

MiFID and a changing competitive landscape

RYAN J. DAVIES*

April 2008 (updated July 2008)

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In November 2007, the Markets in Financial Instruments Directive (MiFID) came into full effect. MiFID is the most significant European Union legislation for investment intermediaries and financial markets *ever* introduced. In general terms, MiFID is designed to provide a common, harmonized set of rules for the provision of investment services in each of the EU member states. A key feature of this legislation is the concept of a passport by which firms (e.g. investment banks, broker dealers, stock exchanges and alternative trading systems) are regulated primarily by their home state but can operate in other EU host states. MiFID also removes the so-called concentration rule, allowing greater competition for order flow across trading venues. This paper shows how new requirements concerning best execution, client classification, systematic internalisers, pre- and post-trade transparency, and the ownership of market data have created enormous new business opportunities. This paper argues that MiFID has already succeeded in its goal of introducing greater competition, as already made evident by the early success of new trading venues such as Instinet Chi-X and new market data providers such as Markit BOAT. Further exchange consolidation, more sophisticated smart order routing, and new entrants such as BATS Europe, Nasdaq OMX Europe, and Project Turquoise suggest that European financial markets are on the cusp of further major (and unpredictable) changes. In addition to exploring developments in Europe, the paper explores the impact of international exchange linkages, such as NYSE Euronext, and contrasts the principles-based approach of MiFID with the rules-based approach of the SEC's RegNMS.

A. Introduction

In November 2007, the Markets in Financial Instruments Directive (MiFID) of the European Union came into full effect. MiFID establishes a robust, comprehensive legislative framework for Europe's securities markets. It provides a common, harmonized set of rules for the provision of investment services in each of the EU member states. A key feature of this legislation is the concept of a passport by which firms (e.g. investment banks, broker dealers, stock exchanges and alternative trading systems) are regulated primarily by their home state but can operate in other EU host states. MiFID also removes the so-called concentration rule, allowing greater competition for order flow across trading venues. MiFID introduces new provisions concerning best execution, client classification, systematic internalisers, pre- and post-trade transparency, and the ownership of market data. This paper will show how these new requirements have created enormous new business opportunities and have disrupted the existing business models of traditional exchanges.

MiFID is designed to foster an integrated European financial market that is fair, competitive, transparent, and efficient. This paper will argue that MiFID has already succeeded in its goal of introducing greater competition, as already made evident by the early success of new trading venues such as Instinet Chi-X and new market data providers such as Markit BOAT. Further exchange consolidation, more sophisticated smart order routing, and new entrants such as BATS

Europe, Nasdaq OMX Europe, and Project Turquoise suggest that European financial markets are on the cusp of further major (and often unpredictable) changes. In addition to exploring developments in Europe, the paper explores the impact of international exchange linkages, such as NYSE Euronext, and contrasts the principles-based approach of MiFID with the rules-based approach of the US Securities and Exchange Commission (SEC)'s RegNMS. The aim of MiFID is to create a regulatory environment that provides adequate investor protection, while being flexible enough to allow for the introduction of new markets and services. While the focus of this paper will be the impact of MiFID on cash equity markets, it is important to remember that many of the provisions of MiFID extend to a wide range of financial instruments, including bonds and derivatives.

MiFID has come into effect through a complex four-level process. On April 21, 2004 the European Parliament and Council passed the new Markets in Financial Instruments Directive¹ (MiFID), which established the high-level ("level 1") principles for the repeal of the 1993 Investment Services Directive (ISD). Subsequently, in August 2006, the European Council and Parliament adopted follow-up legislation designed to clarify technical implementing measures of MiFID ("level 2").² At the same time, each of the member states began the process of transposing the MiFID requirements into domestic law. The transposition stage is guided by a "level 3" process, which ensures that there are homogeneous standards across member states, so as to avoid regulatory arbitrage. On November 1, 2007, MiFID came into full effect, and firms are now supposed to be in compliance with the law. The "level 4" process is the on-going review and enforcement by the European Commission.

An important aspect of this new directive is the repeal of the so-called concentration rule (Article 14(3)) of the 1993 ISD. The concentration rule had allowed national authorities to stipulate that retail investor orders be executed only on a 'regulated market'. In the absence of a concentration rule, trades may be executed away from the main market center on alternative trading systems or by investment firms. Historically, many EU countries have always had only one national exchange; thus, it may take time for some market participants to adapt (from a cultural perspective) to the new reality. Davies, Dufour and Scott-Quinn (2006) examine the impact of the repeal of the concentration rule on market fragmentation.³

* Finance Division, Babson College, 224 Tomasso Hall, Babson Park MA 02457. Tel: +1-781-239-5345. Email: rdavies@babson.edu
I am grateful for financial support from the W.F. Glavin Center for Global Management. I am grateful for discussions with Alfonso Dufour, Brian Scott-Quinn, Carole Comerton-Forde, Anthony Kirby, Graham Bishop, Andrew Simpson, Scott Riley, Robert Schwartz, Jaime Aguilar, Luisella Bosetti, Luca Filippa, Luigi Spaventa, Joshi Dixit, Peter Gomber, Kai-Oliver Maurer, Olivier Lefebvre, Santiago Ximenez, Ramon Adarraga, Paul Arlman, Verena Ross, Matthew Elderfield, Jim Angel, Jeffrey Bacidore, John Minderides, Alasdair Haynes, Ian Domowitz, Timothy Baker, John Serocold, Nick Dutton, Hugh Brown, Adam Kinsley, Niki Beattie, Tim McCormick, Paul Bennett, Frank Hatheway, Ekkehart Boehmer, Li Wei, Ruben Lee, Marco Mazzucchelli, Gideon Saar, Joel Hasbrouck, Alessandro Zignani, Adrea Crovetto, Lee Hodgkinson, Charles Goodhart, John Board, John Spencer, Erik Sirri, Michael Goldstein, Stewart Mayhew, Kumar Venkataraman, and participants at the 2008 Workshop on Financial Market Quality hosted by NYSE Euronext and Université Paris-Dauphine. All remaining errors are my own.

¹ Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments amending Council Directives 85/611/EEC and 93/6/EEC and Directive 2000/12/EC of the European Parliament and of the Council and repealing Council Directive 93/22/EEC, OJ L 145 30.04.2004 1-44.

² Directive 2006/73/EC of the European Parliament and of the Council of 10 August 2006 implementing Directive 2004/39/EC of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive. Commission Regulation (EC) No 1287/2006 of 10 August 2006 implementing Directive 2004/39/EC of the European Parliament and of the Council as regards record-keeping obligations for investment firms, transaction reporting, market transparency, admission of financial instruments to trading, and defined terms for the purposes of that Directive.

³ Fragmentation occurs if there is no mechanism to ensure (i) interaction between orders submitted for the same security on multiple venues; and (ii) interaction between orders and the best quotes posted on multiple venues.

MiFID introduces new provisions for the protection of investors and for the identification and removal of conflicts of interest rules. It also introduces provisions on best execution, order handling and trade reporting rules as well as provisions on pre-trade and post-trade transparency. These provisions are designed to create a level playing field in which alternative market structures and trading systems can compete for trade execution without a detrimental effect on market quality. Thousands of pages of formal legal opinion, comment letters, and news articles have been written about MiFID. Instead of replicating these studies, the purpose of this paper is to explore how MiFID has begun to influence the competitive landscape of financial markets in Europe, with a particular focus on possible unintended consequences of the new legislation.

The remainder of the paper is organized as follows. Section B outlines the main features of MiFID. Section C provides a brief survey of recent developments in U.S. markets, with a particular focus on the impact of RegNMS. Section D examines how MiFID has shaped recent developments in the European financial markets. Section E examines the impact of the new rules on market data. Section F concludes.

B. MiFID

The adoption of the 1993 ISD was a significant attempt to create a legislative framework for a fully harmonised European market.⁴ The ISD provided high level principles for national securities regulations, with the goal of mutual recognition of regulations across the EU. With a primary focus on equity markets, the ISD created the concept of a single *passport* for investment firms, allowing them to be authorised and supervised by domestic authorities but still provide specified investment services in other EU states. It was modelled after the passport given to banks in the Second Banking Directive.

Soon after the introduction of ISD, it became apparent that revisions were needed. Technological innovation and the development of alternative trading systems (ATSS) and ECNs blurred the strict distinction between regulated markets and investment firms. It was soon clear that new regulations needed to be introduced which would be flexible enough to accommodate and foster future innovations in trading.

In 1998, the Cardiff European Council explicitly recognised the necessity for a revision of the ISD in order to create the infrastructure necessary for a stronger and more integrated European financial market. The Cardiff European Council set two deadlines, the year 2003 for an integrated European security market and the year 2005 for a fully integrated European capital market (obviously, this ambitious deadline has not been met!). The European Commission adopted the Financial Services Action Plan (FSAP) in May 1999. The FSAP consists of 42 measures aimed at creating an appropriate legislative apparatus, building sound supervisory structures and consolidating retail and wholesale markets.

⁴ Ferrarini (2002) and Levin (2003) provide a good overview of some of the legal aspects of the original ISD and subsequent European securities markets regulations.

Because the implementation of the FSAP measures had been greatly delayed by burdensome bureaucratic processes, the European Council for Economic and Financial Affairs (commonly known as ECOFIN) commissioned Professor Lamfalussy and the so-called Committee of Wise Men to assess the situation and make recommendations to speed up the implementation process. Professor Lamfalussy recommended the adoption of a four level approach; the EU legislator should establish high-level principles and leave implementation details to the European Commission, assisted by two newly formed committees – the European Securities Committee (ESC) and the Committee of European Securities Regulators (CESR). These committees soon began the process of revising the ISD, which later became renamed the MiFID when the high-level principles directive was passed in April 2004.⁵

In August 2006, the European Parliament and Council passed the implementing measures directive and regulations for MiFID. This follow-up MiFID directive provides more specific guidelines for member state transposition. Transposition refers to the process by which each EU member state brings into force the laws, regulations, and administrative processes necessary to comply with the directive. CESR was given a new role in the level 3 transposition stage of MiFID. The member state regulators use CESR in an advisory (non-executive) capacity to share information and to try to agree on best practice. With regards to transaction reporting, CESR has left a lot of flexibility to each regulator. As a consequence, regulatory reporting requirements for MiFID are non-trivial, with no single standard across regulators. For complex transactions between counterparties based in different member states, there has yet to be a common consensus on important questions, such as: Where is a transaction executed? Where does it need to be reported? Who should submit the trade report? In particular, there remains some confusion about Article 32(7) of MiFID, which deals with which member state regulator (host state or home state) is the competent authority for regulating a *branch* office of an investment firm.

Many investment firms are worried that MiFID regulations will not be consistently implemented. While some countries, such as the UK, fully adopted the new MiFID regulations on time, many other countries did not. The official deadline for member state transposition was January 2007. By the November 1, 2007 MiFID implementation date, however, only 14 out of 27 member states had submitted their transposition notification for approval by the European Commission. The transposition process has been messy, with several states facing delays (in part) because of transposition errors (notably transposition in The Netherlands was delayed because of a small interpretation error introduced when MiFID was translated from English to Dutch!). As the November 1st deadline came and went, firms operating across borders still face much confusion and substantial regulatory risks. Many firms have complained that because of the delays in member state transposition, they have not had sufficient time to adopt their systems for compliance. There is significant operational risk in making changes to trading systems – firms require time to phase-in these changes. In addition to the IT costs associated with compliance, there needs to be a substantial investment in training staff to understand their new regulatory obligations.

The Commission has stated the firms harmed by member states failure to transpose by the deadline can seek damages of consequence. That said, it is difficult to know what sort of recourse a firm could seek if they have been harmed. It is hard to quantify the damages caused by the implementation delay, particularly for small startups with untested business models. As well, it is

⁵ Herbst (2003) and Knight (2003) examine features of this revision process in the context of the FSAP.

not easy to imagine a small startup suing a major member state. There is also the possibility that a non-compliant firm could face a possible legal liability, since it could be sued by any of its counterparties. When the old ISD expired on November 1, 2007, its associated passport rights also expired. Consequently, this created a legal vacuum for the cross-border operations of firms regulated by a member state that had not yet completed its MiFID transposition. Obviously, some flexibility has been necessary, since the Commission is eager to not disrupt the orderly functioning of markets.

MiFID identifies three categories of trading services to which it attributes a decreasing level of regulatory requirements: 1) regulated markets, 2) multilateral trading facilities (MTFs), and 3) systematic internalisers. Regulated markets and MTFs are defined as “multilateral systems which bring together multiple third-party buying and selling interests in financial instruments in accordance with non-discretionary rules.”⁶ These systems may have similar trading functionalities. Unlike MTFs, regulated markets have to be authorised by the competent authority and must verify that issuers comply with disclosure obligations. MTFs can admit to trading a stock name without issuer consent. In July 2008, CESR listed 118 trading venues as MTFs and 92 trading venues as regulated markets!⁷ Importantly, unlike ECNs in the U.S., MTFs are not classified as broker-dealers and thus cannot route onto other exchanges when another venue has a better price.

A systematic internaliser is defined as an investment firm “which, on an organised, frequent and systematic basis, deals on own account by executing client orders outside a regulated market or an MTF.”⁸ Article 21(1) of the 2006 MiFID Implementing Regulation states that an organised, frequent and systematic basis occurs when: “(a) the activity has a material commercial role for the firm, and is carried on in accordance with non-discretionary rules and procedures; (b) the activity is carried on by personnel, or by means of an automated technical system, assigned to that purpose, irrespective of whether those personnel or that system are used exclusively for that purpose; (c) the activity is available to clients on a regular or continuous basis.”

Systematic internalisers must publish firm bid and ask prices up to standard market size at which they are prepared to trade, on a regular and continuous basis during normal trading hours. Systematic internalisers are not allowed to offer price improvement when dealing in retail size or with retail clients. This rule applies only to trading in liquid shares. CESR publishes a list of liquid shares, as well as a list of shares listed on EU regulated markets.

There was quite a bit of debate about what constituted a *liquid* market. Article 22 (1) of the 2006 MiFID Implementing Regulation states that “A share admitted to trading on a regulated market shall be considered to have a liquid market if the share is traded daily, with a free float not less than €500 million, and one of the following conditions is satisfied: (a) the average daily number of transactions in the share is not less than 500; (b) the average daily turnover for the share is not less than €2 million. However, a Member State may, in respect of shares for which it is the most relevant market, specify by notice that both of those conditions are to apply. That notice shall be made public.” Since this liquid shares definition excludes *all* of the securities in some national markets, Article 22(2) allows a member state to specify up to 5 liquid shares for that member

⁶ Articles 4(14) and 4(15) MiFID.

⁷ Up-to-date details can be found here: <http://mifidatabase.cesr.eu/>

⁸ Article 4(7) MiFID.

state. The obligations of systematic internalisers, such as pre-trade transparency, do not apply to illiquid shares.

It is unclear at this stage how many firms will elect to be considered systematic internalisers.⁹ In theory, it is a relatively straightforward, inexpensive declaration, which should be attractive to large retail providers. As of July 2008, CESR reports that only ten firms have registered as systematic internalisers.¹⁰ As such, it appears that some firms may continue to act as systematic internalisers in spirit, without actually declaring themselves as such, until greater clarification occurs. Anolli and Petrella (2007) simulate the impact of introducing systematic internalisers using data for 57 liquid stocks trading on the Italian Stock Exchange and estimate that potential gross trading revenues from internalization are equivalent to 0.211% of the internalized turnover.

Three main themes of MiFID are investor protection, market access, and transparency.

1. *Investor protection.* MiFID is particularly concerned with the protection of investors in potentially fragmented markets. It mandates the adoption by investment firms of adequate procedures for conducting their business as well as procedures for identifying and removing conflicts of interests (Articles 13, 18 and 19). These provisions are designed to ensure that investors have adequate information about a firm's execution practices. MiFID also includes provisions on best execution, order handling and trade reporting rules (Articles 21, 22 and 25) which ensure that 1) firms act in the best interest of the clients when executing their orders, 2) orders are executed promptly and sequentially, 3) there is no front-running of client's orders, and 4) trades reports are standardised and sufficiently detailed so that execution performances across different trading systems can be measured and compared.
2. *Market Access.* Consistent with the previous ISD, MiFID establishes a passport for investment firms, whereby investment firms authorised by a member state may provide services in any other member state (Article 31). Member states have to ensure that investment firms authorised from other member states have access to regulated markets in their territory directly by setting up branches in the host state, by remote membership, or by having remote access (Article 33). Also, investment firms have the right of access to central counterparty, clearing and settlement systems in other member states (Article 34).
3. *Transparency.* MiFID attempts to create a level playing field where alternative market structures and trading systems can compete for trade execution with no detrimental effect on market quality (e.g. liquidity and price discovery). Hence, MiFID includes provisions on pre-trade (Articles 27, 29 and 44) and post-trade (Articles 28, 30 and 45) transparency. At this moment, pre-trade transparency obligations only apply to trading in shares.

MiFID improves the passport introduced by the original ISD, leading to more homogenization of the market under a common rule set. The hope is that the decrease in complexity will lead to more confidence in cross-border trade and more competition in capital markets. MiFID hopes to

⁹ Finney (2006) conjectures that some firms may change their existing business models in response to the new requirements.

¹⁰ As of July 30, 2008, the following firms have registered as systematic internalisers: ABN AMRO Bank N.V., Danske Bank, Deutsche Bank, Lehman Brothers International Europe, Nordea Bank Danmark A/S, Citigroup Global Markets Ltd, Citigroup Global Markets U.K. Equity Ltd, UBS Ltd., UBS AG (London Branch), Credit Suisse Securities Europe Ltd.

reduce structural inefficiencies in capital markets (and thereby promote economic growth), and increase client protection.

MiFID introduces three new client classifications: (1) Retail; (2) Professional; (3) Eligible counterparty. To classify investors, firms must obtain and verify information about their clients, some of which are complex entities. Client classification requires suitability and appropriateness testing – firms must determine the degree of intelligence of their clients. In theory, existing Know Your Client (KYC) systems can be extended to incorporate MiFID requirements. The trick is for firms to set up a system that ensures that their clients only need to update this information once, thereby avoiding forms proliferation. There is a commercial opportunity for client classifications; surprisingly, few firms have stepped up to the plate yet (Avox, part of the Deutsche Börse Group, is an example of a firm entering this space).

Best execution applies to all financial instruments (not just shares). The best execution obligation applies when a firm executes orders (that is, acts to conclude agreements to buy or sell one or more financial instruments) **on behalf** of clients. Article 21 requires firms to take all reasonable steps to obtain the best possible result for their clients taking into account a range of factors including price, costs, speed, the likelihood of execution and settlement. In other words, it applies to the *overall* deal characteristics (not just price).¹¹

MiFID requires firms to publish a best execution policy. This policy must consider each of the large number of different criteria associated with a trade. This requirement contrasts with standard guidelines prior to MiFID in which best execution was normally defined in reference to quoted prices on the national exchange. For example, the FSA used to define best execution only with reference to LSE quotes; consequently, firms had little incentive to improve on client trade prices above these quotes.¹²

The best execution policy must identify which exchanges, MTFs, and other trading venues are possible execution venues. At the end of each year, firms must review whether these execution venues provided best outcomes for their clients and firms must show why they selected the liquidity pools that they did. This analysis needs to weigh the tradeoffs between sending orders to a generalist versus a specialist execution venue. Buy side firms, which have become more empowered with MiFID, also need to provide an analysis of the quality of executions that they have received. A small reduction in transaction costs for a buy side firm can make a huge difference in its relative performance.

¹¹ Kirby (2006) outlines some of the complex issues surrounding what best execution requirements might actually mean in practice. He argues that it is a non-trivial matter to show that a given trade meets best execution criteria along each of the many possible dimensions.

¹² Previously, best execution rules in the UK were mainly focused on achieving the best price for the customer and clearly identify a specific price benchmark as a minimum execution standard. Changes to best execution practices for transactions have been proposed in a FSA consultation paper (FSA (2002)). The FSA recognises that best execution is more than the achievement of ‘the best price’ and the execution decision should take account of other factors, such as order type, size, settlement arrangements and timing, together with any other conditions set by the customer. Although setting the price of a specific market as the benchmark simplifies the enforcement of best execution rules it also reduces the incentive for firms to actively seek price improvement for their customers across alternative trading venues. Essentially, this recognizes that best execution may be available on other venues, such as virt-x, E-Crossnet, or POSIT. While the FSA accepts that the quality of execution that a firm can achieve depends in part on its access to execution venues, the FSA does not believe that there is a case for prescribing mandatory minimum market access arrangements. The FSA also recognizes that overall trading costs (explicit and implicit) play a role in determining the net result for the customer. FSA (2006) explains how the MiFID best execution requirements are broadly in line with the approach proposed in FSA (2002).

MiFID does not require a firm to demonstrate that it has achieved best execution for each individual order, but rather, it requires firms to show that its execution arrangements are sufficient to deliver best execution on a consistent basis and are properly applied to each order. MiFID allows for a wide variety of possible best execution policies, including the possibility that a firm's best execution policy could be uniquely tailored to each client.

MiFID's best execution requirements may actually favor incumbents, since best execution is evaluated on a rolling historical basis (incumbents do not yet have a history) and since best execution need not be implemented on a trade-by-trade basis. MiFID only requires that firms make their customers aware of their best execution policy; it does not specify what constitutes best execution. In theory, a firm's policy could be simply to send all orders to the national exchange. In fact, the MiFID implementing directive explains that the obligation to take all reasonable steps to obtain the best possible result for the client "*should not* be treated as requiring an investment firm to include in its execution policy all available execution venues."¹³ It remains to be seen how sticky liquidity will be to traditional trading venues. Smaller players will not have the resources necessary to access all available diverse liquidity pools. These players must weigh the tradeoffs between a buy (outsource decisions and connectivity to liquidity pools) versus build (in-house) strategy for smart order routing. Searching across diverse liquidity pools will be a particular problem for firms in former concentration rule countries. Clients, however, will compare best execution policies, and over time, the firm with the better policy will receive more order flow. Over time, firms will begin to compete more aggressively on the basis of execution, which will drive down costs.

C. U.S. SEC Regulation NMS

In contrast to the principles-based regulation of the EU, the U.S. has adopted a largely rules-based approach to regulation. In June 2005, the SEC adopted Regulation NMS¹⁴ (RegNMS), which introduces four main rule changes:

1. **Order Protection Rule (Rule 611):** This rule requires trading centers to have policies and procedures designed to prevent the execution of trades at prices inferior to protected quotations, such as an investor limit order, displayed by other trading centers. In other words, a displayed best price cannot be "traded through." To be protected, a quotation must be immediately and automatically accessible. Thus, the rule does not protect hidden orders and manual quotes (such as those submitted by the NYSE specialist and floor brokers). Importantly, the rule only protects orders at the top of the book at each trading venue. The order protection rule was implemented in stages from 2006 to 2007.
2. **Access Rule (Rule 610):** This rule includes three provisions designed to promote fair and efficient access to quotations. First, it enables the use of private linkages between broker-dealers and trading centers (in contrast to the former collective ITS system). Trading centers cannot prevent access by imposing unfair, discriminatory terms. Second, the rule establishes a limit on access fees (thereby ensuring displayed prices are, within a limited range, true prices). Third, the rule requires each securities exchange / association to prohibit their members from engaging in a pattern or practice of displaying quotations

¹³ Italics added. MiFID Implementing Directive L241/32.

¹⁴ Securities and Exchange Commission, Regulation NMS, Final Rule Release No. 34-51808, June 9, 2005.

that lock or cross automated quotations. The access rule was implemented in stages from 2006 to 2007.

3. **Sub-Penny Rule (Rule 612):** This rule prohibits market participants from accepting, ranking, or displaying orders, quotations, or indications of interest in a pricing increment smaller than a penny, unless the price is less than \$1.00 per share. This rule is designed to prevent orders from stepping ahead of displayed limit orders by trivial amounts. The sub-penny rule went into effect in January 2006.

4. **Market Data Rules (Rules 601 and 603):** These rules update the formula for allocating revenues generated from market data fees to a trade / quote value basis, rather than a per report basis. While best quotes and trades still must be provided for consolidated dissemination, market centers and broker-dealers will have the freedom to distribute their own data (e.g. more depth of book information) independently, with or without fees. The new market data rules allocate market data revenue based more closely on the market centre's contribution to the best displayed quotation, thereby removing an excessive focus on the number of trades executed, regardless of trade size. The new data allocation formula went into effect in 2007.

It is worth highlighting that, in contrast to the broadly defined best execution requirements of MiFID, the emphasis in RegNMS is on strict price priority (although quotes that cannot be accessed without human intervention or a built-in system delay are not protected). For compliance, participants must demonstrate (ex-post) that their trades occurred within the prevailing bid-offer price range. This requirement also applies to market participants executing crosses or internalising order flow. A significant capital investment has gone into upgrading systems to be able to re-create historical market conditions for compliance purposes.

RegNMS has brought major changes. It has accelerated the demise of the NYSE trading floor: the NYSE has closed 3 of its 5 trading rooms¹⁵ and the specialist participation rate has fallen to less than 4% (see Hendershott and Moulton (2007)). RegNMS also accelerated the consolidation of traditional ECNs. For example, Instinet merged with Island to form INET (2002) and then Nasdaq acquired both the INET and Brut ECNs and consolidated them with its own electronic limit order book (SuperMontage) into Single Book (2006). The aggregate limit order book on NYSE is known as OpenBook. RegNMS has also contributed to the success of a major new player: BATS Trading. Missouri-based BATS now accounts for 8-10 percent of total US equities turnover of \$4-5 billion a day.¹⁶ BATS used aggressive pricing to generate order flow, including giving out free order flow when the system first started. Table 1 reports the share of trading by trading venue in NYSE-listed and Nasdaq-listed securities in the first quarter of 2008. The NYSE and Nasdaq face significant competition for order flow in their own listed securities from each other, and from BATS, dark liquidity pools, and another new successful electronic trading venue called DirectEdge.

The introduction of the trade-through rule has had major implications for legacy trading venues, such as the NYSE floor. The new rule means that quotes from a non-automated market could be traded-through. In response to these changes, the NYSE introduced its hybrid trading system, beginning with a subset of securities in October 2006. On the old NYSE platform, orders had to

¹⁵ See "Next to downsize on Wall Street? The Exchange Floor," (Patrick McGeehan) *The New York Times*, September 23, 2007, p.37.

¹⁶ BATS trading statistics are available at: <http://www.batstrading.com/data/>.

be marked for automatic execution and these orders were capped at 1,099 shares. On the new NYSE platform, orders by default are marked for automatic execution and these orders have a (non-binding) cap of 1 million shares. See Hendershott and Moulton (2007) for details.

Table 1: 1Q'08 Share of trading in NYSE-listed and Nasdaq-listed securities

Panel A

Trading Venue	Matched market share of volume in NYSE-listed securities
NYSE	39.1%
NYSE Arca	13.0%
Nasdaq	20.8%
BATS	6.3%
DirectEdge	2.5%
Other / Internalized	18.3%

Panel B

Trading Venue	Matched market share of volume in Nasdaq-listed securities
Nasdaq ¹⁷	46.8%
NYSE Arca	16.2%
BATS	9.8%
DirectEdge	5.1%
Other / Internalized	22.1%

(Source: *Lehman Brothers Equity Research*, May 30, 2008)

The rising importance of algorithmic trading and statistical arbitrage trading has increased the importance of speed. So much so, that the speed of light actually matters – speed differences between trading venues are now measured in nanoseconds. Ironically, innovation in electronic trading has increased the importance of physical location. Proximity to clients and other trading venues is highly important for alternative trading systems. During the summer of 2007, Nasdaq doubled the size of its data center and now leases most of the space to competitors of the Nasdaq that want to co-locate as near as possible to the exchange. The importance of message speed contrasts to the pre- RegNMS era in which an intentional delay was introduced in the system so that people in San Francisco and New York would receive trade messages at the same time.

A major development in international financial markets is the rise of dark liquidity pools, which provide an off-market source of liquidity. A large number of dark liquidity pools have been created in recent years, both in the US and in Europe. Butler (2007) provides an overview of more than twenty possible ATSS available for institutional traders, such as Credit Suisse Cross-Finder, ITG Posit, and Nyfix Millennium. A particularly interesting development has been the formation of liquidity pools, such as Liquidnet, that do not allow the sell-side to participate. Other important differences in ATSS exist, such as whether their order flow is committed, uncommitted or IOC (immediate or cancel) or whether pricing is negotiated, within spread, or the

¹⁷ Historically, the Nasdaq share of trading in Nasdaq-listed securities was zero, since Nasdaq was simply an inter-dealer market (rather than operating a trading system).

spread midpoint. Since pricing on a dark liquidity pool depends on another market venue for price discovery, these pools may have difficulty operating as stand-alone entities.

While a clear winner has yet to emerge, over time it is likely that many of these ATSS will either merge or disappear, much as the original ECNs did. Already, Goldman Sachs, Morgan Stanley, and UBS have announced plans to offer reciprocal access to their internal crossing systems. In effect, the network is the now market – the market is no longer a single trading platform, but rather a series of hubs and routers across the globe. The original success of Archipelago (now merged with the NYSE) was based, in part, on routing orders out to best trade (since they did not have much liquidity themselves). While many of the original ECNs have closed or merged, the trend is now towards so-called dark liquidity pools which, in effect, have replaced what used to be done in the so-called upstairs trading market.

In many ways, the order matching features of dark trading systems are not much different than the features of other (more public) ATSS. Ex-post, dark trading has same transparency as other trading venues. Sofianos (2007) classifies dark pools as a type of non-displayed liquidity and argues that non-displayed liquidity has simply evolved over time, from floor brokers and upstairs brokers that manually worked orders to various electronic limit order books and crossing networks that are designed to tap latent liquidity. Sofianos (2007) explains that non-displayed liquidity is a fundamental feature of financial markets, which arises from traders' concern that if they widely advertise their intention to buy a large amount of stock, they will drive the price of the stock up ahead of their trade.

An example of a dark liquidity pool is Goldman Sachs' Sigma-X. Participants in Sigma-X cannot see the counterparties to the trade, although they are aware that Goldman Sachs internal traders participate in the system. The system includes a method to match offsetting algorithmic trades, but it is rare that off-setting algorithmic trades occur in which all of the parameters are matched. The daily volume on Sigma-X was 103 million shares in September 2007. Sigma-X still has to publish trades within 90 seconds. To conceal the counterparties, Goldman reports two halves of the trade, Goldman is the counterparty to both sides.

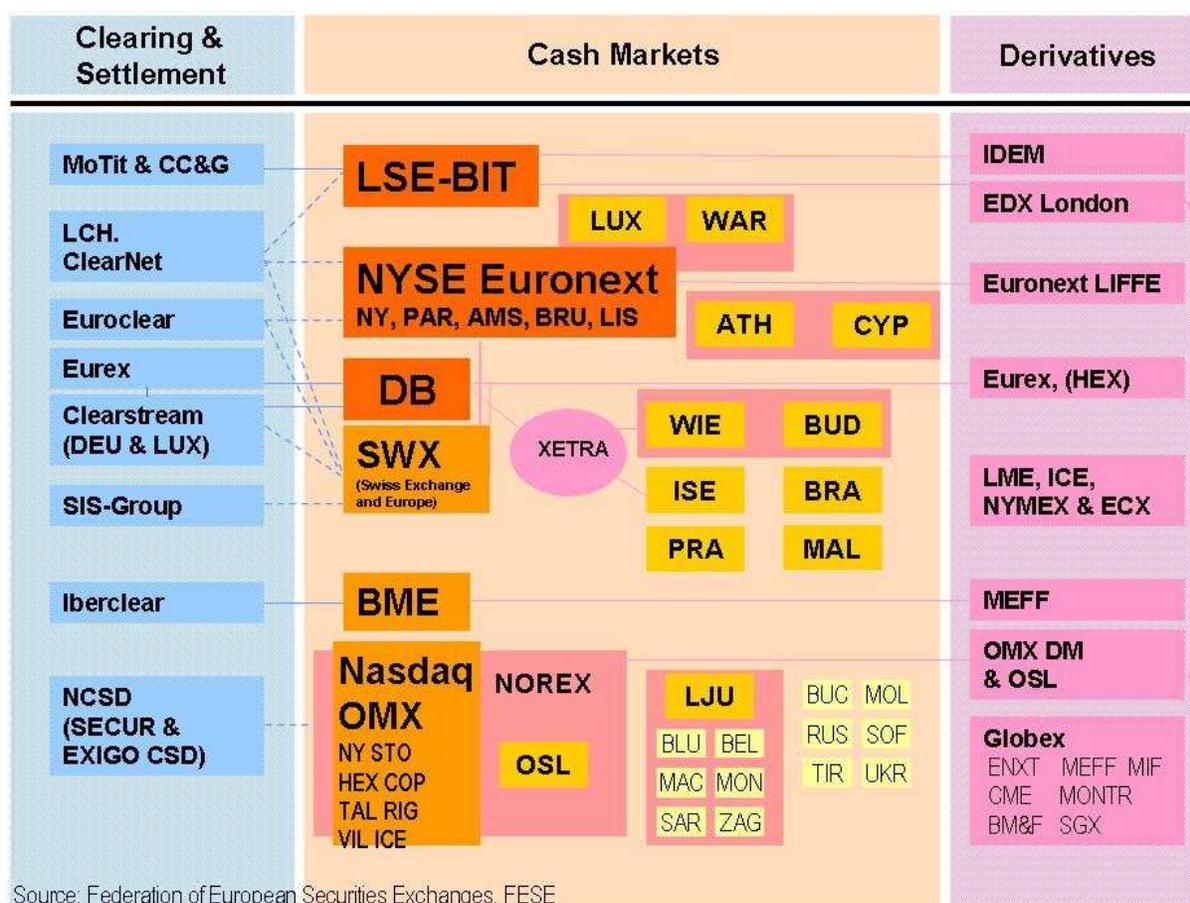
Dark liquidity pools, such as Sigma-X, represent a major outlay for investment banks. A lot of effort needs to go into making systems robust and compliant with investor protection regulations. An investment firm's reputation is its most valuable asset, since even the slightest cloud of doubt can cause potential counterparties to stop trading with it. Even so, some market participants are concerned about how dark trading pool operators might be using aggregate trade information.

D. European Landscape

The 1993 ISD began the process for integrating European financial markets. The ISD, along with the adoption of a common currency and the emergence of an equity culture across Europe, created favourable conditions for greater consolidation of financial markets. As figure 1 illustrates, however, the trading and clearing and settlement landscape in Europe is still very complex. There are over 40 cash equity markets in Europe. Note that Europe did not see the same explosion of ECNs as occurred in the U.S. market, in part because most European exchanges were much quicker to adopt electronic limit order book models than their U.S. counterparts. Now,

with the introduction of MiFID, Europe is likely to see a round of new MTF entrants and then consolidation. The competitive forces introduced by MiFID will, over time, help lead to a substantial reduction in the number of exchanges. Some exchanges will likely purchase MTFs in order to acquire their technology. This consolidation process is likely to be slow, since many of the smaller exchanges remain under government control. In the interim, there will be increased emphasis on the development of smart order routing. This section will explore the latest developments, including new trading venues and recent exchange mergers.

Figure 1: European Trading Landscape (Source: Federation of European Securities Exchanges, April 2008)



In the run-up to MiFID, all of the major exchanges have introduced substantial upgrades to their core technology (e.g. the LSE installed a new high-speed trading platform known as TradElect). Table 2 provides an overview. As of November 2007, only Chi-X offers technology that approaches U.S. norms. BATS has announced plans to launch BATS Europe in early November 2008. Initially, BATS Europe will begin trading FTSE 100 stocks, potentially offering speeds as low as 0.5ms (up to 12 times as fast as the TradElect platform). Next year, Euronext will roll-out its new Universal Trading Platform, further reducing latency.

Table 2: Execution Speeds of European Trading Systems

Trading Venue	2007 Upgrade	Execution Speed*	Interfaces	Routing
Chi-X	3/07	2-10 ms	FIX	No
Euronext	4/07	5-75 ms	FIX, Proprietary	Within Network
DB Xetra	5/07	10-35 ms	FIX, Proprietary	No
LSE	6/07	10-20 ms	FIX, Proprietary	No
OMX		7-135 ms	FIX, XML, Proprietary	Within Network

*Low number is as reported by the market, if available. The high number is average time reported by Instinet for routing orders from their system to the market in June 2007.

At this point, all order routing in Europe appears to be either within a network or on the front end. Clearly, the major exchanges have made significant investments in the hope of taking advantage of the new opportunities and new potential relationships introduced by MiFID. In contrast, many of the smaller exchanges (and market makers) have been slow to update their systems and may not survive in the new competitive environment.

With the exception of Chi-X, and to a lesser extent Plus Markets, order book fees are broadly similar across major European markets (see Table 3). Fees for trades that could be reported over-the-counter are rapidly converging to zero. Although Chi-X charges in basis points, rather than mills, their fees are roughly equivalent to Nasdaq's current charges. Fees are declining but not dramatically; the LSE's net trading fee is down 10% year-on-year. In July 2008, Euronext introduced a new fee structure ("Pack Epsilon") designed for high frequency traders, offering fee reductions of up to 30%.

Table 3: Trading Costs of European Trading Venues

Trading Venue	Trading Costs (bps)	License fee (per annum)	Per workstation per annum fee for Level 2 data
Chi-X	0.05*	£0	£0
London Stock Exchange	0.51*	£44,000	£1,260
Deutsche Börse Xetra	0.57*	€32,400	€816
Euronext	0.50*	€36,750	€696
Virt-x	0.57	N/A	N/A
Plus Markets	0.36	£25,000	£480

*Based on Chi-X website (www.chi-x.com/cheaper.html). Trading costs measured as net fees for 50/50 maker/taker trading at the same level of volume on each exchange. Tier discounts will change the quantitative results.

Instinet Chi-X: Instinet Chi-X is a MTF for trading European equities. It runs an open limit order book, in the spirit of US-style ECNs. Chi-X's alternative equities trading and clearing system leverages the technology know-how gained through Instinet's prior ownership of the US-based INET ECN. Its business model is as follows: it charges 0.3bp for orders that take liquidity

(aggressive orders) and it pays 0.2bp for orders that provide liquidity (passive orders); the difference of 0.1bp is received by Chi-X. Chi-X aims to provide substantial cost savings, with trading fees that are 10% of those on the LSE, and clearing house costs that are 50% of the existing clearing house costs.

Settlement on Chi-X is local, and clearing on Chi-X is through Fortis Bank's European Multilateral Clearing Facility (EMCF). By comparison, Project Turquoise plans to use a subsidiary of the Depository Trust and Clearing Corporation (DDTC) called European Central Counterparty Ltd. (EuroCCP). Clearly, there remains a problem in Europe of interoperability among clearing houses. In contrast to the business model of Equiduct (and others), Chi-X intends to be just a MTF, with no immediate plans to offer other services such as listing. The Chi-X limit order book is visible on both Bloomberg and Reuters screens.

Chi-X is moving towards a mutual ownership structure, in contrast to the recent demutualization of most traditional exchanges. To this end, Chi-X has already reached deals with BNP Paribas, Citadel, Citi, Credit Suisse, Fortis, Getco Europe, Goldman Sachs, Lehman Brothers, Merrill Lynch, Morgan Stanley, Optiver, Société Générale, and UBS. From Chi-X's perspective, mutual ownership gives owners greater incentives to use the Chi-X system. The potential downside, of course, is that Chi-X risks alienating other potential users (that are not owners).

In August 2007, Chi-X Europe began trading FTSE 100 stocks. By October, turnover on Chi-X exceeded €13.8 billion / month, from about 860,000 trades.¹⁸ It has made significant market share gains, particularly in some Dutch and German securities. In some securities, it has obtained as much as 20% of the aggregate volume. By March 2008, Chi-X claimed almost 10% of the daily total of UK equities trading on consecutive days, suggesting significant market share gains at the expense of the LSE. Chi-X has gained a significant head start over many proposed European ECNs; in contrast to some of its competitors, Chi-X has been actually executing trades, rather than just generating publicity through a website and press releases.

Plus Markets Group: The roots of Plus Markets Group lie in a market formerly known as Ofex. Plus Markets is in the process of becoming a recognized investment exchange. Its primary focus is on Aim. Aim is classed as an unregulated market from an EU and UK government perspective. The effect of the classification is that each Aim company has to agree individually to let its shares be traded on Plus as well as the London Stock Exchange. Plus Markets uses an OMX trading platform and has a niche focus on 1,000 small stocks from FTSE Small Cap, FTSE Fledgling, FTSE 250 and Aim. Its volume in August 2007 was €600M and it currently executes about 75,000 trades / month. Plus Markets Group had been in talks to be acquired by Project Turquoise, but the discussions did not lead to a deal. In July 2008, Plus Markets announced preliminary plans to enter a joint venture with the Munich Stock Exchange to create a new pan-European market segment to be known as Plus-Europe.

Project Turquoise: Project Turquoise is an ambitious proposed hybrid public and non-public order book that aims to provide low-cost trading and access to hidden (often off-exchange) pools of liquidity. Thus, Turquoise will be an aggregator of 'dark pools'. Project Turquoise is backed

¹⁸ Source: Chi-X Europe Ltd. Press Release, November 6, 2007: "Chi-X Issues October 2007 Trading Statistics."

by a consortium of nine large investment banks. There has been some debate about whether Project Turquoise is just intended as a threat to force the LSE to reduce its fees, or whether it is really going to be set up. In some sense, it does not matter. If the LSE responds with lower fees, the banks win; and if the LSE does not reduce fees, Project Turquoise goes ahead and the banks enjoy lower trading costs on the new platform. The launch of Project Turquoise has been delayed until September 2008. The setback at Turquoise may ease pressure on the LSE for further reductions in its tariffs. Plans to open Turquoise 15 minutes earlier than the LSE (at 7:45am rather than 8am) have been shelved after objections from numerous market participants.

virt-x: The virt-x exchange, fully owned by the SWX Swiss Exchange, operates an electronic limit order book for trading in European blue-chip stocks. It has a ‘virtual’ single-settlement system with Crest, Euroclear and SegalInterSettle (SIS), which allows virt-x to offer close to domestic settlement rates. Recently, the SWX Swiss Exchange and virt-x announced plans for a significant upgrade to its trading technology. SWX also announced a plan to combine SWX, SIS (a clearing company), and Telekurs (a payment and data services provider). Despite significant marketing and IT investment, trading on virt-x continues to be dominated by trading in Swiss equities. In part, some institutions have avoided trading on virt-x because of concerns about its ownership and governance model. virt-x itself had roots in Tradepoint (a former joint venture of JPMorgan, Morgan Stanley, and others), which, by some estimates, needed just 1.5% of LSE market volume to become profitable – a goal that was never obtained. Virt-x recently reached an agreement with Nyfix Millennium to run a new European dark liquidity pool, to be known as “Swiss Block,” for Swiss blue-chip stocks, beginning in August 2008.

Retail Service Providers: Perhaps surprisingly, the role of RSPs in the UK market has not received much attention during the implementation stage of MiFID. In part, the lack of attention is because of the tiny margins in the retail wholesale trade business, which comprises about 10% of order flow. Fierce competition in retail orders in the US has resulted in major consolidation among US retail equity wholesalers – in effect, there are only three remaining: Knight Capital Group, Bernard L. Madoff Investment Securities, and UBS Capital Markets (formerly Schwab SoundView Capital Markets). Davies, Dufour, and Scott-Quinn (2006) provide a detailed description of RSPs.

Consolidation across exchanges

There is a trend towards more international linkages between exchanges. Table 4 reports some of the recent exchange mergers and figure 2 outlines the current linkages with European exchanges.

Table 4: Exchange consolidation

Date	Target	Acquirer	Deal Value (\$bn)
Oct 17 2006	Chicago Board of Trade	Chicago Mercantile Exchange	11.6
Jan 29 2008	Nymex	Chicago Mercantile Exchange	11.3 (**proposed)
May 22 2006	Euronext	NYSE	10.2
Sep 20 2007	OMX	Nasdaq	4.7
Apr 30 2007	International Securities Exchange	Deutsche Borse	2.7
Jun 23 2007	Borse Italiana	London Stock Exchange	2.6
Sep 20 2007	London Stock Exchange (28% stake)	Borse Dubai	1.6
Sep 20 2007	London Stock Exchange (20% stake)	Qatar Investment Authority	1.3
Sep 1 2006	New York Board of Trade	IntercontinentalExchange	1.1

Source: *Financial Times*, January 29, 2008, p. 17.

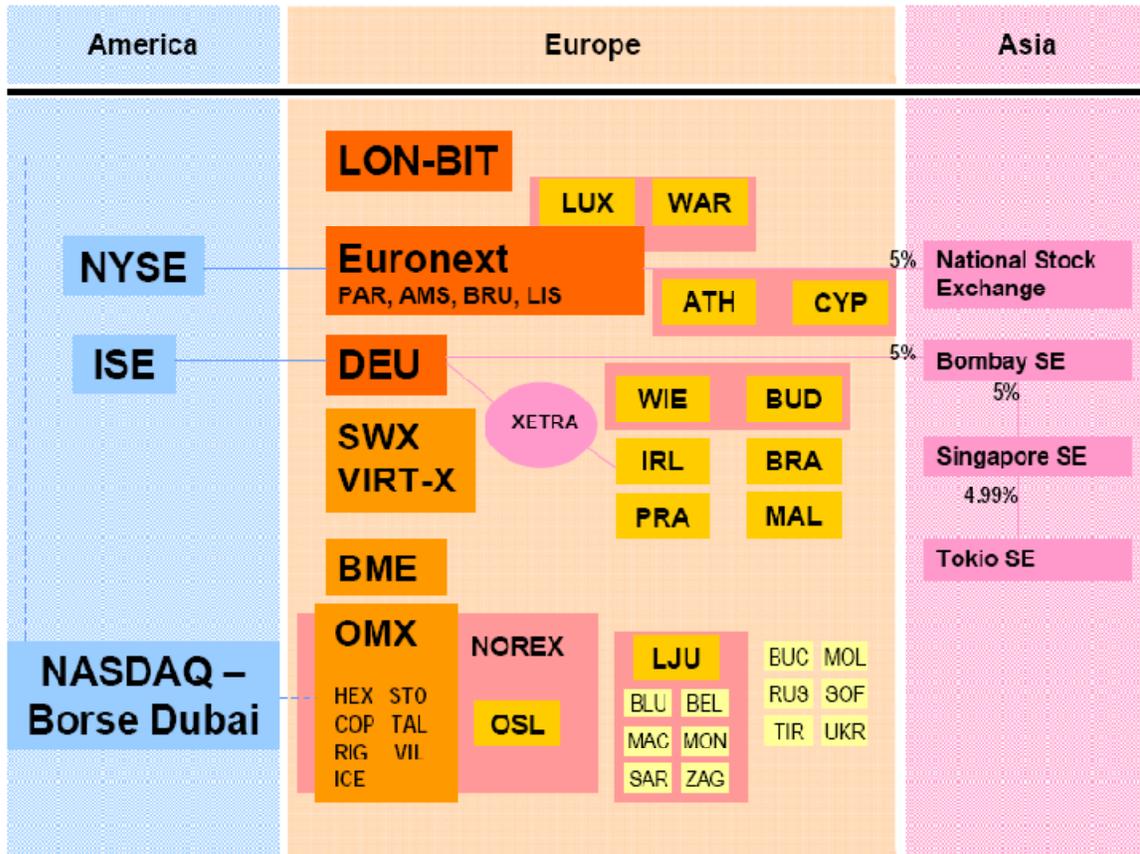
Some of the recent merger activity includes:

NYSE Euronext: Euronext was formed in March 2000 through the merger of the Paris Bourse, the Amsterdam Exchange and the Brussels Stock Exchange. In October 2001, Euronext outbid the LSE for the London International Financial Futures and Options Exchange (LIFFE). In 2002, the Lisbon Stock Exchange also joined Euronext and an alliance was formed with the Warsaw Stock Exchange. In April 2007, the NYSE and Euronext merged, forming NYSE Euronext. All of the (European) Euronext operations for cash securities now have a fully integrated trading and clearing processes, thereby allowing them to act effectively as a single market. Euronext markets share a common order-driven electronic trading system and a common set of rules (some local differences still remain regarding listing requirements and enforcement procedures). Euronext uses Euroclear as its preferred settlement agent and collaborates closely with Clearnet and Euroclear to implement straight through processing on a cross-border basis.

Euronext has taken several steps to take advantage of the new opportunities in MiFID. It has introduced an Internal Matching Service that allows its members to outsource their internalization from them. This service has been very controversial, since it provides so-called “price-member-time” priority. In other words, it gives limit orders from participating member firms priority over orders submitted earlier by non-members at the same price. This queue jumping violates standard time priority and could have the effect of reducing the incentives of non-members to provide liquidity. Euronext has also introduced new trade publication (post-trade transparency) and transaction reporting (regulatory reporting) services. It operates a MTF for small and mid-

sized companies known as Alternext. And, it has recently announced plans, in partnership with two investment banks, for a European dark trading pool to be known as SmartPool to be introduced in mid-2008.

Figure 2: International Links with European Trading Venues (Source: Federation of European Securities Exchanges)



Nasdaq OMX: Nasdaq OMX Group, Inc. was formed with the merger of the Nasdaq Stock Market and OMX AB, completed in February 2008. Nasdaq OMX plans to launch a new pan-European market, Nasdaq OMX Europe, in September 2008. At launch, it will operate as a MTF and trade approximately 300 of the most actively traded European blue chip shares.

London Stock Exchange – Borsa Italiana: In October 2007, the LSE and the Borsa Italiana completed their merger. This merger was motivated, in large part, by a desire to gain control of the bond trading platform MTS. Borsa Italiana owns 49% of MTS, plus a call option in case of a Euronext change in control. MiFID introduces the potential for new competition in bond trading platforms, as well as equity trading platforms. For instance, Trax-2 recently received clearance as alternative bond reporting mechanism, thereby reducing the potential value of MTS to the LSE. In other developments, in response to MiFID and competition from Project BOAT, the LSE has introduced highly discounted rates for its SETS Internaliser product, with an ‘ad valorem’ rate of

0.1bp for self-execution trades where both sides of the trade originate from the same member firm. The LSE has also announced plans to launch a new dark pool platform, named Baikal, as a joint venture with Lehman Brothers.

Bolsa de Madrid: In 2003, a holding company integrated the markets for Spanish equities (Madrid, Barcelona, Bilbao, and Valencia), derivatives (MEFF) and fixed income products (the electronic trading platform for Spanish government debt, Senaf, and the private fixed income market, AIAF); along with the securities registration, clearing and settlement systems (Iberclear). Almost all equities trading occurs on the central electronic trading platform (SIBE), which facilitates direct, real time communication among the four Spanish stock exchanges, allowing for a single price and order book per share.

MiFID was not transposed into domestic law in Spain in time for the official November 1st implementation deadline. Prior to MiFID, by law, during official trading hours, trading activity must be concentrated on the regulated market. Orders could be placed outside the central book where special regimes apply (i.e. in the case of large orders, off-exchange and extraordinary transactions).¹⁹ Because the Bolsa de Madrid has not taken part in the latest round of exchange consolidation, some suspect that Spanish regulators may have been waiting to see how the exchange consolidation might impact the Spanish markets prior to implementing MiFID.

Deutsche Börse: In April 2007, the Deutsche Börse agreed to buy the U.S.-based options exchange International Securities Exchange Holdings Inc. The Deutsche Börse already owns a share (along with the SWX Group) of Eurex, a futures trading and clearing venue. Recently, the Deutsche Börse's Xetra Best²⁰ trading system had to be modified to adhere to the new best execution requirements of MiFID.

Börse Berlin – Equiduct: In September 2007, the Börse Berlin (a German regional exchange²¹) purchased a majority stake in Equiduct (formed from the remnants of Nasdaq Europe / Easdaq). Equiduct is a proposed (yet to be launched) European ECN.²² In contrast to the business model of Chi-X, Equiduct has obtained recognized exchange status and it has also adopted existing infrastructure (and the associated legacy costs). Equiduct hopes to provide a centralized order routing system for trading in pan-European equities. In effect, it will act as a secondary exchange that links the primary European exchanges, and consolidates their quotes into a European best bid and offer (quoted both in Euros and the domestic currency). By bringing the liquidity

¹⁹ Details of the SIBE block-trading regime can be found in Davies, Dufour, and Scott-Quinn (2003).

²⁰ Xetra Best allows a bank's private clients to trade directly over Xetra via the bank's internal systems. Xetra Best is designed to offer private investors benefits such as the possibility of immediate and full execution at a price better than those he/she could have obtained in the open Xetra order book for the same transaction at the same point in time. Xetra Best is designed to allow investors to preference a specific market maker and for the possibility of self-preferencing. The motivation behind the introduction of Xetra Best was to provide an attractive and cheaper alternative to firms that were considering developing their own in-house trading and matching systems. Gramig and Theissen (2005) describe how the Xetra Best system allows banks and brokers to internalize retail customer orders.

²¹ In addition to the Frankfurt exchange operated by the Deutsche Börse, there are seven regional exchanges in Germany: Berlin, Bremen, Dusseldorf, Hamburg, Hannover, Munchen, and Stuttgart. These exchanges operate in a competitive relationship with the Frankfurt exchange. There is no German equivalent of the U.S. National Market System (NMS) linking the regional exchanges to Frankfurt. Prior to MiFID, the German Securities Trading Act did not require firms to send their customer orders to the exchange with the best price; rather orders simply needed to be sent to a recognized exchange.

²² Another proposed US-style ECN is appropriately named EuroECN.

pool to a single place, it aims to provide firms a cost-effective means of satisfying their best execution requirements (by eliminating the necessity of having to build this internally). Of course, since price is just one dimension of best execution, Equiduct needs to ensure that it provides the same clearing and settlement services at the same cost as the other exchanges. The Equiduct business model works best for orders at or below standard market size (as defined in MiFID), since best execution for larger orders is more difficult to establish systematically. It is also worth noting that Equiduct (and other proposed consolidators) cannot consolidate hidden depth (hidden limit orders) across multiple trading venues. Another service proposed by Equiduct is the ability to allow firms to internalise on-exchange as a low cost alternative to becoming a systematic internaliser under MiFID. Equiduct is likely to be most attractive to smaller investment firms, which have been largely excluded from Project BOAT and Project Turquoise.

E. Market data

MiFID introduces new requirements for both pre- and post-trade transparency. These obligations will have a significant impact on *equity* markets. There has been a review by the Commission about the possibility of extending transparency obligations to other markets, such as fixed income, but the current consensus of market participants appears to be that this is unnecessary.

Traditionally, exchanges have been important for the trading of equities because of high information content of trading. Until now, exchanges such as the LSE have been the primary source of data. Now, these trades need to be simply reported out to the market, not necessarily through the traditional exchange. With the introduction of MiFID, trades can now be reported to other medium, such as other exchanges, or the Project BOAT consortium. Trades need to be published within 3 minutes (more time is allowed for larger trade sizes). While there will be a significant change in the post-trade space, it is unclear at this stage how much the pre-trade data will fragment, since the success and growth of new trading venues is uncertain (many pre-MiFID ventures such as pan-European trading on virt-x and LSE trading in Dutch securities²³ were largely unsuccessful). Increased fragmentation of market data does not necessarily mean that the cost of data will increase. If and when pan-European trading venues emerge, data costs may fall as firms do not need to adapt their systems to the specific connection requirements of more than twenty national trading systems. As well, new initiatives, such as a new message standard known as AMQP (Advanced Message Queuing Protocol), are being considered as ways to make it easier (and cheaper) to exchange trade and quote messages between investment firms. CESR, MiFID Connect, and other groups have been working to standardize the fields required for transaction reporting across member states.

Access and management of market data has become an important source of differentiation among investment banks, as they compete for business as prime brokers for hedge funds and as they attempt to become top players in algorithmic trading. Firms need to develop backup systems and obtain redundancy in case their preferred data vendor is down. Some investment banks

²³ In May 2004 the LSE entered into direct competition with Euronext by launching the Dutch Trading Service, enabling LSE members to trade in the most liquid Dutch securities via the SETS order book. The Dutch Trading Service struggled to attract order flow, despite providing payments to liquidity providers. Often, even when better prices existed on the LSE, most liquidity demanders failed to migrate.

will not be able to keep up with the required level of investment, and consequently will find themselves playing more of a boutique role in the future.

Reuters Data Consolidation Service: With shares trading on multiple platforms, keeping track of prices in real time becomes a much bigger challenge. To address this problem, Reuters has introduced a real-time consolidated data service that reports the best bid and offer for a stock across all the platforms where it is trading (flagging the quotes with an “.x” suffix). This service provides a way to aggregate information across an increasingly fragmented market. Reuters has launched its consolidation service with 1,200 of the most liquid European stocks (although this excludes stocks which trade primarily on Borse Italia and Bolsa de Madrid). Reuters is also providing an OTC trade publication service (flagged with an “.r” suffix) and a Markit BOAT data service (flagged with an “.m” suffix). All of these services have the ability to report prices in multiple currencies. Of course, these services provide only a partial solution towards data consolidation, since they do not provide complete information about market depth or other dimensions of best execution.

Markit BOAT: Markit BOAT (often called Project BOAT) was formed as a consortium of at least 22 leading investment firms²⁴ (some consortium members have asked that their names not be disclosed) designed to provide critical mass in the reporting of off-market trades and thereby compete with Europe’s exchanges in data provision. In an interesting (and surprising) development, in January 2008, the consortium of investment banks sold their ownership of Project BOAT to Markit (the firm managing the operation). Markit BOAT is a central platform for the collection, collation, validation, storage and distribution of pre-and post trade information for off-exchange trades. The service competes directly with a similar service offered by the LSE, which has announced average price reductions of more than 80% for firms that report their off-exchange trades to the LSE. Those reductions took place on November 1, coinciding with both MiFID and the launch date of Markit BOAT. On its first day of operation, Markit BOAT estimated that about 90,000 trades were reported to it, accounting for about 20% of all on- and off-exchange trading in Europe. Markit BOAT data is now available through Bloomberg, Factset, Fidessa, Goldman Sachs RediPlus, Interactive Data Corporation, Markit, Reuters, Telekurs, Thomson Financial, Townsend Analytics, and Wombat.

F. Conclusion

By design, MiFID does not contain a full set of regulations. Instead, it promotes business-led opportunity around principles-based regulation. MiFID is a catalyst for change. It introduces competition to static roles and disturbs the balance of power. There are significant new opportunities for innovation in services such as smart order routing and trade reporting. It puts accountability in the hands of the firm rather than the hands of regulators. Commercial forces are already beginning to mount, and there will be tremendous pressure for investment firms to operate in new and innovative way. It is not just a matter of compliance – there will be downstream repercussions leading to true business change.²⁵

²⁴ The original nine consortium members were: ABN AMRO, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, Merrill Lynch, Morgan Stanley and UBS. Subsequently, additional trade reporting clients joined, including Bank of America, Barclays, Bear Stearns, BNP Paribas, Calyon, CA Cheuvreux, Dresdner, JP Morgan, Lehman Brothers, State Street, Royal Bank of Scotland, and UBS.

²⁵ Bishop (2006) provides a fascinating overview of some of the potential opportunities.

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