Regulatory Issues Raised by Changes in Market Structure

Final Report

OICV-IOSCO

THE BOARD
OF THE
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Chapter 1 - Introduction

At their November 2010 meeting in Seoul, the G20 leaders requested that IOSCO develop "recommendations to promote markets' integrity and efficiency to mitigate the risks posed to the financial system by the latest technological developments."[1] In October 2011, in response to the G20 request, the IOSCO Board published 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 emphasised its endorsement of these recommendations and called for further work by mid-2012.[3] IOSCO had already indicated in a 5 July 2011 letter to the Financial Stability Board (FSB) that it would "analyse 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."[4]

In light of the above, the IOSCO Board requested that its Committee on Regulation of Secondary Markets (C2) 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 in its report entitled *Transparency and Market Fragmentation* (the "2001 Report").[5] That report highlighted the then-ongoing debate, both within industry and academia, as to whether the benefits of competition among trading venues outweighed any adverse effects. In particular, the report highlighted the potential benefit of promoting competition between venues[6] where trading can take place, as a means to increase market efficiency by, for example, reducing transaction charges, and the potential benefit of 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 Report underlined a number of potential effects associated with market fragmentation, including, *inter alia*:

- Duplication of operating and regulatory costs;
- Cost of information searches;

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1 *The Seoul Summit Document, Framework for Strong, Sustainable and Balanced Growth*, ¶ 41 at 10, 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 *Communiqué of the G20 Finance Ministers and Central Bank Governors*, ¶ 4, 15 October 2011, available at http://www.g20.utoronto.ca/2011/2011-finance-111015-en.html.

4 http://www.iosco.org/library/briefing_notes/pdf/IOSCOBN02-11.pdf

5 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.

6 Given the different trading structures that exist amongst C2 jurisdictions and to avoid any confusion, this report generally uses the terms 'trading spaces' or 'trading venues' which include all trading methods (exchange trading market systems, non-exchange trading market systems and OTC trading).

- 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
- Fragmentation of liquidity, which could reduce price competitiveness, undermine 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, beyond 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 the 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)[7] 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[8]), 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).[9] However, the scope of the project and this report do not extend to the trading of derivatives products.[10] 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 exercises:

- 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

[7] For the purpose of analysing 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.

[8] Please refer to section 3 hereafter for a definition of MTFs and ATSs.

[9] 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 E.

[10] 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.

price formation process)[11] and ultimately the factors that fostered the establishment of multiple trading spaces for the same product;

- 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;[12] and
- A dialogue with the industry, including consultation with the IOSCO Self-Regulatory Organisation (SRO) Consultative Committee (SROCC) and the other relevant IOSCO committees.

Finally, the Consultation Report was published for public comment on 21 March 2013. The comment period ended on the 10 May 2013.[13] Twenty-one comment letters were received from associations, brokers, banks, and data providers.[14]

This Final Report outlines the current state of play in market structures in most IOSCO jurisdictions, affirms the main findings and challenges identified through the 2012 survey and the 2013 public consultation, and adopts as final the recommendations that C2 set forth in the March Consultation Report.

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

The Final Report establishes four recommendations that are set out fully, with explanatory text, in part 4, below. These Recommendations are:

Recommendation 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.*"

Recommendation 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.*"

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*

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

[12] 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.,* 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.

[13] CR03/13 *Regulatory Issues Raised by Changes in Market Structure,* Consultation Report, Report of the IOSCO Board, March 2013, available at: http://www.iosco.org/library/pubdocs/pdf/IOSCOPD407.pdf.

[14] A list of respondents is attached as Appendix J.

facilitate the consolidation and dissemination of information as close to real time as it is technically possible and reasonable."

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."*

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."*

Chapter 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 that 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 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 one another 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).[15]

C2 collected data from its members on post-2001 structural changes in their markets.[16] More specifically, data was gathered on the total annual share trading volume (*i.e.*, number of

[15] 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 E.

[16] Please refer to Appendix B.

shares) and value (in US dollars) broken down for equities and ETFs for the period of 2001-2011. A request was also made for 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 industry representatives and academics on the development of different trading spaces in C2 jurisdictions.

The survey of C2 jurisdictions provided a picture of the evolution of trading spaces in C2 jurisdictions since 2001, including the market share thereof, which is described in Appendix B.[17]

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 the 2001 Report (*e.g.,* ATSs and dealer trading systems existed in the United States before 2001), whereas in others, it occurred in the past 5-7 years[18] or even very recently.[19]

Data-gathering and analysis on trading activity carried out in 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. 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) collects and publishes 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 in 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.

Chapter 3 – The Regulatory Framework

In most C2 jurisdictions, specific regulatory regimes may apply to each type of trading space. 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

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17 Please refer to Appendix B for a more detailed description of the market structure developments for equities and ETFs, since 2001.

18 *E.g.*, Europe, Canada.

19 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 Appendices). Please note that ATS are not authorised in Mexico and in Brazil.

supervision applicable to a particular kind of trading spaces varies, depending on the 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 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.[20]

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, but 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 organisation, including in some jurisdictions (particularly European) that the management be "fit and proper;"[21]

[20] In addition, some C2 members noted that exchanges are not allowed to act "contrary to the public interest." Also, 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.

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

- 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.

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 authorised as an operator of a regulated market ("RM") or as an investment firm authorised 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 US, 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 operate MTFs, while 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 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 Securities and Exchange Commission (SEC) and The Financial Industry Regulatory Authority (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 FINRA's membership application process and received FINRA approval;
- 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 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.[22] 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.[23] 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, products, and services offered by the ATS are filed and reviewed by the statutory regulators. In some provinces, changes to those forms require approval.[24]

c) OTC trading systems[25]

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" (BCN) within the OTC space but there is no specific EU authorisation for operating a "broker-

[22] 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.

[23] 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.

[24] 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.

[25] 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.

crossing network" as such. On the other hand, some investment firms are authorised as "systematic s internalisers" to execute client orders OTC under very specific conditions;[26]

- In Brazil, the securities supervisory authority is responsible for approving an OTC operator;[27]
- In the US, the OTC market consists of trading by registered broker-dealers, including ATSs, which occurs off 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;[28] and
- In Malaysia, an operator of a Registered Electronic Facility (REF)[29] 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.

With regard to ongoing OTC 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 overall supervision.[30] 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 explain, *inter alia,* ASIC's policy on market structure developments; and
- 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.

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26 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.

27 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 organised 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.

28 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 "internalise" trading activity in listed securities.

29 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=.

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

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 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.

With regard to 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, 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 US, 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 US 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 a description of its access standards, fees, products and services publicly available.

In the US, 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.

With regard to 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 clients. 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 procedures and arrangements in place 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.[31] Furthermore, SRO rules must be designed to prevent fraudulent and manipulative acts and practices and to promote fair and equitable

[31] 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.

principles of trade. Specifically, 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 US, the Canadian securities regulatory authorities and IIROC evaluate whether the proposed operations and order handling procedures of an exchange or ATS, and any subsequent changes thereto, comply with securities legislation and UMIR.[32]

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.[33] In Brazil, Singapore, Malaysia and Hong Kong, orders from clients must take 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 and 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

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

[33] 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.).

best execution rests exclusively with the investment firms, who have to establish an order execution to be reviewed annually.

While there are no specific rules regarding best execution there are rules for order handling that meet the same desired objectives of best execution in jurisdictions where one exchange is either the sole trading space or represents the vast majority of trading in equities and ETFs. For example, in Malaysia, Singapore, Mexico, and Brazil,[34] provisions exist in 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 each adopted an additional *Order Protection Rule* which requires that all dealers be subject to a trade-through obligation.[35] Generally, the rules require better-priced orders to be executed before inferior-priced orders across all market places. Trade-through protection is based on a participant's obligation to the market "as a whole" and is grounded in the desire to protect visible and accessible limit orders. It aims to ensure that those who decide to display 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 specifics of the order and the 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, either 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

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[34] In Brazil, although currently there is only one exchange trading equities and ETFs, the intermediaries rule requires them to execute orders from clients in accordance with the conditions of the order or, if there are no conditions specified, in the most favorable terms. Therefore intermediaries should consider not only price, but also overall costs of the transaction, speed of execution, likelihood of execution and settlement, size, nature and any other consideration relevant to the execution of the order (Instruction CVM 505/2011, article 19).

[35] Please refer to Appendix D, for a more detailed description.

executed OTC (*i.e.,* outside a regulated market or an MTF), where the order execution policy provides so. Other countries have similar requirements.[36]

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 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.[37] Pre-trade information generally includes information on bid and offer quotes and the depth of trading interests of such bid and offer quotes.[38]

The survey shows that pre-trade requirements may vary with respect to the products traded. While pre-trade requirements in many jurisdictions are equally applied to all securities, including listed equities and ETFs *(e.g.*, Canada, US, 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[39] 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 for Dark Liquidity.*[40] Most jurisdictions

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[36] 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.

[37] 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.

[38] 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.

[39] According to national requirements.

[40] FR06/11 *Principles for 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.

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. With regard to 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-exchange 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, 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[41] is governed by national market system plans (Plans) that operate in accordance with the Exchange Act and rules thereunder.[42] 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, the exchanges and associations must submit the best bids and offers of their members and quotation sizes to the plan processor.[43] In Canada, the information processor collects and disseminates pre-trade and post-trade information from exchanges and ATSs to the public in real-time.[44]

Several C2 members mentioned that exemptions from pre-trade transparency could be granted.[45]

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 US:
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;[46] customer orders held by

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[41] This is also the case for options.

[42] 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.

[43] Pursuant to Exchange Act Rule 602 of Regulation NMS and the required reporting plans.

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

[45] This is elaborated in *Principles for Dark Liquidity,* IOSCO, May 2011, supra n. 40.

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. Trading systems of dealers that are not registered as market makers also generally do not disseminate quotations.[47] For any NMS stock in which an ATS displays subscriber orders to any person and for which the ATS accounts for 5% of the aggregate average trading volume, the ATS must provide the best buy and sell prices for the NMS stock to an exchange or association for inclusion in the quotation data made available to vendors.[48]

In the EU, MiFID permits competent authorities to grant exemptions from pre-trade transparency requirements in the form of waivers.[49] Waivers may be granted on the basis of the market model operated by the trading venue, such as 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 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, price and volume of the transaction and, where applicable, the execution venue. In some countries, additional information is required. For example, in Australia and 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 pre-trade transparency, EU investment firms dealing OTC in shares admitted to trading on an RM are subject to the same post-trade transparency requirements applicable to RMs and MTFs. 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 AU$2 million for the majority of stocks). Licensed market operators are obliged to publish the information.

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[46] 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.

[47] See Regulation NMS Rule 604.

[48] Under Rule 602 of Regulation NMS.

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

With regard to 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 for a trade execution to a delay of no more than 15 minutes.[50]

(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 recognised 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 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.[51] 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.[52]

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 authorised and are, to date, not subject to specific regulatory oversight. In the EU, for example, there is currently no real-time consolidated tape provider.

Chapter 4 – Main Findings, Challenges and Recommendations

[50] 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.

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.

[51] See supra n 42.

[52] 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 centralised repository for post-trade information for Singapore-listed securities.

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 since they developed different business models.[53]

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 a rising trend. In particular, there is substantial market fragmentation in the US and 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.[54] 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, where only a few countries classified non-exchange trading market systems as a "market place." However, considerable differences appear to remain with regard to 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.

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[53] 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.

[54] See Appendix B. In the US, 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.

4.2 Challenges

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; 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 benefit investors and the markets.

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

In this respect, the final 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,*[55] the 2011 Report *Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency*, and the recently published final report on *Technological Challenges to Effective Market Surveillance Issues and Regulatory Tools*.[56]

4.3 Recommendations

In several IOSCO member jurisdictions today, there is substantial competition among trading venues. Indeed, several IOSCO members have sought to develop a market structure that promotes competition (and the associated benefits), which has led to a certain level of fragmentation in some jurisdictions. At the same time, they also seek to promote a market structure that minimises the potential negative effects of fragmentation on market integrity and efficiency, price formation, and best execution. An appropriately balanced market structure provides for strong investor protection, fair and efficient capital markets, a strong level of confidence in those markets, and enables businesses to raise capital for the benefit of the overall economy.

In response to the information and responses received through the 2012 survey and the 2013 public consultation, IOSCO sets forth below its final recommendations to assist market authorities in evaluating and monitoring changes in market structure associated with fragmentation.

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

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55 See *Principles for Dark Liquidity*, IOSCO, May 2011, supra n. 40.

56 The recommendations of these reports are attached in the Appendix G, H and I.

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.

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.

IOSCO has identified three core objectives of securities regulation.

- **The protection of investors;**
- **Ensuring that markets are fair, efficient, and transparent; and**
- **The reduction of systemic risk.**

Regulators should keep these objectives in mind when monitoring the impact of fragmentation.

Respondents to the public consultation expressed diverse views as to whether market fragmentation has an overall positive or negative effect on market efficiency. For example, some respondents identified the improved overall ability to satisfy investors' specific needs and also the reduction of trading fees as major benefits of increased competition between venues. On the other hand, other respondents to the consultation identified the fragmentation of liquidity and difficulties to access market information as a major concern. Respondents did not draw a single, collective conclusion as to the overall impact fragmentation has on the market and its participants. Nevertheless, they all agreed that the effects of fragmentation on market efficiency should remain under market authorities' close scrutiny, suggesting, in particular, that regulators monitor the effect of fragmentation on the quality of the price formation process. IOSCO decided, therefore, not to change recommendations 1.1 and 1.2.

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

> **Recommendation 2**
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> **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.**

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 emphasised 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 a 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 make appropriately informed trading decisions about where and when to trade. IOSCO members implement this recommendation in different ways.

Most respondents agreed that access to the relevant data sources is fundamental to market participants as it enables them to identify where liquidity pools are, compare prices and identify new trading opportunities. Comments to the Consultation Report noted that market fragmentation might make it more difficult to obtain relevant market information. While there was no unanimous response as to the optimal form of consolidated data,[57] all agreed that access to post-trade information is an important component of fair access to the markets and their overall efficiency. Likewise, comparable data would ease the surveillance task of regulators.

Consequently, Recommendation 2 remains unchanged from the Consultation Report.

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

[57] This was especially noted through the responses provided by EU firms, as this is an ongoing debate through the revision of MIFID.

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.

In the context of fragmented markets, order handling and best execution rules are particularly important. In some jurisdictions, these obligations require that in order to obtain best execution, intermediaries may at least consider 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 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.[58]

Where there is fragmentation, investors should be given the opportunity to scrutinise 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.

A majority of respondents to the public Consultation Report supported the idea that regulators should carefully monitor the impact of fragmentation on the ability of intermediaries to fulfill their obligations and how order handling rules operate to support an orderly functioning of the markets. Respondents further expressed the view that these rules and obligations should in some cases be reexamined in the light of the extent of market fragmentation. For instance, market actors identified the need to enhance transparency from venues and from brokers, especially with regards to potential conflicts of interest that may occur with some trading arrangements, such as payment by some venues for order flow or internalisation by brokers of clients' orders. As a result, Recommendation 3 remains unchanged from Consultation Report.

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

[58] For more details please refer to page 12 and 13 of this Report.

Recommendation 4

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

4.2 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.

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 trading market systems,[59] market participants should be provided with fair access to those systems that display significant sources of liquidity in order to trade effectively.

In a fragmented trading environment, access to liquidity is of critical importance, particularly where venues contain a significant source of market liquidity. Indeed, most respondents to the consultation supported the need for rules to address fair access to liquidity across trading spaces. Responses to the consultation highlighted in particular the following elements as important when considering 'fair and reasonable' access rules:

- The concept of "fair and reasonable access" is associated with transparent and non-discriminatory access requirements and non-discretionary execution policies; and
- Transparent and non-discriminatory access rules are necessary to preserve the quality of both order execution and the price setting mechanisms, which ultimately influence the degree of investor confidence.

These elements and other general comments support steps by regulators to tailor, as appropriate, requirements addressing access to significant sources of market liquidity, whether on an exchange or on a non-exchange trading market system. Recommendation 4 therefore remains unchanged from the Consultation Report.

- **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 continuously evaluate 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 and to mitigate risks posed to the financial system by the latest technological developments. In particular:

[59] As defined in this report in section 3.1 b) on page 8.

In October 2011, IOSCO issued its report on *Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency*,[60] 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,*
>
> *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 April 2013, IOSCO issued the Final Report *Technological Challenges to Effective Market Surveillance Issues and Regulatory Tools*,[61] 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.

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60 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.

61 See FR04/13 *Technological Challenges to Effective Market Surveillance Issues and Regulatory Tools*, Final Report of the Board of IOSCO, April 2013, available at http://www.iosco.org/library/pubdocs/pdf/IOSCOPD412.pdf

Appendix A – IOSCO Consultation Report on Regulatory Issues Raised by Changes in Market Structure - Feedback Statement[62]

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 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.*

One commenter critically notes that the current level of equity market fragmentation in a certain jurisdiction has led to a complex market structure that has eroded public confidence in markets.[63] This commenter argues that the negative impact of fragmentation on primary markets was all the more serious because of the deterioration of market quality for the market overall.[64]

Another commenter stated that he does not support the identification of fragmentation as a negative in itself that must be managed by regulators: "The term "fragmentation" is pejorative to an extent and suggests a destructive effect when the increasing number of venues and options for execution lead to decreasing costs for investors and more choice in execution type and strategy. Market fragmentation has associated costs as well as benefits, but there is no case for mandating regulatory oversight of "fragmentation" in and of itself."[65] This commenter argues that a regulator's assessment should first identify a market failure and,

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62 This feedback statement reflects the best efforts of C2 members to summarise the issues raised in the comment letters and does not reflect the views of any C2 member.

63 World Federation of Exchanges ("WFE").

64 WFE.

65 Australian Financial Markets Association ("AFMA").

second, consider whether there is a potential market-based solution. Another commenter[66] supported this view and stated that market fragmentation is a byproduct of robust market competition, and that the benefits of competition are well known.

Other respondents also argue that market fragmentation has negative and positive effects.
On the positive side, one commenter noted that numerous trading venues already satisfy the specific needs of different participants and investors and that this contributes to the overall efficiency and effectiveness of financial markets.[67] Another commenter noted that increased competition has lowered trading costs and other fees.[68] Another commenter noted that fragmentation has been accompanied by a rise in automated trading,[69] which plays a critical role in arbitraging price differences between markets and maintaining alignment between different venues trading the same securities. The effect of arbitrage activities and automated trading in lit markets has been to improve liquidity in securities where they are active and to increase the volume of trading in those securities.

On the negative side, several commenters noted that fragmentation reduces efficient liquidity by spreading it across several markets, and that order books no longer provide a complete picture of supply and demand.[70]

Another issue mentioned was the need to connect markets (interconnectivity) and, in this context, the use and licensing of market data. Several respondents argued for better access to market data.[71] Retail investors have faced new challenges to access relevant information and incurred higher costs in some jurisdictions. One data vendor supported this view and noted the need for sufficient transparency to respond to market fragmentation and that this would require the definition of clear standards on the nature of what should be reported, in what format, and in what timeframe.[72] Yet another commenter advocated more accurate, standardised and harmonised data.[73] This would allow for data consolidation across different trading spaces, which was needed to overcome difficulties for investors and intermediaries to easily access a reliable and shared consolidated source for pre-trade and even more importantly for post-trade data.[74]

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66 Global Financial Markets Association ("GFMA").

67 AFMA.

68 Deutsche Bank.

69 London Stock Exchange Group ("LSEG").

70 ODDO & Cie; Swedish Securities Dealers Association ("SSDA").

71 Thomson Reuters, Rights Management Associates Ltd. ("RMA"); Investment Company Institute ("ICI"), NYSE Euronext, Société Générale, Vereniging VEB NCVB (Dutch Shareholders Association) ("VEB").

72 Thomson Reuters.

73 NYSE Euronext.

74 Société Générale.

One commenter suggested that regulators in jurisdictions around the globe should examine transaction-reporting regimes similar to the Consolidated Audit Trail[75] to facilitate monitoring of trends in trading and trading behaviour.[76]

Some commenters noted that, in fragmented markets, there is a need to frame appropriately the boundaries between organised markets and OTC trading.[77] If no boundaries are set, trading in equity and equity-like instruments would continue to gravitate towards OTC since investment firms would be completely free to choose between executing on a multilateral, bilateral or on an OTC basis (*e.g.*, it was mentioned that an unintended consequence of MiFID was the emergence of much greater trading volumes on OTC markets, in part due to increased fragmentation). Following this, some commenters argued that the same rules should apply for the same business (*e.g.,* same rules should apply to platforms that carry out multilateral and bilateral trading). A consistent regulatory approach across venue categories prevents opportunities for regulatory arbitrage between different trading spaces and increases investors' understanding of how their orders will be dealt with in different types of trading spaces.[78] Multilateral trading of equities – wherever it takes place – should only happen on platforms that are subject to similar rules on transparency, non-discriminatory access, and full market surveillance.[79]

As for Europe, a few commenters argued that RM's and MTF's are subject to different regulatory requirement than BCNs, although they provided similar services.[80] These differences were not justified and challenge the principle of fair competition between markets. Additionally, it was mentioned that market surveillance has become more complicated with the onset of fragmented but interlinked equity and ETF markets[81] and that there was a need for effective enforcements mechanisms.[82]

Other commenters noted that trading venues should be granted the necessary flexibility to tailor their own rules in a way that keeps pace with emerging/changing investors' needs, thereby increasing their efficiency and competition.[83]

Two commenters did not support a broad IOSCO mandate for regulatory intervention in regard to similar services for similar instruments.[84] They believe simplistic principles would hide too much detail. Instead, venue regulation should be done in accordance with the risks associated and on a type of venue-by-type of venue basis.

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[75] In the US, the SEC recently adopted a rule requiring 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.

[76] ICI.

[77] Federation of European Securities Exchanges ("FESE"), SIX Swiss Exchange ("SIX"), Deutsche Bank.

[78] LSEG.

[79] FESE.

[80] SSDA, FESE.

[81] LSEG.

[82] FESE.

[83] Unicredit, Société Générale.

[84] AFMA, Deutsche Bank.

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.*

Some commenters argue that the price formation process has substantially deteriorated, as large positions of the order flow are no longer shown in the order book[85] and not all investors have access to all liquidity pools. Another commenter notes that increased competition has lowered trading costs and other fees.[86] In markets where trading costs are lower, the frequency of trading increases, which in turn promotes price formation. Further, competition for order flow improves overall market quality.

One commenter explains that the experience of market fragmentation has been diverse across jurisdictions and the impact of such fragmentation is dependent on the structure and characteristics of the domestic market in question.[87] In Australia, for example, it was noted that there has been no significant impact on price formation. In addition, the same commenter cautions against limiting the analysis of the impact of fragmentation to price formation. There is a high amount in annual savings to investors by the addition of alternative trading spaces. Some respondents argue that there is not a "right" number of trading venues or that market fragmentation, in and of itself, impairs the price formation process.[88] They argue that the deterioration of price formation is not necessarily caused by market fragmentation per se but by the increased fragmentation between lit and dark trading with the execution in the dark of trades that should have been executed on lit markets.

Several respondents spoke critically of the role of dark pools and the fragmentation between lit and dark markets.[89] In their view, price formation is severely harmed due to the fact that a big portion of information is exempt from the price determination on lit markets.[90] One commenter stated that the US market, with 40% market share in dark trading, might serve as an example of how dark trading can gain critical mass.[91] Another commenter strongly supports efforts to provide incentives for market participants to use transparent orders.[92] Several commenters criticised the waiver regime in Europe,[93] where pre-trade waivers were granted on a national level, which has led to discrepancies with respect to their issuance. Consequently, waivers to pre–trade transparency should be granted only when they are needed and justified. They should also be appropriately framed, and implemented in a harmonised way.[94]

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[85] ODDO & Cie, SSDA.

[86] Deutsche Bank.

[87] AFMA

[88] GFMA, NYSE Euronext

[89] FESE, SIX, NYSE Euronext, ICI

[90] Deutsche Börse

[91] Deutsche Börse

[92] ICI

[93] Deutsche Börse

[94] FESE, SIX

One commenter estimated that, today in Europe, dark liquidity accounts for approximately 10% of the volumes dealt by the European markets.[95] At such levels, there was no evidence to support the notion that dark trading is damaging the price discovery process. In addition, most commenters supported the role of dark pools in meeting the needs of those investors who need to execute large trades without adverse market impact.[96] Certain trading would need to take place with less transparency. This was justified because large orders need to be able to minimise adverse market impact.

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?*

Almost all respondents share the opinion that in a fragmented trading environment, regulators should seek to ensure easy and effective access to consolidated information on transactions. The availability of trade information is considered a key element that contributes to the fairness and efficiency of a market, in particular to the quality of the price formation process.

Some respondents noted that different jurisdictions have adopted different approaches in response to market fragmentation and that the characteristics of a consolidated tape depend on the specific regulatory system with its inherent goals and requirements. It is possible to summarise responses to this question along three main lines:

- The structural model of consolidation;
- The harmonisation and standardisation of the data; and
- The quality and timeliness of the information.

With regard to the structural model, two options are discussed: the multiple and the single consolidated tape models. EU respondents focused on the current discussions in the context of the revision of the *Markets in Financial Instruments Directive*. The majority of respondents, especially trading venues and their trade bodies, seem generally in favour of a market structure where multiple consolidated tape providers are able to compete. Supporters of this structure emphasise the greater innovation that can be delivered by a competitive model. They also stressed that multiple CTPs can offer different solutions to different market participants according to their business needs. All respondents supporting the competitive model believe that data harmonisation and standardisation are necessary pre-conditions in order to allow private data providers to offer consolidated data on a reasonable and sustainable commercial

[95] Société Générale

[96] LSEG, Deutsche Börse, NASDAQ OMX Group ("NASDAQ"), AFMA

basis. On the other side, respondents supporting a single consolidated tape provider emphasise the simplicity, reliability, and cost-effectiveness of the model.

There is almost unanimous support for greater standardisation of transparency information. Establishing a set of common standards on the content and format in which data is reported is necessary, whichever option (*i.e.*, single or multiple CTPs) is selected. One respondent argues that in order to achieve high quality data it is essential to consolidate data of similar quality as well as similar latency, which means establishing two separate data feeds for real-time and delayed data. Some respondents refer to the Market Model Typology (MMT),[97] a EU industry-led initiative aimed at the standardisation of trading flags, which supports a well-functioning competitive model for the provision of consolidated data services.

Some respondents highlight the importance of improving the quality and timeliness of the information, especially with respect to transactions executed OTC. Without good quality information, it may be difficult to reap the benefits of a consolidated tape.

2. *What conditions, if any, should govern access by investors to consolidated market data?*

Some respondents seem to conflate access provisions with the flexibility of consolidated tape providers to offer different services to different market participants. On this point, some respondents stress that differential access and pricing for different users should be allowed.
One of the recurring issues raised by respondents is the cost of market data. A respondent clarified that access to consolidated tape data should be offered on fair and non-discriminatory terms and on a reasonable commercial basis.

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?*

With regard to the other challenges to creating and/or accessing consolidated market data, respondents mainly focus on three interlinked (and already discussed) issues:

- Cost of data;
- Lack of standardisation; and
- Poor quality of data (especially OTC).

On the cost of data, some EU respondents argued that the aggregate cost of accessing all post-trade data across all trading and reporting venues is prohibitively expensive for many potential users in jurisdictions that do not have a consolidated tape. The cost of consolidation derives partly from the lack of harmonisation and standardisation in jurisdictions that do not have a consolidated tape.

With regard to the second issue, respondents complain about little or no consistency of reporting standards across the various execution and reporting venues in jurisdictions that do not have a consolidated tape. For Europe, the first challenge that needs to be addressed is to impose a single format for data standardisation, aggregation, consolidation, and dissemination.

[97] Deutsche Börse, Markit, NASDAQ, LSEG, and NYSE Euronext.

With regard to the third issue, commenters noted that, in jurisdictions that do not have a consolidated tape as it is the case in the EU, OTC market data tends to be of poor quality and to be unreliable and incomplete. Besides, OTC data also suffers from a significant time delay compared to trading venues' data, which reduces the information content in some jurisdictions. For this reason, the introduction of entities tasked with the role of ensuring a sufficient level of quality of OTC data is expected to be beneficial (e.g., approved publication arrangements in Europe). Clear reporting and publication rules, especially in case of trades across national jurisdiction, will need to be implemented and supervised as well in order to improve the reliability of OTC trade publications in the future. Furthermore, any significant deviation to real-time publication would reduce the usefulness of a real-time consolidated tape. Therefore, any publication delays should be reduced to a minimum.

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*

The majority of respondents support a regulatory framework that allows multiple consolidated tape providers to compete. Generally, trading venues are supportive of the competitive model while investment firms seem to favour the single consolidated tape solution. Some respondents, while supporting a cost effective and high quality consolidated tape, did not clarify which option they preferred.

According to supporters of the multiple consolidated tape model, competition in the provision of consolidated trade data may deliver the following benefits:

- Greater flexibility in meeting market participants' needs;
- Greater resiliency (a competing consolidated tape model ensures continuity of service);
- More rapid innovation; and
- Greater cost efficiency.

With regard to flexibility, some respondents argued that a single consolidated tape is unlikely to address a variety of data needs. Respondents against the single consolidated tape model also highlight the potential challenges and distortions that derive from granting a monopoly to an entity. A common issue raised by almost all respondents that support the multiple consolidated tape model is that, in order to achieve effective competition, regulators should ensure sufficient harmonisation and standardisation of market data and a sufficient level of quality for OTC trading data.

Respondents that support a single consolidated tape provider argued that information sourced from a single consolidated tape would constitute the official price reference to enforce and monitor best execution, and it would be an unquestionable base for calculating the net asset value of mutual funds and UCITS, and for issuers to calculate a clear value of their stock. Supporters of this model would allow some level of competition in the form of a tender process for appointing the consolidated tape. Another argument against the multiple consolidated tape model is that, so far, competition has proven unable to provide an effective answer to the data fragmentation issues in some jurisdictions (*e.g.*, Europe). Finally, a single provider would be best placed to ensure consistent data quality checks.

Some respondents argued that the optimal model for post-trade data depends on the regulatory framework and the nature of the requirements imposed on investment firms. For example, it is

noticed that in jurisdictions where best execution does not depend on a single factor like price and is not determined on a trade by trade basis, a single consolidated tape including all possible venues might not be in the best interest of all market participants.

A respondent suggested that regulators should go beyond the consolidation of market data by asset class and/or jurisdiction. Any consolidation of market data within individual markets and asset classes may not provide a comprehensive and transparent presentation of relevant market data to investors.

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?*

Roughly half of the 21 commenters responded that, yes, existing order handling rules should be re-examined.[98] Three commenters took the opposite position and responded that there was no need to re-examine existing order handling rules.[99] Of the remaining commenters, several did not offer a specific response to the question but instead provided more general thoughts about market factors that impact order handling rules, such as conflicts of interest and post-trade transparency.[100]

Commenters Supporting Re-examination

Of those commenters that supported re-examination, many focused on a comparison between the US and EU rules governing best execution. A few commenters favoured adopting the US-style approach to best execution, which they characterised as more price-based, over the EU approach, which they characterised as based on a more complex set of factors. For instance, one commenter noted that "In the EU the definition of best execution is too complicated and ambiguous since it includes other criteria than price. Price for a given quantity is the only item which is impacted by the 'quality of execution.'"[101] Similarly, another commenter suggested "moving from a 'static' approach – currently in use by most of the investment firms in EU – to a more 'dynamic' method in respect to the application of the best execution rule."[102] Another commenter expressed the view that "[t]he additional Order Protection Rule in

98 Oddo & Cie; RMA; UniCredit; FESE; SIX; ICI; NYSE Euronext; WFE; AFMA; Deutsche Bank; and VEB.

99 Deutsche Börse; GFMA; and Societe Generale.

100 LSEG; Thomson Reuters, Themis Trading; and NASDAQ.

101 Oddo & Cie.

102 UniCredit.

Canada and the US is beneficial for retail investors who [don't] have direct access to a regulated market or multiple trading space."[103]

Other commenters noted the complexity of the EU approach governing best execution, although they did not outright express a preference for the US approach in its place.[104] Taking the opposite position, several of the commenters supporting re-examination expressed their preference for the EU approach instead of the US approach.[105] One commenter suggested that, in the context of today's fragmented markets, even more criteria should be considered for purposes of determining best execution. This commenter stated that "if the regulatory concept of best execution is to remain relevant it would need to evolve . . . , as automated trading technology has already evolved in practice, to address for any trading decision the issue of what to trade as well as where to trade."[106]

Some of the commenters that supported re-examination also focused on conflicts of interest. For example, according to one commenter, "[t]he lack of clarity of the rules, combined with an inability to effectively monitor compliance, raises further concerns about the conflicts of interest within the broker if activity is internalised or not placed on a public market. This results in the need to re-assess the current provisions."[107] Another commenter stated that "[f]ragmentation is not the only factor that raises some issues in respect to order handling rules at the level of intermediaries. The fact that numerous intermediaries hold stakes in trading venues, or internalise order flow, or may receive payment in exchange for the routing of client flow towards particular venues raise significant conflicts of interests."[108] Additionally, a commenter noted that "[i]ncreased information regarding payments and other incentives provided or received to direct order flow to particular trading venues also would be valuable."[109]

Another area of focus for commenters supporting re-examination was post-trade transparency, particularly for OTC equity trades in the EU. One commenter noted that "MiFID currently does not require venues to publish harmonised data on execution quality. Potentially relevant information for best execution evaluation is therefore not generally available in a readily comparable format."[110] According to another commenter, "[t]he fundamental problem in evaluating order handling and execution quality is finding an appropriate benchmark. . . . In

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[103] VEB.

[104] FESE; LSEG; SIX; NYSE Euronext.

[105] Deutsche Bank; see also AFMA (noting that "Australia has adopted a principles based approach to best execution, as distinct from a Regulation NMS style arrangement, and has found it to be working well); SSDA (stating that "[w]e believe that the current model is very good where a firm can independently choose which venues to offer to customers, this goes very well in line with the best-ex formulation that other aspects should be taken into consideration when choosing venues).

[106] RMA (emphasis added). However, this commenter also expressed concern that public oversight of best execution rules may be too costly to justify.

[107] Six SIX.

[108] FESE and NYSE Euronext. Similar sentiments were shared by WFE.

[109] ICI.

[110] ICI.

some regions the problem is compounded because there is not effective post-trade transparency for OTC equity trades."[111]

Commenters Opposed to Re-Examination

The three commenters who opposed re-examining order handling rules generally felt that the current regime appropriately takes into account market fragmentation and the complex system of factors that impact trading decisions.[112] For instance, concerning the European market, one commenter stated that "[t]he current client order handling rules, including on best execution, were drafted cognisant of expected market fragmentation," and "[t]he rules remain appropriate."[113] According to another commenter, "[b]est execution principles prevailing in the US and Europe work correctly, even if we consider each principle specificities."[114] The third commenter observed "[b]est execution rules are sufficient and do not need re-examination."[115]

Commenters Sharing Other Thoughts

A number of commenters did not provide a specific response to the question of whether existing order handling rules need to be re-examined, but they, nevertheless, offered their thoughts on a range of issues, mostly related to conflicts of interest and post-trade transparency.

One such commenter highlighted the conflicts of interest issue without explicitly supporting re-examination of order handling rules, and this commenter roughly mirrored the thoughts shared by the commenters noted above who also addressed the issue while explicitly supporting re-examination. According to this commenter, "[i]t is telling of how conflicted our market structure, when brokerage firms are placed in a position to put their interests ahead of what they know to be the best execution interests for their investor clients."[116]

Similarly, the commenters addressing post-trade transparency without necessarily supporting re-examination expressed ideas roughly in line with the commenters that supported re-examination and addressed the same issue. For example, one commenter stated, "the best execution model in the US is aided by the fact that equity trading infrastructure is standardised, fungible and transparent; the 'national market system.' In Europe this is not the case, and further the post trade infrastructure makes such an approach more difficult."[117] According to another, "[a] major reason for the wide use in the US equity markets of the consolidated tape/quote data provided by the Tape schemes has been the hardwiring of the National Best Bid/Offer (NBBO) into the best execution obligations for retail size orders and

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[111] WFE.

[112] Deutsche Börse; GFMA; and Societe Generale.

[113] GFMA.

[114] Société Générale.

[115] Deutsche Börse.

[116] Themis Trading.

[117] LSEG.

subsequent monitoring of this through the SEC's 605 & 606 disclosure reporting by US broker dealers."[118]

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'?*

A majority of the commenters that responded to this question agreed that rules relating to the disclosure of order handling practices by investment firms are indeed appropriate to facilitate compliance with and evaluation of best execution.[119] One commenter, however, seemed to feel otherwise.[120] The commenters that felt rules governing disclosure are appropriate focused primarily on two main areas: disclosures from brokers to investors and disclosures from trading venues. Most of the commenters favoured enhancing the level and content of both types of disclosure, although a few felt that the current systems of disclosure either were adequate or warranted no greater regulatory intervention.

Six of the commenters that responded to this question expressed their support for enhanced disclosure by brokers to investors. Several of these commenters argued that non-US jurisdictions could use Rule 606 of Reg NMS in the US as a model with respect to requiring intermediaries to publish quarterly reports identifying the venues to which they route client orders and the nature of their relationships with the venues, and also to make available to clients, on request, the venues to which individual orders are routed.[121] Similarly, another commenter suggested that brokers should be required to disclose additional information including "the execution venues used by the broker and whether such venues are lit, dark, or other; the proportion of volume or share of orders executed on the different venues in aggregate; and the counter-parties used for execution if off-venue, such as the intermediaries own internalisation system."[122] According to another commenter, "after execution of an order[,] an investment firm should send [a] retail investor a confirmation of the execution of their order and provide him (at the same time) with three pricing numbers: the total costs of trading on trading venue 1, on trading venue 2, and on trading venue 3, all at time X."[123]

A related but discrete point identified in three comment letters was enhanced disclosure by trading venues. For instance, one commenter suggested that "looking up to the US framework, … EU regulators should introduce the obligation for the principal trading venues to participate to a data consolidation system allowing the investors to have a clear and updated picture of the most relevant information in relation to this activity."[124] Two other commenters called for consolidated execution reports that included data on OTC executions, particularly in

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118 Thomson Reuters.

119 SSDA; FESE; LSEG; Deutsche Börse; ICI; GFMA; NYSE Euronext; WFE; Deutsche Bank; VEB.

120 AFMA ("Oder handling practices can be complex and an overly prescriptive approach by regulators may result in suboptimal outcomes. Wholesale investors in particular are far more able and motivated to assess the execution of their trades against their preferred benchmarks. Regulatory intervention may be unnecessary and create costs for markets for little gain.").

121 FESE; NYSE Euronext.

122 LSEG. See also ICI and WFE (expressing similar ideas).

123 VEB.

124 UniCredit.

Europe.[125] One commenter, however, noted that, while quantitative metrics are the most valuable data for measuring best execution, it did not think regulatory requirements needed to be changed to facilitate this.[126]

Lastly, one commenter expressed the view that disclosure, seemingly in any amount, on its own, is not as sufficient as the Order Protection Rule in facilitating compliance with and evaluation of best execution.[127]

3. *Are there any other appropriate order handling tools that should be considered in the context of fragmented markets?*

A number of commenters provided thoughts on what other tools, beyond the enhanced disclosure by brokers and execution venues discussed above, might assist the concept of order handling and best execution in fragmented markets. These include:

- Full pre- and post-trade transparency and a consolidated order book;[128]
- Decreased regulatory oversight and intervention, relying instead on principles of free and fair competition and fiduciary obligations for financial services firms;[129]
- Prohibiting payment for order flow practices;[130]
- Ensuring that multilateral venues are truly multilateral and prohibiting the combination of multilateral and bilateral trading;[131]
- Allowing brokers to consider taker and access fees along with price in deciding where to route orders;[132]
- A rule for "meaningful" price improvement;[133]
- Legislation requiring that smaller orders get executed on transparent venues;[134]
- Requiring that intermediaries utilise the technological tools that exist to guide their order handling decisions;[135] and
- Requiring brokers to provide retail investors with their choice of execution venue.[136]

On the other hand, four commenters responded that they did not see any additional "order

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125 Deutsche Börse and ICI.

126 Deutsche Bank.

127 GFMA.

128 Oddo & Cie; see also UniCredit (arguing that investors should have access to a single, comprehensive and accessible database in respect to pre- and post-trade information on a consolidated basis).

129 RMA

130 FESE; NYSE Euronext.

131 FESE; NYSE Euronext.

132 GFMA.

133 WFE.

134 NASDAQ.

135 NASDAQ.

136 VEB.

handling" tools that should be adopted by regulators.[137]

Recommendation 4

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

4.2 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.*

Seventeen out of 21 commenters responded to this question.

Some respondents share the idea that fair and reasonable access to liquidity is of major importance in a fragmented environment,[138] and one respondent considers it fundamental for market efficiency.[139] It confirms the need to monitor the impact of fragmentation on liquidity across trading places. Two respondents out of 21 believe, however, that full reliance on competition is enough to ensure fair and reasonable access to liquidity without any need for regulatory mechanisms or specific arrangements.[140]

For most respondents, regulators should ensure that there is enough liquidity on transparent and open venues, in order to ensure a reliable price formation process[141] and to provide incentives in favour of multilateral trading.[142] It is not only the price formation process that is at stake here, but also the overall functioning of economy: encouraging trading on less transparent venues is perceived as negatively impacting the economy.

Respondents identify three main mechanisms 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":

- Transparency requirements;
- Non-discriminatory access rules; and
- Non-discretionary execution obligations.

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137 Deutsche Börse; AFMA; Société Générale; and Deutsche Bank.

138 LSEG, Deutsche Börse, ICI, Société Générale.

139 ICI.

140 GFMA and AFMA.

141 NASDAQ.

142 NASDAQ.

A number of commenters described transparency as a first step to ensure fair and reasonable access of market participants to liquidity.[143] Market transparency is considered crucial for execution quality, the quality of the price setting mechanism and ultimately market confidence.[144] In other words, effective pre-trade transparency rules are vital to ensure an efficient price formation.[145] According to one respondent,[146] regulators should set appropriate pre-trade transparency rules by limiting circumstances where "dark trading" is legitimate and by framing OTC trading. Another respondent also believes that OTC activity should be regulated in certain jurisdictions, such as the European Union, as "the current level of equity transactions that are conducted OTC poses a real threat to the order-driven model of the European cash equity market."[147] Support for this view is also provided by another response, which highlights the fact that "such a high level of OTC trading [in Europe] impedes the price formation process."[148] Specifically for small orders, an EU respondent argues that, below a certain size threshold, orders should be executed in a transparent way.[149] Similarly, a majority of "buy side" respondents support measures requiring execution on non-transparent trading spaces to offer a material price improvement (*e.g.,* of at least one tick) compared to the best available price (for an equivalent trade size) on pre-trade transparent venues.[150] From an overall perspective, some respondents' view was that the reliance on OTC equity markets should be closely monitored and regulatory measures should provide material incentives in favour of pre-trade transparent execution with a view to support price formation efficiency and liquidity on transparent and open venues.

Post-trade transparency is also mentioned as crucial in providing market participants with a clear view of the sources of significant liquidity. Accordingly, appropriate requirements should at least contribute to the disclosure of accurate and reliable information on the volumes traded on all trading venues.[151] On that specific point, one of the respondents advocates the use of consolidated tapes. Several reasons underpin this standpoint: "where consolidated tapes do not currently exist, end investors continue to be disadvantaged. At the same time, supervisors are denied a key tool to meaningful assess trading patterns and monitor market integrity."[152]

Second, fair and reasonable access should be understood as meaning that there are no unreasonable barriers to accessing sources of liquidity.[153] Accordingly, a large number of participants stress the need for non-discriminatory access to liquidity.[154] One respondent

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[143] FESE, Oddo & Cie.

[144] Oddo & Cie.

[145] FESE, SIX, NYSE ENX.

[146] NYSE Euronext.

[147] WFE.

[148] WFE.

[149] SSDA.

[150] SSDA, Société Générale, BlackRock.

[151] WFE.

[152] BlackRock.

[153] Deutsche Bank.

[154] Deutsche Börse, FESE, WFE, NYSE Euronext, SIX, Société Générale.

suggested that venues should not discriminate between client types and should accept any kind of trading flow.[155]

Third, fair and reasonable access requirements should be complemented with non-discretionary execution rules.[156] According to respondents supporting this view, a marketplace in which individual platforms do not deliver non-discretionary execution neither contribute to the price formation process nor properly protect investors from arbitrary prices.[157] One respondent highlighted the need of maintaining the neutrality of market operators,[158] while another suggested that market operators should not be allowed to engage in proprietary trading.[159]

Finally, one respondent points to the fact that access to liquidity may be hampered by post-trade infrastructures in certain jurisdictions (proper access to clearing infrastructures in the case of derivatives) and by the cost of technologies needed to access the increasing number of venues.[160]

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?*

Ten out of 21 commenters responded to this question whereas 5 of the remaining 11 responses expressly refer to their answer to the previous question.

A few of the previously discussed issues are raised by respondents such as market transparency[161] or the uniformity of trading rules over venues.[162] Two respondents' answers stand out in this respect:

- The need to preserve the neutrality of market operators (and therefore to prohibit market operators' proprietary trading), and the need to regulate the payment for order flow practice (buying of client orders to attract liquidity); and
- The need for proper and material incentives to preserve liquidity on pre-trade transparent trading spaces.

Neutrality of market operators

A few respondents stressed the previously stated idea that market operators' proprietary trading should be prohibited.[163] One commenter noted that RMs and MTFs in the EU are

155 Nyse Euronext.

156 SIX, LESG, FESE, NYSE Euronext.

157 SIX, FESE.

158 SIX.

159 Oddo & Cie.

160 LSEG.

161 Oddo & Cie.

162 Oddo & Cie.

163 Oddo & Cie, FESE, SIX.

inherently neutral platforms (as they are multilateral trading venues), hence the operators of other multilateral platforms in the EU should be neutral as well and not be allowed to trade against their platform's clients.[164] Specifically, another commenter noted that, in the European context, allowing "matched principal trading" on EU future "Organised Trading Facilities" (OTF) would breach the prohibition of own account trading flow in OTFs. In other words, it is important that a multilateral trading operator not be involved in the financial outcomes of a transaction.[165]

On a larger scale, some respondents believe that any kind of conflict of interest should be prohibited. A trading venue should be subject to rules that ensure that the operator has no interest in the execution price other than to ensure fair and orderly trading[166] or, where it does have interest in the execution price, manage such conflicts appropriately.

Another respondent noted the practice to attract liquidity (and to increase revenues), known as "payment for order flow" (PFOF), that has emerged and argued that it should be prevented.[167] PFOF consists in the reception of direct or indirect forms of payment or inducements by investment firms in exchange for the routing of client orders to specific trading venues (regulated market, MTF or potentially OTF), internalisation pools (SI or OTC) operated by investment firms.

One respondent supported the idea that all categories of venues offering similar execution services should be subject to requirements similar to those applicable to exchanges and other multilateral trading platforms.[168]

Monitoring the impact of fragmentation on market efficiency and resilience.

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.*

Only nine respondents out of 21 provided a response to the specific question.

The main points raised in terms of regulatory and supervisory approaches are:

- The need to ensure that national regulators in the EU harmonise their approach and enforce the common rules in the same way so not to create competitive bias between market operators by a difference in application of the legislation;

[164] FESE.

[165] SIX.

[166] FESE.

[167] NYSE Euronext.

[168] Deutsche Börse.

- The need to ensure that the regulatory framework is composed of a few and easy-to-apply rules, with pre-defined and proportionate sanctions in case of breach;
- The adoption, at the EU level, of harmonised organisational and market surveillance requirements applicable to multilateral trading facilities and regulated markets, as for the emergence of any trading activities having impact on market quality or integrity.

In terms of topics to be specifically addressed and regulatory intervention envisaged:

- Dark trading;
- Transparency & liquidity for derivatives markets;
- Appropriate pre-trade controls on orders sent by market participants;
- Suitable controls on market conditions (volumes, volatility) relating to new forms of market abuse that may arise from the significant increases in orders and trades generated by the integrate trading system;
- Microstructural issues, such as circuit breakers (including coordination of circuit breakers), order-to-trade ratios, minimum resting periods, tick sizes (including mandatory set of tick tables);
- Standardisation, consolidation and dissemination of market data at reasonable cost;
- Governance processes where the internal control structures of trading venues are able to adequately verify the compliance of their electronic systems with the applicable regulation; and
- Robust transaction reporting regime and extension in the scope of instruments covered as well as harmonisation of the reports in the EU (as proposed by the MiFID II/MiFIR proposal).

2. *Are there any other issues associated with the fragmentation of markets that have not been mentioned in the current report?*

Only four respondents out of 21 have provided a response to the specific question. In addition to what is already mentioned under Q1, the main points raised refer to:

- The need for “regulatory thinking” to move beyond outdated and over-simplistic considerations of fragmentation and consolidation of data content by asset class and regulatory jurisdiction: issues covered in the CP should be approached from the perspective of market and venue interconnectivity, in which market participants and investors have far wider choices in the selection of trading venues for a particular asset. Concepts such as transparency and best execution cannot necessarily be served by any single consolidation of market data;
- Careful assessment of any regulatory intervention on the use and licensing of real-time market data, as well as on publication of market data and associated commercial terms;
- Fragmentation in other asset classes (where regulatory reform has been less pronounced);
- Consideration of market data from other venues (not only primary market) in the index calculation so as to ensure they are properly representative of activity in the market (indices that only include data from a single exchange become broadly unavailable when the contributing exchange fails due to a technological issue);
- Standardised formats in the publication of trade data (to ease the comparability and consolidation of trade data across trading spaces); and
- Access to co-location services.

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.*

Only four respondents out of 21 provided a response to the specific question.

Some of the main suggestions/observations made include:

- Modify the principle governing the EU MiFID best execution rule by focusing on price as the main factor for ascertaining the compliance with such a rule;
- Regulators in the EU should analyse in-depth the causes, as well as the effects, of the failures observed with regard to market structure following MiFID I. As an example, it could be useful to analyse the reasons behind the poor success of the Systematic Internaliser regime, which was originally designed for bilateral trades not qualifying for OTC exemptions;
- No single venue or regulator can see all trading activity in any single product or ensure that investigations are conducted collaboratively for all those instruments traded across multiple venues; and
- With regard to the ETF market, the following suggestions were made:

    - The development of standardised identifiers for securities in much the same way the Legal Entity Identifier (LEI) program is designed to create a single universal standard identifier for any organisation or firm involved in a financial transaction internationally;
    - Mandatory order routing to an aggregate book where orders from different venues would be presented together. In order to assess this *single order book*, it would be necessary to allow currency conversions to take place at the same time in order to assess the cross-currency trading lines;
    - With regard to fragmentation in the post-trade environment: monitor and highlight where practical impediments to infrastructure connectivity exist, especially in the equity and ETF trading and post trading environments; full connectivity in the ETF market infrastructure space is a key requirement in terms of managing settlement risk as well as providing a competitive environment in order to bring down costs for investors, especially cross border charges; and
    - Careful assessment of any regulatory requirements governing pre- and post-trade transparency applying to fixed income markets.

Appendix B - 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 August 1, 2013, there were 90 ATSs registered[169] and 18 securities exchanges registered with the SEC.[170] In terms of the estimated trading volume in the US between 2007 and 2011, the IOSCO survey indicated that the percentage of equities traded "off-exchange" (OTC and ATS combined) saw 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 US 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 US 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 done almost exclusively 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).[171]

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

[169] See *Alternative Trading Systems, Effective Registrations as of August 1, 2013*, US SEC, available at http://www.sec.gov/foia/ats/atslist0813.pdf.

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

[171] Subject to certain limited exceptions (principally related to trading on foreign organised 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).

In November 2007, the *Markets in Financial Instruments Directive* (MiFID N° 2004/39/EC)[172] came into force in the EU. The directive established a regulatory framework introducing competition among trading spaces, allowing different types of trading spaces to compete with existing exchanges.[173] 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 Appendix E 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 UK where there appears to have been a very substantial movement of trading among UK trading spaces. Before 2008, equity trading in UK shares[174] was almost exclusively carried out on the domestic regulated market[175] 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.[176]

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%.[177] In contrast, the share of equity trades executed through MTFs has remained stable over the last three years at approximately 13%-14%.[178]

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

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

[173] 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.

[174] UK shares are defined as shares admitted to trading on a UK Regulated Market.

[175] The London Stock Exchange.

[176] 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.

[177] From internal sources of AMF.

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

single European Economic zone, as competition from MTFs in other jurisdictions 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 recognised 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.

Thomson Reuters estimates that approximately 30%-50% of total equity trading volume is reported OTC in Europe, with significant differences among member states.[179] However, a speaker invited by C2 noted that, according to their studies,[180] "real liquidity trades" account for just 16% of all European equities turnover carried OTC in the same period.[181] 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 7% in September 2013. This compares to 68% of turnover on order books of the ASX and 25% matched off-order books and reported to ASX and Chi-X. Out of the "off-the-order" book trades, over half concerned block trades. There are currently 20 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 now around 3% of total market turnover, down from around 5% earlier in 2013.

In Turkey there is currently only one exchange operating for spot products. However, a new regulatory framework permitting ATS is expected to be established in the near future.[182]

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 primarily

[179] See Thomson Reuters *MiFID Market Share Report*.

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

[181] 60% of all reported MiFID OTC equity trades between Q1 2008 and Q3 2010 were duplicate trades already reported elsewhere.

[182] 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.

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 approximately $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 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 C – Ongoing Regulatory Developments.

In Australia, on 12 August 2013, ASIC released new market integrity rules for crossing system operators to enhance transparency and disclosure about crossing systems, require users to be treated fairly and introduce monitoring obligations. The rules also prohibit negative commissions (payment for order flow). The rules come into force in stages over nine months.

There are also a number of rules that ASIC made in November 2012 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 took effect in 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; and
- Regulatory data for supervision rules require additional data on orders and/or trades, including: (a) identification of crossing systems, (b) flagging whether a participant is acting as principal or agent, (c) an identifier or reference for the origin of an order, (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; and
- 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 2012, 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 US, the SEC recently adopted a rule requiring 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 D – 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.[183]

In the **US**, a broker-dealer has a legal duty to seek to obtain best execution of customer orders.[184] 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, the antifraud provisions of the federal securities laws.[185] The duty of best execution requires broker-dealers to execute customers' trades, in accordance with the conditions of the order and at the most favourable

183 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.*

184 See *e.g., Newton v. Merrill, Lynch, Pierce, Fenner & Smith, Inc.,* 135 F.3d 266, 269-270 (3d Cir.), *cert. denied,* 525 US 811 (1998) ("*Newton"*); *Certain Market Making Activities on Nasdaq*, *Exchange Act Release* No. 40900 (11 January 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 (6 Sept. 1996), 61 FR 48290 (12 Sept. 1996) (*Order Handling Rules Release*). See *Regulation NMS, Securities Exchange Act Release* No. 51808, 70 FR 37496 (29 June 2005) (*Regulation NMS Release*).

185 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 maximises 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 maximising 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* (14 Feb. 2001) (citing Newton, but concluding that respondent fulfilled his duty of best execution). See also *Securities Exchange Act Release No. 34902* (27 Oct. 1994), 59 FR 55006, 55009 (2 Nov. 1994) (*Payment for Order Flow Final Rules*). If the broker-dealer intends not to act in a manner that maximises 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.

terms available under the circumstances, *i.e.*, at the best reasonably available price.[186] 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.[187] 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.[188] 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.[189] 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.[190]

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[191] applies to the full depth of the book, as opposed to the top-of-book requirement in the US. 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 best execution obligation is based on the fiduciary duty that a dealer has to its client, while trade-through protection is based on the obligation a participant has 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)

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186 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 (6 Oct. 1993), 58 FR 52934, 52937–38 (13 Oct. 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.*

187 Id.

188 Id.

189 Id.

190 Id.

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

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.[192]

The US 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.

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

Appendix E – 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
Australia: Financial market (under the Corporations Act 2001)	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.	Most are accessible by retail and professional investors. Most are continuous trading markets.	As of November 2013, there are 12 Australian market licensees, 2 of which have not commenced operation. Of the 12, only 6 trade equities and/or ETFs.
Brazil	Exchange Markets are either those which regularly operate as centralised and multilateral trading system and that provide for the interaction of purchasers and sellers of securities, or allow	Retail// Wholesale Continuous trading.	There is one exchange which operates as a centralised and multilateral trading system.

	the execution of trades, whether subjected or not to interference of other intermediaries authorised to trade in the market, where the counterpart is a market maker that undertakes the obligation of placement of firm orders for purchase and sale of securities.		
Canada: Exchanges (National Instrument 21-101)	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 • disciplines subscribers other than by exclusion from participation in the marketplace. A "lead" provincial securities regulatory authority must recognise exchanges that intend to carry on business.	Retail// Wholesale Continuous trading // Auction market.	There are four exchanges recognised by provincial securities regulatory authorities that trade equities and ETFs.
China (People's Republic of China) (under Securities Law of the People's Republic of	A stock exchange is a legal person performing self-regulatory governance which provides the premises and facilities for centralised trading of securities, organises and supervises such securities trading. The establishment and dissolution of a stock exchange shall be	Retail// Wholesale Continuous trading.	As of 2013, two stock exchanges are licensed in China.

China (revised in 2005))	subject to decision by the State Council. (Securities Law, Article 102)		
EU Regulated Markets (RMs)	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 of November 4, 2013, 100 trading venues were registered as RMs in EU (please refer to ESMA MiFID Database for the list, http://mifiddatabse.esma.eu).
Hong Kong : Recognised Exchange Companies	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 recognised clearing house.	Both retail and institutional investors. Continuous auction market.	One exchange is recognized to operate a stock market in Hong Kong.
India	Securities Contracts (Regulation) Act, 1956 defines "stock exchange" as (a) any body of individuals, whether incorporated or not, constituted before corporatisation and demutualisation under sections 4A and 4B, or (b) a body corporate incorporated under the Companies Act, 1956 (1 of 1956) whether under a scheme of corporatisation and demutualisation or otherwise, for the purpose of assisting, regulating or controlling the	All categories of investors (such as retail, institutional, foreign) can trade on the stock exchanges. Stock exchanges have an order-driven, continuous trading market for liquid scrips. For illiquid scrips	20 stock exchanges are recognised under Securities Contracts (Regulation) Act, 1956. However, active trading takes place on four stock exchanges.

	business of buying, selling or dealing in securities. Stock exchanges cannot operate in Indian securities market unless they are recognised under the Securities Contracts (Regulation) Act 1956 by Central Government / Securities and Exchange Board of India.	trading takes place through periodic call-auction method.	
Japan: Financial Instruments Exchanges	A Financial Instruments Exchange 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 of December 3, 2012, 6 Financial Instruments Exchanges are licenced in Japan.
Korea: Financial Investment Services and Capital Markets Act Article 8-2	A 'financial investment instrument market' means a market where sales and purchase of securities or exchange-traded derivatives are carried out. An 'exchange' refers to an entity who has established a financial investment instrument market under the approval of the FSC, with the purpose of fair pricing and trading of securities and exchange-traded derivatives. An 'exchange market' refers to a financial investment instrument market established by the exchange.	Investor: Retail, institutional, foreign. Trading method: Auction market.	There is 1 exchange, the Korea Stock Exchange, approved by the FSC. The exchange market is divided into 1) stock market and 2) derivatives market. Also, KONEX, a stock exchange exclusively for SMEs, is established under and run by the KRX.
Malaysia: Approved Market	An approved market refers to a stock market of an approved stock exchange, pursuant to Section 8 of	Retail and institutional	As at November 2013, there is 1 securities

	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.	Auction market – with different trading phases: opening, continuous trading and closing.	exchange (Bursa Malaysia Securities) and 1 derivatives exchange (Bursa Malaysia Derivatives).
Mexico	Under Mexican Regulation an Exchange is a platform which provides a market place set up for the purpose of securities trading bringing together buyers and sellers on a multilateral basis. An exchange must have Federal Government grant to operate. One of the main conditions required by the Mexican Regulation is that an exchange's trading system should allow its members to participate on equal conditions. To this end, these systems must meet at least the following requirements: • Provide access to quotes and trades information. • Identify the parts, date, time, price, volume, type of securities among others. • Detect irregularities in quotes	Only Broker-Dealers (BD) can participate in the securities exchange // Retail// Wholesale can access the system through a BD. Continuous trading and Auction market.	There is one Equity Exchange currently operating in Mexico.

	and trades. • Establish security measures to prevent unauthorised access to their database. • Ensure continuity of trades. • Consider contingency plans to avoid disruption, modification, limitation and other acts or events that prevent the trading of securities. • Have mechanisms in place to preserve the integrity of the securities market.		
Nigeria- **Approved Securities Exchanges**	Under the Investments and Securities Act 2007 PART XVIII: INTERPRETATION AND CITATION Section 315 defines a securities exchange as follows : ‘ In this Act- “securities exchange" means an exchange or approved trading facility such as a commodity exchange, metal exchange, petroleum exchange, options, futures exchanges, over the counter market, and other derivatives exchanges.	Both retail and institutional investors. Trading method : Auction and Continuous trading	• The Nigerian Stock Exchange (NSE) • Abuja Securities & Commodities Exchange • NASD Limited FMDQ OTC Plc
Singapore: Approved exchanges (AE)	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	Retail// Wholesale Continuous trading // Auction market.	As of November 2013, there is 1 securities exchange and 2 futures exchanges

	securities or such other securities as the MAS may prescribe are regularly made on a centralised 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.		
South Africa	"Exchange" means a person who constitutes, maintains and provides an infrastructure— *(a)* for bringing together buyers and sellers of securities; *(b)* for matching bids and offers for securities of multiple buyers and sellers; and *(c)* whereby a matched bid and offer for securities constitutes a transaction;	Retail and wholesale investors via authorised users of the Exchange.	Johannesburg Stock Exchange is the only licensed exchange in South Africa
Switzerland: Exchanges (Swiss Federal Act on Stock Exchanges and Securities Trading)	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.		
Turkey	Other organised market places ARTICLE 66 – (1) Principles and procedures regarding the establishment, authorisation, capital, capital market instruments to be traded, competition conditions and operation principles of alternative trading systems, multilateral trading		Borsa Istanbul is the only exchange.

	facilities and other organised markets outside exchanges, which bring together buyers and sellers of capital market instruments, provide intermediary services in purchase and sale transactions, establish and operate systems and facilities for these purposes shall be established with by-laws to be published by the Board. The Board is the surveillance and supervision authority of these markets.		
United States: Exchanges (under the Securities Exchange Act of 1934 ("Exchange Act"))	Under Exchange Act Section 3(a)(1), the term "exchange" is defined as "any organisation, 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 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	Retail// Institutional// Professional Continuous trading // Auction market	In 2013, 18 trading venues were registered as exchanges. [193] 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 trading security futures. [194] 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.[195]

[193] NYSE MKT 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, Miami 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), and Topaz Exchange, LLC.

[194] 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.

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

	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.		

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**
Australia	None in equity products.	N/A	N/A
Brazil	For the purposes of this Report Organised OTC Markets can be classified as non-exchanges in Brazil. Organised OTC Markets are those (i) which regularly operate as centralised and multilateral trading system and that provide for the interaction of purchasers and sellers of securities, or (ii) allow the execution of trades, whether subjected or not to interference of other intermediaries authorised to trade in the market, where the counterpart is a market maker that undertakes the obligation of placement of firm orders for purchase and sale of securities, and/or (iii) enable the registration of trades previously carried out.	Retail// Wholesale Continuous trading.	Regarding stocks and ETFs there is one OTC Market Operator which operates as a centralised and multilateral trading system.
Canada : Alternative Trading System	"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	Varies between ATSs. Retail, wholesale, continuous auction markets, call markets, dark markets.	There are 9 ATSs carrying on business in Canada that trade equity securities and ETFs.

	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.		
China (People's Republic)	N/A	N/A	N/A
EU : Multilateral Trading Facilities (MTF)	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 of November 4, 2013, 155 trading venues are registered as MTFs in EU (please refer to ESMA MiFID Database for the list, http://mifiddatabse.esma.eu).
Hong Kong : Automated Trading Services	"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	Mainly professional investors. Execution method varies including auction markets and dark markets.	As of end September 2013, 27 ATSs are licensed to operate in Hong Kong. They are mainly broker crossing systems.

	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.		
India	In India, non-exchange trading market systems such as ATS / MTS / cross networking do not exist as the law does not permit the same. [Under Section 19 of Securities Contracts (Regulation) Act, 1956, no person can organize or assist in organizing for the purpose of assisting in, entering into or performing any contracts in securities except through a registered stock exchange].	N/A	N/A
Japan: Proprietary Trading Systems (PTS)	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 of December 3, 2012, 2 PTSs are authorized in Japan.
Korea	'Alternative Trade System(ATS)' refers to entity in investment trading business or investment brokerage business that acts as a broker for trading listed at trading prices set forth in any item of subparagraph 1 for a multiple number of parties simultaneously through an information telecommunications network or an electronic information processing system.	Auction market, Latest price formed at stock exchange (for listed securities) Fair price determined by a formula prescribed by Presidential decree	None, as of end of October.
Malaysia	Registered electronic facilities	Institutions	As at November

	(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.	Trade matching is manual upon negotiation with 2 parties.	2013, 3 REFs have been approved which facilitate bond and derivatives trading.
Mexico	There are no Multilateral Trading Facilities (MTF) in Mexico for trading equities since stocks and ETFs have to be traded on an Exchange.	N/A	N/A
Nigeria	The Financial Markets Dealers Association (FMDA) has been involved in the trading of instruments such as the FGN bonds, Nigerian Treasury Bills, Nigerian Treasury Certificates, Commercial Papers, Bankers Acceptance and other Central Bank of Nigeria Bills. NASD PLC is the promoter of a Trading Network that seeks to ease secondary market trading of all non-quoted securities in the West African region, thereby stimulating growth through more efficient capital raising processes	Financial Markets Dealers Quotations (FMDQ): The institution's activities will impact on dealer-dealer and dealer-client relationships NASD PLC brings together Issuers, individual and institutional investors, accredited dealers, stockbrokers, banks, central clearing systems, private equity and venture capital firms and depositories with a view to increasing liquidity in the non-quoted segment of the long term funding market.	Federal Government of Nigeria (FGN) bonds, Nigerian Treasury Bills, Nigerian Treasury Certificates, Commercial Papers, Bankers Acceptance and other Central Bank of Nigeria Bills NASD All non-quoted securities
Singapore: Recognized Market Operator (RMO)	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 statutory obligations than	Access restricted to professional and institutional investors only. Execution method varies between RMOs.	As of November 2013, there are 25 RMOs. These include operators of equities, fixed income and futures markets.

	approved exchanges.		
South Africa	N/A	N/A	N/A
Switzerland: Exchange-like institutions (Swiss Ordinance on Stock Exchanges and Securities Trading)	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.		
Turkey	Other organised market places ARTICLE 66 – (1) Principles and procedures regarding the establishment, authorisation, capital, capital market instruments to be traded, competition conditions and operation principles of alternative trading systems, multilateral trading facilities and other organised markets outside exchanges, which bring together buyers and sellers of capital market instruments, provide intermediary services in purchase and sale transactions, establish and operate systems and facilities for these purposes shall be established with by-laws to be published by the Board. The Board is the surveillance and supervision authority of these markets.		N/A
United States: Alternative Trading Systems (ATSs)	"Alternative Trading Systems" (ATSs) 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	Varies between ATSs. Retail, institutional, professional, continuous auction markets, call markets	As of 1 August 2013, there were 90 ATSs registered.[196]

196 See http://www.sec.gov/foia/ats/atslist0813.pdf.

	of FINRA, and comply with the broker-dealer regulatory regime. In general, ATSs, 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.		

Table 3 - OTC Trading Systems

Table 3 below provides 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 internalisers, crossing networks, etc.).

	Definition	**Investors accessing the systems & execution method**	**OTC trading systems currently in place**
Australia	Crossing system - an automated service provided by a market participant to its clients that matches or executes client orders with orders of: (a) the market participant; (b) other clients of the market participant; or (c) any other person whose orders access the automated service, otherwise than on an order book of a licensed market. (Chapter 4A of the ASIC Market Integrity Rules (Competition in Exchange Markets) 2011	Predominantly professional investors, although retail investors are able to access many of the systems.	As of 20 November 2013, crossing systems operated by 15 market participants have notified to ASIC. They all deal in equity market products.
Brazil	The regulation considers as performed in the non-organised OTC market all trades carried out of the organised markets (exchanges and organised OTC) in which intervenes, as an intermediary, a member of the		N/A

	distribution system.		
Canada[197]	N/A	N/A	N/A
China (People's Republic)	N/A	N/A	N/A
EU: Systematic Internaliser	Systematic internaliser means an investment firm that, 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 of 4 November 2013, 13 systems are registered as systematic internalisers in shares admitted to trading on an EU regulated market (please refer to ESMA MiFID Database for the list, http://mifiddatabse.esma.eu).
EU: Crossing Networks	Systems operated by investment firms/sometimes market operators, which mainly internally match client orders.		
Hong Kong	Not defined under the law.	N/A	N/A
India : Mutual Fund	Authorised participants and large investors can directly subscribe/redeem units in a specific fund.		
India	The transactions in equities and ETFs that fall under the following definition of 'spot delivery contract', as provided in Securities Contracts (Regulation) Act, 1956, are allowed as OTC trades: (a) actual delivery of securities and the payment of a price therefore either on the same day as the date of the contract or on the next day, the actual period taken for the dispatch of the securities or the remittance of money therefore through the post being excluded from the computation of	Most of the categories of investors can deal in spot delivery contracts.	Such contracts are usually traded and settled bilaterally.

[197] In Canada, UMIR requires dealers with access to a marketplace (Exchange or ATS) to execute all orders for a listed equity or ETF on a marketplace. Very little, if any, trading of listed equities or ETFs occurs off of a marketplace.

	the period aforesaid if the parties to the contract do not reside in the same town or locality; (b) transfer of the securities by the depository from the account of a beneficial owner to the account of another beneficial owner when such securities are dealt with by a depository;		
Japan	N/A	N/A	N/A
Korea	N/A	N/A	N/A
Malaysia	Equities and ETF can also be traded via Direct Business Transaction (DBT) process which is a trading method provided by Bursa Malaysia Securities to enable shares to be transacted off-the-market (over the counter). DBT includes "crossing" which is a transaction between two stockbroking companies and "married" which is a transaction between two clients within a stockbroking company.	Retail and Institutions. Negotiated basis between the parties and all DBT are required to be reported to the exchange. The transaction price for DBT is performed on the Previous Volume Weighted Average Price (PVWAP) of the securities.	The securities exchange - Bursa Malaysia Securities.
Mexico	Under Mexican Regulation stocks and ETFs have to be traded on an Exchange. Only stocks that are not registered in Mexico's "National Securities Register" are allowed to be traded OTC. However, any person (such as holders of listed equity) can trade securities OTC, provided that these transactions are not made on an ongoing basis.	N/A	N/A
Nigeria	The trading system and technology the company has decided to adopt would be the	FMDQ :PRIMAR Y MARKET MAKING	FMDQ:THOMSOM REUTERS /ICAP

	existing technology being used by the FMDA namely Thompson Reuters and ICAP. NASD has entered into an arrangement to lease capacity from the automated trading system of a third party therefore trading at this end of the market takes place on a tested trading platform. Deals in non-quoted large cap securities will be matched automatically in this market - under conditions similar to a formal Stock Exchange. Trades will essentially be bilateral.	DEALERS (PDMM) and other Registered institutional dealers. NASD :Access to trade on this segment of the market is restricted to accredited Broker firms who are duly licensed by the Securities and Exchange Commission of Nigeria. Clearing is provided by the Central Securities Clearing System while settlement is done through some select banks in West Africa.	
Singapore	Crossing systems and internalisers are similarly regulated as RMOs (see Table 2 above).	Access limited to professional and institutional investors.	As of November 2013, there are 2 such facilities recognized as RMOs.
South Africa	N/A	N/A	N/A
Switzerland	N/A	N/A	N/A
Turkey	Other organised market places ARTICLE 66 – (1) Principles and procedures regarding the establishment, authorisation, capital, capital market instruments to be traded, competition conditions and operation principles of alternative trading systems, multilateral trading facilities and other organised markets outside exchanges, which bring together buyers and sellers of capital market instruments, provide intermediary services in		N/A

	purchase and sale transactions, establish and operate systems and facilities for these purposes shall be established with by-laws to be published by the Board. The Board is the surveillance and supervision authority of these markets.		
United States: Dealer Trading Systems	Systems of registered broker-dealers that, due to the nature of their trading activities, are not exchanges.	Varied.	OTC market consists of trading by registered broker-dealers, including ATSs, which occurs off 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.

Table 4 -Picture of pre and post-MiFID

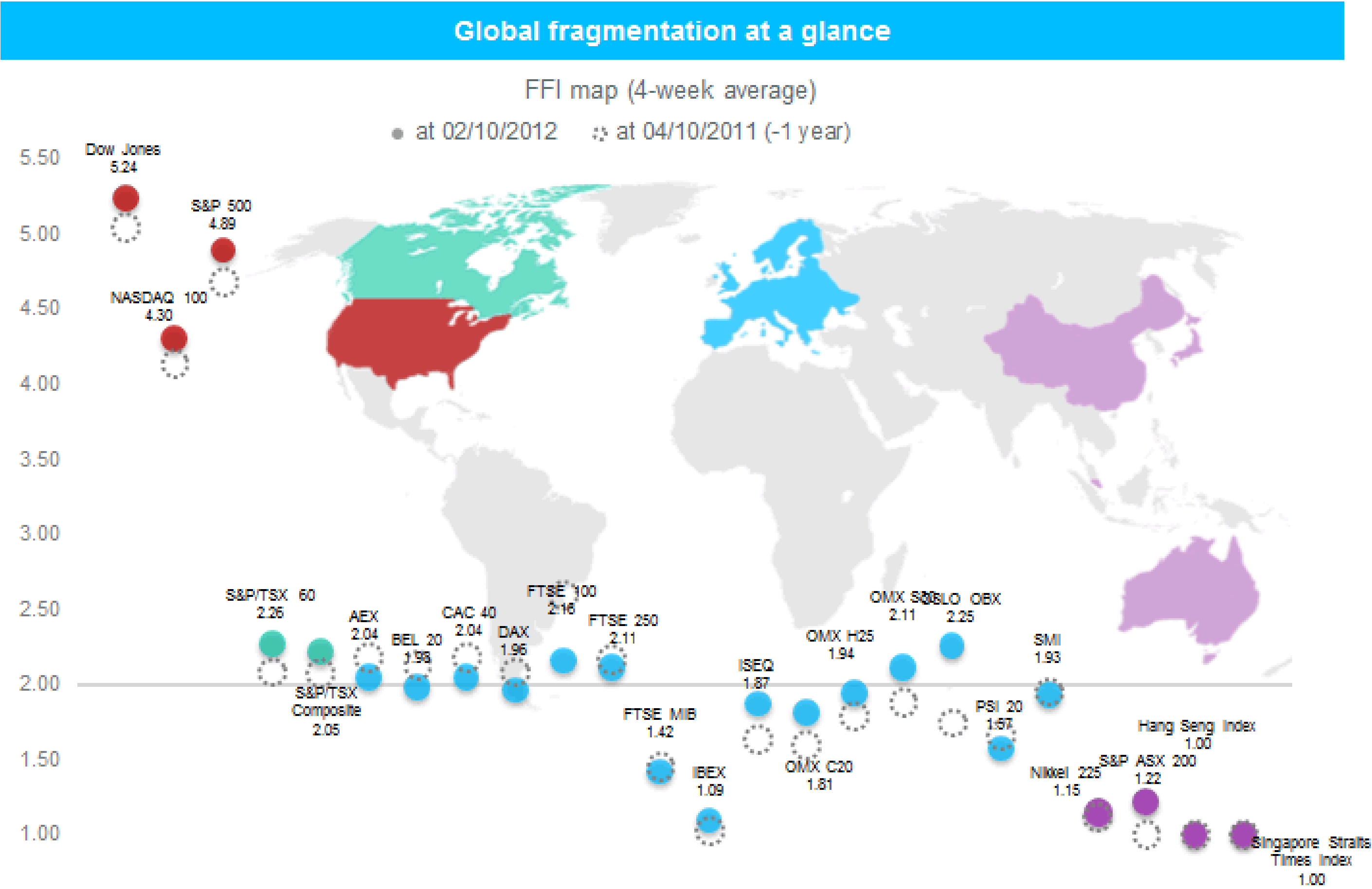
Table 4 provides a picture of pre and post-MiFID.[198]

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, that are shown as "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

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

Appendix F - 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 G - 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 H - 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.

Appendix I: Technological Challenges to Effective Market Surveillance: Issues and Regulatory Tools; Recommendations

Recommendation 1: Market Authorities should have the organizational and technical capabilities to monitor effectively the Trading Venues they supervise, including the ability to identify market abuse and activities that may impact the fairness and orderliness of trading on such venues.

Recommendation 2: Market Authorities should regularly review and update as appropriate their surveillance capabilities, including systems, tools and surveillance staff skills, particularly with respect to technological advances.

Recommendation 3: Within their jurisdiction, the relevant Market Authority(ies) should individually or collectively have the capability to access data in a way that enables them to conduct effectively their surveillance obligations.

Recommendation 4: Market Authorities (individually or collectively) should have the capability to associate the customer and market participant with each order and transaction.

Recommendation 5: Market Authorities should require that data required for market surveillance be reported to the requisite Market Authority for use and storage in a usable format.

Recommendation 6: Market Authorities should establish and maintain appropriate confidential safeguards to protect surveillance data that is reported to them.

Recommendation 7: Market Authorities should consider requiring Trading Venues and their participants within their jurisdiction to synchronize, consistent with industry standards, the business clocks they use to record the date and time of any reportable event.

Recommendation 8: Market Authorities should at a minimum map and be aware of the extent of their cross-border surveillance capabilities. Market Authorities should also work collectively and take any steps that would be appropriate to strengthen their cross-border surveillance capabilities.

Appendix J – List of Respondents to the Consultation Report: Regulatory Issues Raised by Changes in Market Structure

Australian Financial Markets Association ("AFMA")
BlackRock
Deutsche Bank AG
Deutsche Börse Group
Federation of European Securities Exchanges ("FESE")
Global Financial Markets Association ("GFMA")
Investment Company Institute ("ICI")
London Stock Exchange Group ("LSEG")
Markit
NASDAQ OMX Group ("NASDAQ")
NYSE Euronext
ODDO & Cie
Rights Management Associates Ltd ("RMA")
SIX Swiss Exchange ("SIX")
Société Générale
Swedish Securities Dealers Association ("SSDA")
Themis Trading LLC
Thomson Reuters
Unicredit Group ("Unicredit")
Vereniging VEB NCVB (Dutch Shareholders Association) ("VEB")
World Federation of Exchanges ("WFE")