based model to the one in the EU.

Other countries refer to "best execution" as a rule according to which orders shall be executed on the most favourable terms to the client under a variety of circumstances and taking into account different market places where the security is traded. In general, best execution is not limited to a consideration of price, and other factors may need to be considered, including the overall costs of the transaction (*e.g.*, clearing costs), order size, trading characteristics of the security, and speed of execution. For example in the EU, MiFID provides the legal framework for best execution rules. When executing orders, investment firms are required to take all reasonable steps in order to obtain the best possible result for their clients. In doing so, they must take into account the price, cost, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to the execution of the order. The responsibility for best execution rests exclusively with the investment firms and the latter have to establish an order execution to be reviewed annually.

In jurisdictions where one exchange is either the sole trading space or represents the vast majority of trading in equities and ETFs, whilst there are no specific rules regarding "best execution" there are rules for order handling that meet the same desired objectives of "best execution". For example, in Malaysia, Singapore, Mexico and Brazil, there are provisions in

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[28] Universal Market Integrity Rules (UMIR), Canada.

[29] Rule 6.3 of UMIR requires, subject to certain exceptions, the exposure of a client order for 50 standard trading units or less (being: 5,000 shares of a security trading at $1.00 or more; 25,000 shares of a security trading at $0.10 or more and less than a $1.00; and 50,000 shares of a security trading at less than $0.10.).

the securities laws and rules of the exchanges that prohibit front running and oblige intermediaries to put clients' orders ahead of their proprietary trades. These obligations would achieve the desired outcome for intermediaries to trade on behalf of their clients' at the best price available in the market.

In addition to the "best execution" obligation, Canada and the US have adopted an additional *Order Protection Rule* which requires that all dealers be subject to a trade-through obligation.[30] Generally, the rules require better-priced orders to be executed before inferior-priced orders across all market places. Against that background, trade-through protection is based on the obligation of a participant to the market 'as a whole' and is grounded in the desire to protect visible and accessible limit orders. It aims at ensuring that those who decide to display the prices are willing to pay for or receive a particular security and obtain the benefit of that decision. Having a trade-through obligation does not weaken the obligation to achieve best execution. The decision of how and where to trade (best execution) continues to be determined by the particulars of the order and needs of the client.

(d) Disclosure of order routing practices to fulfil best execution/the trade through rule

Where there are multiple trading spaces, most C2 members require disclosure of order routing practices, whether on request or on a regular basis. This includes information on the different trading spaces where client orders may be executed as well as information about the manner in which orders are directed to various trading spaces. In addition, investment firms and dealers are generally required to document policies and procedures to ensure that they comply with the requirements of "best execution" or the trade-through rule.

For instance, in the US under Rule 606 of Regulation NMS, broker-dealers that route customer orders in equity and option securities are required to make publicly available quarterly reports that, among other things, identify the venues to which customer orders are routed for execution. In addition, broker-dealers are required to disclose to customers, on request, the venues to which their individual orders were routed.

In the EU, under MiFID requirements, a firm's order execution policy must be disclosed to clients, including information on the different venues where the investment firm executes its client orders and the factors affecting the choice of the execution venue. Investment firms are also required to inform and obtain prior consent from their clients that their orders may be executed OTC (*i.e.*, outside a regulated market or an MTF) where the order execution policy provides so. Other countries have similar requirements.[31]

3.4 Transparency of trading

Market transparency is generally regarded as playing a central role in promoting the fairness and the efficiency of markets. With regard to secondary markets, pre-trade transparency refers

[30] Please refer to Appendix B, for a more detailed description.

[31] In Canada, dealers must be able to provide routing information when requested. In Australia, participants must disclose their best execution obligations to all clients. In India, firms must maintain documents to demonstrate to the regulator and its clients the basis of the decision to route orders to a particular stock exchange.

to the disclosure of current trading quotes and interests, whereas post-trade transparency refers to the disclosure of information on completed transactions.

To the extent that competition between trading spaces fragments a market, regulators need to consider the adequacy of the transparency arrangements for individual trading venues as well as the necessity or ability to consolidate this information. This is important not only to optimise the assessment of trading opportunities but also to maintain an efficient pricing.

(a) Pre-trade transparency requirements

In most jurisdictions, statutory law sets forth specific pre-trade transparency obligations.[32] Pre-trade information generally includes information on bid and offer quotes, and the depth of trading interests of such bid and offer quotes.[33]

The survey shows that pre-trade requirements may vary with respect to the products traded. While in many jurisdictions pre-trade requirements are equally applied to all securities, including listed equities and ETFs *(e.g.,* Canada, U.S., India, Malaysia and Switzerland), this is not the case in other countries. For example in the EU, RMs and MTFs must publish information about buying and selling interests only for shares admitted to trading on a regulated market. There is no EU equivalent requirement for ETFs, although almost all regulated markets and many MTFs are also required[34] to provide pre-trade information.

Pre-trade requirements may also differ with respect to the trading space. This fact is elaborated upon in the IOSCO Report, *Principles on Dark Liquidity.*[35] Most jurisdictions noted that similar requirements apply to exchanges and non-exchange trading market systems with regard to exchange listed products. For example, in Canada, all transparent trading venues, whether ATSs or exchanges, are required to provide pre-trade information. As regards OTC trading, several C2 jurisdictions do not require pre-trade transparency, with few exceptions. For example in Europe, pre-trade transparency in the OTC trading space is only required for systematic internalisers that must publish firm quotes for liquid shares up to standard market size. In the US, OTC market makers and certain ATSs have pre-trade transparency obligations.

In most countries, exchanges and non-exchanges trading systems make available whatever pre-trade information is required, at reasonable cost, to any person who seeks access to the information. The timing of the publication must generally be as close to real-time as possible during normal trading hours. Some of them also have distribution channels with data vendors,

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32 In Singapore, market operators are obliged to operate a fair, orderly and transparent market, where transparency may be defined as the degree to which information about trading (both pre-trade and post-trade) is made publicly available on a real-time basis. This general obligation does not prescribe a specific pre-trade or post-trade data set to be published by market operators, although it is expected that data will be published in as near real-time as possible. Additionally, as practiced in many jurisdictions , market operators may publish multiple sets of data (whether in real-time or at a delay) some of which may contain more information than others.

33 Some jurisdictions do provide for a more comprehensive set of pre-trade information to be published, *e.g.,* Australia where pre trade information would include: order date; order time; product identification; volume; order side (that is, buy or sell); price and currency.

34 According to national requirements.

35 FR06/11 *Principles on Dark Liquidity,* Final Report, Report of the Technical Committee of IOSCO, 19 May 2011, available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD353.pdf.

who sell the data to users (*e.g.*, Bloomberg, Reuters). Some C2 members stated that all participants of an exchange and non-exchange trading system in their jurisdiction receive the same level of pre-trade information; a few indicated that different types of data feeds are offered to market participants, who may choose between them based on their business requirements. In the US, the dissemination of pre-trade information (and post-trade information as described below) for equities[36] is governed by national market system plans (Plans) that operate in accordance with the Exchange Act and rules thereunder.[37] The Plans require participants (the exchanges and FINRA) to collect and promptly report both pre-trade and post-trade information to Plan processors. The processors then consolidate the information, and disseminate it to the public. With respect to the frequency and timing of pre-trade information,[38] the exchanges and associations must submit the best bids and offers of their members and quotation sizes to the plan processor. In Canada, it is the information processor that collects and disseminates pre-trade and post-trade information from exchanges and ATSs to the public in real-time.[39]

Several C2 members mentioned that exemptions from pre-trade transparency can be granted.[40]

In Canada, the pre-trade transparency requirements described above apply unless the pre-trade information is only seen by the employees of the venue or those retained to operate the venue, or the orders on the market place are of a minimum size.

In the U.S.:

- Any bid or offer communicated on an exchange by one member to another, or communicated in the OTC market by a market maker, must be publicly displayed;[41]
- Customer orders held by an exchange specialist or OTC market maker must generally be displayed unless the order is of a large size or the customer has specifically requested non-display. Dealer trading systems of dealers that are not registered as market makers also generally do not disseminate quotations;[42]
- For any NMS stock in which the ATS displays subscriber orders to any person and for which the ATS had 5% of the aggregate average trading volume, the ATS must provide to an exchange or association the best buy and sell prices for such NMS for inclusion in the quotation data made available to vendors.[43]

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36 This is also the case for options.

37 See Regulation NMS Release. The Consolidated Tape Association (CTA) Plan, Consolidated Quotation (CQ) Plan and Nasdaq UTP Plan govern the reporting requirements for equity securities; the Options Price Reporting Authority (OPRA) *Plan for Reporting of Consolidated Options Last Sale Reports and Quotation Information* governs the reporting requirements for options.

38 Pursuant to *Exchange Act Rule 602 of Regulation NMS* and the required reporting plans.

39 As required by National Instrument 21-101, Trading Rules, Part 7, available at http://www.gov.ns.ca/nssc/docs/ni21-101.pdf.

40 This is elaborated in *Principles on Dark Liquidity*, IOSCO, May 2011, supra fn No. 35.

41 See Regulation NMS Rule 602. Systems that are operated by registered market makers, including any market makers that account for at least 1% of consolidated volume in a given stock, must disseminate quotations.

42 See Regulation NMS Rule 604.

43 Under Rule 602 of Regulation NMS.

In the EU, MiFID permits competent authorities to grant exemptions from pre-trade transparency requirements in the form of "waivers".[44] Waivers may be granted on the basis of the market model operated by the trading venue, the type or size of orders. Such waivers may be granted by the competent authority for a trading venue, based on a reference price system ("reference price waiver"), a trading system that formalises negotiated transactions ("negotiated trade waiver"), for an order considered large in scale compared with normal market size ("large in scale waiver") and for orders held in an order management facility ("order management facility waiver").

Other jurisdictions do also allow for "waivers" from pre-trade transparency, *e.g*. Australia, Mexico and Switzerland. Those waivers usually relate to large transactions or designated dark liquidity facilities.

(b) Post-trade transparency requirements

All C2 jurisdictions provide post-trade transparency requirements. Even in those few jurisdictions that do not legally require dissemination of post-trade transparency information, it is a common market practice to disclose information about completed transactions. Post-trade information generally includes execution time and date, product identification, and price and volume of the transaction and, where applicable, the execution venue. In some countries, additional information is required. For example, in Australia and in the EU data regarding trade cancellations must also be reported.

With regard to the scope of instruments covered, post-trade transparency regimes for transactions in listed products are generally similar for exchanges and non-exchange market trading systems. However, in contrast to the pre-trade transparency regime, EU investment firms operating RMs and MTFs are obliged to disseminate publicly post-trade information on trades in shares admitted to trading on an RM, even if the trade itself takes place OTC. In Singapore, all non-exchange and OTC transactions in Singapore-listed securities are reported to the Singapore Exchange in order to create a consolidated venue for post-trade information. In Australia, all trades by market participants in equity products must be reported immediately to a licensed market (ASX or Chi-X). There are delays permitted for very large transactions (*e.g*., over $2 million for the majority of stocks). Licensed market operators are obliged to publish the information.

As regards the dissemination of post-trade information, post-trade and pre-trade requirements are comparable. Post-trade information is generally published as close to real-time as possible. Several C2 jurisdictions stated that the required reporting time in their country ranges from 90 seconds of a trade execution, to a delay of no more than 15 minutes.[45]

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[44] It is to be noted that the waiver regime is being overhauled in MiFID II.

[45] In the US, the dissemination of post-trade information for equities and options is governed by national market system plans (Plans) that operate in accordance with the Exchange Act and rules thereunder. The Plans require participants, who are the exchanges and FINRA, to collect and promptly report post-trade information to Plan processors, who then consolidate the information, and disseminate it to the public. Pursuant to the applicable Plans, the SROs must report the stock symbol, volume, and price at which transactions were executed to the Plan processor generally within 90 seconds after the time of execution. If a transaction is not reported within 90 seconds, the SRO must designate the last sale price as "late" on the report to the Plan processor.

(c) Consolidation of data

In jurisdictions where several trading spaces exist there are several sources of pre and post-trade information. As a result, the consolidation of information across trading spaces is recognized as important in a fragmented environment. The degree to which relevant information is available and consolidated is dependent on the market structure of each C2 member jurisdiction. Some of them do provide for a nationally consolidated tape, where information is required to be submitted to a single central information processor. Others allow that data to be consolidated and distributed by multiple providers of consolidation services who offer their services on commercial terms.

In the US, pre-trade and post-trade information for equities and options is consolidated. The dissemination of pre-trade information and post-trade information as described for equities and options is governed by national market system plans that operate in accordance with the Exchange Act and rules thereunder.[46] They require participants, namely the exchanges and FINRA, to collect and promptly report both pre-trade and post-trade information to Plan processors. The processors then consolidate the information, and disseminate it to the public.[47]

In the majority of C2 jurisdictions, however, there is no mandatory consolidated tape. Instead there are multiple providers offering consolidation services including data vendors such as Bloomberg and Reuters. Exchange/market operators also often offer consolidation services. Such "data consolidators" are not regulated or authorized and are, to date, not subject to specific regulatory oversight. In the EU, for example, there is currently no real-time consolidated tape provider.

4. Main findings, Challenges and Recommendations

4.1 Main findings

C2 members showed that in the past several years, recent technological innovations and regulatory changes have brought about many changes to the financial markets. In many jurisdictions, competition has increased and new trading spaces have developed. However, a few survey respondents also noted that despite the fact that different trading spaces have been established in the last number of years, these trading spaces do not necessarily compete directly with each other at a national level as they developed different business models.[48]

In Canada, all marketplaces are required to provide accurate and timely information regarding trades for exchange-traded securities to the information processor. The information processor then collects and disseminates a consolidated feed in real-time.

46 See supra note 37.

47 Canada has a similar nationally consolidated tape with trading venues submitting pre-trade and post-trade information to central information processors where consolidation and dissemination of data is performed. In Singapore, the Singapore Exchange acts as the centralized repository for post-trade information for Singapore-listed securities.

48 For instance in Spain, RMs are focused on trading equities of regular Spanish issuers in a consolidated order book while one of the two existing MTFs focuses on shares of small and medium-sized enterprises (SMEs) and the other one on Latin American companies.

The survey also revealed challenges in the accuracy and reliability of OTC trading data, which made it difficult to draw definitive conclusions on the impact of fragmentation at a national level. In addition, the data collected did not consider the evolution in the trading of domestic equities in foreign jurisdictions, and thus did not allow for drawing definitive conclusions from the fact that, within some jurisdictions, the market shares computed at national level did not change over time. Indeed, in some cases, the level of fragmentation and its evolution over the last 10 years remains to be assessed at an international level.

Notwithstanding the difficulty of measuring the exact level of fragmentation in most jurisdictions, survey responses show that among IOSCO jurisdictions, the fragmentation of equity markets is perceived as being on a rising trend. In particular, there is substantial market fragmentation in the US, Canada and a growing level of fragmentation in the EU, particularly in the United Kingdom. In these regions, traditional exchanges compete for order flow with several non-exchange market trading systems (ATSs or MTFs), and also with OTC trading systems.[49] However, a number of IOSCO jurisdictions show limited or no market fragmentation, since most of the trading is consolidated in a single domestic exchange.

The survey also revealed that, in most jurisdictions similar rules apply for exchange trading market systems and non-exchange trading market systems. This was not the case when the 2001 Report was issued, in which only a few countries classified non-exchange trading market systems as a “market place”. However, considerable differences appear to remain as regards OTC trading. For instance, several jurisdictions stated that most of the trading which takes place OTC is not subject to any pre-trade transparency requirement or fair access rule.

Finally, the survey confirmed the importance of examining potential drawbacks arising from market fragmentation and the need to address them.

4.2 Challenges

Securities regulators bear the responsibility for striking an appropriate balance between a market structure that promotes competition among markets, and one that minimizes the potentially adverse effects of fragmentation on market integrity and efficiency, price formation, and best execution of investor orders.

Accordingly, an appropriately balanced market structure must provide for strong investor protection, foster fair and efficient capital markets and confidence in those markets, and enable businesses to raise capital for the benefit of the overall economy.

In addition to the many benefits, the 2001 Report identified a number of concerns raised by market fragmentation, including: (1) the duplication of costs, including “search”, operating

[49] See Appendix A. In the U.S., market fragmentation, as measured by the volume of equity and ETF trading on exchanges has remained steady or even registered a slight rise, due in part to registration as exchanges by some ATSs. In Canada, fragmentation has been possible since the implementation of the Marketplace Rules in 2001. Trading in equity securities is dispersed across 11 exchanges and ATSs trading equities and ETFs and the listing exchanges have been losing market share to registered ATSs since 2007. In some EU jurisdictions, since the entry into force of MiFID in 2007, there has been a dramatic movement of trading from the RMs to MTFs and OTC trading systems. The most significant example of this is in the UK where the percentage of ETF and equity trades executed through the RMs decreased from over 90% in 2008, to approximately 36% in 2011; in France, over 57% of the CAC equity stocks are now traded outside RMs.

and regulatory costs; (2) the introduction of trading methods and business practices that may diminish efficiency and not be in the interests of the market as a whole; and (3) the dispersion of liquidity that could result in less efficient price formation and in higher volatility. On the other hand, competition creates incentives for trading centres to create new products, provide high quality trading services that meet the needs of investors, and keep trading fees low, which benefits investors and the markets.

The objective of this report is now to gather evidence and views for IOSCO to develop future recommendations that promote market liquidity and efficiency, price transparency, investors' execution quality, in a fragmented environment. Against this backdrop, the consultative report proposes to consider policy options and regulatory tools to cope with the potential drawbacks arising from market fragmentation.

In this respect, this report specifically deals with the regulatory measures considered necessary to cope with these risks, taking into account previous analyses and recommendations of IOSCO C2 in other, but related, areas. Specific reference is made to the IOSCO 2011 Report *Principles for Dark Liquidity,*[50] the 2011 Report *Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency* as well as to the recently published consultation report on *Technological Challenges to Effective Market Surveillance Issues and Regulatory Tools*.[51]

4.3 Recommendations

- **Monitoring the impact of fragmentation on market integrity and efficiency**

As trading spaces evolve, the regulatory framework should evolve as well. Ongoing monitoring of the impact of fragmentation on markets is essential in this context. In a competitive environment, it is also important to ensure that securities regulators continuously evaluate the regulatory requirements imposed on different trading spaces and ensure that regulatory requirements are appropriate, with due consideration to the different functions they perform.

The relevant requirements would include those that relate to the transparency of orders and trades, best execution and/or order routing requirements and those that relate to the requirement to report the appropriate information to monitor trading. The assessment should not only include whether additional requirements are needed, but also whether existing requirements should be revised, clarified or amended to be more effective in a fragmented market.

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50 See *Principles for Dark Liquidity*, IOSCO, May 2011, supra fn No. 35.

51 The recommendations of these reports are attached in the Appendix D and E.

Recommendation 1

1.1 Regulators should regularly monitor the impact of fragmentation on market integrity and efficiency across different trading spaces and seek to ensure that the applicable regulatory requirements are still appropriate to protect investors and ensure market integrity and efficiency, including with regard to price formation, bearing in mind the different functions that each trading space performs.

1.2 Regulators should regularly evaluate the regulatory requirements imposed on different trading spaces and seek to ensure that they are consistent (but not necessarily identical) across spaces that offer similar services for similar instruments.

Questions:

1. *Does the evolving market fragmentation challenge the relevance, effectiveness or implementation of current regulatory requirements? If so, which ones and how are they impacted?*
2. *Are you aware of material differences in regulatory requirements between different trading spaces that from your point of view are not justified and create regulatory risks and unfair competition? For example, are there regulatory requirements that apply to one type of trading space in your jurisdiction and currently do not apply to others but, in your view, should apply to others that offer similar services? Please describe.*
3. *Do you think that the price formation process has been deteriorated or has been improved as the result of market fragmentation? If so, please explain how.*

- **Monitoring the impact of fragmentation on trade information**

In its 2001 Report, IOSCO noted that, while competition among trading spaces may improve market efficiency, it may, in some circumstances, have a detrimental effect. This would be the case where, for instance, competition results in fragmentation that leads to significantly different transparency levels across the market and/or high search costs for market participants and their customers.

The 2001 Report emphasized that market transparency is generally regarded as central to both the fairness and efficiency of a market, and in particular to its liquidity and quality of price formation. This is achieved by providing investors with access to information on available trading opportunities. Thus, regulation that ensures the widest access to trade data and that promotes comprehensive data consolidation and timely dissemination is one key tool to mitigate the potential adverse effects of market fragmentation on price discovery.

Indeed, arrangements that either facilitate the consolidation or the dissemination of information are intended to address one of the potential adverse effects of market fragmentation. Access by market participants to relevant data sources is important to improve their ability to efficiently compare prices across trading spaces, identify trading opportunities and to make appropriately informed trading decisions about where and when to trade. IOSCO members implement this recommendation in different ways. Some of them require a single consolidated tape whilst other may allow several consolidated tape providers or information vendors to compete with each other. The manner in which a jurisdiction determines how to consolidate data may depend in part on the structure of the market in that jurisdiction.[52]

Recommendation 2

In an environment where trading is fragmented across multiple trading spaces, regulators should seek to ensure that proper arrangements are in place in order to facilitate the consolidation and dissemination of information as close to real time as it is technically possible and reasonable.

Questions:

1. *What options are available to manage the issues associated with data fragmentation in a competitive environment?*
2. *What conditions, if any, should govern access by investors to consolidated market data?*
3. *Are there other challenges (technical, regulatory, prohibitively high costs) with regard to creating and/or accessing consolidated market data? What if anything, should be done to address these challenges?*
4. *What views do you have on the relative merits of a single consolidated tape mandated by the regulation versus multiple competing tape providers? Please elaborate.*

- **Monitoring the impact of fragmentation on order handling rules and best execution**

In the context of fragmented markets, order handling and best execution rules are particularly important. In some jurisdictions, these obligations require that in obtaining best execution, intermediaries may consider at least price, overall costs of a transaction, speed of execution and order size. Achieving best execution is impacted by a fragmented market. Prices may be fragmented across multiple trading spaces and access to those markets may be difficult without dedicated tools, such as smart order routers.

The approach taken in many jurisdictions affects monitoring compliance with best execution requirements for both regulators and market participants. In addition, there are differences in how such requirements apply in different jurisdictions. For example, in the EU, best execution requires investment firms to make all efforts to achieve the best possible overall result for their clients, based on an assessment of prices but also of execution quality and certainty. That

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52 In the U.S. and Canada, this is achieved through the obligation to provide pre and post-trade information to a single consolidated tape. It seems likely that Europe will evolve towards greater involvement of financial regulators with regard to the consolidation of trade data. In Europe, the importance of achieving unified standards for data capture and dissemination is recognised in the ongoing review of MiFID. The new MiFID is expected to improve post-trade data quality and consolidation by requiring all investment firms to publish their trade reports through Approved Publication Arrangements, which will be authorized by competent authorities and will be responsible for the trade publication process by checking trade reports for completeness and for errors. The adoption of standards and the new regime for consolidated tape providers (CTPS) should further enhance the ability of market participants to consolidate all the necessary information at a reasonable cost.

enables firms to establish execution policies where they route orders to only certain trading spaces. In North America, the trading characteristics of all trading spaces (price, certainty, speed of execution, etc.) must be considered, and firms cannot exclude a trading space when implementing best execution requirements.

Some C2 members questioned how best execution operates in practice, where there is price and liquidity fragmentation, and whether the way best execution policy is designed is sufficient to mitigate the negative aspects of market fragmentation. Fragmented markets in North America and Europe also differ in one particular aspect relevant to the analysis of fragmentation – the existence of an order protection or "trade-through" rule.[53]

Where there is fragmentation, investors should be given the opportunity to scrutinize how investment firms handled their orders. To facilitate this, regulators should consider enhancing disclosure of order handling or routing policies or practices, either on request or on a periodic basis. Public dissemination of pre and post-trade data also supports investors' ability to assess the quality of their executions.

Recommendation 3

Where markets are fragmented, regulators should consider the potential impact of fragmentation on the ability of intermediaries to comply with applicable order handling rules including, where relevant, best execution obligations, and take the necessary steps.

Questions:

1. *Should existing order handling rules, such as best execution, be re-examined in the context of fragmented markets? If so, in what way?*
2. *Do you think that rules relating to the disclosure of order handling practices by investment firms are appropriate to facilitate compliance with and evaluation of 'best execution'?*
3. *Are there any other appropriate 'order handling' tools that should be considered in the context of fragmented markets?*

- **Monitoring the impact of fragmentation on access to liquidity**

In its 2001 Report, IOSCO also stated that in a fragmented market place "*regulators (...) need to ensure that there are no unreasonable barriers to accessing different trading centres (...)*".

IOSCO continues to believe that this statement is critically important in today's fragmented environment. Where liquidity is fragmented in particular across **exchange and non-exchange**

[53] In the U.S. and Canada, the trade-through protection rule[53] is meant to ensure that quotations that are displayed in one trading venue are not bypassed by trades at inferior prices in other trading venues and that marketable orders are routed to a trading venue displaying the best price. Order handling rules have been introduced to foster fair and efficient markets and confidence in those markets. They also seek to mitigate the impact of the fragmentation of liquidity across multiple trading venues and ensure that competition is not detrimental to the way 'marketable' orders are handled, and that investors' orders are executed at the best possible price.

trading market systems[54], in order to trade effectively, market participants should be provided with fair access to those systems that display sources of liquidity.

Recommendation 4

Regulators should regularly monitor the impact of fragmentation on liquidity across trading spaces.

Regulators should seek to ensure that applicable regulatory requirements provide for fair and reasonable access to significant sources of market liquidity on the exchange and non-exchange trading market systems.

Questions:

1. *Do you have views on regulatory mechanisms and specific arrangements that might be needed to help ensure that investors have an appropriate, fair and reasonable access to liquidity in both exchange and non-exchange trading market systems? If yes, please elaborate.*
2. *Are there any other issues resulting from the market fragmentation that should be addressed with respect to access to liquidity on exchange and non-exchange trading market systems?*

- **Monitoring the impact of fragmentation on market efficiency and resilience**

IOSCO is well aware that, as markets and trading technology evolve, it is important for regulators to evaluate continuously challenges and requirements to ensure that they take into account new and evolving market structures and trading strategies. This is reflected not only in the current report, but also in two other related reports drafted by IOSCO that seek to promote the markets' integrity and efficiency to mitigate risks posed to the financial system by the latest technological developments. In particular:

In October 2011, IOSCO issued its report on *Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency*,[55] which explicitly addresses the need for regulators to continuously evaluate the regulatory challenges related to new and evolving trading strategies. In this report, IOSCO issued the following recommendations:

Recommendation 4: "Regulators should continue to assess the impact on market integrity and efficiency of technological developments and market structure changes, including algorithmic and high frequency trading. Based on this, regulators should seek to ensure that suitable measures are taken to mitigate any related risks to market integrity and efficiency, including any risks to price formation or to the resiliency and stability of markets, to which such developments give rise" and,

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[54] As defined in this report page on 6.

[55] See FR09/11 *Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency*, Final Report, Report of the Technical Committee of IOSCO, October 2011, available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD361.pdf.

Recommendation 5: "Market authorities should monitor for novel forms or variations of market abuse that may arise as a result of technological developments and take action as necessary. They should also review their arrangements (including cross-border information sharing arrangements) and capabilities for the continuous monitoring of trading (including transactions, orders entered or orders cancelled) to help ensure that they remain effective."

More recently, in August 2012, IOSCO issued the Consultation Report *Technological Challenges to Effective Market Surveillance Issues and Regulatory Tools*,[56] which considers the challenges that technological changes pose for regulators in their market surveillance due to the increased speed of trading, and regulators' ability to gather and process the increased volume of trading data.

Questions:

1. *Are there any regulatory requirements that should be examined in addition to the recommendations already made in the above mentioned IOSCO reports in light of the evolution of market structure and trading strategies in the very specific context of market fragmentation? If so, please describe.*
2. *Are there any other issues associated with the fragmentation of markets that have not been mentioned in the current report?*
3. *Are there any changes to regulatory structure that you would recommend to regulators in your jurisdiction to address issues raised by market fragmentation? If yes, please elaborate.*

[56] See CR12/12 *Technological Challenges to Effective Market Surveillance Issues and Regulatory Tools*, Consultation Report, Report of the Board of IOSCO, August 2012, available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD389.pdf.

Appendix A – The evolution of trading spaces in C2 jurisdictions since 2001.

North American Region (including Canada, United States, Mexico) and South America (Brazil)

Although ATSs and dealer trading systems existed in the US well before 2001, the level of fragmentation has substantially increased since then. As of April 30, 2012, there were 90 ATSs registered[57] and 16 securities exchanges registered with the SEC.[58] In terms of the estimated trading volume in the U.S. between 2007 and 2011, the IOSCO survey indicated that the percentage of equities traded "off-exchange" (OTC and ATS combined) has seen a modest increase as a percentage of share trading volume from approximately 27.8% in 2007, to 30.3% in 2011. However, between 2009 and 2011, the percentage volume of all equities traded in the U.S. on the exchanges increased from 65.9% to 69.7%. The percentage of ETFs traded "off-exchange" (OTC and ATS combined) saw a modest increase as a percentage of share trading volume from approximately 22.1% in 2007, to 26.21% in 2011. However, between 2009 and 2011, the percentage volume of all ETFs traded in the U.S. on the exchanges increased, from 68.9% to 73.8%.

In Canada, the *Marketplace Rules* were introduced in 2001 to foster both innovation and competition in trading. They provide the regulatory framework for the operations of both ATSs and exchanges, and also outline requirements regarding the regulation of trading on these marketplaces. Data provided to IOSCO indicates that until 2007, trading was almost exclusively done on exchanges (99.9%), whereas that figure was about 80% in 2009 and 59% in 2011. Currently there are 11 marketplaces operating and trading in equity securities and ETFs. It should be noted that in Canada, there is also an obligation for registered investment dealers to trade listed equities and ETFs on a "marketplace" (either an exchange or an ATS).[59]

In Mexico, the law does not permit ATSs or any other non-exchange trading system. Trading is therefore exclusively done on the exchange. In fact, non-exchange trading market systems are not authorised at all. In Brazil**,** all listed equities and equity-linked ETFs must be traded on an exchange. Only unlisted equities may be traded in the OTC market and to date their proportion of the market share is insignificant.

Europe and Switzerland

In the EU in November 2007, the *Markets in Financial Instruments Directive* (MiFID N° 2004/39/EC)[60] came into force. The directive established a regulatory framework introducing competition among trading spaces, allowing different types of trading spaces to compete with

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57 See *Alternative Trading Systems, Active Filers as of April 30, 2012,* US SEC, available at http://www.sec.gov/foia/ats/atslist0412.pdf.

58 See http://www.sec.gov/divisions/marketreg/mrexchanges.shtml: We note that not all of the registered exchanges and ATSs trade equities and ETFs.

59 Subject to certain limited exceptions (principally related to trading on foreign organized regulated markets or on behalf of non-Canadian accounts), the Universal Market Integrity Rules of IIROC, specifically, Rule 6.4 *Trades to be on a Marketplace* requires that registered investment dealers trade listed securities on a marketplace (which is defined as an exchange or an ATS).

60 Reference to the MiFID should be read together with the implementing Commission Regulation (EC) No 1287/2006 and Commission Directive 2006/73/EC.

existing exchanges.[61] Since then, several new types of trading venues – that is to say MTFs and Systematic Internalisers – have been introduced (beside the already existing regulated markets) to trade financial instruments like equity and equity-like products. In terms of the evolution of the number of trading spaces, Table 4 in the Appendix D shows the pre and post-MiFID position.

The introduction of MiFID changed profoundly the securities trading landscape in several European countries.

In the last three years, competition has resulted in a substantial shift of liquidity (as a percentage of trading volume) from RMs to MTFs and OTC, particularly in the U.K and France.

In some jurisdictions, markets were fragmented even before MiFID was introduced. For example, in Germany several exchanges and non-exchange platforms existed before MiFID. In contrast, there is substantial "new" market fragmentation in the U.K. where there appears to have been a very substantial movement of trading among UK trading spaces. Before 2008, equity trading in UK shares[62] was almost exclusively carried out on the domestic regulated market[63] through a mix of electronic trading and trading occurring away from the exchange's electronic trading system but subsequently reported to the exchange. However, after the implementation of MiFID, a number of different trading venues emerged. By 2011, the share of trading volume in equities handled by the regulated markets decreased to 36%, while MTFs gained a market share of 24% and 35 % of the trading in the UK shares took place OTC.[64]

In France, the percentage share of equities traded OTC in CAC40 equities increased between 2009 and 2011, from 51% to 57% of total trading, while trading on RMs decreased over the same period, from 35% to 28%.[65] In contrast, the share of equity trades executed through MTFs has remained stable over the last three years at approximately 13%-14%.[66]

In interpreting the data above, it is important to note that it does not necessarily reflect the actual evolution in the trading of "domestic" equities in "foreign" jurisdictions within the single European Economic zone since there is competition from MTFs in other jurisdictions, which might have attracted trading away from other EU countries. As a result, the remaining trades executed in these countries may continue to be executed in the recognized exchanges, thus possibly giving the misleading impression that there has been little structural change in the domestic market. For instance, Switzerland stated that the introduction of MiFID in the EU has exerted competitive pressure on its market share for trading in both domestic and foreign securities.

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61 Before the introduction of MiFID, concentration rules that required all orders to be directed to a RM existed in most but not all of the EU Member States. See Council Directive 93/22/EEC, 10 May 1993, on investment services in the securities field available at http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1993:141:0027:0046:EN:PDF .

62 UK shares are defined as shares admitted to trading on a UK Regulated Market.

63 The London Stock Exchange.

64 One notable development in the U.K. is that two MTFs, BATS Europe and Chi-X Europe, have recently merged to become BATS Chi-X Europe - FSA sources.

65 From internal sources of AMF.

66 Regarding the rest of Europe, it is worth noting that one MTF recently began to operate in the Netherlands and two in Spain.

Thomson Reuters[67] estimates that approximately 30%-50% of total equity trading volume is reported OTC in Europe, with significant differences among member states. However, a speaker invited by C2 noted that, according to their studies,[68] "real liquidity trades" account for just 16% of all European equities turnover carried OTC in the same period.[69] The different estimates show the difficulty in obtaining reliable data, especially regarding the OTC market where data quality may be questionable, and where data may not even be available. The same is true for ETF markets, where data availability is limited in many jurisdictions.

Australia and Asia (including: China, Hong Kong, India, Japan, Malaysia, Singapore, and Turkey)

There seems to be less market fragmentation in Australia and the Asian C2 member jurisdictions.

In Australia, the regulatory framework was amended in 2011 to allow for competition between exchange markets for trading in equity products quoted on the Australian Securities Exchange (ASX). Chi- X Australia (Chi-X) (the first and currently only competitor to ASX) commenced operating in October 2011. The share of total equity market turnover on Chi-X's order book was just under 5% in September 2012. This compares to 68% of turnover on order books of the ASX and 27% matched off-order books and reported to ASX and Chi-X. Out of the 'off-the order book' trades, around half concerned block trades. There are currently 18 crossing systems managed by the 15 brokers who have notified ASIC of their presence. This is up from five systems in 2009. Total turnover in these crossing systems is between 4%-5% of total market turnover.

In Turkey there is currently only one exchange operating for spot products. However, a new regulatory framework[70] permitting ATS is expected to be established in the near future.

In India and Malaysia, trading is almost exclusively performed on exchanges. The regulatory requirements in India and Malaysia provide for a specific regime for trading equities and ETFs on the exchange only by licensed intermediaries. In countries of these regions, OTC trading in equities appears to play a minor role. In India, exchanges comprise nearly 100% of market share and OTC trading is described as minuscule. Equities in India are majorly traded on the two nation-wide exchanges, namely the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE), and Units of ETFs are listed on at least one recognised stock exchange. Over the period from 2004 to 2011, ETF trading on the exchanges increased from $62 million in 2004 to approx. $3.883 million in 2011. However, the market share of ETFs in comparison to cash equity trading on exchanges constituted less than 1% from 2004 to 2011. For Malaysia, the OTC trading of equities and ETFs is relatively small; and exchange traded

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67 See Thomson Reuters *MiFID Market Share Report*.

68 AFME: *Finance for Europe – Market Analysis – The Nature and Scale of OTC Equity Trading in Europe.*

69 60% of all reported MiFID OTC equity trades between Q1 2008 and Q3 2010 were duplicate trades already reported elsewhere.

70 A New Capital Market Draft Law has been introduced to The Grand National Assembly of Turkey and is expected to come into force in the first quarter of 2013.

ETFs were only introduced in 2007. In China, listed equities and ETFs may be traded only on exchanges.

Japan has allowed inter-market competition since 1997, and is the only country in this region able to provide estimates on ETF trading since 2001. The data provided by the Japanese Financial Services Authority (JFSA) indicates that a material volume of ETF trading moved to markets other than registered exchanges. In particular, between 2001 and 2011, the combined volume share of ETFs traded on Proprietary Trading Systems (PTSs) (analogous to ATSs in the US) and OTC increased from about 24% to 46% of all ETF trades in Japan. However, the change in the cash equity trading remained relatively static, where the exchanges maintained over 90% of the market share throughout the period, whilst the percentage of OTC trading relative to PTSs decreased.

Several other jurisdictions (Hong Kong, Singapore) stated that, although different trading spaces exist, the exchanges in their jurisdiction remain the dominant market place for equities.

Appendix B – Ongoing regulatory developments

In Australia, on 20 November 2012, ASIC introduced new market integrity rules to address risks emerging from developments in market structure, including growth in automated trading and the changing nature of dark liquidity. The key changes are:

- Pre-trade transparency rules require meaningful price improvement (of 1 tick size or at the mid-point of the best bid and offer) and alter the rule on block trades. They apply from May 2013.
- Volatility controls for extreme price movements were amended to introduce a market-wide two minute pause. The controls were extended to apply to the ASX SPI 200 index futures contract from May 2014 to minimise cross-product contagion.
- Automated trading rules require direct and immediate control over filters and orders (*i.e.*, 'kill switch' capabilities) and existing rules were amended to require annual review of systems. They take effect in May 2014. Revised guidance clarifies ASIC's expectations on trading system controls, testing of systems and minimum standards for direct market access.
- Regulatory data for supervision rules require additional data on orders and/or trades, including: (a) identification of dark pools, (b) flagging whether a participant is acting as principal or agent, (c) a client identifier or reference, (d) identification of licensed intermediaries, and (e) flagging direct market access.

In Europe, the MiFID is currently under review and includes the following main elements:

- A review of transaction reporting to European competent authorities.
- The possibility that competent authorities may be given powers to obtain pre-trade transparency information from trading venues on an ongoing basis (including the possibility of this extending to trading venues in European Economic Area (EEA) jurisdictions other than the given competent authority's).
- The establishment of mandatory consolidated tapes for trades in shares admitted to trading on an RM, with the current proposal being that competing commercial providers should be able to qualify to produce such a tape. The current project does not currently mandate any single and exhaustive tape to be implemented.
- The extension of MiFID's pre- and post-trade transparency requirements for shares admitted to trading on an RM to equity-like instruments, such as ETFs.
- A reconsideration of the regulatory classifications for trading venues, with the possible creation of a new "Organised Trading Facility" (OTF) category. OTFs would include venues that do not qualify as MTFs under MiFID by virtue of the operator applying discretion with respect to how buying and selling interests interact.
- The possible inclusion of a requirement that all direct members of MTFs and RMs be required to be authorised entities.

In Malaysia, a Capital Market Master plan (CMP2) was launched in April of last year, which is a strategic blueprint that outlines the strategies to transform the competitive dynamics of the capital market over the next 10 years. CMP2 envisages that the capital market will be a multi-venue, multi-product and multi-asset environment given the increased complexity of financial intermediation.

In the U.S, the SEC recently adopted a Consolidated Audit Trail to assist in surveillance of its multiple market structure and has recently established an office that will receive market data in real-time to assist in overseeing US market structure.

Appendix C – Description of Best Execution policies and Trade-through obligation in Canada and the USA

Best execution

In **Canada**, a dealer must make reasonable efforts to achieve best execution when acting for a client. In this context, "best execution" means the most advantageous execution terms reasonably available under the circumstances. In seeking best execution, a dealer may consider the elements listed above. These broad elements encompass more specific considerations, such as order size, reliability of quotes, liquidity, market impact (*i.e.*, the price movement that occurs when executing an order) and opportunity cost. Which elements are considered and how much weight they are given in determining "the most advantageous execution terms reasonably available" will vary depending on the instructions and needs of the client, the particular security, and the prevailing market conditions. Although what constitutes "best execution" varies depending on the particular circumstances, to meet the "reasonable efforts" test, a dealer establishes and complies with policies and procedures that (i) require it to follow the client's instructions and the objectives set, and (ii) outline a process designed to achieve best execution. The policies and procedures describe how the dealer evaluates whether best execution was obtained and should be regularly and rigorously reviewed.[71]

In the **US**, a broker-dealer has a legal duty to seek to obtain best execution of customer orders.[72] A broker-dealer's duty of best execution derives from common law agency principles and the fiduciary obligations that arise from the agency relationship, and is incorporated in SRO rules and, through judicial and SEC decisions, and the antifraud provisions of the federal securities laws.[73] The duty of best execution requires broker-dealers to execute customers' trades, in accordance with the conditions of the order, at the most favourable terms available under the circumstances, *i.e.*, at the best reasonably available

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[71] National Instrument 23-101 *Trading Rules,* section 4 and Companion Policy 23-101CP, Parts 1.1 and 4. In addition, Universal Market Integrity Rules of IIROC, specifically Part 5 *Best Execution Obligation.*

[72] See *e.g., Newton v. Merrill, Lynch, Pierce, Fenner & Smith, Inc.,* 135 F.3d 266, 269-270 (3d Cir.), *cert. denied,* 525 U.S. 811 (1998) (*Newton*); *Certain Market Making Activities on Nasdaq, Exchange Act Release* No. 40900 (January 11, 1999)(settled case)(citing *Sinclair v. SEC,* 444 F.2d 399 (2d. Cir. 1971); *Arleen Hughes,* 27 SEC 629, 636 (1948), *aff'd sub nom. Hughes v. SEC,* 174 F.2d 969 (D.C. Cir 1949). See also *Order Execution Obligations, Securities Exchange Act Release* No. 37619A (Sept. 6, 1996), 61 FR 48290 (Sept. 12, 1996) (*Order Handling Rules Release*). See *Regulation NMS, Securities Exchange Act Release* No. 51808, 70 FR 37496 (June 29, 2005) (*Regulation NMS Release*).

[73] See *Regulation NMS Release* at note 338. See also *Order Handling Rules Release*, 61 FR at 48322. See also *Newton,* 135 F.3d at 270. Failure to satisfy the duty of best execution can constitute fraud because a broker-dealer, in agreeing to execute a customer's order, makes an implied representation that it will execute it in a manner that maximizes the customer's economic gain in the transaction. See *Newton,* 135 F.3d at 273 (''[T]he basis for the duty of best execution is the mutual understanding that the client is engaging in the trade—and retaining the services of the broker as his agent—solely for the purpose of maximizing his own economic benefit, and that the broker receives her compensation because she assists the client in reaching that goal.''); Marc N. Geman, *Securities Exchange Act Release No. 43963* (Feb. 14, 2001) (citing Newton, but concluding that respondent fulfilled his duty of best execution). See also *Securities Exchange Act Release No. 34902* (Oct. 27, 1994), 59 FR 55006, 55009 (Nov. 2, 1994) (*Payment for Order Flow Final Rules*). If the broker-dealer intends not to act in a manner that maximizes the customer's benefit when he accepts the order and does not disclose this to the customer, the broker-dealer's implied representation is false. See *Newton*, 135 F.3d at 273–274.

price.[74] The SEC has not viewed the duty of best execution as inconsistent with the automated routing of orders or requiring automated routing on an order-by-order basis to the market with the best-quoted price at the time.[75] Rather, the duty of best execution requires broker-dealers periodically to assess the quality of competing markets to assure that order flow is directed to the markets providing the most beneficial terms for their customer orders.[76] Broker-dealers must examine their procedures for seeking to obtain best execution in light of market and technology changes and modify those practices if necessary to enable their customers to obtain the best reasonably available prices.[77] In doing so, broker-dealers must take into account price improvement opportunities, and whether different markets may be more suitable for different types of orders or particular securities.[78]

Trade-through obligation

In Canada, in addition to the best execution obligation, marketplaces and in some circumstances, dealers are subject to a trade-through obligation. This *Order Protection Rule*[79] applies to the full depth of the book, as opposed to the top-of-book requirement in the United States. The rule requires that all better-priced orders be executed before inferior-priced orders across all marketplaces. To this end, all exchanges and ATSs are required to establish, maintain and enforce written policies and procedures that are reasonably designed to prevent trade-through (subject to certain exceptions). This policies and procedures requirement also applies to investment dealers that control their own order flow and route orders to various exchanges and ATSs on their own.

These two obligations are different, yet interact. The rationale for a dealer's best execution obligation and the obligation to prevent trade-through is different - the obligation of best execution is based on the fiduciary duty that a dealer has to its client, while trade-through protection is based on the obligation of a participant to the market as a whole and is grounded in the desire to protect visible and accessible limit orders and to ensure that those who decide to display the prices they are willing to pay or receive for a particular security will obtain the benefit of that decision. Having a trade-through obligation does not weaken the obligation to achieve best execution. The decision of how and where to trade (best execution) continues to be determined by the particulars of the order and needs of the client. However, all better-priced orders must be honoured at the time of execution.[80]

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74 See *Regulation NMS Release at note 341*, citing *Newton*, 135 F3d at 270. *Newton* also noted other certain factors relevant to best execution – order size, trading characteristics of the security, speed of execution, clearing costs, and the cost and difficulty of executing an order in a particular market *Id.* at 270 n. 2 (citing Payment for Order Flow, *Exchange Act Release* No. 33026 (Oct. 6, 1993), 58 FR 52934, 52937–38 (Oct. 13, 1993) (Proposed Rules)). See *In re E.F. Hutton & Co*. (''Manning''), *Securities Exchange Act Release No. 25887* (6 July, 1988). See *also Payment for Order Flow Final Rules, 59 FR at 55008–55009*.

75 Id.

76 Id.

77 Id.

78 Id.

79 National Instrument 23-101 *Trading Rules*, Part 6, available at http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/252_2001_00.

80 CSA Notice of Proposed Amendments to NI 21-101 Marketplace Operation and NI 23-101 Trading Rules (2008) 31 OSCB 10039, 17 October, 2008.

The SEC's Rule 611, the Order Protection Rule was adopted under Regulation NMS to support a broker-dealers' duty of best execution. Rule 611 under Regulation NMS helps to ensure that investors' orders are not executed at inferior prices by requiring a trading centre to establish, maintain, and enforce policies and procedures that are reasonably designed to prevent executions of trades at prices worse than the best protected quotations, as defined, across the markets. In addition, under Rule 605 of Regulation NMS, market centres that trade national market system securities are required to make available to the public monthly electronic reports that include uniform statistical measures of execution quality.

Appendix D – Descriptions and numbers of exchange trading market systems, non-exchange trading market systems and OTC, in C2 jurisdictions

Table 1 - Exchange Trading Market Systems (Exchanges)

Table 1 below indicates the exchange trading market systems (hereinafter the "Exchanges") existing in C2 jurisdictions, together with the definition adopted for them in the jurisdictions as well as an indication of the main features in terms of investors accessing the system, the execution method and the entities currently operating this category of trading space.

	Definition	**Investors accessing the systems & execution method**	**Exchanges currently in place**
Regulated Markets (RMs) in EU	RMs means a multilateral system operated and/or managed by a market operator which brings together or facilitates the bringing together of multiple third parties in buying and selling interests in financial instruments - in the system and in accordance with non-discretionary rules - in a way that results in a contract in respect of financial instruments admitted to trading under its rules and/or systems and which is authorised and functions regularly.	Retail// Wholesale Continuous trading // Auction market	As at 7 November, 2012, 94 trading venues were registered as RMs in EU (please refer to ESMA MiFID Database for the list) [81]
Exchanges (Swiss Federal Act on Stock Exchanges and Securities Trading) in Switzerland	A "stock exchange" shall mean any organisation which is set up for the purpose of securities trading and which enables the simultaneous exchange of offers of securities among a number of securities dealers, as well as the execution of transactions.		
Exchanges (under the Securities Exchange Act of 1934 ("Exchange Act")) in US	Under Exchange Act Section 3(a)(1), the term "exchange" is defined as "any organization, association, or group of persons, whether incorporated or unincorporated, which constitutes, maintains, or provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange as that term is generally understood, and includes the market		In 2012, 16 trading venues were registered as exchanges. [82] In addition, certain exchanges are also registered with the SEC through a notice filing under Section 6(g) of the Exchange Act for the purpose of

81 Please refer to ESMA MiFID Database for the list (http://mifiddatabse.esma.eu).

82 NYSE Amex LLC (formerly the American Stock Exchange), BATS Exchange, Inc. BATS Y-Exchange, Inc., BOX Options Exchange LLC , NASDAQ OMX BX, Inc. (formerly the Boston Stock Exchange), C2 Options Exchange, Incorporated, Chicago Board Options Exchange, Incorporated, Chicago Stock Exchange, Inc., EDGA Exchange, Inc.; EDGX Exchange, Inc., International Securities Exchange, LLC, The Nasdaq Stock Market LLC, National Stock Exchange, Inc., New York Stock Exchange LLC, NYSE Arca, Inc., NASDAQ OMX PHLX, Inc. (formerly Philadelphia Stock Exchange).

	place and the market facilities maintained by such exchange." See also Exchange Act Rule 3b-16, which, among other things, excludes the following systems from the term "exchange": (1) systems that merely route orders to other facilities for execution; (2) systems operated by a single registered market maker to display its own bids and offers and the limit orders of its customers, and to execute trades against such orders; and (3) systems that allow persons to enter orders for execution against the bids and offers of a single dealer.		trading security futures [83]. There are also two exchanges that the SEC has exempted from registration as national securities exchanges on the basis of a limited volume of transactions[84].
Recognised Exchange Companies in <u>Hong Kong</u>	Under the Securities and Futures Ordinance, no person shall operate a stock market unless the person is a recognised exchange company. "Stock market" is defined as a place where persons regularly meet together to negotiate sales and purchases of securities (including prices), or a place at which facilities are provided for bringing together seller and purchasers of securities; but does not include the office of an exchange participant of a recognised exchange company which may operate a stock market or recognized clearing house.		
Financial Instruments Exchanges in <u>Japan</u>	A Financial Instruments Exchanges means an entity such as a stock company, in which sale and purchase of securities or market transactions of derivatives are conducted with a license under the Financial Instruments and Exchange Act. A Financial Instruments Exchange shall properly conduct self-regulation related services such as examination of listing and delisting of financial instruments, inspections for compliance by market participants, and investigations on unfair trading.		As at December 3, 2012, 6 Financial Instruments Exchanges are licenced in Japan.
Approved exchanges (AE) in <u>Singapore</u>	An approved exchange is a corporation which, in operating a systemically important securities or futures market, is required to comply with a higher level of statutory obligations than other market operators. A securities market is defined under the Securities and Futures Act ("SFA") as a place at which, or a facility (whether electronic or otherwise) by means of which, offers or invitations to sell, purchase or exchange issued securities or such other securities as the MAS may prescribe are regularly made		

83 These include: Board of Trade of the City of Chicago, Inc.; CBOE Futures Exchange, LLC; Chicago Mercantile Exchange; One Chicago, LLC; The Island Futures Exchange, LLC; NQLX LLC.

84 Arizona Stock Exchange and the SWX Europe Limited (f/k/a Virt-x).

	on a centralized basis, being offers or invitations that are intended or may reasonably be expected, to result, whether directly or indirectly, in the acceptance or making, respectively, of offers to sell, purchase or exchange issued securities or prescribed securities (whether through that place or facility or otherwise), but which does not include a place or facility used by only one person to regularly make offers or invitations or to regularly accept offers to sell, purchase or exchange securities.		
Approved Market in <u>Malaysia</u>	An approved market refers to a stock market of an approved stock exchange, pursuant to Section 8 of the Capital Markets & Services Act (CMSA) 2007. A stock market is defined as a market or other place at which, or a facility by means of which i) offers to sell, purchase or exchanges of securities are regularly made or accepted; ii) offers or invitations that are intended, or may be reasonably be expected, to result, whether directly or indirectly, in the making or acceptance of offers to sell, purchase or exchange securities, are made regularly; or (iii) information concerning the prices at which or the consideration for which, particular persons, or particular classes of persons, propose, or may reasonably be expected to sell, purchase or exchange securities is regularly provided.		
Exchanges (National Instrument 21-101) in <u>Canada</u>	While the term "exchange" is not defined, an exchange generally performs one or more of the following functions: • requires an issuer to enter into an agreement to have its securities traded on the exchange; • provides, directly, or through one or more subscribers, a guarantee of a two-sided market for a security on a continuous or reasonably continuous basis; • sets requirements governing the conduct of subscribers, other than conduct in respect of the trading by those subscribers on the marketplace, and • discipline subscribers other than by exclusion from participation in the marketplace Exchanges that intend to carry on business must be recognized by a "lead" provincial securities regulatory authority.	Retail// Wholesale Continuous trading // Auction market	There are three exchanges recognized by provincial securities regulatory authorities that trade equities and ETFs.

Financial market (under the Corporations Act 2001) <u>in Australia</u>	Section 767A(1) of the Corporations Act defines a *financial market* as a facility through which: (a) offers to acquire or dispose of financial products are regularly made or accepted; or (b) offers or invitations are regularly made to acquire or dispose of financial products that are intended to result or may reasonably be expected to result, directly or indirectly, in: (i) the making of offers to acquire or dispose of financial products; or (ii) the acceptance of such offers. The Corporations Act requires that a person must only operate a financial market in Australia if they have a market licence or are exempt from the requirement to hold a licence.		

Table 2 - Non-Exchange Trading Market Systems (Non-Exchanges)

Table 2 below provides for the same kind of information indicated in Table 1 for non-Exchange trading market systems (hereinafter the "non-Exchanges").

	Definition	Investors accessing the systems & execution method	Non-Exchanges currently in place
Multilateral Trading Facilities (MTFs) in EU	Multilateral trading facilities are multilateral systems operated by an investment firm or a market operator which bring together multiple third-party buying and selling interests in financial instruments in the system and in accordance with non-discretionary rules - in a way that results in a contract (EU/Singapore).	Retail// Wholesale Continuous trading // Auction market.	As at November 7, 2012, 151 trading venues are registered as MTFs in EU (please refer to ESMA MiFID Database for the list)[85].
Alternative Trading Systems (ATSS) in US	"Alternative Trading Systems" (ATS) are trading venues that fall within the statutory definition of an "exchange" as set for in Section 3(a)(1) of the Exchange Act but are exempt for registration as an exchange if the system complies with Regulation ATS. Regulation ATS requires ATSs to be registered as a US broker-dealer with the SEC, be a member of FINRA, and comply with the broker-dealer regulatory regime. In general, ATS, unlike exchanges, do not have to file proposed rule changes with the SEC, publicly disclose its trading services and fees and do not have self-regulatory responsibilities, such as market surveillance.		
Alternative Trading System (ATS-Canada)	"Alternative Trading System" is a venue that is not an exchange and does not perform any of the functions described as "exchange functions" under NI 21-101. An ATS must be registered with the securities regulatory authorities as an investment dealer and become a member of IIROC. ATSs are required in certain provinces to file forms that outline their operations and any changes to those forms are reviewed and approved. An ATS does not have regulatory responsibilities as does an exchange	Varies between ATSs. Retail, wholesale, continuous auction markets, call markets, dark markets.	There are 11 ATSs carrying on business in Canada that trade equity securities and ETFs.
Recognized Market Operator (RMO) in Singapore	A recognised market operator is a corporation operating a securities or futures market that has direct access to investors in Singapore, and which is either incorporated locally or in a foreign jurisdiction. Recognised market operators are subject to a lower level of		

85 Please refer to ESMA MiFID Database for the list (http://mifiddatabse.esma.eu).

	statutory obligations than approved exchanges.		
Exchange-like institutions (Swiss Ordinance on Stock Exchanges and Securities Trading) in <u>Switzerland</u>	In Switzerland, FINMA can subject institutions which are similar to stock exchanges to the provisions of the Swiss Federal Act on Stock Exchanges and Securities Trading, in whole or in part.		
Proprietary Trading Systems (PTS) in <u>Japan</u>	PTS is the trading venue for securities in which a large number of persons participate simultaneously as a single party in a transaction conducted among a large number of people through an electronic data processing system. A PTS operator shall be authorized by the Prime Minister under Article 30 (1) of the Financial Instruments and Exchange Act.	Auction, Financial Instrument Market price referencing, negotiation system, quote driven system	As at December 3, 2012, 2 PTSs are authorized in Japan.
Automated Trading Services in <u>Hong Kong</u>	"Automated trading services" means services provided by means of electronic facilities, not being facilities provided by a recognised exchange company or a recognised clearing house, whereby – (a) offers to sell or purchase securities or futures contracts are regularly made or accepted in a way that forms or results in a binding transaction in accordance with established methods, including any method commonly used by a stock market or futures market; (b) persons are regularly introduced, or identified to other persons in order that they may negotiate or conclude, or with the reasonable expectation that they will negotiate or conclude sales or purchases of securities or futures contracts in a way that forms or results in a binding transaction in accordance with established methods, including any method commonly used by a stock market or futures market ; or (c) transactions – (i) referred to in paragraph (a); (ii) resulting from the activities referred to in paragraph (b), or (iii) effected on, or subject to the rules of, a stock market or futures market may be novated, cleared, settled or guaranteed, but does not include such services provided by a corporation operated by or on behalf of the Government.		

Table 3 - OTC Trading Systems

Table 3 below provides for information for over-the-counter trading (hereinafter "OTC"). For purposes of this report, the term "OTC" trading refers to trading of equities and ETFs on trading spaces *other than* exchanges or non-exchanges (*e.g.*, systematic intermediary internalizers, crossing networks, etc.).

	Definition	**Investors accessing the systems & execution method**	**OTC trading systems currently in place**
Systemic Internaliser in the EU	Systematic internaliser means an investment firm which, on an organized, frequent and systematic basis deals on own account on executing client orders outside a regulated market or an MTF.	Predominantly professional/wholesale investors. Negotiation system, request for quote system, electronic quote driven system.	As at November 7, 2012, 13 systems are registered as systematic internalisers in shares admitted to trading on an EU regulated market [86] (please refer to ESMA MiFID Database for the list)[87].
Crossing networks	Systems operated by investment firms/sometimes market operators[88] which mainly internally match client orders.		
Dealer Trading systems in the US	Systems of registered as broker-dealers that, due to the nature of their trading activities, are not exchanges or ATSs.		
Mutual fund in India	Authorized participants and large investors can directly subscribe/redeem units in a specific fund.		
Registered electronic facilities (REF) in Malaysia	Registered electronic facilities (REF) recognized pursuant to Section 34 of the CMSA is an electronic facility that is operated to provide, operate or maintain a market that is not systemically important, in that it poses less risk than an approved market. Currently, the recognized REFs are focusing on bond and derivatives products.		

86 In Italy, the transparency regime has been extended also to non-equity financial instruments and the regime also applies to systematic internalisers in non-equity financial instruments. Currently, in Italy there are 18 systems registered as systematic internalisers in non-equity financial instruments.

87 Please refer to ESMA MiFID Database for the list (http://mifiddatabse.esma.eu).

88 *E.g.*, Direct Business Transaction System (DTB) offered by the Bursa Malaysia.

Table 4 -Picture of pre and post-MiFID

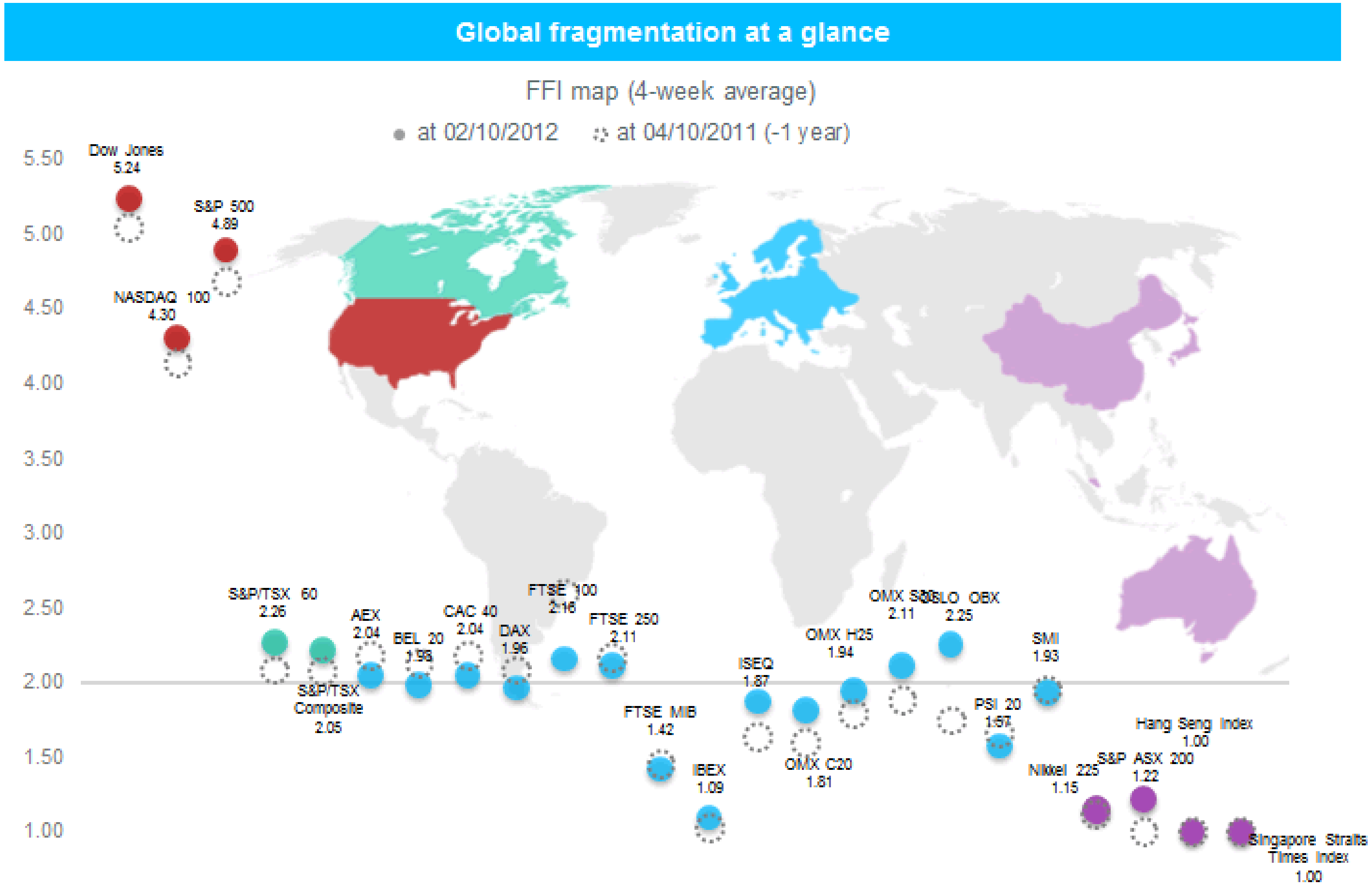
Table 4 provides a picture of pre and post-MiFID.[89]

Note, however, that a specific legal status for MTFs and Systematic Internalisers did not exist prior to the inception of MiFID in 2007. Therefore, please note that some MTFs are shown 'post-MiFID' may have existed before 2008 and that data make no distinction between the types of financial instruments traded on RMs, MTFs and SIs.

Jurisdiction	Regulated Markets		Multilateral trading facilities		Systematic internalisers	
	Pre-MiFID	Post-MiFID	January 2008	November 2012	January 2008	November 2012
France	3	4	5	7	0	1
Germany	11	16	4	14	0	0
Italy	11	9	3	10	0	2
Netherlands	6	5	1	4	1	0
Spain	10	10	4	3	0	0
UK	7	6	63	76	8	8

89 The data found in the ESMA MiFID database. http://mifiddatabase.esma.europa.eu/Index.aspx?sectionlinks_id=4&language=0&pageName=Home

Appendix E - Fidessa Fragmentation Index - Fragmentation of equity trading volume across Regulated Markets and ATSs*



Source: Fidessa.

* Using a fairly standard methodology, the Fidessa Fragmentation Index as calculated as the reciprocal of a Herfindahl concentration index (see http://fragmentation.fidessa.com/faq/).

Appendix F - Recommendations from the IOSCO 2011 Report on the Principles for Dark Liquidity

Principle 1: The price and volume of firm orders should generally be transparent to the public. However, regulators may choose not to require pre-trade transparency for certain types of market structures and orders. In these circumstances, they should consider the impact of doing so on price discovery, fragmentation, fairness and overall market quality.

Principle 2: Information regarding trades, including those executed in dark pools or as a result of dark orders entered in transparent markets, should be transparent to the public. With respect to the specific information that should be made transparent, regulators should consider both the positive and negative impact of identifying a dark venue and/or the fact that the trade resulted from a dark order.

Principle 3: In those jurisdictions where dark trading is generally permitted, regulators should take steps to support the use of transparent orders rather than dark orders executed on transparent markets or orders submitted into dark pools. Transparent orders should have priority over dark orders at the same price within a trading venue.

Principle 4: Regulators should have a reporting regime and/or means of accessing information regarding orders and trade information in venues that offer trading in dark pools or dark orders.

Principle 5: Dark pools and transparent markets that offer dark orders should provide market participants with sufficient information so that they are able to understand the manner in which their orders are handled and executed.

Principle 6: Regulators should periodically monitor the development of dark pools and dark orders in their jurisdictions to seek to ensure that such developments do not adversely affect the efficiency of the price formation process, and take appropriate action as needed.

Appendix G - Recommendations from the IOSCO 2011 Report on Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency

Recommendation 1: Regulators should require that trading venue operators provide fair, transparent and non-discriminatory access to their markets and to associated products and services.

Recommendation 2: Regulators should seek to ensure that trading venues have in place suitable trading control mechanisms (such as trading halts, volatility interruptions, limit-up-limit-down controls, etc.) to deal with volatile market conditions. Trading systems and algorithms should be robust and flexible such that they are capable of dealing with, and adjusting to, evolving market conditions. In the case of trading systems, this should include the ability to adjust to changes (including sudden increases) in message traffic.

Recommendation 3: All order flow of trading participants, irrespective of whether they are direct venue members or otherwise, must be subject to appropriate controls, including automated pre-trade controls. These controls should be subject to the regulatory requirements of a suitable market authority or authorities. In addition, regulators should identify any risks arising from currently unregulated direct members/participants of trading venues and, where any are identified, take concrete steps to address them.

Recommendation 4: Regulators should continue to assess the impact on market integrity and efficiency of technological developments and market structure changes, including algorithmic and high frequency trading. Based on this, regulators should seek to ensure that suitable measures are taken to mitigate any related risks to market integrity and efficiency, including any risks to price formation or to the resiliency and stability of markets, to which such developments give rise.

Recommendation 5: Market authorities should monitor for novel forms or variations of market abuse that may arise as a result of technological developments and take action as necessary. They should also review their arrangements (including cross-border information sharing arrangements) and capabilities for the continuous monitoring of trading (including transactions, orders entered or orders cancelled) to help ensure that they remain effective.