Competition, Fragmentation and Transparency

Providing the Regulatory Framework for Fair, Efficient and Dynamic European Securities Markets

CENTRE FOR EUROPEAN POLICY STUDIES

Assessing the ISD Review
CEPS Task Force Report

Rapporteur: Mattias Levin

COMPETITION, FRAGMENTATION & TRANSPARENCY

PROVIDING THE REGULATORY FRAMEWORK FOR FAIR, EFFICIENT AND DYNAMIC EUROPEAN SECURITIES MARKETS

ASSESSING THE ISD REVIEW

RAPPORTEUR: MATTIAS LEVIN

CEPS TASK FORCE REPORT NO. 46
APRIL 2003

The Centre for European Policy Studies (CEPS) is an independent policy research institute in Brussels. Its mission is to produce sound policy research leading to constructive solutions to the challenges facing Europe. As a research institute, CEPS takes no position on matters of policy. The views expressed are entirely those of the author.

This report is based on research and discussions in the CEPS Task Force on the issues raised by the ISD Review. The members of the Task Force participated in extensive debates in the course of several meetings and had the possibility to submit comments on an earlier draft of this report. However, the recommendations do not reflect a common position reached among all members of the Task Force, nor do they necessarily represent the views of the institutions to which the members belong. A list of participants and invited guests and speakers appears at the end of this report.

The author, Mattias Levin, is a Research Fellow at CEPS and a specialist in the area of banking and financial markets in the European Union. He wishes to thank Karel Lannoo and the members of the Task Force for their input into the discussions. He is also grateful for the opportunity to observe first-hand – in the context of visits to Euronext Paris, Goldman Sachs International (London), and the London Stock Exchange – the practical workings of international equity markets.

The research done in the context of this Task Force was sponsored by Capco, the Federation of European Securities Exchanges (FESE), Instinet, the International Securities Market Association (ISMA) and ITG Europe.

ISBN 92-9079-430-8

Centre for European Policy Studies
Place du Congrès 1, B-1000 Brussels
Tel: (32.2) 229.39.11 Fax: (32.2) 219.41.51
E-mail: info@ceps.be
Internet: http://www.ceps.be

CONTENTS

Preface i

Executive Summary iii

Policy Recommendations viii

Part I. The History of Regulating Investment Services in the EU 1

1. The EU investment services regime 1
   - 1.1 Origins of the EU regime 1
   - 1.2 The 1993 ISD 2
   - 1.3 Plus ça change 5

Part II. The Evolving Structure of Securities Trading 6

2. Fundamentals of the trading industry 6
   - 2.1 Traders, services and instruments 6
   - 2.2 Market structures 13
   - 2.3 Benefits to society of well-functioning securities markets 17
3. Forces shaping the structure of markets 18
   - 3.1 Network externalities 18
   - 3.2 An increasing pace of innovation 20
   - 3.3 The network paradox – Forces of fragmentation 22
4. The European market structure 23
   - 4.1 Central markets 23
   - 4.2 Off-exchange order execution 32
   - 4.3 European equity markets in a global context 36

Part III. Regulating Securities Trading 39

5. Fundamentals of regulating securities trading 39
   - 5.1 Aims of financial regulation 39
   - 5.2 Regulatory instruments 40
   - 5.3 Uncertainty and the risk of regulatory failure 49
6. Concerns raised by the evolving market structure 50
   - 6.1 Fragmentation 51
   - 6.2 Agency problems, conflicts of interest and collusion 59
   - 6.3 Cream-skimming and distributive equity 62
7. A regulatory framework for managing structural change 64
   - 7.1 The regulatory trade-offs 65
   - 7.2 Integrating fragmented markets in the US 66
   - 7.3 The ISD proposal 72
   - 7.4 Assessing the new ISD proposal 77

References 91

Annex: Selected Articles from the 2002 ISD Proposal 95

Members of the CEPS Task Force 99

Invited Guests and Speakers 101

List of Tables

1. The buy-side 9
2. The sell-side 9
3. Different trading instruments 11
4. Different order types 12
5. Different market types 15
6. Exchange revenues by source, 1998 16
7. Examples of market transparency 17
8. Major global trading systems 24
9. Electronic trading systems in Europe 25
10. Block-trading in Europe 27
11. Examples of demutualisation 30
12. Percentage of Nasdaq share volume traded on ECNs 34
13. The level of detail in the 1993 ISD compared to 2002 ISD proposal 77

List of Figures

1. Incoming service providers notified under Art. 18 ISD 4
2. Different trader types 8
3. Functions of the trading chain 10
4. Average bid-ask spreads, 1994 and 2002 28
5. The European Exchange Landscape 32
6. Equity markets, % of GDP (2001) 37
7. Total share trading (2001, €bn) 37
8. Trading costs in the US and EU compared 38
9. The process of best execution 47

List of Boxes

1. Equity trading in London 26
2. Cross-border integration – The case of Euronext 29
3. Deutsche Börse Group 30
4. Crossing networks 36
5. Regulating in the face of rapid change – Functional vs institutional regulation 41
6. Measuring good regulation: Cost benefit analyses 50
7. US market structure 67
8. Collecting and distributing market information in the US 70

PREFACE

In November 2000, the European Commission announced its intention to undertake a review of the Investment Services Directive (ISD). The review is the latest example in a long series of attempts by the EU to forge its segmented national securities markets into a unified market. Since the 1960s, the EU had launched various initiatives aimed at creating a common regulatory regime for investment services. Not until the end of the 1980s, however, as part of the Single Market Programme, did these efforts achieve any result: the 1993 ISD. All debates on the shape of an EU regulatory regime have been characterised by profound divergences of views on how to handle competition in the securities trading field. In the 1960s, this took the form of debating the pros and cons of concentration rules, i.e. requiring all trade orders to be routed to a stock exchange. This debate and the ensuing division between member states were repeated in the discussions leading up to the 1993 Directive.

Following a decade of profound market change, the debate during the current review has focused on transparency requirements. By linking fragmented markets together, these offer the prospect of reconciling the benefits of competition with the benefits of informative central prices. The debates on their content and allocation mirror those of earlier decades, however, with some member states stressing the value of competition, and hence hesitating to extend a comprehensive regime to all market participants, and other members emphasising the importance of market integrity and investor protection, and accordingly promoting wide-ranging transparency rules.

The purpose of this paper is not to make a paragraph-by-paragraph analysis of the 2002 ISD proposal, which is probably the most important part of the Financial Services Action Plan (FSAP). Instead, it focuses on the ISD's attempts to create a regulatory framework adapted to more a contestable trading sector. Therefore, the report focuses on the new transparency regime, in particular the much-debated issue of whether to extend pre-trade requirements to investment firms and concentrates essentially on issues related to cash-equity markets. The aim is to put in perspective what at first sight may seem a mere technical debate by providing a, historical overview of Community investment services legislation (ch. 1), explaining how securities markets work (ch. 2), outlining the conflicting forces shaping market structures (ch. 3), providing an overview of changes to market structure over recent decades (ch. 4), explaining the instruments at regulators' disposal for dealing with dynamic markets (ch. 5), evaluating the regulatory concerns that the market changes give rise to (ch. 6) and assessing the appropriateness and feasibility of the Commission's proposed regulatory framework (ch. 7).

The result is a fairly lengthy report. A few remarks to assist potential readers: for the reader with precious little time but a keen interest in the ISD debate, there is a box on p. viii summarising the policy recommendations. For those with more time, but constraints in terms of their interest, the 4-page executive summary should suffice. For the reader with no time constraints and an abundance of curiosity, the following 100 pages could be rewarding. These are divided into three parts. Part I provides an historical perspective on EU investment services legislation. Part II portrays the changes to securities markets in the EU over recent decades. Part III contains the core part on regulatory concerns and an assessment of the current ISD proposal and presents recommendations for a regulatory framework for dealing with fragmentation.

Mattias Levin
Brussels, April 2003

COMPETITION, FRAGMENTATION & TRANSPARENCY

PROVIDING THE REGULATORY FRAMEWORK FOR FAIR, EFFICIENT AND DYNAMIC EUROPEAN SECURITIES MARKETS

MATTIAS LEVIN

EXECUTIVE SUMMARY

This report assesses the regulatory issues faced, and choices made, by the European Commission in the context of the review of the Investment Services Directive (ISD). The ISD is one of the most important parts of the Financial Services Action Plan (FSAP) and as such covers much ground. Not surprisingly, this report does not cover all issues raised in the context of the review. Instead, it concentrates on the questions relating to the new transparency regime and focuses essentially on cash-equity markets, issues that have been the most controversial during the consultative process preceding the Commission's proposal. These issues are of fundamental importance, as they relate to the more general matter of competition. Transparency can therefore not be seen in isolation but rather needs to be understood in the general context of changes to securities market structures.

Regulatory *déjà-vu*

Attempts to create a pan-European investment services regime have been on the EU agenda for several decades. The current Investment Services Directive (ISD) proposal is only the latest attempt in a process that has always been marked by significant controversy due to wide differences in industry structure and regulatory culture. The heated debate surrounding the current review has, just like discussions in the 1960s, centred on the costs and benefits of a fragmented vs. consolidated marketplace. From the 1960s through to the 1993 ISD, this perennial combat focused on concentration rules; today its centre of attention has shifted to transparency rules.

The importance attached to this issue in the past and the current contentiousness of the ISD review should not be surprising. The ISD is important because it regulates traders and execution venues in the EU, and hence shapes market structure. It is contentious, since regulatory choices on market structure determine who trades profitably.

More contestable markets

While the regulatory discussions today have an element of *déjà-vu*, markets have changed. Following a rapid evolution in the technologies underpinning financial markets, the balance between the forces shaping securities markets has been altered. The hitherto dominant centralising forces, with strong network externalities (i.e. a user's utility of any trading system increases with the amount of other users trading on the same system) providing stock exchanges with nearly perfect protection against competition, have not disappeared, but have been mitigated. The trading landscape has accordingly become more conducive to competition, or "contestable" as the academic jargon goes (although not seriously contested, as only a handful of the most liquid stocks are traded on more than one exchange). Securities markets, which have always been characterised by a variety of traders with different needs, today therefore offer a

range of trading systems, methods and organisations more capable of satisfying these differing needs.

The effects of the changes in the balance between the forces of centralisation and the forces of fragmentation have been far-reaching. The execution of client orders can now take place on an exchange (with several trading methods existing), on an alternative trading system (Multilateral Trading Facility according to the Commission) or by an intermediary against its own proprietary positions or by matching client orders (a.k.a. internalisation). In the US since the 1970s, a significant portion of the order flow of listed securities has been diverted from their principal exchanges, with ATS-trading and intermediary in-house matching gaining large shares in particular. In Europe, since the mid-1980s, markets have evolved primarily as a result of competition for blue-chip order flow between exchanges. Bearing in mind large differences between member states and wholesale vs retail segments of the markets, the extent of off-exchange order execution in general and internalisation in particular is shrouded in doubt, but most likely remains lower than in the US.

Overall, the trading landscape has become more contestable in recent decades. All functions of the trading chain (e.g. finding, arranging and executing trades) are today subject to more or less fierce competition. Accordingly, the parts of the trading chain that were previously beyond the reach of some actors are now up for grabs. The result is fierce competition and a blurring of the previously clear institutional lines.

The impact of a more contestable trading landscape on regulation

There are substantial benefits associated with this increase in contestability:

- ***Price decrease***. Increased competition between exchanges and intermediaries should put downward pressure on commissions and fees. Competition therefore reduces the potential rents earned by central markets and thus leads to a wider profit-sharing.
- ***Improved services***. With the advent of more intermediaries, specialisation and catering for different investor needs have developed. Moreover, the competitive threat is likely to lead to more customer- (investor-) friendly behaviour. New, less expensive technology has enabled exchanges to provide a wider range of services more efficiently and at a lower cost.
- ***Innovation.*** A competitive system is more likely to adapt to the ever-increasing pace of financial innovation. Indeed, the dynamics of financial innovation appear to confirm the picture that the competitive advantage of launching a new service based on new technology, while giving ground for some first-mover advantage, is rapidly eroded, as other firms adopt the technology in question and start offering similar services.

Nevertheless, the change in balance gives rise to regulatory concerns, all of which are related to the perils of fragmentation. A more contestable trading landscape by definition means that liquidity, once centred in the dominant stock exchange, becomes spread out on competing trading venues. This may have a number of negative effects:

- ***Deteriorating market quality***. The existence of several competing order books fragments liquidity. One concern is that the ability of markets to provide stable prices may suffer as a result. Moreover, the ability of prices to aggregate information, i.e. the price discovery process, may be reduced. This would make it

more difficult to assess best price and market depth and could have negative effects on the overall allocation of capital in the economy. In addition, in opaque markets price priority may no longer be ensured, which could dampen clients' incentives to post limit orders. This could reduce overall liquidity provision. Yet another concern relates to the effect of competition between intermediaries. If more orders are settled internally, there will be fewer orders to compete for in the public domain. This could further deteriorate market quality, as collusion could result if there are already few intermediaries.

- ***Deteriorating execution quality***. Off-exchange execution venues often look to exchanges' prices when executing client orders by ensuring that their clients receive no worse price than those prevailing in the central market. If fewer orders are executed in the public domain, however, central prices become less informative. Hence, clients risk receiving a lower quality of execution in terms of price.
- ***Cream-skimming***. As in any other business that has been opened to competition, the incumbent operator faces the risk that new entrants target the more profitable part of the market while leaving the incumbent to cater for the rest. In trading terms, this could mean that new entrants target the execution of uninformed retail order flow.
- ***Conflicts of interest***. In the execution process, intermediaries may have interests that do not necessarily coincide with those of its clients. For example, intermediaries may have an interest in timing the execution of their clients' orders in order to fit their own proprietary trading interests or inventory positions. In that sense, their advice to clients to execute their orders in-house may not be disinterested.

Regulators have access to a number of tools in order to quell these potential threats to market quality. First among these are tools to promote competition. A high level of competition is the best regulator, as market pressure is the best way to ensure that consumer needs are catered for. However, while policies aimed at boosting competition are crucial, they are seldom sufficient and other instruments are needed as well.

One such tool is transparency rules, which have become increasingly used in recent years. The aim of transparency rules in the context of the ISD is to ensure that trading information reaches a maximum of participants. As a result, its proponents claim, the effect is to link together what otherwise could develop into disconnected liquidity pools. There are two major arguments favouring a high level of transparency. First, transparency could enable the co-existence of competing venues while ensuring that the dangers from fragmentation are minimised. Second, transparency is also an effective way of redressing information asymmetries by giving retail investors more information about trading opportunities. These benefits are amplified when taking into account its administrative benefits. Relying on transparency is an attractive regulatory strategy: it requires low resources on the part of regulators and it "leans with the market", as it enables market forces to play. Hence, there is a natural presumption in favour of more transparency, and indeed, there has been a trend towards more transparency in recent years. Accordingly, any future regulatory framework is likely to have a significant transparency component.

However, regulators possess a number of other instruments as well, notably conduct of business, best-execution and order-handling rules. Therefore, when devising a regulatory strategy to deal with these concerns, regulators have access to several

instruments. Where to put the emphasis becomes a matter of judgement and choice.

Uncertainty regarding harm of fragmentation and regulatory effects

Before devising a regulatory response to the challenges posed by a more contestable trading landscape, it is important to determine the level of harm some market practices may give rise to.

Accordingly, whether fragmentation is harmful or not has been the subject of much debate and empirical testing, with so far inconclusive results. On the central issue of market quality and execution quality, some studies find that the increase in off-exchange order execution results in harmful fragmentation, other studies fail to document any harmful effects while yet other studies find beneficial effects on market quality. Research therefore provides support for both those who fear the negative effects of off-exchange order execution and those who claim it is supplementary to exchange trading. In short, research on the potential harm of fragmentation is not conclusive.

The effects of transparency requirements have also been the focus of much research attention. While there is agreement on the general benefits of transparency, there is no consensus on how far it should extend. There is wide agreement on the merits of widening the coverage of post-trade requirements to all actors dealing in securities. However, views differ on the effects of pre-trade requirements, with an important body of opinion claiming that too much transparency may under some circumstances harm market quality. While benefiting some traders, pre-trade requirements are likely to inhibit traders sitting on large blocks from entering the market. These traders are important from a liquidity-supply point of view, as they represent large trades or providers of capital. If they decide to retreat to a more accommodating environment, the effect of pre-trade requirements may prove detrimental to overall liquidity. There is a multitude of studies supporting the theoretical risks, but equally abundant research casting doubt on the practical effect of those theoretical risks.

Fundamentally, when designing pre-trade rules, regulators have to make a choice between maximising network efficiency and promoting more service competition. The former would imply setting high pre-trade requirements so that the overall price mechanism is maximised. However, while transparency overall plays an important part in enabling competition between trading venues, pre-trade transparency may have detrimental effects on part of the market and may prevent some investors from satisfying their legitimate needs. If regulators choose to satisfy these needs and hence limit pre-trade requirements, this comes at a certain cost in terms of economic efficiency. It remains to be decided which is the most important.

Transparency offers no panacea

Overall, transparency is no panacea and there is “disquieting evidence” that too much transparency may harm market quality, as it effectively disables some liquidity provision. In addition, some of the concerns voiced above, namely that an insufficient level of transparency puts some investors at risk, can also be addressed by other means. Alternatives to the disputed pre-trade requirements exist that somewhat mitigate the effects of not having pre-trade rules. In order to integrate markets and protect retail investors, more emphasis could be put on best-execution rules. By forcing investment firms to screen and have access to several trading venues and by requiring them to

regularly review their execution practices, dynamism and change are introduced. Trading venues will have incentives to attract them as customers and hence are likely to compete more aggressively. By requiring investment firms to disclose their execution arrangements and costs, retail clients will have effective tools of disciplining their service providers. Order priority rules are also effective in structuring the discretion of brokers concerning the way they can execute client orders. Conflict-of-interest rules offer an additional cushion. Although not perfect substitutes, these rules in combination with post-trade transparency will offer a rigorous regime for achieving the twin goals of integrated markets and protecting retail investors.

Having rules in place is one thing, but enforcing them is another. Key in any future regulatory framework is therefore enforcement. A problem with the current ISD is a lack of enforcement of the agreed rules and wide differences in the way it has been implemented. The future regulatory framework, which is likely to be more ambitious and demanding, will only be effective if regulatory authorities ensure that the rules are enforced.

Regulating in the face of uncertainty

In sum, regulators are faced with significant uncertainty regarding the harmfulness of fragmentation and the effects of pre-trade transparency. This uncertainty forces regulators to make difficult choices based on imperfect information.

A complicating factor for regulators is that they cannot pursue all their objectives at the same time, as some objectives are mutually exclusive. Regulators hence face difficult trade-offs. On a general level, EU rule-makers face the choice between promoting EU market integration, and hence putting a highly harmonised regulatory framework in place with little discretion given to national authorities, or adapting rules to local needs, with a more minimal central regulatory framework. For example, the risk of putting in place a harmonised regime on transparency is that some markets will be forced to increase their levels of transparency while others will be forced to decrease theirs. On a more specific level, when allocating transparency obligations, regulators have to weigh the benefits of an ambitious regime (more informative prices) against the costs (the risk of discouraging large liquidity providers from entering the market). Informative central prices are certainly a laudable aim. There are other aims as well, however.

Regarding best-execution rules, regulators have to weigh the benefit of a better price (resulting from intermediaries forced to shop around) against the cost of higher commissions and fees (intermediaries charging for the search). Fundamentally, regulators have to choose whether they want to stimulate a dynamic service climate (competing, if fragmented, markets) or a cost-reducing climate (high levels of transparency disabling some service provision).

In choosing which path to follow, regulators have to carefully weigh the associated costs and benefits. While these choices require careful analysis and judgement, it should be stressed that competition is a precious good in securities trading. The securities trading sector has traditionally lacked competition due to the historically prevailing centralising forces of network externalities. This would suggest that a lack of competition rather than fragmentation is the likely long-term concern. This inherent need for more competition should be kept in mind when devising a regulatory framework.

POLICY RECOMMENDATIONS

Securities trading has become more conducive to competition in recent decades. Previously the monopoly of a stock exchange, trading orders can today be executed in a multitude of venues in a myriad of ways. More competition is beneficial but it does present regulators with difficult questions, the most pressing being the risk of fragmentation, i.e. liquidity becoming dispersed in disconnected venues. While there is an agreement that transparency requirements should form a substantial part of a regulatory strategy dealing with fragmentation, there is no consensus on how transparency affects market quality and hence how far it should be extended. Some claim that it is essential for central prices to be informative. Others claim that if too extensive, it harms liquidity provision. Faced with this uncertainty, regulators have to make difficult choices. In this light, a number of comments can be made on the solutions put forward by the Commission, as follows:

Competition the best regulator. Overall, the EU is facing a number of trade-offs. For example, when allocating transparency obligations, regulators have to weigh the benefits of an ambitious regime (e.g. more informative prices) against the costs (e.g. risk that large liquidity providers will hesitate to enter the market). While these choices require careful analysis and judgement, it should be stressed that competition is a precious good in securities markets that has traditionally been lacking due to the centralising forces of network externalities. This would suggest that a lack of competition rather than fragmentation is the likely long-term concern. Therefore, when facing these difficult choices, EU regulators should stress the overarching aim of promoting fair competition.

Less detail. Considering the inherent difficulties, and need for frequent changes, of e.g. any transparency regime, further delegation of powers to implementing committees should have been called for. Comitology is no panacea, however, and such a course of action would probably have been impossible in light of the political realities, rules of comitology and dangers to the *acquis*. Nevertheless, the risk posed by excessive detail in a directive that will last for at least 15 years calls for further discussions on the appropriate level of delegation.

Pre-trade transparency for investment firms appear premature. Considering the uncertainties regarding i) the harmfulness of the underlying feature (fragmentation, internalisation), ii) the effect on market quality of imposing pre-trade requirements and iii) the current extent of the potentially harmful activity, the Commission's decision to impose pre-trade transparency requirements on investment firms appears premature.

Minimising harm on liquidity provision. It may be that in the absence of concentration rules, off-exchange order execution may rapidly gain market share. If kept for precautionary reasons, the pre-trade requirements should at a minimum be redrafted so that they do not harm liquidity provision. Accordingly, if kept, the rules ought to exclude transactions of larger sizes and actors dealing primarily in these sizes and hence cover retail orders and their service providers only. While this in part is the intent of the current rules, it ought to be more explicitly stated. In that respect, Art. 25 should only apply to investment firms that execute retail orders on a continuous or regular basis. Moreover, Art. 20.4 should be changed so that it targets only the type of orders normally associated with retail trading.

Alternative means, although not perfect substitutes, exist. Should regulators decide to address the twin goals of integrated markets and protecting retail investors differently, other instruments remain at regulators' disposal. Although not perfect substitutes, they partially achieve the same aim as pre-trade disclosure. These rules – best-execution (Art. 19), order-handling (Art. 20), conduct of business (Art.18) and conflict of interest (Art. 16) – in combination with post-trade transparency (Art. 26) will offer a rigorous regime for protecting investors and integrating markets while preserving the multitude of venues and user choice.

The importance of educated investors. The more educated an investor, the lighter the regulatory touch required. An educated view is also crucial in re-establishing investor confidence, which has been shattered by the virulence of the current downturn and corporate scandals. According to the subsidiarity principle, the task of educating investors is the responsibility of member states, but the Commission or CESR could coordinate a process of benchmarking and spreading best practice.

PART I. THE HISTORY OF REGULATING INVESTMENT SERVICES IN THE EU

The current ISD proposal is only the latest in a long history of attempts to create an EU investment services regime. That history has been marked by significant controversy due to wide differences in industry structure and regulatory culture.

1. The EU investment services regime[1]

As is characteristic of all single market legislation, the dominant objective of legislation in the field of investment services is market integration. The focus of investment services legislation in the EU has traditionally been more macro (freedom of movement, soundness of intermediaries and stability of the financial system) rather than micro (e.g. investor confidence or protection). Likewise, as in all single market legislation, there is an inherent tension in the EU's investment services legislation between the dismantlement of obstacles and the desire to regulate the marketplace.

1.1 Origins of the EU regime

The basis of the EU's investment services regime is the freedom of movement provided by the Treaty. EC Arts. 43-48 grant the freedom of establishment, while Arts. 49-55 delineate the freedom to provide services across the Community. Apart from these basic freedoms, little harmonised law existed in the field of investment services. Not surprisingly, member states' approaches to investment services legislation differed widely, especially in the field of supervision. Nevertheless, as the habit of the member states to impose additional requirements on providers of foreign investment services flourished in the 1970s and accelerated during the 1980s, there was a realisation that more harmonised regulation was necessary to uphold the freedoms.

The first official sign of the economic importance of an integrated market for investment services came much earlier, however. In 1966, the Segré Report[2] identified obstacles to the free movement of investment services, which were alleged to impede the efficient allocation of capital in the Community, but it was not until two decades later that a first attempt to act on these obstacles was made. The Commission's 1985 White Paper reiterated the economic importance of financial integration and made the realisation of a single financial services market part of its 1992 programme. As a result of the Single European Act (SEA) and the switch to qualified majority voting, a first generation of EU legislation in the field of investment services came into being. The 1989 2nd Banking Directive provided a first step towards an EU investment services regime. Modelled along Europe's universal banking legislation, the directive included some investment activities, but it did not provide a passport for stand-alone investment firms. Moreover, there were some particular concerns that needed to be addressed in a special directive related e.g. to prudential and conduct of business matters.

---

[1] This chapter builds extensively on Moloney (2002), which must be the definitive overview of Community financial legislation.

[2] A report by a Group of Experts appointed by the EEC Commission, the Segré report was one of the first studies to make the link between capital market integration and economic growth and to point to the need for European rule harmonisation in order to achieve integration.

1.2 The 1993 ISD

Hence, in 1989 the Commission put forward a proposal for an Investment Services Directive (ISD). Following comments from the European Parliament (EP) and the Economic and Social Committee (ECOSOC) a revised proposal ensued in 1990. Following lengthy and difficult negotiations, the Council adopted the ISD in May 1993, but member states did not fully implement it until more than three years later.

The final proposal was considerably more extensive and detailed than the initial proposal, owing to the addition of politically motivated amendments and refinements. Following the 2nd Banking Directive, the ISD provided a passport for investment firms and the right of remote access to regulated markets.

1.2.1 Investment firms

The directive was to apply to all investment firms pursuing those services and active in those instruments listed in annexes to the directive. Following the new approach of the single market, the ISD provided for minimum harmonisation of the key rules relating to passport and authorisation. It provided rules for the various ways by which investment firms could exercise the passport, i.e. via setting up a branch or via the so-called notification procedure, whereby a foreign firm wishing to provide its services across the border notifies the host supervisor.[3]

The main responsibility of enforcement and supervision was given to the home-country authority, with host authorities playing a complementary role. A lack of agreement reached in the course of negotiations, however, limited the extent of the harmonised regime. Hence, there remained multiple regulatory regimes and significant room for interpretation in e.g. conduct of business rules, advertising and exceptions to rules related to the general good.

1.2.2 Regulated markets

The ISD only granted regulated markets a limited passport. Instead, investment firms were given the right of remote access to markets in other member states. Overall, harmonisation provisions for regulated markets were limited, largely as a result, once again, of a lack of agreement reached during the negotiations. This lack of agreement was a reflection of significant differences in market structure between member states.

These differences had already been highlighted in the 1977 Wymeersch study,[4] which divided Europe into a Northern, Central and Southern bloc:

- In Northern Europe (UK, IE, NL), markets were given substantial freedom in organising themselves. These markets were quote-driven dealer markets and did not require trades to be concentrated in the central market.

[3] Critically, however, the ISD did not extend passport rights to subsidiaries. This proved to be problematic as many firms found it simpler to use this form of incorporation for tax reasons. Moreover, the notification procedure proved to be cumbersome, especially for the wholesale segment of the market (Moloney, 2002).

[4] As described in Moloney (2002), pp. 650-651.

- In Southern Europe (FR, IT), on the other hand, public authorities intervened more heavily in the organisation of markets. Here, markets were order-drive auction markets and concentration rules were more likely.
- Between these two poles fell Central Europe (DE, BE, LU) where markets were subject to an intermediate level of intervention. For example, supervisory responsibility was often delegated to the markets themselves.

Another important factor shaping opinions in the ISD negotiations was the 1977 Code of Conduct. That year, the Commission had tried to forge a consensus on core principles of regulation. The Code took the form of non-binding recommendations. Even so, it somewhat influenced the ISD, with some of the principles featuring prominently in the negotiations. For example, the Code had endorsed the concentration principle (Supplementary Principle 4), promoted policies of "openness" in order to prevent fragmentation (Supplementary Principle 10) and argued for post-trade transparency (Supplementary Principle 11). Also shaping the market structure debate at the time was the then commonly held view that further consolidation, if not centralisation, of securities trading was desirable. For example, a 1981 EP resolution called for the creation of a European stock exchange. Moreover, the 1985 White Paper outlined the need to "create a Community-wide trading system for securities of international interest".[5]

These divisions proved important during the ISD negotiations. The provisions regarding regulated markets were accordingly the result of compromises. The passport was limited to conditional rights of remote access. Rules on transparency granted significant discretion to member states to impose rules beyond the minimum defined. The right to impose a concentration rule was established under certain conditions. These conditions were designed to ensure that if a member state decided to impose a concentration rule, it would only apply to domestic transactions. Moreover, a general waiver was introduced that ensured that investors wishing to execute orders off the exchange could do so (provided that certain conditions were met).

1.2.3 Prudential and protective rules

The ISD also contained rules of a prudential character, primarily related to asset protection, conflicts of interest (Art. 10), ownership controls (Art. 4), ongoing prudential supervision, operational prudential controls and minimum capital (Art. 8 referring to the Capital Adequacy Directive). The aim of these prudential rules was to provide for a stable financial system by ensuring the individual and overall systemic soundness of investment firms.

It has been argued that the 1993 ISD contained less explicit protective rules. At the time, this was a field where there was deemed to be less ground for harmonisation, as investor protection in the name of subsidiarity was primarily the responsibility of member state authorities. Instead, the protective dimension featured more indirectly. Investors were supposed to be protected by the integrity of the marketplace and the soundness of individual investment firms.

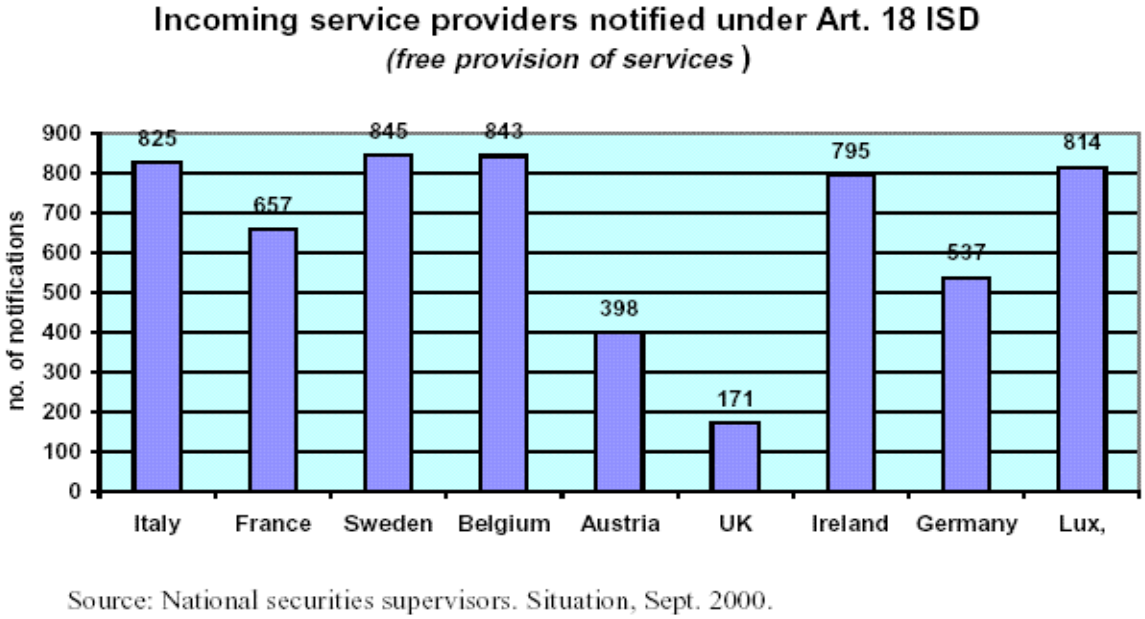
[5] European Commission (1985), p. 29.

In line with this thinking, the original proposal did not contain any rules on the conduct of businesses. It was not until negotiations in the Council started that some member states' concern over insufficient investor protection triggered the development of such rules. As a result, the ISD (Art. 11) provided that member states should draw up conduct of business rules that were to match at least the principles set out in the directive. However, member states were granted significant discretion when implementing the principles, which covered issues such as anti-fraud, client relationship, adequate disclosure and conflicts of interest.

1.2.4 Achievements and shortcomings

The ISD is widely regarded as a success. The most cited evidence substantiating this claim is that following the passport, the amount of investment firms providing their services across the border has increased substantially. The graph below illustrates the number of investment firms that have followed the Art. 18 procedure since the implementation of the ISD of notifying host authorities of their intention to provide services across the border.[6]

Figure 1.



Source: European Commission (2000).

As can be seen from Figure 1, a significant amount of investment services are provided across borders. For example, the Belgian authorities have received 843 notifications of service providers wanting to provide their services in Belgium from their home base. Indeed, passporting has been so successful in some countries that the number of passporting firms exceeds the number of domestically authorised firms. The low number for UK (171) may be explained by the fact that most service providers have such a volume of business there that they have actually set up an establishment

[6] European Commission (2000).

(subsidiary/branch). However, differing interpretations of the reporting requirements may also explain this marked difference.

Nevertheless, the ISD has also been the subject of criticism. First, it has been claimed that despite the ISD, markets remain fragmented. Hence, the market integration devices contained in the directive are not sufficient as other obstacles obviously remain. However, the Commission has also been blamed for insufficiently enforcing the ISD, when many of the obstacles could potentially have been dealt with in this way. Furthermore, the home country control principle is diluted, as illustrated e.g. by the significant authority Arts. 11 and 13 grant to the host country. In addition, the scope of the ISD passport is limited. For example, non-core services do not benefit from its provisions and a significant number of actors, services and instruments are excluded. In addition, clearing and settlement is only dealt with indirectly, by granting investment firms the right to become members or to have access to the clearing and settlement facilities of a regulated market. Overall, lack of enforcement coupled with unclear and vague provisions have contributed towards uneven implementation and interpretation of the directive.

1.3 Plus ça change

Since markets have changed, the Commission has concluded that the ISD has become outdated and is in need of an overhaul. As has been illustrated above, the ISD is a cornerstone of the EU's investment services regulatory regime, and any change is hence likely to have a profound impact on the way that investment services are provided in the EU.

The history of law-making in the field of investment services has been fraught with conflict and differences of opinion between member states. Since the 1960s, the deepest conflicts have primarily centred on the relative pros and cons of three issues: 1) concentration rules, 2) fragmentation and 3) transparency requirements.

The stakes have not become lower over time. On the contrary, the current review of the ISD has been the subject of lengthy and divisive consultations between the Commission and market participants. Moreover, the principal battlefield remains the same: concentration, fragmentation and transparency.

PART II. THE EVOLVING STRUCTURE OF SECURITIES TRADING

Securities markets are characterised by a variety of traders, systems and modes of organisation. The structure of securities markets is shaped by conflicting forces. Following a rapid evolution in the technologies underpinning financial markets, the balance between these forces has been altered and the structure of securities markets has accordingly changed. This has particularly been the case in Europe.

---

2. Fundamentals of the trading industry[7]

Financial systems provide a number of important economic functions. They provide means by which transactions are executed, cleared and settled. Financial systems also offer a way to transfer economic resources through time. Furthermore, they provide sophisticated ways of managing risks. Financial systems may also help mitigate pernicious incentive problems associated with financial transactions (e.g. asymmetric information and principal-agent problems).[8] In light of these underlying functions, this chapter will sketch the fundamentals of securities markets: motivations for trading, main actors, functionalities provided by securities markets, main instruments and market design and rules. It will also assess the public good resulting of deep and liquid markets.

2.1 Traders, services and instruments

Different traders trade for different reasons. Some traders trade to invest or borrow, others trade to speculate or gamble, while others yet trade to reduce risks or obtain an asset of particular use to them. Most traders trade for a variety of purposes and may well trade for all the above reasons.

2.1.1 Trading motivations

In order to illustrate the various reasons why people trade, a simplified categorisation can be made along the following lines:

- ***Utilitarian traders***. This category of trader trades in order to solve problems originating outside the markets. *Investors and borrowers* trade in order to transmit wealth through time, e.g. by issuing a security that provides for current cash flow while providing those who buy the security with future cash flows. *Asset exchangers* trade to exchange assets in their possession against assets for which they have an

---

[7] This chapter builds heavily on Lawrence Harris' excellent book on the micro-structure of securities markets (Harris, 2002). For those interested in securities trading, this book is indispensable reading as it offers a clear and concise account of the structure and dynamics of securities markets for the non-expert reader. The author is currently the chief economist of the US Securities and Exchange Commission (SEC).

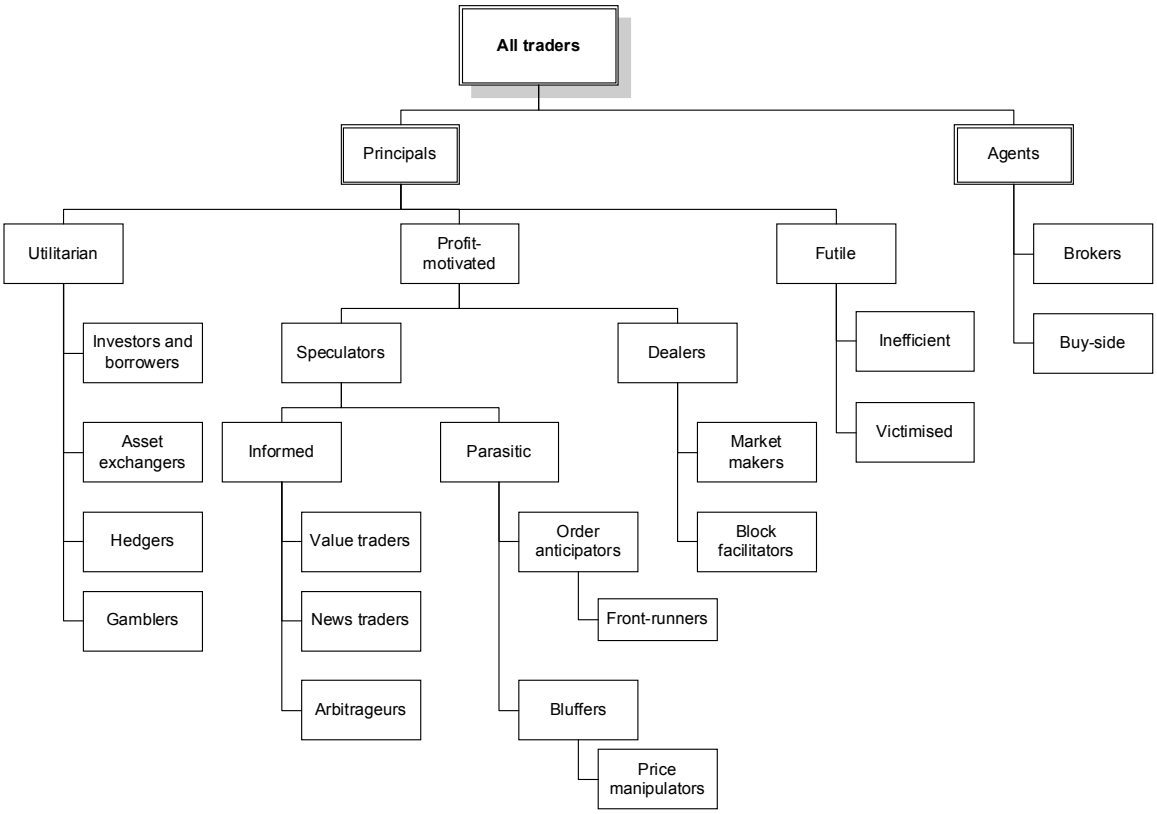
[8] Primarily associated with Nobel laureate Robert Merton, the functional school of thought argues that financial systems carry out six core functions: they offer methods of clearing and settling payments, provide mechanisms for the pooling of resources, offer ways to transfer economic resources through time and across distances, provide methods of managing risks, provide price information that helps to coordinate decentralised decision-making, and offer ways of dealing with incentive problems in transactions (e.g. asymmetric information, principal-agent problems). See Crane et al. (1996), for further details.

immediate need. Such transactions are carried out on cash or spot markets. Other traders trade to *hedge risks* arising in their conduct of business. They may issue a hedging instrument (e.g. a forward contract, a futures contract or a swap) that has a value that is the opposite of the risk they face. While *gamblers* trade for their own pleasure by betting on future events, *speculators* are informed traders using their information to predict future price changes. Other forms of utilitarian reasons for trading may be tax avoidance, cross-subsidisation and learning.

- ***Profit-motivated traders***. Traders who want to profit from their trading have to buy at low prices and sell at high prices. *Speculators* try to predict the way prices will move in the future. Some speculators are informed traders, in the sense that they base their predictions on their informed estimations of assets' fundamental values. When they believe the current price does not reflect the fundamental value, they trade. Other speculators are less benign, in that they do not contribute to moving prices towards fundamental values. Instead, they collect information on where the market prices are likely to go – irrespective of fundamental values – and adapt their trading strategy to exploit that knowledge (e.g. front-running). Some speculators may even create misleading information or trade for the sole purpose of manipulating prices. *Dealers* try to profit from providing liquidity to other traders. The difference between their bid and ask quotes (the spread) is the price they charge for supplying liquidity to impatient traders.
- ***Futile traders***. Another category of trader consists of those traders who expect to profit from trading but who do not. Some are just inefficient, e.g. they lack the information or the skills to act on information to trade profitably. Others make the mistake of relying on agents who do not properly fulfil their fiduciary duties.

The figure below presents a typology of the different trader types according to these motivations for trading. In sum, for utilitarian traders, trading is a means to achieve a desired end (e.g. to transfer wealth through time, exchange assets, hedge, etc.). For profit-motivated traders, trading is an end in itself, i.e. to make a profit. However, profit-motivated traders cannot trade profitably among themselves only: they need utility-traders. But utility traders only trade if certain conditions are met. In regulating investment services, it is therefore important to pay particular attention to ensuring that the needs of utilitarian traders are fulfilled. Those needs are primarily liquid and low-cost markets with instruments that are well adapted to their utilitarian needs.

Figure 2. Different trader types



Source: Simplified from Harris (2002), p. 199.

As a result of these wide differences in trading motives, it is highly unlikely that a single trading venue can satisfy all needs. In other words, divergent needs are likely to lead to a divergent institutional trading structure.

2.1.2 Traders

There are many types of traders. Traders on the *buy-side* consist of those who buy exchange services. Common to all of them is that they use markets as solutions to problems they face. A trader on the buy-side may be an investor who desires to stock some of his or her current wealth for future use. It may also be a borrower who needs wealth instantly and is prepared to use some of his or her future wealth for that purpose. Another problem that the buy-side traders may face is the risk of operating a business. Trading may offer an opportunity to reduce such risks by hedging them via e.g. a futures contract. Trading also offers an opportunity for traders to exchange assets.

The *sell-side,* on the other hand, consists of traders who provide exchange services to the buy-side. One such trader is a dealer, who trades with his or her clients when they so wish. Another type of sell-side trader is the broker, who trades on behalf of his or her clients. Brokers arrange trades for their clients by finding other traders. Sell-side firms often employ traders that offer both dealer and brokerage services, thus acting as broker-dealers. By providing an ever-widening range of trade arrangement services for their clients, brokers are increasingly moving onto the turf of exchanges.

Table 1. The buy-side

Trader type	Examples	Motivations	Instruments
Investors	Individuals Funds Money managers	Move wealth from present to future	Equities Bonds
Borrowers	Homeowners Corporations	Move wealth from future to present	Loans Bonds
Hedgers	Farmers Manufacturers Financial institutions	Reduce business operating risks	Futures contracts Forward contracts Swaps
Asset exchangers	Multinational companies Travellers	Acquire assets they value more than the asset in their possession	Currencies Commodities

Source: Harris (2002), p. 33.

Table 2. The sell-side

Trader type	Examples	Illustrations	Motivations
Dealers	Market makers Specialists Floor traders Day traders	Winterflood Securities (LSE) LaBranche & Co. (NYSE) Madoff Securities (NYSE) Knight Trading (US/EU)	Earn trading profits by supplying liquidity
Brokers	Retail brokers Discount brokers Full-service brokers Institutional brokers	Charles Schwab Instinet (UK) Dreyfus Brokerage Services Abel/Noser Corp.	Earn commissions by arranging trades for clients
Broker-dealers	Wirehouses	Goldman Sachs Merrill Lynch Salomon Smith Barney Morgan Stanley Dean Witter	Earn trading profits and trading commissions

Source: Harris (2002), p. 34.

2.1.3 Trading services and instruments

Securities markets provide many, if not all, of the core functions described above. The listing on an exchange offers companies access to wider economic resources. Trading venues offer ways to transfer wealth through time. Trade in futures contracts enables traders to manage risks. Trade execution venues offer highly sophisticated pricing mechanisms. Rules regarding trading systems, order execution and trader conduct of business reduce incentive problems, such as asymmetric information or principal-agent.

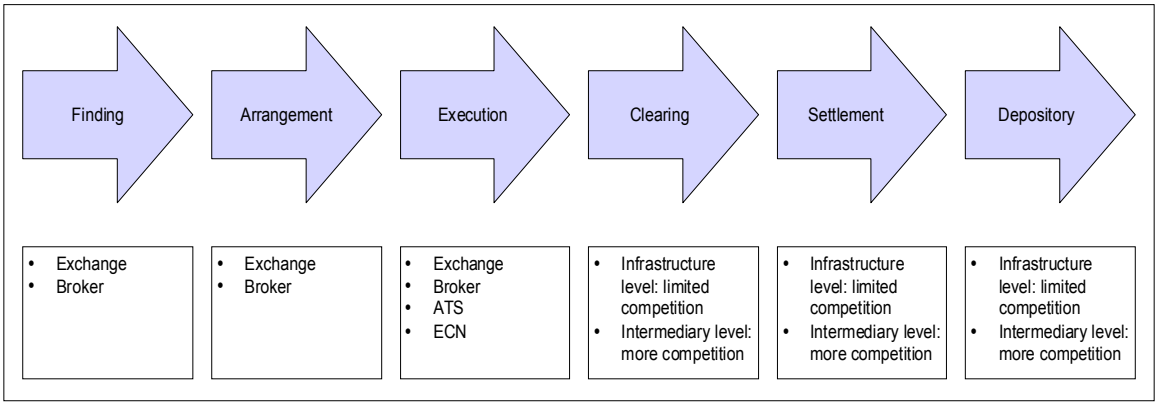
2.1.3.1 Trading services

The trading chain – i.e. the services provided in order to carry out a trade – can be divided into six elements: finding traders, arranging the trade, executing the trade, clearing the trading details, settling the payment for the trade and the corresponding transfer of ownership, and depositing the proof of ownership.

Traditionally, each function had its specialised actor. Brokers, for example, took their clients' orders to an exchange, where they arranged trades with other brokers and then executed these arranged trades on that exchange. Typically, at the end of the day, trade details were checked and eventually cleared. The cleared trades were then passed on to a securities depository for settlement and custody. These distinct roles have become increasingly blurred, however, as technology has allowed actors to perform other parts of the trading chain services with increasing ease. The trading chain has therefore become more contested:

- On the trading side (finding, arrangement and execution), intermediaries have entered the *chasse-gardée* of previous de facto monopolists. For example, brokers and exchanges offer competing trade-matching services. Moreover, trade execution is no longer the sole domain of exchanges, as other actors (e.g. brokers) and trading venues (e.g. ECNs) have arisen with their competing execution services.
- In the post-trade area (clearing, settlement, depository), the increase in contestability is more difficult to pin down. There appears to be little competition between the traditional "infrastructure" providers (central securities depositories, central counterparties). On the "intermediary" side (e.g. local agents and global custodians), however, more competition exists.

Figure 3. Functions of the trading chain



2.1.3.2 Instruments

As mentioned above, traders trade for a variety of reasons, e.g. transferring wealth through time or reducing risks. There are many instruments through which such motives can be satisfied.

Trades can occur in real assets, e.g. commodities. Commodities trading is carried out by e.g. farmers and manufacturers. Another class of instruments more central for the purposes of this paper are financial assets, which provide ownership of real assets and the corresponding cash flow generated by those real assets. Among the most common are equities and bonds. Financial assets are issued by e.g. companies and public bodies. Another important class of instruments is derivative contracts (forwards, futures, options and swaps). Such an instrument derives its value from the value of an underlying instrument upon which it is based. The price of a derivative depends on future events.

Table 3. Different trading instruments

Class	Instrument	Creators
Real assets	Commodities	Farmers
	Intellectual properties	Inventors
	Real estate	Builders
	Emission rights	Governments
Financial assets	Equities	Corporate issuers
	Bonds	Corporate issuers, governments
	Trust units	Trusts
	Currencies	Governments, banks
Derivative contracts	Futures contracts	Sellers
	Forward contracts	
	Options	
	Swaps	
Insurance contracts	Insurance policies	Corporations
	Reinsurance contracts	
Hybrid instruments	Warrants	Corporate issuers
	Index-linked bonds	
	Convertible bonds	

Source: Harris (2002), p. 38.

Following advances in information technology, the ability to design instruments to serve an increasing range of particular purposes, e.g. tax, has increased. As a result, the types of instruments have increased and have become more complex to categorise.

2.1.4 Orders

An order is an instruction to trade. It is issued when a trader cannot personally negotiate the trade. It is given to the broker or the exchange that arranges the trade. Not personally negotiating a trade may be disadvantageous, as a trader who issues the order cannot respond to market conditions as quickly as a proprietary trader. Instead, traders who find it too expensive or impractical to continuously monitor markets must instead rely on carefully drafted order instructions that truly capture their trading intention and strategy.

The price associated with a sell order is known as the offer price (ask). Correspondingly, the price of a buy order is called the bid price (bid). The best prices are called best bid and best offer. The difference between the two is known as the bid-ask spread.

Orders supply liquidity if they give other traders opportunities to trade. In other words, a buy order is an opportunity for other traders to sell. Correspondingly, a sell order is an opportunity for traders to buy. A liquid market is one where traders can trade without affecting the price too much. In order to avoid misunderstandings and mistakes, a set of standard order types have evolved.

Table 4. Different order types

Order type	Frequency of use	Effect on liquidity	Price contingencies	Advantages	Disadvantages
Market order	Common	Demands immediacy	None	Fast execution	Uncertain price impact
Standing limit order	Common	Supplies liquidity	Trade price must be at or better than the limit price	Limited price with no price impact	May never execute or execute at worse price
Marketable limit order	Common	Demands immediacy	Trade price must be at or better than the limit price	Limited price impact	Some price impact possible
Tick sensitive order	Occasional	Supplies liquidity	Must sell on an uptick or buy on a downtick	No price impact, adjusts with the market	Uncertain execution price
Stop market order	Occasional	Demands liquidity when it is least available	Triggered when price touches or moves through the stop price	Often used to stop losses when the trader is not present	Price impact can be large
Market-not-held order	Common (among institutions)	Broker decides whether to offer or take liquidity	Whatever the broker decides	Expert broker	Trader loses control over broker

Source: Harris (2002), p. 87.

The main types of orders currently in use are profiled below.

- ***Market orders.*** A market order is an instruction to trade at the best price currently available. Market orders are particularly well suited to traders who require immediate and certain order execution. They pay a price for immediacy, however, as they risk trading at worse prices than they expected when issuing the order. This is particularly the case of large orders, where impatient traders often have to make significant price concessions.
- ***Limit orders***. A limit order is also an instruction to trade at the best price currently available, but with the proviso that the price does not exceed a certain limit.[9] Limit orders are convenient if a trader does not have time to follow the market. Instead, the trader can authorise his agent to execute the trade within certain price limits. In continuous markets (see below), the exchange or the broker will try to execute the order immediately. If there is no other trader willing to fill the order immediately, it will be stored in the *limit order book*. The probability of an order to be executed depends on how its limit price relates to the current best bid and offers. A standing

[9] For a buy order, the trade price must be at the limit or lower. For a sell order, it must be at the limit or higher.

limit order supplies liquidity, as it gives other traders the possibility to trade when they wish. As a compensation for this supply, a trader using limit orders expects to receive a better price than if using a market order. Limit orders come with an *execution uncertainty risk*. A trader only receives a better price if the order is executed at the given price limit. That may not be the case, however, as market prices frequently move away from the given price limit. In such cases, the trader must adapt his prices. Accordingly, a trader may well obtain a worse price than would have been the case if he or she would have used a market order.

- ***Stop orders***. A stop instruction stops order execution until the specified stop price is reached. Stop orders are often used by traders to minimise their losses if the market price moves against their positions. Accordingly, a sell stop order will execute once a market price falls to a certain stop price. This does not mean that the order will be executed at the stop price, only that the order will start to be executed as a normal market order at best price available. If prices continue to fall quickly, the order may well execute below the stop price. Stop orders are disadvantageous from a societal point of view, as they exacerbate price changes. Stop orders create pressure to sell when prices are falling and conversely contribute to buy pressures when prices are rising.
- ***Market-not-held orders***. Such an order leaves the broker with the discretion when to execute it. Market-not-held orders are common when a trader wants a broker to shape the trading strategy. They are also common for larger orders, where the broker is given significant discretion over when to execute the order in order to minimise the market impact. Originally more common in floor trading markets, where the floor trader possesses unrivalled knowledge about the market, market-not-held orders are also increasingly common with brokers running electronic order desks that use elaborate econometric models formulating order submission strategies.

2.2 Market structures

The significance of market structure is aptly described by Harris (2002), p. 89:

> Market structure is extremely important because it determines what people can know and do in a market. Since power comes from knowledge and the ability to act on it, market structure helps determine power relations among various types of traders. These relationships greatly affect who will trade profitably.

The market structure is made up of the rules and institutions that determine competition between trading platforms. It includes the design of the trading system and the means by which systems interact with each other and with their participants.[10] The market structure shapes traders' order execution strategies. As indicated from the quote above, market structure not only shapes trading strategies, but also determines whether markets will be liquid, whether prices will be informative and, crucially, who will trade profitably. Market structures can be categorised according to how they organise *trading sessions*. Two main approaches exist: continuous markets, where orders are processed as they are registered, and call markets, where orders are executed at a particular time

[10] See presentation of Ian Domowitz at CEPS, 8 October 2002, posted on the CEPS website.

when all market participants are called. A market can also be categorised according to what type of *trading forum* it uses for traders to meet, e.g. floor or via distributed access points. Yet another way of looking at market structures is according to their type of *execution system*. Some markets are quote-driven, i.e. market makers' or dealers organise the trading, while others are order-driven, i.e. orders organise trading on the principle of first-come-first-served. Yet another form of execution system is the brokered trading system, where brokers match buyers and sellers. This section will also delineate how *market information* is created and distributed from market to market and from markets to market participants.

2.2.1 Market sessions

The time between which trades are arranged is called a trading session. Most markets have *continuous sessions*, i.e. traders can trade whenever the market is open. The other way is to allow trades only on certain occasions. In such *call markets*, traders only trade when the market is called. Call markets are more in use for certain instruments, e.g. government notes, bills or bonds. They are also often used for less liquid securities. Exchanges sometimes mix these two structures, with e.g. opening the trading day with call market auctions before switching to continuous trading.

The advantage of continuous trading is flexibility. Continuous systems allow traders to arrange trades during the whole session, which is particularly useful for traders who desire immediate execution. The main advantage of a call market is that it focuses liquidity in an instrument at a particular time and place, hence increasing the probability of order execution.

2.2.2 Trading forums

Each market provides a forum where traders meet, but the form this forum can take varies. Some markets provide a forum where traders meet physically, i.e. a *trading floor*. Other markets instead provide access to the forum by other means, e.g. via telephone or electronically via screens. The Internet has increased the number of such access points towards infinity.

2.2.3 Execution type

The key function of any trading market is to match buyers and sellers. The procedures for doing so define a market's execution system. Two major execution systems exist:

- ***Quote-driven dealer markets***. In quote-driven markets, dealers or market-makers set the parameters of order-matching. Buyers and sellers cannot arrange trades directly, but have to go via a dealer. The prices at which the dealer is ready to trade – price quotes – drive the market. Quote-driven markets are particularly common in bond and currency markets, but are also used by some stock exchanges.
- ***Order-driven markets***. In order-driven markets, buyers and sellers trade directly with each other on the basis of rules that determine how traders may arrange trades, who trades with whom (first order has precedence) and how prices are determined. Orders, instead of dealer quotes, drive market prices. In the large majority of order-driven markets, the price of a particular instrument is decided in an auction. This formalised way whereby buyers seek the lowest ask price and sellers seek the

highest bid price is called the *price discovery process*. Order-driven markets are common. Markets with electronic auctions or open-outcries are order-driven.

In addition, a third type of market has emerged catering specifically for those trading needs that may not always be satisfied on either quote- or order-driven markets. In these so-called *brokered markets*, brokers perform the role of matching buyers and sellers. Brokers find liquidity by negotiating trades directly with liquidity suppliers. Some suppliers may for some reason be unwilling to go public with their trade intention and are only willing to trade if a broker presents them with an opportunity to trade. Others may sit on liquidity but have no active ambition to trade, but may be willing to do so if a good opportunity arises. The broker matches liquidity suppliers and takers. Brokered markets are particularly important when the traded item is unique or when a trader is unwilling to hold an inventory of the traded item. In securities markets, brokered markets enable the execution of larger block trades.

Table 5. Different market types

Market type	Classification	Who offers liquidity?	Who arranges trades?	How are buyers and sellers matched?	Examples
Dealer markets	Quote-driven	Dealers	Dealers	Clients choose dealers	OTC in e.g. currencies
Order-matching systems	Order-driven	Traders (limit orders)	Brokerages or exchanges	Trading rules	Electronic exchanges and automated brokerage systems
Brokered markets	Brokered	Public traders	Brokers	Brokers	Block trading

Source: Harris (2002), p. 96.

2.2.4 The organisation of an exchange[11]

In sum, an exchange has two essential characteristics. It provides a trading system that delivers regular price discovery, order routing and execution of securities, derivatives and commodities products. It also provides some form of open membership with members being asked to abide by certain rules.

An exchange makes its revenues from a number of sources: fees earned on transactions, price information services and membership. Many exchanges also act as a listing authority while some have consulting arms and make considerable income from training. Clearing and settlement are not necessarily an essential part of an exchange, but are still strongly integrated in the business structure. Most European exchanges generate the largest share of their income through transaction fees, followed by services (such as clearing and settlement, membership fees and data dissemination) and listing. Trading is also the main source of revenue for the US exchanges, but this is followed by listing and services in second and third place, respectively.

[11] This section draws heavily on Lannoo (2001).

Table 6. Exchange revenues by source, 1998

	Europe	North America
Listing fees	19.3%	32.1%
Transaction fees	45.1%	39.7%
Services	24.4%	22.6%
Other	11.2%	5.7%

Source: Di Noia in Lannoo (2001) based upon data from the World Federation of Exchanges (WFE, formerly FIBV).

2.2.5 Market information

To quote again from Harris (2002), p. 101:

> Generally, those who know the least about market conditions most favour transparency. Those who know the most oppose transparency because they do not want to give up their informational advantages.

Order information has to be transmitted from traders to either dealers, brokers or directly to the trading system. *Order-routing systems* link such actors together and must therefore be fast and accurate. They set the limit for trading strategies. While electronic routing systems are generally faster, more accurate and cheaper, they also have the disadvantage of only being able to carry out pre-programmed standard orders and transactions.

Order-presentation systems submit orders to those who arrange trades (broker, dealer, exchange). Some trading systems use screens to present orders, while others may use boards (a big board where all orders are presented) or oral auctions (specialists shouting out bids and offers).

The market information *produced* above is important to traders, as it determines when and how they will trade. Access to market information is therefore important to ensure that trades are carried out at a profit. As a result, market information is valuable, as evidenced by the revenue that many markets make from selling information. It is easy for electronic trading systems to collect information, as it has been recorded on the system when the trades were carried out. Non-electronic systems, such as floor-based trading systems, instead have to collect and consolidate market information afterwards.

Market information is *distributed* to members and the wider public in a raw format. Members often receive more information than the public. In addition, they may receive it faster (e.g. in real-time). Disseminating information has given rise to a whole industry of broadcast services that publish information in real-time (orders, quotes) to the wider public. Data vendors sell market information that has been repackaged and made more user-friendly to the public. Moreover, some companies have specialised in providing not only information from different venues but also offer order-handling and routing systems that enables brokers to view, analyse and access a wide range of venues, hence executing both internal and external orders.[12]

[12] See e.g. Royal Blue's fidessa software (www.royalblue.com) for an illustration of how this is done.

Table 7. Examples of market transparency

Market	Current quotes	Trade reports
NYSE	Best bid and offer immediately. No other prices or quantities	All trades immediately and in no event later than 90 seconds.
Nasdaq	All dealer quotes immediately	All trades immediately and in no event later than 90 seconds
Foreign exchange markets	Provided by data vendors	None
Deutsche Börse	All displayed order size, aggregated by price for continuous markets, less information for single price auctions	All Xetra trades immediately, very large privately negotiated trades may never be reported
Euronext Paris	All orders (although iceberg facility)	All trades immediately (delayed reporting for larger trades)
LSE	All dealer quotes in SEAQ equity, best bid and offer in SETS equity	All small trades immediately, larger trade reports are delayed

Source: Based on Harris (2002), p. 102.

Some markets release more information, or in other words, are more transparent than others. Some release information of orders and quotes, i.e. they release *pre-trade* information. Others only release *post-trade* information, i.e. concluded trades and prices. Moreover, markets may choose to publish only the top of the order book (best bids and offers) while others open the whole order book. While most traders want to see the order book, or more particularly any unfilled orders in it, they are generally reluctant to see their own orders publicly exposed.

2.3 Benefits to society of well functioning securities markets

Well functioning securities markets provide benefits not only to traders but to society as a whole. The field of research that tries to measure the wealth effects of good markets is *welfare economics*. While a full recapitulation of the literature on the welfare effects of securities markets is beyond the scope of this paper, it may still be useful to have a general picture of how securities markets may be beneficial. The two main benefits to society from well functioning securities markets are informative prices and liquid markets.

2.3.1 Informative prices

As mentioned above, one of the core functions of financial markets is that they help coordinate decentralised decision-making in the economy. Local decision-making is one of the cornerstones of market economies. Decentralised decision-making is only possible, however, if prices are informative about the real value of an asset. While a perfect measure of the fundamental value is impossible, in good securities markets, prices at least offer a good reflection of a traded instrument's fundamental value. Informative prices are a prerequisite for a good allocation of resources in a society.

2.3.2 Liquid markets

As mentioned above, traders trade for a variety of reasons, e.g. to hedge or share risks, obtain necessary assets or transfer wealth through time. Traders benefit from well functioning, liquid markets that enable them to achieve these goals. Society at large also

benefits from liquid markets. Traders who have been able to hedge their risks, get hold of necessary assets or transfer wealth through time generally conduct their businesses more efficiently. As a result, to cut a long story short, liquid markets enable specialisation among producers and provide for a well functioning allocation of economic resources. Society as a whole benefits from these efficiency gains in the form of prices.

2.3.3 The positive effects of integrated securities markets in Europe

There have been many attempts to measure the positive effects of well functioning markets. Of particular interest in the field of this study are the potential effects of well functioning *European* securities markets. Apart from increasing the efficiency gains resulting from liquid markets with informative prices, integrated European financial markets generate some additional advantages, notably increasing potential for portfolio diversification and higher economies of scale and scope. Financial integration reduces the risks that retail investors face. It also decreases the costs of intermediation, by opening up previously segmented national markets to competition and by enabling institutions to respond by seeking economies of scale and scope. Finally, the reduction of risk and lower costs of intermediation have dynamic effects on capital creation, which in its turn boosts overall economic growth.

Measuring the extent of these gains is a politically popular approach, but one that is fraught with methodological pitfalls. A recent study contracted by the European Commission estimated that the dismantlement of all obstacles to a fully integrated European equity market would in the long run raise the EU's real GDP level by 1.1% (€130 billion in 2002 prices).[13] This GDP increase results from a reduction in the cost of equity capital, bond and bank finance. The Commission claims that this figure is conservative as it only takes into account static effects of financial market integration and not dynamic gains, which are likely to be higher. However, considering the methodological problems (e.g. critical assumptions and econometric models used) of measuring the gains from market integration, the size of these gains is purely indicative. More important to note is that the gains are likely to be economically significant.

3. Forces shaping the structure of markets

The increasing pace of advances in technology has increased the contestability of securities markets and has led to changes in their structure. Nevertheless, strong countervailing forces in the form of positive network externalities provide incumbent operators with a significant protection against any new entrants.

3.1 Network externalities

Most observers stress the inherent limits to effective competition in securities markets. The reason is that there are strong forces working in favour of trading being carried out in a limited number of venues. Hence, even with the proliferation of trading venues, it would be unrealistic to expect a radical overhaul of securities markets in the near future, as there are a number of factors mitigating rapid change.

[13] London Economics (2002), pp. v-vi.

The reason why securities markets are likely to remain centralised is that securities markets are characterised by positive network externalities.[14] These are two-fold: first, benefits to market participants increase with the number of locations from which the system can be accessed, and second, the utility of a network to its users increases with the amount of others using it as well, as orders provide liquidity to one another.[15] In other words, order-flow attracts more order-flow, or "liquidity begets liquidity".[16] In that sense, networks exhibit economies of scale. The reason is that liquidity is a function of how easily sell orders are matched with buy orders and vice versa. The potential for order-matching increases with the number of traders and the volume of trades they generate on any trading system. The network benefits are not limited to improved market liquidity, however. Another associated benefit that depends on positive network externalities is informative prices: the more traders using a particular system, the more informative are prices.

Another characteristic of these externalities is that networks are self-reinforcing.[17] Once a network has achieved a critical mass, i.e. a minimal number of users, it tends to stand strong against any potential competitor, as these would have to reach a similar scale in order to offer a similar quality of service. This provides history with an important role: incumbent networks, once in place, are not easily dethroned. Historical accidents may well lead to lock-in effects: i.e. even though newer trading venues may offer better technology, and in the long run potentially lower trading costs, network externalities protect the incumbent.

Network externalities also exert a moderating influence on forces of fragmentation, as only few operators will be able to achieve a critical mass of liquidity. In addition, even if a new entrant manages to capture a share of the market thanks to new technology and lower trading costs, its success is likely to lead to competitors adopting similar cost-reducing technologies. Moreover, as illustrated above, increasing contestability is likely to lead to mergers and alliances, as operators try to establish the pre-eminence of their trading model (i.e. highest liquidity).[18] Accordingly, the structure of securities markets is likely to be oligopolistic or even monopolistic.[19] This could be beneficial according to the network literature, as a monopoly maximises the network externalities. In order to achieve this structure, however, policy intervention may be needed to coordinate the behaviour of private actors.

Empirical tests indicate that network externalities and scale economies do not apply equally across financial markets or securities markets. For example, there appears to be limited benefits from networks in banking. Generally, empirical studies have found that some functions are more *centripetal*, i.e. they exhibit more network externalities and economies of scale, and hence are more susceptible to a centralised market structure. Other functions are more *centrifugal*, i.e. they feature less externalities and scale advantages. The reason for the latter has been found to be related to different sources of

[14] See e.g. Economides (1993).

[15] Domowitz & Steil in Steil et al. (2002); Economides (1993); and Biais et al. (2002).

[16] Hasan & Schmiedel (2003).

[17] Economides (1993).

[18] Davis & Steil (2001).

[19] See e.g. Lee (2002b); and Davis & Steil (2001).

friction (e.g. market access costs or importance of local information). For these functions, the relevance of geography persists.[20]

Generally, it is often claimed that payment and settlement systems as well as currency trading exhibit network externalities and scale economies. In the case of securities trading, research has found that the significance of externalities and scale depends on the function. Trade processing exhibit strong externalities and scale while company listing, regulation, supervision and monitoring the maintenance of the marketplace exhibit less externality and scale benefits.[21] It has also been found that the significance of these effects depend on various factors, e.g. regulation (more harmonised regulation provide more scope for exploiting externalities and scale), spending (exchanges that spend more on human capital and technology benefit more from externalities) and size (larger exchanges benefit more from a strategy of pursuing scale).[22]

In sum, while advances in technology have made securities markets more contestable, the lasting impact on market structures is uncertain, as inherent network effects and first-mover advantages mitigate the fragmentary competitive forces. These network effects imply the existence of strong centralising or centripetal forces at work in the structure of securities markets.

3.2 An increasing pace of innovation

The forces shaping financial markets in general, including securities markets, have changed dramatically during the last decades. As a result, the pace of change or innovation (new ways of doing things) has increased. One reason for this higher innovative pace is a more permissive policy climate, where financial markets have become deregulated and liberalised. Another reason is a changing economic context. Prior to the 1970s, the post-war period was characterised by macroeconomic stability (e.g. stable exchange rates, low inflation and stable growth). However, following the breakdown of the Bretton Woods system, the world economy has become significantly more volatile and hence more risky. This has increased demands for financial products to shelter and manage these risks.[23]

Although these general factors of context are certainly important as explanatory factors behind the rapid changes to securities trading since the 1970s, it is certainly technological changes that have had the most direct impact. Advances in technology have affected the capabilities and reach of traders and the amount of services provided by market centres. This has led to fundamental changes in market structure.

Data processing and telecommunications have become more powerful and less costly, which has allowed financial institutions to amass more data and better assess risks – thereby enabling them to design new products and services. For example, transactions have become dematerialised, which has led to an exponential growth in trading volumes. Moreover, new communications technologies have enabled traders to reach more markets. Market data reporting systems have provided instantaneous information

[20] Malkamäki (1999).

[21] Ibid.

[22] Hasan & Malkamäki (2000).

[23] White (1996).

about trading conditions elsewhere, and new order-routing systems have provided traders with the ability to act on that information. Moreover, new computing technologies have in their turn allowed markets to set up more sophisticated trading systems, for example, by providing order-matching based on complex algorithms. This has increased the efficiency of traders, who with these new trading tools can solve previously intractable trading problems.[24] Automated systems have also enabled trading services to be expanded to a wider set of securitised products, e.g. agricultural commodities and electricity.[25]

As these technologies have become more prominent, their costs have decreased. For example, the costs of developing and operating trading systems have decreased substantially, as has the cost of delivering trading services to customers and constructing computer networks capable of cross-border trading. Following this steep decline in costs, physical location has become less important. In short, technology has linked markets together and has expanded the reach of traders.

New technology at lower costs has provided exchanges with novel opportunities. The diffusion of this new technology has enabled exchanges to pull themselves up to a higher production curve.[26] Overall, research findings suggest that those exchanges that have invested in trading technology (e.g. automated trading systems) have been able to provide a wider range of services more efficiently and at a lower cost.[27]

Another associated benefit of the lower cost of trading technology is that barriers to entry have decreased. This has contributed an increased contestability of markets.[28] There are substantial benefits associated with this increased competition:

- ***Price decrease***. Increased competition between exchanges and intermediaries should lead to a decrease in commissions and fees. Competition therefore reduces the potential rents earned by central markets and thus leads to a wider profit-sharing.
- ***Improved services***. With the advent of more intermediaries, specialisation and catering for different investor needs have developed. Moreover, the competitive threat is likely to lead to more customer- (investor-) friendly behaviour.
- ***Innovation***. A competitive system is more likely to adapt to the ever-increasing pace of financial innovation. Indeed, the dynamics of financial innovation appear to confirm the picture that the competitive advantage of launching a new service based on new technology, while giving ground for some first-mover advantage, is rapidly decreased, as other firms adopt the technology in question and start offering similar services.

[24] For an assessment of the impact of technology on securities markets, see the Financial Internet Working Group (www.fininter.net).

[25] For discussions on technology innovation and its impact on financial services, see Domowitz & Steil in Steil et al. (2002); and Davis & Steil (2001).

[26] Schmiedel (2002).

[27] Domowitz & Steil in Davis & Steil (2001); Schmiedel (2001); and Hasan, Malkamäki & Schmiedel (2002).

[28] For a seminal paper on technology and the increase in contestability, see Domowitz & Steil (1999).

3.3 The network paradox – Forces of fragmentation

Despite strong network externalities, markets are in practice often fragmented and they may remain so for long periods of time.[29] Overall, the extent of fragmentation depends on several factors. First, the size of the market determines whether there is enough liquidity to sustain several marketplaces. Second, the extent of fragmentation also depends on how efficient the incumbent operator is compared to new entrants. Third, and more generally, the business models of major trading venues and intermediaries also affect the level of fragmentation. Finally, regulation may also have an impact, either to facilitate or to constrain competition.[30]

3.3.1 Catering for the different needs of traders

One reason may be that a fragmented marketplace with different competing structures is necessary in order to satisfy the various needs of traders. Traders have different needs and they differ in many respects:[31]

- ***Difference in size***. Traders trade different sizes. Some trade large sizes, others trade small. Large traders are often reluctant to reveal their intentions or trading plans. If they do so, they will find it more difficult to carry out their trades at reasonable prices, as other traders are aware of the extent of their need to trade. Therefore, large traders often prefer market structures that minimise the information they need to provide. Small traders on the other hand may well prefer to expose their trading intentions, as this enables them to fill their orders more easily. Accordingly, on balance they are likely to prefer transparent market structures.
- ***Asymmetric information***. Traders also differ in the amount of information they possess. Generally, no one wants to trade with informed traders, as these traders possess information that will give them the upper hand when carrying out their trades. Informed traders therefore prefer anonymous consolidated markets, where their identity is easier to conceal. Uninformed traders, on the other hand, prefer structures where they can clearly identify who they are trading with.
- ***Different degrees of patience.*** Some traders prefer speedy execution over best price. As a result, impatient traders are ready to pay (spread plus commission) for the certainty that their trades are executed. Impatient traders therefore prefer structures where liquidity is readily available at short notice. This is for example the case in quote-driven dealer markets or brokered markets. Patient traders, on the other hand, care more about costs. They are ready to wait until market conditions ameliorate before executing their trades. Patient traders as a result often use limit orders and tend to prefer consolidated order-driven systems with time precedence (i.e. the first posted order is the first to be executed once the price limit has been met).
- ***Difference in access***. Traditionally, the members of an exchange have privileged access to the information and trading opportunities. Other traders are confined to

[29] Madhavan (2000).

[30] IOSCO (2001).

[31] Harris (2002), pp. 530-533

trading via members. This has proved to be an important driver behind the development of disintermediated market structures.

Some market structures are better adapted to handle some problems than others and, accordingly, one single market structure is therefore unable to satisfy all traders. All in all, the plenitude of traders and their different needs implies that there is an inherent need for diversity.

3.3.2 The quest for dominating the transaction chain

Another source of fragmentation is the change to business incentives of major market actors. Thanks to technology, the start-up costs of various lines of trading business have decreased, and thanks to deregulation and liberalisation, actors have been able to venture into previously unchartered areas of business. This has had the effect that the previously clear lines between different sorts of service providers have been blurred. For example, brokers have not only entered the dealer business but are also increasingly providing trading services.

The result is that actors try to dominate larger parts of the value chain depicted above and hence capture new sources of profits. In some lines of business, the investment costs of maintaining a competitive offering remain prohibitive for all but the largest actors (e.g. global custody services where a very concentrated market structure is emerging). Nevertheless, the ambition of intermediaries to capture at least part of the profits emanating from order execution implies a new source of fragmentation.

4. The European Market Structure

The impact of technological advances differs across the Atlantic, with the EU and the US following different trajectories on different time-paths. The impact of technology and automation can be observed along two paths: i) its impact on the trading model of the incumbent operators, and ii) the arrival of new market entrants.

4.1 Central markets

Ever since the arrival of stock exchanges in the 17th century, the degree of competition has moved in cycles.[32] Until 1985, European equity markets worked along lines laid out in the 19th century. Stock exchanges were closed "clubs" with high barriers to entry for potential entrants. Most of continental Europe's exchanges were call auctions, where publicly licensed single-capacity[33] intermediaries transmitted their customers' orders, receiving a fixed commission for their arduous task. In London, "jobbers" who acted on orders from single-capacity brokers managed the trading, with commissions fixed by the exchange's members. The exchanges operated in isolation from each other, more or less

[32] For historical accounts see Lee (2002b and 1998). The earliest account is probably "Confusion de Confusiones" by Joseph de la Vega (1688), who explains the workings of the Amsterdam Stock Exchange, founded in 1602.

[33] The intermediary has to chose between trading on behalf of clients (agent) or on own account (principal). See Pagano (1997) for further details.

like monopolies, protected partly by national regulations and capital restrictions, partly by natural barriers to competition (technology costs).[34]

Based on network externalities and scale economies elaborated upon above, exchanges have since the mid-1980s tried to attract more orders and hence boost liquidity. In Europe that process has taken four forms: i) international competition for liquidity in blue-chip shares, which spurred an evolution in trading systems in order to minimise costs, ii) an expansion in the range of services and products provided to customers, iii) changes to rules governing exchanges, in order to more vigorously pursue cost advantages, and iv) cooperation with other exchanges in order to tap other liquidity pools.

4.1.1 Exchange competition

In the new environment of liberalised international capital flows, London's 1986 "big bang" and introduction of a screen-based trading system (SEAQ, SEAQ-I) set off a decade of competitive reform based partly on regulatory advantages, partly on innovative use of new technologies.

The SEAQ's greater immediacy and market depth enabled the London Stock Exchange to capture a large share of turnover in continental European equities. The success of the LSE pushed continental exchanges to respond. Emerging from individual responses (Paris Bourse, German exchanges, Amsterdam) was a continental trading model with higher levels of electronic automation. This actually reversed the position, with a number of continental exchanges capturing turnover from London in specific markets (e.g. DTB grabbing the dominant share of trading in bund future contracts from LIFFE).

Following this general pattern of competitive reform – first-mover advantage, technology adaptation and arbitrage – nearly all European exchanges have today converged towards a trading system *design* based on automated, electronic, continuous limit-order auction markets (see Table 8). The process of convergence has been far-reaching in terms of the more precise *rules* governing these systems. European exchanges' rules on tick and lot sizes, as well as approaches to excessive price fluctuations and short selling are quite similar (see Table 9).

Table 8. Major global trading systems

Exchange	Trading system	Type
Deutsche Börse	Xetra + floor trading	Order-driven
Euronext Paris	NSC	Order-driven
London Stock Exchange	SETS etc.	Order-driven, quote-driven
Swiss Exchange	SWX	Order-driven
NYSE	Floor trading	Quote-driven
Nasdaq	Montage	Quote-driven
Tokyo Stock Exchange	CORES	Order-driven

Source: Birinyi Associates (2002), p. 19.

[34] Pagano (1997).

Table 9. Electronic trading systems in Europe

Market	System	Tick size	Lot size	Price limits	Short selling
Athens Stock Exchange	OASIS	Varies by share price	10	12% daily change	Stock lending restricted
Copenhagen Stock Exchange	SAXESS	Varies by share price	Variable	None	No restrictions
Deutsche Börse	Xetra	€0.01	Variable	Static and dynamic limits	No restrictions
Euronext Amsterdam	NSC	Varies by share price	One share	Static and dynamic limits	No restrictions
Euronext Brussels	NSC	Varies by share price	One share	Static and dynamic limits	No restrictions
Euronext Lisbon	LIST	€0.01	One share	Static and dynamic limits	No restrictions
Euronext Paris	NSC	Varies by share price	One share	Static and dynamic limits	No restrictions
HEX	HETI	€0.01	Variable	15% daily change	No restrictions
Irish Stock Exchange	Xetra	€0.01	One share	Static and dynamic limits	No restrictions
Borsa Italiana	MTA	Varies by share price	One share	Static and dynamic limits	No restrictions
London Stock Exchange	SETS	Varies by share price	One share	Static and dynamic limits	No restrictions
Bolsa de Madrid	SIBE	Varies by share price	One share	Static and dynamic limits	No restrictions
Oslo Børs	ASTS	Varies by share price	Variable	Variable daily limits	Up-tick rule, covered shorts only
Stockholmsbörsen	SAXESS	SEK 0.01	Variable	None	No restrictions
Swiss Exchange	SWX	Varies by share price	One share	2% dynamic limit	No restrictions
Wiener Börse	Xetra	€0.01	One share	None	No restrictions

Source: Birinyi Associates (2002), p. 21.

In yet a third aspect, exchanges have reacted more or less the same faced with a common challenge. Thanks to technology, exchanges face more competition from non-exchange trading venues. Broker-dealers, for example, no longer execute all their trades on an exchange. One of the reasons why they do not is that an exchange's public environment (exchanges and law often require that orders posted on an exchange are made public) is particularly ill-suited for certain transactions (e.g. large transactions). Instead of using an exchange, such traders increasingly have sought other less transparent trading venues. In order to encourage brokers to continue to post larger orders, exchanges have increasingly allowed exceptions to reporting requirements for larger trades.

All in all, these changes have enabled significant cuts to trading costs. The difference between bid and ask prices (spread) on exchanges have decreased considerably since 1994. In terms of the bid-ask spread as a percentage of the bid price, there are major differences between markets. Overall, spreads have fallen substantially since 1994, with the average spread in 2002 being 0.61% (see Birinyi Associates, 2002). Although there are considerable methodological differences in calculating spreads, and hence different studies posting widely different results, e.g. in terms of ranking different venues, the general trend of falling spreads is beyond doubt.

Box 1. Equity trading in London

Not only does the size of London's financial centre make it stand apart from other European centres, but the equity trading market structure is more diverse compared to many other centres. The City of London hosts a range of venues where securities trading takes place, both on and off central exchange trading systems.

Central order execution

The dominant trading venue for equities is the London Stock Exchange (LSE), founded in 1801. The LSE runs several markets, divided into domestic and international markets.

Market	Type	Description
SETS	Order-driven	Started in 1997, the Stock Exchange Electronic Trading Service is the central limit order book of the LSE where the 218 most liquid stocks are traded. It consists of SET1 (FTSE100), SET2 (77 liquid FTSE250 stocks), SET3 (stocks either priced in euros or stocks previously in 1 or 2) and exchange-traded funds. On SETS, trading is continuous over the day, but starts and closes with auctions.
SEAQ	Quote-driven	The Stock Exchange Automated Quotations system for UK securities is a quote-driven market-maker system. With the launch of SEAQ in 1986, trading away from physical stock exchange floors emerged in Europe, thereby starting the process of competition between exchanges in Europe. SEAQ today consists of around 1,500 stocks.
SEATS Plus	Hybrid	SEATS is the hybrid market for those equities whose turnover is insufficient for either SEAQ's market-making system or SETS' order book. It consists of 138 smaller shares.
IRS	Order-driven	The International Retail Service is made up of 110 listed and unlisted international securities.
SEAQI	Quote-driven	Same as SEAQ but for international stocks. Managed to attract a significant amount of trading volume in European blue chips at its inception in 1986. Today trades 57 stocks.
IOB	Order-driven	The International Order Book handles the most liquid SEAQI stocks.
AIM	Quote-driven and hybrid	The market for new or smaller companies. The Alternative Investment Market currently consists of 700 stocks.
Covered warrants	Order-driven	Currently consisting of 163 warrants.

All orders posted on the SETS order book are immediately seen by all exchange members and data subscribers. On the SEAQ platform, all market makers are obliged to post firm two-way quotes, hence binding them to trade at those conditions with all exchange member firms. As for post-trade reporting, all SETS order book, automatic and auction trades are automatically reported immediately. Trades carried out off the order book are reported within three minutes and are published immediately by the LSE. Delayed publication is allowed for larger blocks.

However, equity trading is not limited to the LSE. Virt-x, formed by the 2001 merger between the Swiss Exchange (SWX) and Tradepoint, attracts a limited amount of liquidity, primarily in Swiss blue-chip stocks.

Internalisation

It is estimated that 65% of the trading volume in FTSE 100 securities currently goes through SETS. The remaining volume is primarily wholesale business taking place away from the Exchange's central trading system, e.g. trading in larger-sized blocks of shares between institutional investors. However, it also includes retail order flow executed by negotiation between agency stockbrokers and larger broker-dealers. These, despite not falling in any special regulatory category, go under the unofficial name of Retail Service Providers (RSPs). Having originated some time ago, the four largest are currently Merrill Lynch, Dresdner Kleinwort Wasserstein, Winterflood Securities and Credit Suisse. All are member firms of the LSE, active traders on the SETS order book and recognised market-makers in SEAQ securities.

RSPs typically conclude private contracts with brokers and set up a proprietary infrastructure, which links the RSPs with a network of brokers. The RSPs agree to stand ready to trade retail-sized orders and brokers agree to route orders to them, subject to certain qualifications. As a result, these brokers have traditionally polled their RSP rather than the LSE when checking for prices. Equipped with in-house trading systems based on algorithms, RSPs are able to match central prices and, if their inventory positions so permit and the client's buying power makes it commercially interesting, they provide price improvement.

From the LSE's perspective, trades concluded between RSPs and brokers are regarded as trades concluded bilaterally between member firms. Accordingly, the relationship is the same as between two member firms trading in large blocks between each other. Trades executed via RSPs are subject to the LSE's reporting and settlement rules, but not specific trading rules. Notably, RSPs are not subject to the market-maker rules that subject institutions making markets to provide firm two-way quotes to all exchange member firms. As a result, RSPs are entitled to refuse to trade. Nor do pre-trade transparency rules apply to RSPs. Instead, RSPs provide quotes on request to those participants with whom they have a relationship. In sum, RSPs act as quasi-market makers but without the regulatory obligations.

RSPs are popular with retail brokers. Apart from often providing price improvement, they also offer immediate execution (although retain the right of refusing to trade) and a possibility to avoid certain exchange-related costs. For example, retail investors may be less willing to pay for the anonymity that the newly introduced central counterparty (CCP) service provides. However, the general argumentation about the fears of fragmentation and internalisation applies to RSPs as well. There is a risk that the RSP will "warehouse" client orders, i.e. sit on them until a price that is sufficiently interesting for the intermediary materialises. Moreover, it may fragment liquidity, resulting in less informative central prices. Finally, the lack of obligation to quote makes it difficult for investors to assess their execution quality.

Overall, trades executed off-SETS are generally either small or very large while trades executed on the central book in a majority of cases fall in the middle range. This suggests that, in the London market, broker-dealers execute both small and very large trades off the exchange, with dealers then managing their inventory positions by trading average-size trades on the central order book.

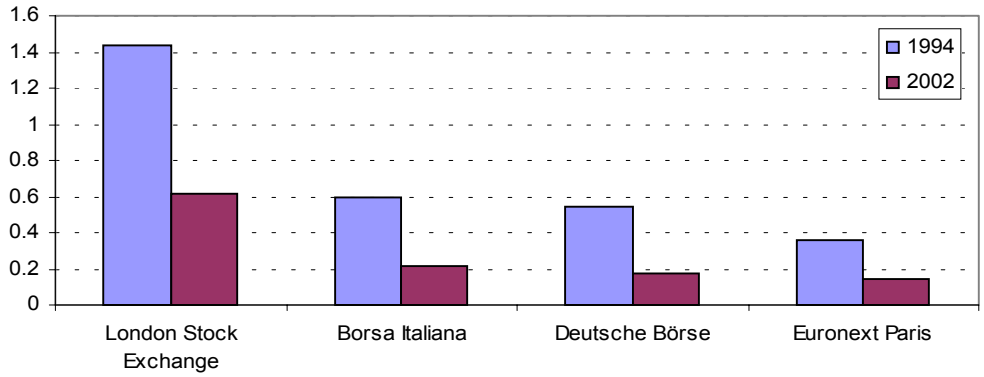
Sources: Interview with the London Stock Exchange and Davies et al. (forthcoming).

Table 10. Block-trading in Europe

Market	Block-trade execution	Reporting provisions	"Hidden-size" order available
Athens Stock Exchange	Off or on-market	No special provisions	No
Copenhagen Stock Exchange	Off or on-market	No special provisions	No
Deutsche Börse	Special facility (Xetra XXL)	XXL auction every 30 minutes	Yes
Euronext	Off or on-market	Immediate reporting if counterpart not a member, if member delayed reporting depending on size of block.	Yes
HEX	Off or on-market	15 minutes	No
Irish Stock Exchange	Off or on-market	Up to four days	Yes
Borsa Italiana	Off or on-market	30 minutes	Yes
London Stock Exchange	Off or on-market	End of day	No
Bolsa de Madrid	Special facility ("block market")	No special provisions	Yes
Oslo Børs	Off or on-market	No special provisions	Yes
Stockholmsbörsen	Off or on-market	No special provisions	No
Swiss Exchange	Off or on-market	Up to two days	Yes
Wiener Börse	Off or on-market	No special provisions	Yes

Source: Birinyi Associates (2002), p. 21.

Figure 4. Average bid-ask spreads, 1994 and 2002
(Spreads as a percentage of bid price)



Source: Birinyi Associates (2002), p. 27.

4.1.2 Broadening the range of services and products

Another effect of the competition between exchanges has been the attempt to broaden service and product offerings of different venues. For example, following the US lead (Nasdaq), many European exchanges introduced growth stock markets in the 1990s (e.g. AIM at the LSE, Neuer Markt of Deutsche Börse and Nouveau Marché in Paris).[35]

A more recent example is the introduction of central counterparty services (CCP). Although falling within the post-trade part of the trading chain, exchanges have been instrumental in pushing for more efficient clearing of trades. Clearing is the process that occurs between trading and settlement and involves the balancing of positions between the different parties to establish agreement on what each party is due, prior to the establishment of final positions for settlement. A clearinghouse can act as a CCP by being a legal counterparty to both sides of a securities market transaction. The clearinghouse hence becomes the buyer to every seller and the seller to every buyer. This process enables the CCP to net outstanding obligations of different actors which in turn vastly decreases the amount of transaction that has to be settled at the end of the day, especially if trading volumes are high. An exchange with a CCP service can hence offer a significantly more attractive trading offering. As securities markets have become larger and volumes have increased, the value of CCP services has become more pronounced. Moreover, following the advent of anonymous electronic trading books, the need to handle counterparty risks has increased. For example, some larger brokers have not been prepared to deal indiscriminately with other brokers, due to these perceived risks. Hence, CCP services have now started to be provided in Europe with the LSE, Euronext and Deutsche Börse all accessing them.[36]

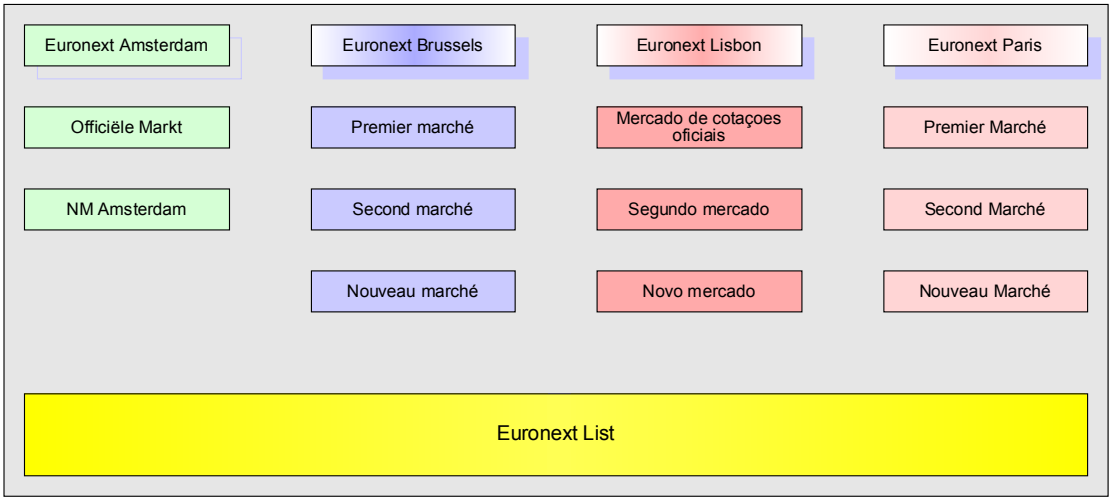
[35] Clearstream International (2002).

[36] For further information on developments in the clearing and settlement part of the transaction chain, see Lannoo & Levin (2001).

Box 2. Cross-border integration – The case of Euronext

In September 2000, the exchanges of Amsterdam, Brussels and Paris merged to form Euronext N.V., a holding company incorporated under Dutch law. Euronext expanded in 2002 with the acquisition of LIFFE, a London-based derivatives exchange and the merger with the Portuguese exchange BVLP. For regulatory reasons, the five entities continue to exist. Together, the cash markets offer local entry points to the Euronext List, consisting of all securities listed in Belgium, France, the Netherlands and Portugal.

Euronext cash markets



Once the merger has been completed, the aim of Euronext is to provide a single trading platform for equities (NSC) and derivatives (LIFFE-CONNECT), a single orderbook for each security, a single clearinghouse and a unified settlement system. Currently, Euronext, with the exception of Lisbon which is to be integrated during 2003, offers a single trading platform for cash products (i.e. stocks, bonds, exchange-traded funds and warrants) as well as a single clearing platform via its subsidiary Clearnet (with the exception of the London derivatives market).

Authorisation to deal on Euronext is granted by the Belgian, Dutch, French and Portuguese regulators for their respective entry points. Likewise, the requirements on issuers depend on which entry point they choose, with listing criteria depending on the different markets depicted above.

While keeping the previous segments and indices (e.g. AEX, BEL20 and CAC40) of the participating markets, Euronext has developed new features aimed at capturing the more pan-European nature of the merged entities. Two indices – Euronext 100 (100 largest companies) and Next 150 (strangely, next 150 companies) – and two segments – NextPrime (companies in traditional sectors) and NextExonomy (technology companies) – have accordingly been created. In addition, Euronext contains other market components, e.g. NextTrack (exchange-traded funds) and NextWarrants. Euronext also organises three non-regulated markets: the Brussels Public Auction Market (securities and debt securities not admitted to Euronext Brussels), the Lisbon Mercado Sem Cotaçoes (for companies not meeting a regulated market's listing requirements) and the Marché Libre in Paris (companies that are either too small or too new to be listed on a regulated market).

Trading on the unified platform is continuous for the most liquid securities or traded at call auctions twice a day for the less liquid. Orders receive priority depending on 1) price and 2) time of entry. The trading day starts and closes with auctions.

Source: Euronext (2003). *Euronext: organization and procedures* (http://www.euronext.com/extra/pdf/euronext_organisation_12_2002_en.pdf).

4.1.3 Changes to governance structures

The increased scope for competition has also led to fundamental changes in the way that exchanges are governed. Traditionally user-owned utilities, most exchanges have become private for-profit publicly listed companies. Stockholm was a precursor in this respect, demutualised and privatised in 1993. Followed initially primarily by other Nordic exchanges, the larger ones followed suit at the beginning of the following decade (LSE in 2000, Deutsche Börse and Euronext in 2001).[37] The idea behind the move towards demutualisation is that for-profit companies are better adapted to operating in a more competitive landscape, where speed, flexibility and low costs are essential attributes for success.

Table 11. Examples of demutualisation

Exchange	Year
Stockholm Stock Exchange	1993
Helsinki Stock Exchange	1995
Copenhagen Stock Exchange	1996
Amsterdam Exchanges	1997
Borsa Italiana	1998
Athens Stock Exchange	1999
London Stock Exchange	2000
Euronext	2000
Deutsche Börse	2001

Source: Based in part on Domowitz & Steil in Davis & Steil (2001), p. 368, and updated.

Box 3. Deutsche Börse Group

Securities trading in Germany can be done on eight exchanges. The dominant trading service provider is by far the Deutsche Börse Group. It consists of Deutsche Börse AG and its subsidiaries Clearstream International (clearing and settlement), Deutsche Börse Systems AG, Entory AG (trading system development) and xlaunch AG. Deutsche Börse AG runs the Frankfurt Stock Exchange (FWB) and controls 80% of Eurex, the derivatives exchange.

Xetra is the fully electronic trading platform for the group's cash markets. Launched in 1997, it is a central limit order book. Most of the shares on FWB as well as 2,000 warrants and certificates are traded on Xetra. Three-quarters of the total stock-exchange turnover in German equities goes through Xetra. The corresponding figure for shares on the DAX-index (the 30 most liquid stocks) is 95%.

Deutsche Börse has several market segments. The Official Trading segment comprises roughly 530 shares, including e.g. the DAX shares. This is the segment with the highest turnover. More than 130 shares are admitted to the Regulated Market, where admission criteria are less strict. This is the segment of choice for medium-sized companies. The Regulated Unofficial Market has more lenient conditions for admission. It consists of 4,800 stocks and warrants. In 1997 the group set up Neuer Markt, one of Europe's first markets dedicated to fledgling companies. After experiencing a spectacular rise in value, this market segment has been severely hit by the current market downturn. SMAX provides a forum for those companies that are traded on the Official Trading and Regulated Market that want to single themselves out. The group also runs XTF, a market for exchange-traded funds.

Source: Deutsche Börse (2003).

[37] For more details, see e.g. Davis & Steil (2001).

4.1.4 Exchange cooperation

Exchanges have not only competed for listings, however. They have also engaged in closer cooperation with the aim of pooling liquidity and resources. This cooperation has taken primarily two forms:[38]

- ***Mergers***. In some cases, cooperation has taken the form of outright mergers where exchanges have joined forces to create a new entity. The purpose has been to directly achieve economies of scale by concentrating trading under one common trading system. Examples of this approach are Euronext N.V.
- ***Alliances***. Alliances – often called implicit mergers in which participating members reach economies of scale by sharing trading platforms and/or trading systems – have been particularly common in Europe, e.g. between 1) nine exchanges in Germany, 2) four exchanges in Spain, 3) three exchanges in Benelux, 4) four exchanges in the Nordic countries (Norex), 5) Deutsche Börse and the Vienna Stock Exchange and 6) between Eurex and the Helsinki Stock Exchange.[39] Some have limited themselves to common access systems (e.g. CME and LIFFE) while some are mere strategic alliances (e.g. OM Gruppen and NGX).[40]

Overall, linkages in all different forms between European exchanges have now become so common that the European exchange landscape has become quite complex, as fully illustrated in Figure 5.

Some observers point out, however, that many of these agreements tend to run into difficulties when (if) implemented.[41] The problems may stem from the difficulty of creating credible contractual commitments between partners. Cooperation agreements are never neutral in the distribution of costs and benefits of the cooperation among the participating exchanges' members and such political economy considerations often hamper cooperation on the ground. Even so, other observers have argued that Europe will in the short term remain largely confined to these less ambitious levels of integration. This could be justified as European financial markets remain different and fragmented due to e.g. different legislation, culture and language.[42]

Overall, recent research suggests that even the more modest forms of cooperation (i.e. alliances) may be successful. Hasan and Schmiedel find that a network strategy is significantly associated with better performance. Their findings suggest that by participating in alliances, exchanges improve liquidity, growth and efficiency while at the same time reducing transaction and operational costs.[43]

---

[38] Hasan & Schmiedel (2003). They also outline other forms of cooperation that fall somewhat between these two poles. Nasdaq, for example, has created branches with e.g. a European partner (Easdaq, which became NasdaqEurope). Using a common technology, the network of branches have enabled it to access regional markets while at the same time retaining regional characteristics.

[39] Hasan & Malkamäki (2000).

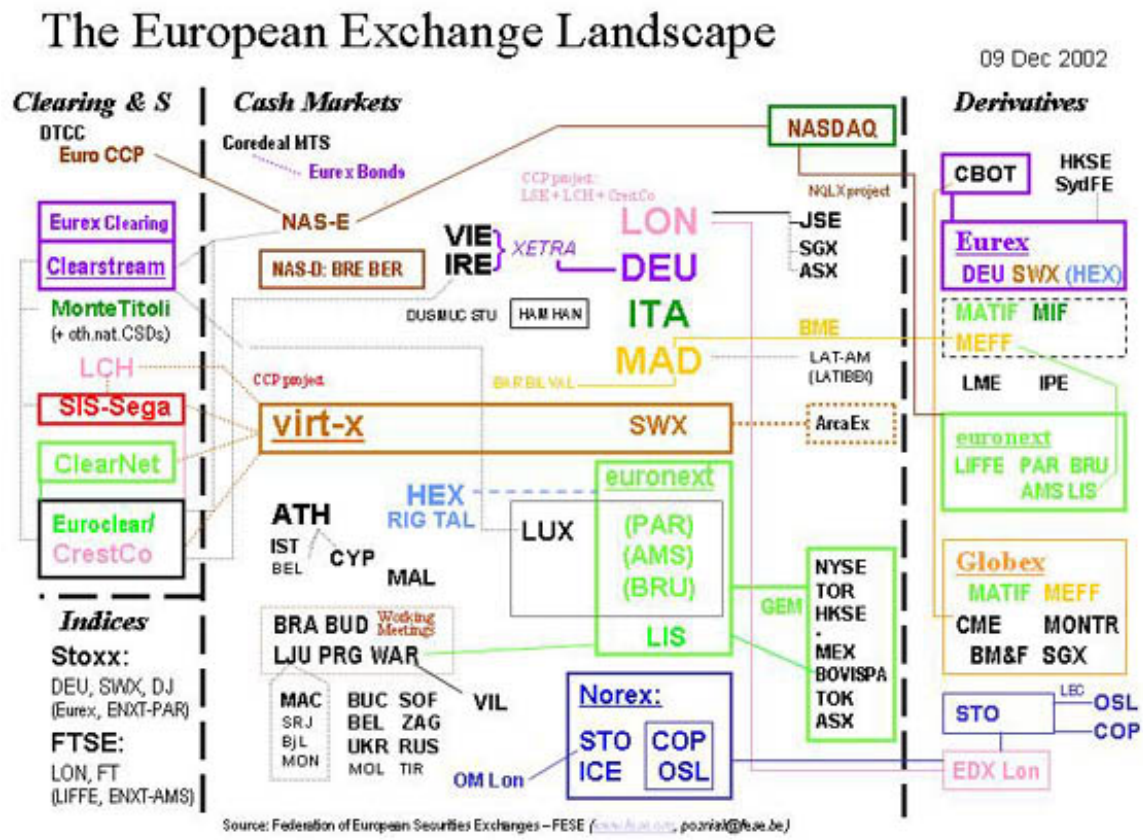
[40] Domowitz and Steil in Davis & Steil (2001).

[41] See Lee (2002b) who argues that only the more ambitious forms of cooperation, i.e. mergers or acquisitions, are likely to stand the test of time.

[42] Hasan & Malkamäki (2000).

[43] Hasan & Schmiedel (2003).

Figure 5.



Source: Federation of European Securities Exchanges (2003).

4.2 Off-exchange order execution

Advances in technology have also allowed actors to more systematically engage in new trading strategies and execution practices. For example, while large block trades have a long history of being negotiated and executed over-the-counter (OTC), advances in technology have made off-exchange execution cheaper and available to a wider audience and a wider set of instruments. Technology advances have enabled brokers to follow execution strategies that reduce some of the potential drawbacks of executing orders on a public central market. Such drawbacks are e.g. the signalling effect of publicly disclosing trade intention on a central market leading to a larger market impact. Traders are therefore looking for ways to achieve anonymity. A benign assessment of these new strategies considers the wider use of such strategies as novel ways of achieving a core functionality of securities markets, i.e. countering the impact of information asymmetries.[44]

In response to such drawbacks of executing certain orders on a central market, alternative execution practices have emerged. Intermediaries can send orders to alternative trading systems (ATSs) or electronic communication networks (ECNs). Or, they may internalise orders, i.e. filling their clients' orders themselves. Instead of

[44] See Crane et al. (1996).

automatically routing orders to the central market, intermediaries may "preference" orders, i.e. sending them to a preferred dealer in exchange for payment for order flow. Such payments can be both monetary and non-pecuniary. Intermediaries can also route the orders to a preferred trading venue or market-maker. There, the compensation often takes the form of a liquidity fee, which is paid when the limit order executes. Today intermediaries also often cross orders internally, i.e. they match and arrange trades among their clients. Or they can employ the services of a crossing network. These practices have one thing in common: orders are executed away from the central market (e.g. regulated markets).

Overall, on the wholesale side off-exchange order execution has become quite common. Trades between institutional intermediaries (principal trades) have reached significant volumes, thereby adding a significant source of liquidity. So far, retail trades remain predominantly executed on exchanges. Most of the retail business also remains domestic. For example, it has been estimated that at least 60% of all equity trading remains purely domestic.[45]

4.2.1 ATSs and ECNs

In the US, the process of increased competition has led to the emergence of new entrants rather than a competitive upgrade of the incumbents' trading systems. The beginning of the 1990s saw the emergence of new entrant trading venues that offered direct access to trading, thus bypassing traditional broker-dealers. The fortune of these alternative venues were fuelled by the SEC forcing the NYSE to first limit the application of its concentration rule ("Rule 390") and then in 1999 to dismantle it all together.

These systems were originally labelled Proprietary Trading Systems (PTSs), as they were private companies offering trading services directly to institutional investors.[46] They were in the large number of cases not regulated as exchanges, but as brokers. In 1996, the SEC labelled them Alternative Trading Systems (ATSs), containing a legal meaning with separate obligations compared to exchanges and brokers. Those ATSs trading on the Nasdaq were later given the term Electronic Communication Networks (ECNs). This term has since become the generic one, as most ATS trading takes place on the Nasdaq.[47]

ECNs are electronic automatic systems that offer services that the incumbent exchanges in the US has not been able to offer, such as speedier execution, anonymity, finer trading increments (i.e. lower tick size). ECNs also compete on the price side, as trading costs are potentially lower thanks to the elimination of intermediation. There is also significant competition between ECNs, via e.g. fee structure and services. Each ECN caters for the differing needs of different clients. In 2001, over 30% of share volume

[45] Clearstream International (2002).

[46] This was a fairly controversial label, however, as "proprietary" gave negative connotations of private, for-profit and self-interested operators as compared to exchanges' supposedly altruistic characteristics. See Domowitz & Lee (1998).

[47] For a discussion on the "alphabet soup" of new forms of trading intermediation, see Domowitz & Steil (2001).

(40% dollar volume) of Nasdaq was traded on ECNs. Overall, ECNs account for 3% of share volume in listed securities.[48]

Table 12. Percentage of Nasdaq share volume traded on ECNs

ECN	Share (2001, %)
Instinet	13.3
Island	8.8
REDIBook	4.1
Archipelago	2.3
B-Trade	1.8
Brut	1.7
Attain	0.2
Nextrade	0.2
Market XT	0.1
GlobeNet	0.0
Total	*32.5*

Source: Nasdaq (2002).

ECNs have not reached a similar breakthrough in Europe. The rapid fall in the value of European equity markets since March 2000 may go some way towards explaining the lack of success for ECNs and ATSs in Europe, as it has significantly dented the ability of new trading intermediaries to capture any significant market share of equity trading.[49] However, the fundamental reason is that the trading model chosen by the large majority of European central markets described above (automated electronic continuous auction) already offers most of the advantages of ECNs, e.g. anonymity, disintermediation, lower commissions and faster execution.[50] Therefore, pervasive network effects (see section 3.1) and relatively competitive incumbent exchanges may explain why new entrants have found it so difficult to take off in Europe, despite the active participation of issuers (wanting to use ECNs to bypass exchanges and intermediaries), investors (buying ECNs in order to maintain influence and using ECNs to disintermediate exchanges) and intermediaries (buying or even becoming ECNs to remain in business).[51]

4.2.2 Preferencing and payment for order flow

When routing orders to a preferred trading venue or market-maker, the venue or market-maker may not be the one posting the best quotes. Instead, they have agreed in advance to execute the order at the best-quoted price.[52] To some extent preferencing may be natural, as brokers may for example for cost-saving reasons decide not to have links to all market-makers or trading venues. Preferencing may also be accompanied by compensatory payments. Payment for order flow originated in the US and increased

[48] Barclay et al. (2002).

[49] E.g. Jiway and virt-x. However, for regulatory purposes both were authorised as regulated markets.

[50] Davis & Steil (2001) p. 428.

[51] Lee (2002a).

[52] Hansch et al. (1999) p. 1800.

rapidly during the 1980s. It has been estimated that in the mid-1990s, 35% of small trades were being bought and diverted from the central markets.[53] Payments have arisen because trading venues, market-makers and brokers compete to obtain orders. Trading venues and market-makers try to induce brokers to route their orders to them. As brokers in their turn compete to obtain retail orders, the brokers pass on some of these inducements to their clients in the form of, for example, lower commissions.

In the EU, such payments appear to be a less common market practice. One reason may be that European markets are more efficient in terms of tight spreads and structurally different in terms of smaller price increments (tick sizes) so that little room remains to pay for order flow. As a result, supervisors have devoted little attention to this issue. In the UK, for example, the FSA has only recently proposed that brokers, market-makers and trading venues be obliged to disclose such arrangements.[54]

4.2.3 Internalisation

Internalisation can refer both to the execution of securities orders off a regulated market and against the books of an investment firm or via direct order-matching, i.e. execution of one client's buy order against another client's sell order. If the former, as compared to exchange trading where the exchange provides a platform for third party trading, internalisation means that the investment firm becomes the counterparty to its client's transactions. Hence, the investment firm not only provides the means to carry out the transaction, but also provides the liquidity. As a result, if executed against the books, the investment firm takes on the risk of any price movements.

When internalising an order, the broker may for example route the order flow to a market-maker belonging to the same firm.[55] Thanks to such vertical integration, a broker may send an order to a market-maker belonging to the same firm who will execute the order by matching best price. This practice of operating internal centralised trading desks where orders from internal portfolio managers are broken up, repackaged and sent to various trading venues, has become increasingly common.[56]

It is sometimes difficult to determine whether a trade is internalised or not. In the wholesale (institutional) side of the market, a typical trade would see the broker giving the client a firm price for a particular security, with the broker then taking on the risk and managing it via the public markets. Another common type of transaction in institutional trading is when a broker guarantees a particular level of execution performance, as measured against a benchmark (e.g. volume weighted average price). In both cases, the trades may be nominally booked between the client and the broker, but the latter effectively works the orders and manages the risk by trading on various regulated markets.

[53] Easley et al. (1996).

[54] FSA (2002) p. 45.

[55] FSA (2002).

[56] Davis and Steil (2001).

4.2.4 Crossing

Another option open to brokers is to cross their clients' orders against each other instead of sending them to a central market. With developments in computing technology, brokers have been able to engage in more systematic crossing. As mentioned above, some brokers have set up in-house trading systems which match orders for them (e.g. crossing networks, ATSs, ECNs). Crossing has also become a popular method for brokers who take on large blocks of orders.[57] Crossing suits certain clients, who prefer this slower, but cheaper trading method.

Box 4. Crossing networks

Crossing originated in the US. The precursor is POSIT, set up by the broker ITG in 1987.[58] POSIT compares and matches institutional orders. Matching takes place eight times a day. Matching is maximised by a proprietary algorithm and occurs at the prevailing mid-point price at the time of the match. On average, 176 institutions and nearly 100 broker-dealers participate in these daily matches. In 2000, POSIT executed 7.9 billion shares with a total value of $281 billion.[59] Nevertheless, crossing only accounts for 2.5% of total share volume in the US.[60]

POSIT is also active in Europe. Based in London, it offers matches six times a day in securities from several European countries. In practice, only volumes for UK mid-cap equities are significant with POSIT accounting for 1% of total share volume (value). So far, no other crossing network has achieved any significant volume.

Source: Domowitz & Madhavan (2001).

A crossing network is a particular form of a call or auction market in which trading takes place periodically. At a particular time, the network compares sell and buy orders placed on its books and matches them. In a crossing network, this is an entirely automatic process. The trading price is a function of prices determined in other markets. Crossing networks suit the needs of those investors who are ready to sacrifice speed and certainty of finding a counterpart for low-cost trade execution. It also offers complete anonymity, thus reducing the potential market impact of any specific trade order, particularly for those with low liquidity.

4.3 European equity markets in a global context

Nevertheless, in comparison with the US, equity markets in the EU remain limited. After peaking in 1999, equity markets at the end of 2001 (latest year of available data) did not even reach 100% of EU GDP. True, markets in the US had plunged even more dramatically, but from a higher level.

Moreover, if one looks at the major European trading centres, they remain smaller in size compared to their US counterparts. This is clearly illustrated if looking at the value of share trading, where the value of shares traded on Nasdaq amounted to around €12,000 billion in 2001 (latest year of available data).

[57] Harris (2002), p. 520.

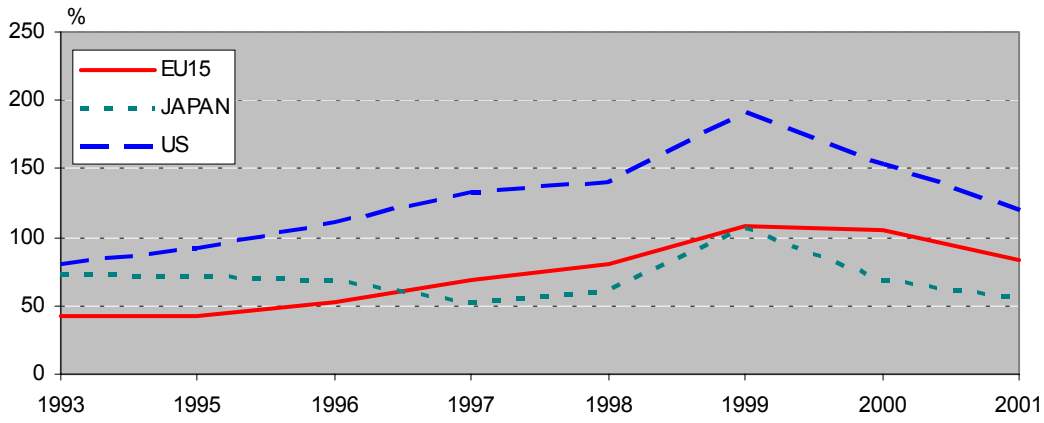
[58] Davydoff et al. (2002).

[59] Domowitz and Madhavan (2001).

[60] Davydoff et al. (2002).

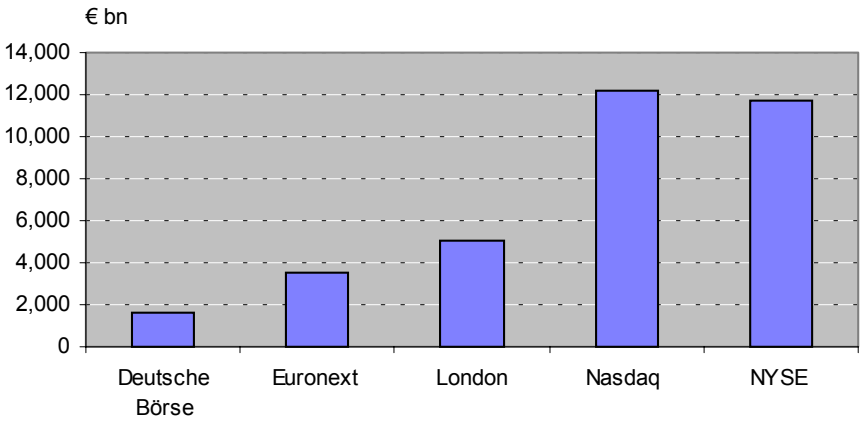
In one respect however, many European exchanges outpace US exchanges. The competition for blue-chip stocks have contributed to making European exchanges efficient. As a result, some studies suggest that the implicit trading costs in Europe are low compared to the US, while explicit costs high.[61] This is often attributed to the predominance of the automated central limit order book model in Europe, which is claimed to contribute in terms of spreads and market impact.

Figure 6. Equity markets, % of GDP (2001)



Source: Website of World Federation of Exchanges (www.world-exchanges.org).

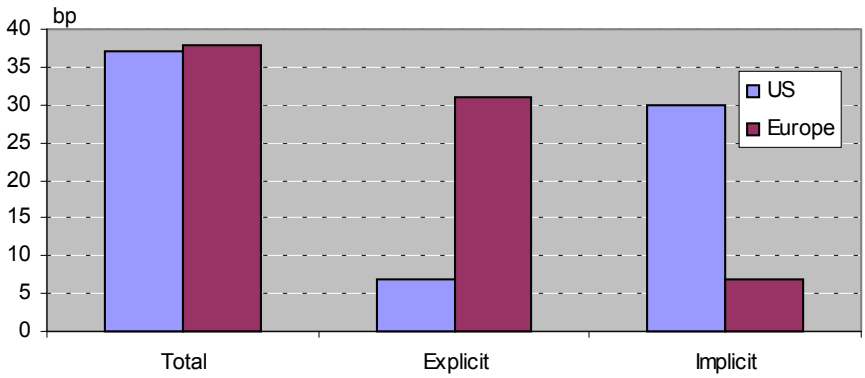
Figure 7. Total share trading (2001, €bn)



Source: World Federation of Exchanges (2003).

[61] Notably Domowitz and Steil in Steil et al. (2002).

Figure 8. Comparative trading costs: The US vs the EU



Note: Europe: DE, FR, IT, NL, ES, SE, CH. Data from 1996-98.
Source: Domowitz & Steil in Steil et al. (2002).

PART III. REGULATING SECURITIES TRADING

The changes to the structure of markets give rise to regulatory concerns, all of which are related to the perils of fragmentation. These concerns have been the subject of much debate and empirical testing, but the results so far have been inconclusive. From a regulatory perspective, there are various ways of dealing with these concerns. The Commission has put much emphasis on transparency requirements. However, views differ on the effects of these, with an important body of opinion claiming that too much transparency may harm market quality. Should regulators agree to be less ambitious on the question of transparency, other regulatory instruments, although not perfect substitutes, are available.

---

5. Fundamentals of regulating securities trading

Regulation refers to any publicly imposed rule governing a firm or an industry. Governments try to supervise and control the economic activities of private and public firms for a number of reasons and in various ways. Markets need a regulatory framework to function. If markets are contestable, rules can focus on certain core rules, e.g. ensuring low barriers to entry, while leaving most of the behavioural rules to the market itself. If the market is not contestable or if a society places significant value on avoiding institutional failure, then more detailed regulation is needed. Securities trading displays strong network effects and may thus not be sufficiently contestable. Moreover, considering the central importance of securities markets in the overall economy and the systemic risk associated with the fall of individual institutions, detailed regulation is called for.

5.1 Aims of financial regulation

Regulation occurs when unfettered market forces would lead to outcomes that are not in line with what is judged to be the public interest. For example, governments may want to curb or control the powers of a monopoly firm. They may want to address externalities, i.e. to regulate so that private actors are responsible for the unintended consequences their activities may have on the wider society. Another motive may be to redress differences in power between actors in the marketplace, e.g. information asymmetries, by ensuring that economically relevant information reaches as broad a public as possible, or differences in bargaining power. Other common motivations for regulatory intervention are to ensure the provision of public goods (i.e. goods that society values but that private actors would not produce if left to their own devices) or to coordinate production efficiently.

Even if these aims sound abstract, issues of this kind underpin the current ISD review. The ISD's transparency requirements are one way to address information asymmetries and to ensure that the public good of price discovery is produced. Also, the ISD's code of conduct rules are a way of redressing differences in bargaining power between intermediaries and clients.

In the field of finance, it can be argued that regulation has three predominant aims:

1. ***Protection against monopolies***. Most sectors in the financial services industry are marked by fierce competition. However, it has been judged that the provision of certain services is most efficiently carried out by a single provider. This is e.g. the case in payment systems and sometimes also claimed to be the case for certain functions in the securities settlement business. If services are provided by a monopolist, detailed regulation is needed to ensure that no monopoly power is exerted, e.g. by overcharging or failing to innovate.
2. ***Investor protection.*** Financial regulation also aims to protect consumers. This can be done either indirectly by *prudential regulation*, i.e. rules to ensure the soundness of individual financial institutions and hence promote the confidence of investors, or more directly by *conduct of business rules*, i.e. rules that govern the behaviour of firms vis-à-vis clients.
3. ***Systemic stability***. As a supplement to prudential regulation, financial regulation often features systemic rules that aim to ensure the overall stability of the financial system. The reason behind these rules is the core role of the financial system in the overall economy and the potentially disastrous consequences of the failure of key financial institutions.[62]

5.2 Regulatory instruments

The ISD is an example of highly prescriptive rules. What other regulatory strategies are available? How does regulation relate to competition?

5.2.1 Competition rules

A key aim of any regulatory strategy in the field of securities markets is to promote competition. If markets are contestable, the regulator is able to distance itself and refrain from regulatory intervention. Instead, the regulator can rely on competition and new entrants to eliminate market deficiencies.[63]

To promote competition, regulators need to prohibit barriers to entry, both explicit and implicit. The importance of barriers to entry is exemplified by the privileged position of incumbent operators. Network externalities provide incumbents with a first-mover advantage. Due to historical accidents, i.e. the incumbent being incumbent, market structure can become locked into an inefficient pattern, where the incumbent maintains its dominance despite the new entrant eventually being able to provide the same service at a lower cost, but is inhibited to start competing due to a lack of customers. In order to increase the potential of effective competition, policies that dent first-mover advantage and keep barriers to entry as effectively low as possible are important. This can be done e.g. by controlling prices charged by incumbent operator for quote and trade data.

Even though securities markets have become more contestable in recent decades, the existence of positive network externalities imply that the trading market structure will remain concentrated. Hence, while competition rules play a key role, regulators need to resort to other regulatory instruments as well in order to ensure market quality.

[62] Goodhart et al. (1998), pp. 4-9.

[63] Board et al. (2002).

Box 5. Regulating in the face of rapid change – Functional vs. institutional regulation

Apart from these general problems inherent to all regulation, a particular problem is how regulation should adapt to changes to the marketplace it is supposed to regulate. Rapid change is particularly present in the field of financial markets, which, as portrayed above, have undergone fundamental changes in the last two decades.

Traditionally, and in line with regulatory theory, rules on financial services have often tended to be shaped differently depending on the characteristics of the particular line of services. This is all fine, as regulation needs to take into account the various specificities of different marketplaces. However, traditionally regulation had been tailored differently depending on the kind of institution. Hence, banks did not face the same regulatory rights and obligations as, say, exchanges, which in their turn were regulated differently from brokers. This institutional regulation started to be challenged during the 1980s, when successive liberalisation and deregulation increased the freedom of institutions to engage in a range of financial activities. Accordingly, with the rise of financial conglomerates performing in-house a wider range of what had previously been regarded from a regulator's point of view as segmented activities, institutional regulation became increasingly inadequate. Moreover, advances in technology allowed intermediaries to venture into new lines of business, with the result that the dividing lines between different institutions became even more blurred. For example, as illustrated above, ECNs in the 1990s started offering trade execution services without being regulated as exchanges.

Following the structural changes described above, many economists in the beginning of the 1990s started to argue that financial regulation focused too much on institutional structure. Instead of institutionally focused regulation, many observers claimed that regulation should take a more functional perspective. According to this line of reasoning, functions drive institutional structure. As competitors search for more efficient ways of performing particular functions, the institutional structure will change. Regulation tailored at specific institutions will soon become outdated. Instead of tailoring specific regulations to institutions (e.g. legal obligations of brokers, legal obligations of exchanges), proponents of the functional approach argue that regulation should focus on the underlying functionality (e.g. clearing and settlement, risk management, price information, the transfer of resources through time…) irrespective of institutional structure.

For all its immediate appeal, implementing a functional approach to regulation is difficult. Most importantly, defining core functions and allocating regulatory objectives and obligations remain as politically difficult as with a more institutional approach. Moreover, all institutional regulation involves a functional analysis. In most financial regulation, the various institutions covered by a particular obligation are characterised by what they do, in other words, what function they perform. The division between the two approaches therefore becomes blurred. This is of interest from an ISD point of view, as the ISD is one example of the underlying difficulty and the lack of a clear-cut, neat road-map of how to regulate evolving market structure.

Source: Crane et al. (1996).

5.2.2 Transparency rules

The new ISD proposal has brought transparency, i.e. the requirement on service providers to publish information so that consumers can make an informed choice when purchasing a particular service, to the forefront of the regulatory debate. In the field of securities markets, transparency can be defined as the "widespread availability of information relating to current opportunities to trade and recently completed trades".[64] Such information disclosure can occur both on an ex ante and ex post basis:

- Information about *pre-trade* opportunities focuses on price quotes, i.e. current bids and offers.

[64] IOSCO (2001).

- *Post-trade* transparency on the other hand provides information on volumes and prices of completed trades.

As new trading venues have proliferated and an increasing amount of trading takes place outside regulated markets, states have started to reflect on how to extend transparency requirements beyond traditional venues with the aim of ensuring that quotations and orders in different marketplaces (liquidity pools) effectively interact. So far, however, most jurisdictions only impose transparency requirements on regulated markets (i.e. traditional exchanges).[65]

In theory, the more comprehensive are the transparency requirements, the more efficient will the price discovery process be. In practice, however, things are more complicated.[66] Just as the trading needs of traders differ, so do their interests in transparency. While comprehensive transparency requirements are likely to encourage some traders to trade who would otherwise stay out of the market, they are also likely to inhibit other traders, especially those entering into large trades or those who are putting up capital to facilitate large trades and who fear that immediate disclosure may move the market against them.[67] The last decades have seen moves towards more transparency. Currently, the value of post-trade transparency has a strong measure of support, while there is a considerable divergence of views on the merits of pre-trade transparency.

5.2.2.1 Advantages of transparency

Generally, disclosure requirements are regarded as a fairly non-intrusive and self-policing regulatory tool, say compared to more detailed behavioural rules. Hence, transparency requirements are regarded as quite attractive with low direct costs. In terms of economics, transparency requirements have distinct benefits. In short, broad transparency facilitates arbitrage, ensures price priority, enhances price discovery and provides a foundation for a more effective best-execution policy.[68] More specifically:

- Transparency requirements speed up the price discovery process and enhance market efficiency.
- They assist customers in monitoring their brokers, as information about current and past trading opportunities are abundant and can be used as a benchmark for evaluation.
- They contribute to enhancing competition between trading venues, as more traders will be aware of the multitude of trading opportunities.[69]
- As prices will incorporate the information from all current trading opportunities and all recently concluded trades, traders will be able to choose the best trading venue at any time.

---

[65] See e.g. IOSCO (2001).

[66] For an in-depth overview of the academic literature on the advantages and drawbacks of transparency, see Lee (2002a).

[67] IOSCO (2001).

[68] Lee (2002a).

[69] Stoll in Lee (2002).

5.2.2.2 Drawbacks of excessive transparency

While transparency is broadly regarded as beneficial, in the sense that prices generally become more informative,[70] there is some "disquieting evidence" that too broad of transparency requirements may have negative effects on liquidity provision and that transparent markets may be less efficient than opaque ones.[71] Empirical and experimental tests are much more ambiguous than the theoretical literature.[72] More specifically:

- Traders may be more reluctant to place limit orders, as this public display of trade intention may move the market against them. This is especially the case for large orders.
- Put differently, investment firms may be less willing to assist traders in their quest to offload shares if they have to signal their inventory to the wider public. The resulting increase in market impact implies that investment firms will face higher costs and hence may charge a higher price for the service.[73]
- The display of quotes may make it easier for other traders to exercise a free trading option. This decreases the provision of liquidity. Particularly, with publication of pre-trade quotes, limit-order providers may lose to parasitic momentum traders. This may decrease market depth, and this thinner trading book would lead to larger price movements, which in turn would imply higher volatility and more costly execution.
- With pre-trade transparency, competition may fall, as there is less uncertainty about other dealers' prices and hence less a need to compete with aggressive pricing. The end-result might be worse prices.[74]
- If transparency requirements are much higher in one market compared to another, regulatory arbitrage may occur, with trading moving to a more accommodating environment.

Experimental and empirical research therefore nuances the theoretical benefits of complete transparency. While the direct costs associated with implementing transparency rules are low, there seem to be indirect costs associated with it. Accordingly, while having beneficial effects, there are certainly costs associated with transparency as well. Pre-trade transparency in particular may have detrimental effects on liquidity and welfare. Even so, some observers claim that these detrimental effects should not be overstated. According to this view, the empirical evidence of detrimental effects on liquidity is limited, and the evidence of moves offshore solely due to transparency even more scarce. Moreover, the global trend is towards more, not less, transparency and markets often voluntarily impose higher than mandated transparency

[70] Madhavan (2000).

[71] O'Hara in Lee (2002a).

[72] Biais, Chester & Spatt (2002).

[73] For example, in the German market there are no post-trade requirements for OTC trades. As a result, some investment firms claim that they are able to offer better prices to their customers, the reason being that the firms do not have to fear the market impact of taking on the client's position.

[74] Frutos & Manzano (2002).

rules. Hence, when contemplating transparency, they claim that the burden of proof should fall on those arguing in favour of opacity.[75]

5.2.2.3 No single regime universally accepted

Transparency may therefore have conflicting effects on market quality. Spreads may both widen and decrease if transparency requirements are increased and extended. They may widen, as market-makers will be less inclined to pay to acquire information from traders with private information. Spreads may decrease, as information reaches more traders. Similarly, volatility may both increase and decrease. Transparency may both lead to stabilising speculation, which decreases volatility, and more strategic behaviour on the part of market-makers, which may increase volatility.[76]

Partly due to these uncertain effects, there is no consensus on the appropriate level and form of transparency. The lack of consensus is also explained by the fact that changes in any given transparency regime affect the distribution of trading profits. Put differently: transparency rules determine who trades with a profit and who does not. Changes to these rules will benefit one group of traders at the expense of other groups, who may exit the market. There is therefore no optimal market structure that benefits all traders. In other words: no single transparency regime is viewed as best by all parties.[77]

5.2.2.4 Voluntary or mandated?

Due to these uncertain effects and differing interests, regulators therefore ought to carefully calibrate the requirements they impose in any particular market. They have to assess and consider when market practice is insufficient, i.e. when the incentive for trading venues to publish their quotes and trades is not sufficient to provide an optimal level of transparency. However, some studies have found that even if not all trading venues are equally transparent, the activities of the opaque ones do not undermine the more transparent venues.[78] If mandated, regulators have to carefully consider how to design the requirements so that liquidity provision is not reduced and that lines of business are not encouraged to migrate to more accommodating environments ("offshore").[79]

The choice whether to impose or rely on market incentives also depends on the likely extent of market fragmentation, which, as mentioned above, depends on a number of factors, e.g. the size of the market (is there sufficient liquidity to sustain several venues?) and the relative efficiency and service levels of regulated markets vs new entrants. In other words, if the marketplace is more fragmented, mandated rules may be necessary. Conversely, if fragmentation remains limited, market incentives may be relied upon to a larger extent.

---

[75] Board, Sutcliffe & Wells (2002).

[76] Lee (2002a).

[77] Madhavan (2002).

[78] Bloomfield (2000).

[79] IOSCO (2001).

5.2.3 Best-execution rules

Another regulatory instrument at the hands of securities regulators is order-handling rules. The purpose of such rules is to shape the behaviour of intermediaries in a way that ensures that the customer's interest in achieving as good an execution as possible is promoted when intermediaries handle customer orders. A core part of order-handling rules are best-execution rules. Such rules try to measure and evaluate how well investors' trades are executed.[80] In a centralised market, there should be little dispute over what constitutes best execution. In a fragmented market, where the intermediary has a choice of where to execute orders, best execution becomes more difficult to measure and evaluate and the potential for misjudgement increases.[81] Faced with a more fragmented marketplace, regulators have therefore started to reassess approaches to best execution.[82] As will be further elaborated upon below (Chapter 7), best-execution rules are an important part of the Commission's new ISD proposal.

Traditionally, best execution has often been regarded as achieved if a trade was executed at the best price prevailing on a regulated market. The regulated market hence acted as an absolute benchmark and safe harbour for intermediaries. With the proliferation of trading venues, however, that approach has been deemed unsatisfactory. Better prices, speedier execution or lower overall trading costs may well prevail on venues other than the regulated market. Hence, the current consensus is that best-execution rules should in one way or another oblige intermediaries to look beyond central markets when trying to achieve best execution for their clients. Furthermore, there is also a fair amount of consensus that best execution is not limited to "best price", but that what really matters is overall execution quality. Best execution is hence a multi-dimensional object, with e.g. speed of trade execution, the price impact, the likelihood of execution and overall trading costs (implicit, explicit) all playing an important part in assessing the overall quality of any particular order execution.[83]

While there is agreement in principle, views diverge in practice. Best-execution requirements currently differ across Europe. While most member states acknowledge the multi-dimensional nature of best execution, there are considerable differences on emphasis. Some member states emphasise trading costs as an important element in best execution (e.g. the Netherlands, Italy and Germany), others consider that best execution is provided on regulated markets (e.g. Italy, France) while in some member states the requirements for best execution depend on the nature of the customer (e.g. Sweden and Italy).[84]

Faced with the need to reform, regulators also have to struggle with inherent difficulties of the best-execution concept. Measuring best execution is not an exact science.[85] Furthermore, as stressed above, investors have different needs and preferences. For

[80] Lee (2002a).

[81] "With multiple systems best execution becomes complex for retail trades, and extremely complex for institutional trades" (Board et al., 2002, p. 12).

[82] See e.g. FSA (2002).

[83] Levitt (1999) and Lee (2002a).

[84] FSA (2002), chapter 6.

[85] See e.g. European Asset Management Association (2002).

example, retail customers tend to value price and speed of execution, while institutional traders are often more concerned with any potential market impact of their trading.[86] Hence, no single definition of what constitutes best execution is possible (or desirable for that matter). Ranking the different attributes of execution quality also depends on preferences and hence, agreement is not easy. In addition, there is an obvious link between transparency requirements and best-execution rules. The more transparent a marketplace, the easier it is for intermediaries to assess the execution quality of an increased number of trading venues. However, as mentioned above, there may be cases where too much transparency harms market quality and hence best execution may sometimes have to operate in less than perfectly transparent markets. Faced with these difficulties, some proposals for regulatory reform have emerged with a few elements in common:

- Best-execution rules should encourage intermediaries to make the best use of the opportunities presented by competing trade venues with the aim of achieving the most competitive execution possible for clients.[87]
- Best-execution rules should focus not only on price but also on wider attributes such as trading costs (explicit, implicit). Intermediaries should hence focus on the overall cost of dealing on a particular platform. The focus should be on the net outcome for the customer in light of his or her objectives.[88]
- Best execution is a process in which many parties share responsibility for ensuring best execution (e.g. investment manager, broker and exchange). Hence it is important that best-execution rules focus on requiring intermediaries to establish investment implementation processes so that they can measure and manage the quality of trade decisions.[89]
- Intermediaries should disclose their execution arrangements to customers on a regular basis. This should not be limited to order-routing practices, but should also include potential conflicts of interest that intermediaries face when executing orders on behalf of customers and which may undermine their fiduciary responsibility.[90] Such conflicts include payment for order flow, preferencing arrangements, internalisation, research provision, soft commissions, etc. Intermediaries should also regularly review these arrangements in order to make sure that they are up to date with market developments and that they route orders to the most competitive venue (e.g. in terms of price, transaction costs, access costs, etc).
- Post-execution monitoring is also important. To that effect records of trades should be kept to enable evaluation. Furthermore, intermediaries should on a regular basis review their execution quality.[91]

[86] FSA (2002).

[87] IOSCO (2001).

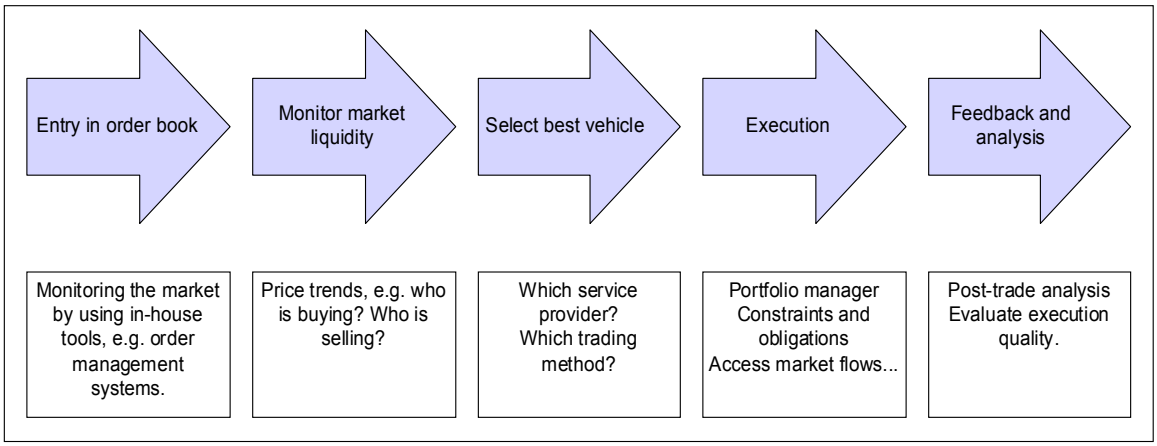
[88] IOSCO (2001) and FSA (2002).

[89] AIMR (2002).

[90] AIMR (2002) and FSA (2002).

[91] FSA (2002).

Figure 9. The process of best execution



Source: de Ternay in EAMA (2002).

All in all, best-execution rules are a way of promoting the investors' interests in instituting rules on how his or her trade orders should be handled. In today's more fragmented marketplace, however, the definition of what constitutes best execution is not straightforward and the design of such rules raise many issues. In reforming these requirements, regulators should aim less at spelling out details and more at providing intermediaries with the right incentives. As illustrated in the graph above, this can be done by intermediaries putting in place a more formalised process where measurement and management of execution quality is ensured in a more systematic manner.

5.2.4 Order-handling (priority) rules

Most trading systems have rules that structure the timing of order execution. In principle, execution timing depends on i) the price, i.e. better priced orders are executed first and ii) time, i.e. the first order placed receives priority execution. These rules are important for investor confidence, as without them investors would not know under what conditions their orders were prioritised. Accordingly, as will be described below, the Commission has proposed to introduce new rules on order priority (see Chapter 7).

With the proliferation of trading venues, there is a risk that these order priority rules will break down. A competitively priced order placed early on one market centre's trading book may well be executed later than an order placed later in the day on another market centre's book. This may reduce the incentives to place competitively priced limit orders, which in turn would reduce market quality.[92]

Regulators face the choice of whether to intervene or to rely on market forces. Market forces may indeed settle the problem, as any investor has an incentive to place orders on the trading venue where the potential for order matching is the highest. Overall, orders are hence likely to be attracted to liquid trading venues. This is indeed the foundation of the network externalities elaborated upon above.

[92] IOSCO (2001).

Regulators may however judge that client orders need more priority protection. If so, regulators could mandate arrangements that protect limit orders, e.g. by creating a centralised order book, or less ambitiously, by requiring market-makers to incorporate customer limit orders in their quotes or to route them to public books.[93] Apart from the potentially high cost of such regulatory interventions, the effects may not always be adequate. For example, some forms of regulatory intervention (e.g. best-execution rules that focus on price and some forms of centralised order books) may well favour price priority, but do little to protect time priority.[94]

Moreover, all order execution involves judgement. There is a risk of making order priority rules too prescriptive and e.g. elevate immediacy of execution to a regulatory goal per se. Instead, order-handling rules, including best execution and order priority rules, should perhaps be regarded more as guidelines for proper execution and should not inhibit intermediaries from exercising their judgement. For example, in many markets spreads are greater at the beginning of the trading day. In those cases customers would benefit from delays in execution.[95]

5.2.5 Access rules

Transparent markets and obligations to provide best execution is of limited importance if intermediaries cannot effectively access all trading venues. Many of the new trading venues that emerged during the 1990s targeted particular classes of investors (e.g. US ECNs, which primarily targeted institutional investors).[96] Moreover, restrictions of access may act as a barrier to competition. Incumbent operators may be in a beneficial position by either operating in or having privileged access to a wider services spectrum, in particular clearing and settlement. If competitors who are not providing these more utility-like services have less access, they may be effectively cut out from offering a competitive package.

Some restrictions of access may be natural, e.g. exchanges requiring that traders are members of clearinghouses or central counterparties. However, it is not in the public interest that trading venues attracting a significant amount of liquidity restrict access on a discriminatory basis.[97] This could give rise to a situation where one class of investors was systematically disadvantaged by being denied access to certain trading venues. Moreover, in the name of the overarching interest of competition, regulators may nevertheless find it necessary to sacrifice the interest of the incumbent operator.[98]

5.2.6 Additional measures to protect retail investors

Even if markets are competitive and even if information asymmetries have been addressed and rules to assure fair dealing is in place, retail investors may still need

[93] Ibid.

[94] The reason is that best execution rules would force intermediaries to shop around for best priced orders and montage solutions often only incorporate best quotes from various trading venues. See Board et al. (2002) for further discussion.

[95] See e.g. FSA (2002), which elaborates upon the regulatory trade-offs related to timeliness.

[96] Board et al. (2002).

[97] IOSCO (2001).

[98] See Board et al. (2002) who claim that this is just what happened in telecoms and utilities.

additional protection. As mentioned above, disclosure may not suffice to reach a sufficient level of protection of unsophisticated investors. While professional investors are fully capable (or at least should be) of acting upon the disclosed information, one cannot assume that retail recipients of the information possess sufficient knowledge and expertise to act on it wisely. Therefore, regulators need to actively monitor intermediaries to ensure that they effectively fulfil their regulatory obligations, and hence more interventionist regulation may be needed for the retail segments of the market. The benefits of additional protection must be weighed against the potential cost of increasingly complex and segmented regulation containing different obligations facing different parts of the market.

5.3 Uncertainty and the risk of regulatory failure

A particular problem arises when the harmfulness of a particular activity is uncertain or when the effects of a proposed rule are in doubt. When regulating in the face of uncertainty, it is important to rely on a framework of analysis where both potential benefits and costs are taken into account.

5.3.1 Regulatory risks

Regulation frequently fails to correct the underlying failure and may sometimes make matters worse. One reason for regulatory failures is that regulators often do not possess sufficient information or expertise. Or, the information they possess may be biased and hence the regulators risk becoming captured by those they are supposed to regulate. Regulation may also fail due to inappropriately designed instruments. Given the complexity of securities trading and the rapid structural change, there is a danger that some of these problems will be exacerbated in financial markets. It is particularly difficult for regulators to set adequate rules that stand the test of time and achieve desired outcomes.

5.3.2 Regulating in the face of uncertainty

The ISD is a good illustration of the problem of devising regulation when there is uncertainty concerning the potential harmfulness of certain activities. As has been amply demonstrated above, there is no consensus on the harmfulness of off-exchange trading. When regulators aim at balancing opposing viewpoints, where should they set their foot down? Regulatory theory may provide guidance, but no straight answers.

Faced with uncertainty, regulators often have a tendency to over-regulate. The reason may often be that it is too costly for regulators to gain a precise understanding of every single regulatory issue involved. Instead regulators try to devise rules that have as broad an application as possible. In addition, regulators often operate under time constraints. Sometimes, however, regulation may for similar reasons be under-inclusive, e.g. regulators fail to address a harmful activity, as they do not sufficiently understand the marketplace.

Uncertainty means that regulators are bound to commit errors. They may prohibit an activity because they erroneously regard it as harmful. Or they may permit an activity under the misapprehension that it is harmless. In the first case, service providers bear the regulatory risk; in the second type, it is the consumer. Regulators often try to avoid committing errors of the first kind, i.e. they try to err on the side of not causing risks to

producers by permitting rather than outlawing a particular activity if they are uncertain about its effects. This is often justified by a "presumption of innocence". This strategy is not universally approved, however. It can be argued that regulators ought to err on the side of avoiding putting consumers at risk by restricting potentially harmful activities. The reason is that regulators should protect consumers rather than the producers' right to sell product or services. The burden of proof of the acceptability of a particular risk should, according to this line of reasoning, fall on those wishing to reduce producer rather than consumer risks, the reason being that producers reap most of the benefits of permitting a particular activity. In other words, according to this school of thought, regulators should aim at preventing harm rather than enhancing welfare. Moreover, consumers need more protection than service providers, as they have less information and fewer resources, all of which makes them less able to deal with hazard. Overall, when faced with uncertainty, it is difficult for regulators to argue that consumers should assume the risk.

Box 6. Measuring good regulation: Cost-benefit analysis

Cost-benefit analysis (CBA) has often been put forward as a way of improving the quality of regulation. Indeed, such analysis provides a way of measuring how different strategies satisfy the stated goal of regulation and may hence improve the pursuit of the mandate. Moreover, CBA is a means of appraisal that reveals costs and exposes policy judgements, hence increasing the accountability of regulation. In addition, it ensures that the regulatory process is open and provides a guide for rational rule-making, hence improving the procedural quality of regulation. It also clarifies justifications and highlights gaps in information and hence identifies areas where further research is needed. Most importantly, CBA promotes more efficient regulation, by identifying strategies that minimise costs for any given benefits.

Underpinning the concept is efficiency-thinking, and this is perhaps the Achilles heel of CBA. It provides little guidance if regulatory goals are not related to efficiency. Moreover, CBAs tend to be biased towards quantifiable criteria, hence being less adept at incorporating more qualitative measures. Moreover, CBA is not neutral or value-free and has according to its critics been used to mask policy-making. In addition, it puts obstacles in the way of regulatory activity, which may lead to an under-supply of regulation. Finally, CBA provides little guidance on issues related to rights and justice. Overall, CBA certainly has a role to play, but it is no panacea.

Source: Baldwin & Cave (1999).

Even so, there may be a case for promoting the producer's interest. First, there is often an inherent tendency towards over-regulation and over-inclusiveness. To promote producer interests would counter these tendencies. Second, if compliance costs are very high and the associated benefits of outlawing particular activity are low, there is a case for promoting producer interests. Finally, prohibition should be avoided if the costs of enforcement are high and if the problem can be effectively addressed at a later stage in the regulatory cycle (e.g. during the act itself or once harm has been caused).

6. Concerns raised by the evolving market structure

The increase in certain elements of contestability has provoked a debate on their potentially damaging effects. This section considers three concerns: the fear that competition fragments the order flow, thereby reducing market quality and preventing the reaping of network benefits; the worry that off-exchange trading may lead to conflicts of interests and collusion; and the fear that the new trading landscape will alter the distribution of costs and benefits between types of users.

6.1 Fragmentation

The structure of securities markets is shaped by conflicting forces. First, markets naturally consolidate, as traders like to trade at the same place as other traders. Securities markets are therefore marked by strong externalities or network effects and trades therefore tend to gravitate to the most liquid markets. Despite these centralising forces, securities markets also naturally fragment. Traders are different: they do not have identical needs and they seek to solve different trading problems. This suggests an inherent need for diversity of trading venues catering for these different needs. This section aims at summarising the abundant literature on the pros and cons of fragmentation.[99] A first part looks at how the theoretical literature on the micro-structure of the market regards the issue while a second part reviews the literature that has tested the theoretical hypotheses.

6.1.1 Theoretical literature on fragmentation

Whether or not the fragmentation of the marketplace should be a cause of concern is one of the most debated issues in securities market regulation. There is abundant literature on the subject, albeit predominantly of US origin, as US regulatory authorities have grappled with this issue since the 1970s.

6.1.1.1 The benefits of off-exchange order execution

As elaborated above, traders differ in many respects. They may differ in terms of the size they normally trade, with some trading large orders and others small. Some investors prefer immediacy while others have more patience. Some use simple buy and sell orders while others use more advanced trading strategies. A marketplace with different competing structures is necessary in order to satisfy their various needs. Some market structures are better adapted to handle some problems than others and, accordingly, one single market structure is therefore unable to satisfy all traders. All in all, the plenitude of traders and their different needs implies that there is an inherent need for diversity.

Accordingly, off-market order execution – whether by internalisation, ATS, crossing, etc. – may be interesting for some traders, as it helps them to a) mitigate adverse selection costs, i.e. avoid informed traders, and b) dampen the price impact of off-loading, e.g. a large block of shares.[100] In that sense, off-market trading enables these potential liquidity providers to find a suitable counterpart. With the help of the broker, counterparts with private information are screened away. This kind of off-market execution helps these liquidity providers to manage the risk of providing other traders with a free option. It brings out liquidity that would otherwise not exist. In other words, off-market order execution in this view enables transactions that would otherwise not occur.[101] They are complementary to open market structures, e.g. open central limit order books.

[99] For a more in-depth survey, see Lee (2002a).

[100] Madhavan (2000).

[101] Madhavan (2000), p. 31.

6.1.1.2 Drawbacks of off-exchange order execution

As illustrated above (ch. 4), the last decade has seen a proliferation of trading venues and techniques. This increase in the contestability of markets has tilted the balance between these conflicting forces of consolidation and fragmentation.[102] The proliferation of trading venues means that buyers and sellers are often at different places and may accordingly have problems finding each other.[103] This may have a negative impact on transaction costs, as compared to the result if all traders arranged and executed orders in the same market.

Moreover, fragmentation of the order flow has the potential under certain conditions to be harmful from a public policy perspective. Society at large benefits from an efficient price formation mechanism, as informative prices are a necessary precondition for an economically efficient allocation of a society's resources.

It is often claimed that due to the above-mentioned network externalities, the price mechanism works best when trading is concentrated in one market. In other words, in certain sectors, economies of scale effects are so large that production in that particular market is most efficiently carried out by one single supplier, i.e. a natural monopolist.[104] However, sectors traditionally considered to be natural monopolies have become increasingly contestable due to advances in technology.

The price formation mechanism can also be regarded as a public good. Accordingly, it suffers from two weaknesses normally associated with such goods. The supply of the good in question to anybody necessarily means that you supply it to everybody. In other words, it is impossible or impractical to exclude anyone from benefiting from the goods. Public goods are hence vulnerable to free-riding. As a result, they would not be provided if private actors were left to themselves. In the context of securities markets, one may argue that even though a more diverse market structure serves one important need of private traders (diversity) and thus should be welfare enhancing, it may be harmful from a public interest point of view if the fragmentation results in an impaired overall price formation mechanism. Moreover, even if traders cherish diversity, they all have a strong preference to have as informative prices as possible. To a large extent, private interests therefore overlap with the public interest.

Many regulated markets (i.e. the incumbent exchanges) argue that since the prices they supply serve as a benchmark for best execution elsewhere, they should be regarded as contributing the most towards informative prices. Given that securities trading is characterised by strong positive network externalities, the quality of the price formation mechanism is improved the more the order flow is routed to the central market. Accordingly, exchanges often claim that the fragmentation that results from competing market structures may undermine the provision of the public good.

- ***Deteriorating market quality***. The existence of several competing order books fragments liquidity. As a result, the markets' ability to provide stable prices may

[102] See Lee (2002a), who argues that this increase in contestability is likely to be temporary and that network effects will prevail in the longer term.

[103] Harris (2002), p. 526.

[104] Baldwin & Cave (1999), p. 10.

suffer. Likewise, the ability of prices to aggregate information, i.e. the price discovery process, may be reduced.[105] Accordingly, it may become more difficult to assess best price and market depth.

- ***Increasing trading costs***. Overall, the cost of trading is claimed to increase, as any decrease in commissions and fees is offset by likely increases in price spreads and market impact.

These detrimental effects are often claimed to be particularly strong if competing venues attract more lucrative trades (uninformed traders) and leave the central markets with the less lucrative trades (informed traders), i.e. cream-skimming. This would lead to higher spreads that could well offset any potential gain in lower commissions and fees that the increasing contestability has brought about. Suggested remedies from the exchanges range from promoting strict concentration rules to ensuring that competing structures publish their prices and orders.

6.1.2 Empirical assessments of the impact on market quality and transaction costs

The more empirical literature has tried to analyse how the proliferation of trading venues affects overall market quality and trading costs, most often measured by the evolution in bid-ask spreads (both quoted and effective). Most of this literature is American and focuses on the effects on dealer and market-maker spreads on the NYSE and Nasdaq after these started facing competition from regional exchanges (NYSE) and ECNs (Nasdaq). In that sense, these studies are carried out in a specific context where the central markets are quote-driven dealer markets and their conclusions may be less relevant in another structure (e.g. limit order). However, while not as abundant, there are nevertheless some studies of off-market order execution in the context of order-driven auction markets.

6.1.2.1 "US" studies

Battalio, Green and Jennings (1997) focus on the NYSE and two competing regional exchanges (the Cincinnati Stock Exchange and the Boston Stock Exchange), and more specifically the CSE's and BSE's decision to change their rules to allow dealers to internalise orders.[106] They analyse how this affected the width of the spread and the size of the liquidity premium (i.e. the price you pay for liquidity, as measured by the closeness of the execution price to the National Best Bid and Offer (NBBO) midpoint). They find that in contrast with predictions from the theoretical literature and despite a substantial movement of order flow from the NYSE after the rule changes, the changes had little short-run effects on posted or effective bid-ask spreads on any of the exchanges. Even though not statistically significant, they find that quoted spreads decrease for 66% of the securities in their sample after the rule changes. Moreover, they found no evidence that trading costs increased after starting to trade on the regional exchanges. Finally, both the BSE and CSE were more likely to be part of the NBBO prices after the rule changes. They therefore conclude that "the adverse effects associated with allowing brokerage firms to fragment the market by internalising order

[105] Easley et al. (1996).

[106] Battalio et al. (1997).

flow may not be as severe as some analyses suggest".[107] The reason, they suggest, may be that the competing trading venues offered lower costs and/or a more advanced trading technology and that these lower costs were passed on to their clients. Overall, they find that their evidence suggests that internalisation "stimulates competition for order flow" and that a competing venue can well attract liquidity if it "provides a valuable service to its members".

Battalio (1997) compares spreads on the NYSE before and after one of the largest third-market broker-dealers (Madoff) starts to selectively buy and execute NYSE orders, i.e. internalisation. He finds that spreads on the NYSE tighten while trading costs remain constant. He concludes that internalisation does not affect market quality or transaction costs. Nor does the widespread fear of cream-skimming seem to occur. He finds that the fact that the internalised orders get as good or better treatment suggests that Madoff uses a cost-advantage. He concludes that under certain conditions "the adverse selection problem associated with allowing agents to selectively execute orders in exchange-listed securities may be economically insignificant".[108] This conclusion is conditional on Madoff being a typical broker-dealer. However, while most broker-dealers receive order directly from the public, Madoff rather purchases orders from brokers. Therefore, other broker-dealers may be more able to selectively execute.

Madoff's conclusion contrasts with that reached by Easley, Kiefer and O'Hara (1996) who assert that cream-skimming may indeed be a problem. In the context of competition for order flow between the NYSE and CSE, they find that traders on the latter are indeed generally less informed, while the NYSE is left with the less profitable informed traders.[109] They reiterate the theoretical predictions that while a proliferation of trading venues has beneficial effects on competition, it is not "uniformly benign" as it decreases liquidity in any one setting, which may have negative effects on the capacity to provide stable prices and the quality and effectiveness of the price formation process.

These problems are exacerbated if accompanied by cream-skimming. Indeed, the more orders that are diverted from the central market, the more profitable the practice becomes for those selectively purchasing order flow. The reason is that as the central market is left with informed traders, the spreads on the central market widen. This makes it easier for broker-dealers to fulfil their obligation of matching best price (as best execution is often deemed to occur if orders are executed at the prevailing price of the central market). The authors fear that this process can develop into a spiral. This is not automatic, however, and whether or not this has negative welfare implications depends on several qualifications. For example, whether it occurs or not depends on a) the level of competition among order purchasers and b) the types of orders remaining in the central markets. Moreover, the net welfare implications are not easy to assess. If the broker-dealers' larger profits are partly passed through to clients in terms of lower commissions, then uninformed traders may well benefit from internalisation. In addition, if internalisation was prohibited and execution restricted to the central market, then uninformed traders could be worse off, as informed traders would exploit their lack of knowledge. Finally, even if cream-skimming occurs, the authors cannot rule out that

[107] Ibid., p. 973.

[108] Battalio (1997), p. 351.

[109] Easley et al. (1996).

these profits are shared with traders.[110] Therefore, all in all, while internalisation may worsen the price formation process, the net welfare implications are difficult to assess.

Weston (2000) also studies the effects of more competition on the Nasdaq marketplace. He finds that the proliferation of trading venues on the Nasdaq market has brought its spreads closer to those of the NYSE. Before the reforms, the Nasdaq marketplace was characterised by collusion and extensive payment for order flow and preferencing arrangements. In 1997, two new regulations – the requirement that public limit orders are allowed to compete with traditional market-makers and the obligation of market-makers to publish orders they post on ATSs or ECNs – changed this state of affairs. As a result, Nasdaq bid-ask spreads have fallen. The reason according to Weston is that the new competition from public limit orders has decreased the rents earned by market-makers. As expected, the regulatory changes have also led to the exit of some market-makers (unable to sustain their activity when faced with competition). The concentration in the market-making market has also decreased. Weston therefore concludes that the introduction of competition has "significantly improved the competitiveness of the Nasdaq market".[111]

Huang (2002) investigates the Nasdaq market and more particularly the competition between traditional market-makers and ECNs. He finds that this proliferation has not harmed overall market quality. On the contrary, his evidence suggests that this competition may promote market quality rather than fragment it. He finds that the new venues post informative quotes, they post them rapidly and their quotes are more often on the inside compared to normal market-makers. For example, the quoted spreads on Island and Instinet were less than half the width of the quoted spreads posted by market-makers in 1998, and less than a third in 1999.[112] Accordingly, Huang suggests that fragmentation has not affected the information quality of bid-ask quotes. Moreover, the new venues contribute to price discovery and are often price leaders. As such, they do not free-ride on the prices provided by the central market (Nasdaq). Therefore he concludes that "the additional competition provided by ECNs, the structural diversity that they offer, and the presence of regulation aimed to foster competition appear to have combined to generate a positive effect on quote quality".[113]

Overall, these studies dent the theoretical prediction that fragmentation of trading may decrease market quality and transaction costs. US experience instead suggests that fragmentation in the form of ECN-trading or internalisation has contributed towards the tightening of spreads and stable, if not decreasing, transaction costs. In sum, fragmentation does not seem to have hurt market quality or transaction costs.

6.1.2.2 Non-US studies

The studies done in a US context all focus on the US mid-1990s context. The central markets were then (and predominantly remain) quote-driven dealer markets. Such markets have the benefit of immediate liquidity provision (via dealers or market-

[110] Ibid., p. 832.

[111] Weston (2000).

[112] Huang (2002), p. 1315.

[113] Ibid., p. 1316.

makers). Such immediacy often comes at a price, however, and accordingly such markets are often associated with high spreads (i.e. the price of liquidity). Moreover, it has often been claimed that both markets and the NYSE in particular have been slow in adopting new low-cost communications technology. All in all, it is perhaps not surprising that new competitors have been able to provide tighter spreads. Would the largely benign conclusions therefore hold in another context? Unfortunately, research here is less abundant.

Hänsch, Naik and Viswanathan (1999) look at data from the LSE. Their aim is to assess the execution quality and dealer profits related to preferencing or internalisation of order-flow on the LSE.[114] The authors test whether the preferencing and internalisation arrangements decrease incentives to compete, hence resulting in widening spreads. The reason why that may occur is that if preferencing and internalisation become widespread, then market-makers are not rewarded with more orders even if they post aggressive quotes. Hence, their incentive to compete decreases. Instead, they may collude to divide the order flow between them, accordingly decreasing overall price competition and widening bid-ask spreads, resulting in a worsening execution quality for all orders. The authors find that preferenced trades receive worse execution than non-preferenced trades (they pay higher spreads) while internalised trades receive better execution than non-internalised trades (lower spreads). They find no relation between the profits of a dealer and the proportion of trades that are internalised or preferenced. This refutes the hypothesis of decreasing incentives to compete and increasing ones to collude. The result highlights the importance of search costs, however. Impatient traders who want to avoid search costs go to their regular dealers even if they do not post the best quotes. If they are patient, they negotiate with several dealers and choose the one with best quotes. As a result, preferenced trades pay a higher spread.

Fong, Madhavan and Swan (1999) carried out an empirical investigation on data from the Australian Stock Exchange (ASX), an order-driven auction market.[115] On the ASX there are no market makers or dealers, instead liquidity is provided by public orders. The trading system (SEATS) is fully computerised, trading is continuous and the trading day since 1997 closes with an auction. Apart from a concentration rule, the ASX is thus similar to the prevailing European market model. The ASX faces competition from a variety of off-exchange trading venues (e.g. upstairs block trades, crosses and after-hours trades).[116] They find that depth is positively related to trading volume and spreads and negatively related to market depth and the imposition of a closing auction. In other words, off-exchange order execution is more likely in high-volume stocks and

[114] This is certainly a European context, but at the time of observation (data set from 1994), the LSE was also a quote-driven dealer market. As developed in ch. 3, the LSE today operates a hybrid system with the SETS being a central limit order book, while SEAQ and SEAQi retains the structure of a quote-driven dealer market. Even so, the LSE at the time still differed significantly from e.g. Nasdaq. Even though operating under a similar best-execution framework and accepting preferencing arrangements (payment for order flow was not accepted), there were fewer market-makers (21 compared to over 400), no mandatory tick size and decimal trading was the norm.

[115] Fong et al. (1999).

[116] Upstairs trades are also called "specials" (block specials are trades in one security over $1 million, and portfolio specials are trades in multiple securities of an aggregate value of over $5 million). After-hour crosses are trades taking place after the normal trading hour of SEATS. Such orders are matched by brokers communicating by telephone (see Fong et al., 1999, for further details).

if spreads are wide and less likely when the market of a particular share is deep and a closing auction is set up. Since the ASX is so similar to European exchanges, these findings merit a more detailed summary:

- Off-exchange order execution is more common in heavily traded shares (as measured by dollar volume). For example, in 1998 nearly 30% of all trades in the most traded shares were executed off the ASX. The corresponding value for the least traded shares was around 5%.
- They also find a consistent and significantly positive relationship between the bid-ask spread and the amount of off-exchange order execution. This supports the hypothesis that off-exchange trading is primarily motivated by a desire to lower the cost of execution.
- Off-exchange order execution is also more common in larger shares and shares included in indexes. In other words, shares that face a larger institutional trading demand tend to have a higher share of trading off-exchange.
- Most of the off-exchange trading is done after normal trading hours. For example, of the top volume shares traded off the exchange, more than half took the form of after-hours trades. In absolute numbers, of all off-exchange trades, around 21% were executed during trading hours, while the remainder (81%) were executed afterwards. After-hours trading is also confined primarily to smaller trades. This suggests that brokers use after-hours trading as a way of matching small orders. The reason, according to the authors, may either be due to order characteristics ("at close") or brokers' eagerness to earn commissions from both sellers and buyers.
- Off-exchange trading has decreased. For example, between 1994 and 1998 off-exchange trading for the most traded shares decreased from 37% to 30%. This may be related to the creation of a closing auction in 1997.
- During the period 1994 to 1998, most off-exchange trades were executed at the prevailing (pre-trade) bid and ask quotes on the ASX. For example, for the most traded shares, 60% were executed at prevailing quotes, 32% outside the prevailing quotes and 8% received price improvement, i.e. execution inside the prevailing bid-ask spread. If measured in dollar volumes, most off-market trades are executed outside prevailing quotes (52% for top decile, 72% bottom decile). A substantial amount of trades are executed at prevailing quotes (39% top decile, 15% bottom decile). The amount of trades receiving price improvement remains limited (9% top, 13% bottom).
- While after-hour trades are smaller, the large majority of off-exchange trades are nevertheless large trades. Most of these execute either at or outside prevailing quotes. Nearly 40% of heavily traded shares execute at prevailing quotes while 50% execute outside; for the least-traded shares the corresponding figure is 15% and 62%. The reason why such a high proportion of off-exchange trades execute at worse prices is related to on-exchange market depth. Generally, shares with low volumes of trading have shallow quotes and receive worse execution. In shallow markets, informed trading is likely to be more prevalent. Thanks to the absence of anonymity in the off-exchange market, the market depth is larger and execution is hence easier. Even if these shares execute outside prevailing quotes, it would be

more expensive to execute these orders on the even thinner exchange. Even if prices are nominally on the outside, the authors find that execution nevertheless is less costly off the exchange.

- The authors also find that price volatility decreases the appeal of off-exchange order execution. Unstable prices make negotiations difficult. Instead, electronic limit order books with continuous trading offer better ways of keeping up-to-date with price developments.

These findings suggest that trading volume and on-exchange liquidity (spread and depth) are the fundamental factors determining the extent of off-exchange order execution. Traders' predominant motivation for seeking off-exchange order execution is to reduce market impact costs.

This echoes Madhavan (2000), who finds that the main aims of off-exchange trading is to a) avoid informed traders (mitigate adverse selection costs and locate suitable counterparties) and b) dampen the price impact (share risk). As such, although associated with some problems[117] and for many types of trades relatively modest economic benefits, Madhavan suggests that off-exchange trading enables transactions that would otherwise not have occurred on the exchange.

This suggests that exchanges should aim at a) improving liquidity and b) replicating to the extent possible the characteristics of off-exchange trading venues. The experience of the ASX suggests that closing auctions can play a significant role in improving liquidity. Since its introduction in 1997, off-exchange order execution has decreased substantially. Moreover, exchanges could aim at increasing the ability to identify counterparts, e.g. via "sunshine trading", i.e. posting customer identities either on a voluntary or compulsory basis. Moreover, trading hours can be extended.

In a forthcoming study for the European Capital Markets Institute (ECMI), Davies, Dufour and Scott-Quinn (2003) investigate the effects of fragmentation on two markets, the Toronto Stock Exchange (TSE) and the LSE.

- *TSE*. Trading volume is largely concentrated in the hands of ten member firms, who participate in more than half of the total dollar trading volume. Member firms are able to internalise trades. Early studies suggested that internalisation primarily occurred for larger orders (while only accounting for 3.33% of trades, internalised trades amounted to 56% of the TSE's total trading volume).[118] However, following changes to the structure of the Canadian financial markets, the large banks gained control of the major retail brokers. In a quest to reduce the costs of exchange fees, the brokers set up Proprietary Electronic Trading Systems (PETS). These were designed to maximise the internalisation of orders. Fearing that internalisation would reduce depth and liquidity on the TSX, and hence reduce its attractiveness vis-à-vis the NYSE and Nasdaq, the TSE changed its trading rules by requiring all orders for less than 1,200 shares to be posted on the CLOB.[119]

[117] E.g. the risk of information leakage and high costs.

[118] Smith et al. in Davies et al. (forthcoming).

[119] Ibid.

- *LSE*. The authors also investigated trades on the LSE's central limit order book SETS (December 2000-February 2001), a market with high liquidity where internalisation and preferencing is common. They find that the trades executed off-SETS are generally either small (<£10,000) or very large (>£600,000) while trades executed on the central book in a majority of cases fall in the range of £25,000 to £200,000. This suggests that in the London market, broker-dealers execute both small and very large trades off the exchange, with dealers then managing their inventory positions by trading average-size trades on the central order book. The authors also find that most of the price formation process occurs on the SETS, as 1) most of the changes to prices are explained by SETS trades, and 2) trades performed on the SETS contain more information. Hence, these results suggest that dealers dominate the price formation process. However, the dissemination of information into prices appears slow. This may be explained by the dominant position of dealers, who do not have to compete aggressively for order flow. In order to remedy this, the authors suggest more transparency of broker-dealer executions and more direct access of traders to the central order book.

6.1.3 A trade-off between differentiated services and informative central prices

The studies above shed no conclusive light on whether off-exchange trading deteriorates the overall quality of the market. Some studies support the concerns stated above, while others refute them.

While a well functioning price discovery process is of central importance for e.g. the allocation of capital in an economy, the potentially negative impact on this process of off-exchange order execution has to be weighed against the advantages of diversity (differentiated services). This suggests that there is a trade-off between the benefits of a fragmented marketplace, where the diversity of structures meets the differing needs of traders, and the benefits of an integrated marketplace, where the information content of central prices may well be maximised.

6.2 Agency problems, conflicts of interest and collusion

The change in market structure also reactivates traditional issues of conflict of interest, collusion and monopoly practices.

6.2.1 Conflicts of interest

Leaving the intermediary with discretion as to where to execute a particular order raises the question whether there is a conflict between the interest of clients – who wish best execution – and intermediaries – who has a self-interest in executing orders in own books or via a preferenced/paying agent. Broker-dealers may have an interest in executing orders in-house, as this could enable them not only to avoid paying exchange fees but also to time the execution of some of their clients' orders (e.g. retail) to fit their own proprietary trading interests or those of a larger, favoured customer.[120] This is not necessarily in the interest of those clients. This conflict, the argument goes, may be particularly pronounced when intermediaries are dealing with unsophisticated retail clients.

[120] Biais & Davydoff (2002).

While establishing that such a conflict exists, another thing is to assess whether intermediaries act in such a way as to substantiate the claim. Indeed, intermediaries such as broker-dealers frequently point out that legislation already in place prevents such conflicts from effectively arising. They hence claim that the allegation that broker-dealers may time the execution to fit their own trading interests is unrealistic. One reason is that current best-execution rules often require orders to be executed immediately. More fundamentally, if a broker-dealer wants to change its inventory, such changes are more easily done by actively trading on the relevant market rather than by passively waiting for suitable client orders to arrive.

Overall, if an intermediary has discretion over where to route a trade order, his choice is likely to be affected by relative costs and benefits. While the intermediary has a self-interest in executing orders in-house, it is often prevented from doing so by restricting regulation. However, cost assessments remain. Accordingly, if in-house matching remains cheaper than maintaining costly relationships with exchanges and local intermediaries, then there is always going to be an incentive to internalise. The current fragmented European exchange landscape indeed gives rise to such costs, since intermediaries, in order to access European markets, have to maintain multiple exchange and local agents relationships.[121]

In order to address problems of this kind, policies aimed at enabling direct access and harmonisation of access requirements are likely to play a large role. So is consolidation of the exchange landscape. However, competition between trading venues is also likely to be of importance. Hence, while some forms of off-exchange order execution give rise to agency problems, the net analysis is not straightforward. Off-exchange order execution exerts a competitive pressure on central markets, which may have positive effects in terms of putting pressure on central markets to decrease trading and access fees.

6.2.2 Collusion

In the context of quote-driven markets, some forms of off-exchange order execution may decrease the incentives for price competition and thus facilitate collusion. The reason is that intermediaries that price aggressively will achieve little benefit, as internalised order flow by definition is captive. Therefore, these types of off-exchange order execution may under certain conditions lead to higher bid-ask spreads for the overall order-flow.

The potential for collusion is particularly pronounced if intermediaries are few and if switching intermediary is cumbersome or associated with certain drawbacks. Biais and Davydoff (2002) claim that this is precisely the situation in Europe.[122] They argue that in the European universal banking model, brokerage services are often bundled with other financial services. Accordingly, changing intermediary due to unhappiness with the quality of broker services would practically entail switching intermediary for remaining financial services as well. Moreover, choice is often limited or ineffective. In

[121] A solution for smaller intermediaries is to employ the services of a retail aggregator who routes orders to local exchanges. This solution is not possible for smaller banks, however, as even the cost of accessing retail aggregators is too high.

[122] Biais & Davydoff (2002).

some markets, the banking market structure is very concentrated. The internal market programme has contributed towards increasing contestability, as foreign intermediaries are able to provide services. Even so, it is claimed that replacing the use of a domestic bank by becoming the client of a European intermediary may not be optimal: foreign banks may have less knowledge of local conditions, and cultural differences may be more pronounced.

However, some researchers have found that the kind of order flow being preferenced is not more profitable than other order flow.[123] Moreover, others find little evidence supporting collusion arguments.[124] Indeed, off-exchange order execution may sometimes dent collusion, as it introduces more competition for order flow.[125]

A more benign view of off-exchange order execution would claim that it is ideally suited for the trader who desires immediacy but does not wish to engage in a costly search process. Off-exchange order execution, according to this view, would be a supplement to on-exchange execution fitting the needs of particular types of trades.

6.2.3 Exchange governance and predatory monopolies

The changes in market structure depicted above not only give rise to concerns regarding new trading venues. The way that central markets are governed and controlled is also a source of potential concern. Despite the proliferation of trading venues, exchanges retain the advantage of incumbency. Hence, there is a public policy interest in ensuring that their actions do not become those of an uncontrolled monopolist.

In spite of demutualisation, effective ownership of the demutualised entity often remains in the hands of former members. Compared to other listed companies, exchanges have a fairly concentrated shareholder structure with relatively little liquidity in their shares. However, differences between those exchanges that demutualised early compared to latecomers are apparent, with the shares of the former often being more widely held and circulated. This suggests that over time, exchanges may become more widely owned and held.

This kind of demutualisation and the fact that some European exchanges retain the mutual structure may explain that while the trading process itself (matching of orders) has become entirely automated and disintermediated, the transmission of orders to trading venues remains heavily intermediated. Many exchanges do not allow direct access, but oblige traders to access the exchange via registered intermediaries. Disintermediation in this field would according to some observers generate a second generation of important cost savings. According to Domowitz and Steil, disintermediating exchange members in Europe may decrease trading fees by 70%, translating into a cost of capital savings of 7.8%.[126]

The advent of for-profit exchanges may come at a certain risk. Corporate finance theory predicts that shareholders may find it difficult to control the acts of management,

[123] Hansch et al. (1999).

[124] Ibid.

[125] Weston (2000).

[126] Domowitz & Steil in Steil et al. (2002).

especially if ownership is dispersed. Limits to the effective control by shareholders is related to lack of resources and information, limited expertise and little of incentives to achieve a change (voice) compared to selling the share (exit).[127]

Considering the strong positive network externalities in securities markets described above, competition in the field of securities markets trading is likely to exhibit oligopoly, if not monopoly, characteristics in the long run. This poses the risk of exchanges developing anti-competitive behaviour, such as monopoly pricing. Demutualisation, while delivering certain distinct benefits (e.g. responsiveness to the needs of users), may over time weaken ownership control of these potential monopolists compared to the traditional mutual structure. In spite of trading venues increasingly facing the threat of being taken over if they perform badly, the market for corporate control in Europe remains hampered by cross-country obstacles (e.g. regulation and tax). Finally, even though a company performs well from the shareholders' perspective, this does not automatically mean that its users or the public interest are satisfied. The private shareholders' interests may indeed not overlap with the public interest.[128]

Traditional corporate governance rules are not likely to suffice to control these practices. Instead, some observers argue that answers have to be found in more regulation, e.g. of the kind associated with traditional natural monopolies such as utilities.[129]

6.3 Cream-skimming and distributive equity

Another concern of the change in market structure is cream-skimming, i.e. the fear that new trading venues will attract the most profitable trades and income streams, hence leaving the central markets with the less profitable ones. This, the argument goes, would exacerbate the problems associated with fragmentation delineated above and undermine regulated markets' ability to fulfil their public duty: price discovery. However, other observers have argued that the proliferation of trading venues have simply led to a change in the distribution of who trades what orders at a profit – without negative consequences to overall welfare.

6.3.1 Impact on cross-subsidisation

Any given market structure distributes costs and benefits among its users. Traditionally, exchanges have faced little competition and have hence had significant discretion in how to distribute such costs and benefits. Exchanges have in the past often used lucrative order flow to subsidise less lucrative order flow.[130] Such cross-subsidisation has taken several forms:

- *Cross-subsidisation of large trades by small trades*. This is especially prevalent in dealer markets, such as Nasdaq, where dealers/market makers perform a certain role (make markets under certain rules) against certain benefits (e.g. control on the order-flow data communicated to a wider audience). This protects the market-

[127] Baldwin & Cave (1999), p. 309.

[128] Ibid., p. 310.

[129] Lee (2002a).

[130] Domowitz & Steil in Davis & Steil (2001).

maker against disintermediation. It also enables it to compensate losses connected with trades in one class of shares with profits of trades in another class of shares.[131]

- *Cross-subsidisation of on-exchange by off-exchange trades*. Many auction markets oblige traders who execute part of their order book off the central order book to execute the whole book at similar or better prices. Such "interaction rules" can be regarded as a subsidy of on-exchange trades by off-exchange trades.[132] With advances in technology, traders have become able to avoid such obligations by executing their orders on markets without such rules.
- *Cross-subsidisation of retail trades by institutional trades*. In certain dealer markets (e.g. NYSE, Nasdaq), small retail trades have the right to be executed electronically against market-maker quotes. In the US, such rules has not applied to ECNs, who are mostly regulated as brokers. They have thus been able to avoid this costly obligation by concentrating on institutional, high-volume traders.[133]

While the advent of new entrants normally increases the contestability of markets, it does not necessarily do so in all market segments. Entrants are likely to offer their services only in profitable areas. In the area of securities markets, it has been argued that the profitable trades for dealers are those done by uninformed retail traders, while it is more difficult to extract profits from more informed wholesale traders' orders. This poses the risk of new entrants skimming the more profitable lines of business from the incumbent, who is left with the unprofitable ones. This would undermine the traditional equilibrium of cross-subsidisation and lead to a redistribution of costs and benefits.

However, the cream-skimming argument has to be somewhat nuanced in a securities trading context. The fear of losing profitable orders and being left with less profitable ones should apply less to exchanges, as they do not enter into such direct relations. Instead, they provide platforms where traders meet. One should therefore expect them to be neutral in terms of their preferences regarding what type of traders they attract. Retail investors, while making up a small part of the overall trading volume, certainly provide exchanges with an important stream of revenue. The reason is not, however, that a single retail transaction is particularly profitable. Rather, the benefit of retail order flow is that despite its limited contribution to overall trading volume it represents a high amount of "tickets", i.e. transactions.

6.3.2 Payment for order flow

Particular concern has been voiced over the practice of payment for order-flow described above. Order flow purchasers buy profitable order flow from brokers. The margins involved in executing smaller and less informed trades have been claimed to be so large that the purchaser can afford to match the best-price, pay the broker and still make a profit.[134] This leads to an adverse selection problem, with the central market being left with those trades least likely to be profitable. As a result, the central price discovery process is likely to function less well with worsening prices as a result. Some

[131] Ibid.

[132] Ibid.

[133] Ibid.

[134] Easley et al. (1996).

evidence from the US markets suggests that by paying for order flow, purchasers effectively skim the most profitable (uninformed) trades from established exchanges.[135]

Such negative evidence is not conclusive, however. As illustrated above, other studies have found no evidence of harmful cream-skimming.[136] Moreover, other studies provide a more benign assessment of payment for order flow, seeing the practice as largely an effect of deficiencies in the central market. According to this line of reasoning, payment for order flow may be welfare-enhancing as it reduces the monopoly rents that a central market may incur from such deficiencies.[137] In that context, payment for order flow reduces market-makers' rents and divides it more "fairly" between market-makers, other brokers and traders.[138]

Even so, payment for orders leads to diversion of profitable trades away from the central market. The central price, which often serves as a benchmark for best execution, may therefore increase. This would add to the gains to be made from an order purchasing strategy, as the cost of matching the best price would decrease. The purchaser of order flow would accordingly be able to make even higher profits.[139] Any welfare enhancing aspects of such strategies depend on the amount of the profit that is being passed on to traders.

In sum, technological advances and new entrants have undermined cross-subsidisation. This raises questions of distribution of economic benefits and costs. In some markets (e.g. US quote-driven dealer markets), certain intermediaries (e.g. market-makers) have traditionally been allowed to extract profits from retail traders to compensate for losses made on more informed institutional traders. Payment for order flow enables other intermediaries to capture the execution of such profitable retail trades, leaving the traditional market-makers with the loss-making institutional trades. Put simply, this is a redistribution of the right to make profits from retail traders. Whether this enhances welfare or not depends on how much of the profit is passed on to retail traders and how the market will be able to cater for institutional traders.

7. A regulatory framework for managing structural change

This chapter builds on the analysis above in trying to identify the difficult choices, or trade-offs that regulators have to make when drawing up rules. Drawing on the difficult choices derived from the above analysis, it will identify the major trade-offs regulators face. Second, it will assess how the country with the largest securities markets in the world has tried to create an integrated market. Third, it will assess the choices the Commission has made in its proposal for a directive, which on a whole was received favourably although parts have been subject to some controversy. It will compare these choices with the issues, concerns and regulatory strategies elaborated upon above. The

[135] Ibid.

[136] Hansch et al. (1999); Battalio (1997); Battalio et al. (1997).

[137] For example, it has been claimed that the wide use of payment for orders in the US was made possible by the relatively large minimum tick size on the NYSE (1/8). That tick size enabled market-makers to capture significant monopoly rents.

[138] Easley et al. (1996).

[139] Ibid.

aim is to filter out the current noise in the regulatory debate and concentrate on the desirability and feasibility of the Commission's regulatory choices. Finally, it will put forward a number of policy recommendations.

7.1 The regulatory trade-offs

The concerns depicted above are manifest and real, and the factors giving rise to them may have potentially harmful effects. However, their harmfulness depends on the structural context of different markets. For example, off-exchange order execution may in certain circumstances impair the overall price formation mechanism. In other conditions, it may not. Likewise, collusion may be more of a problem in smaller marketplaces, whereas in larger ones, more effective competition makes collusion less probable.

In large, well developed, diverse and competitive market centres, collusion is, on balance, less of a problem and competition may be relied upon to, if not prevent, at least significantly mitigate any abuse or inefficiencies. In smaller marketplaces, which are less developed and less contestable, there may be more of a need for stringent rules on conflicts of interest and policies aimed at improving the efficiency of the price formation process.

Faced with this need for rules to be adapted to local conditions, it is difficult to foresee a high level of harmonisation of rules being introduced at the EU level. Indeed, a case can be made for providing national rule-makers with a degree of discretion in adapting EU principles to local conditions. This, however, runs counter to one of the primary aims of EU law; to integrate national markets.

This brings the analysis to the frustrating area of trade-offs. Public rule-making contains a significant amount of trade-offs. Rule-makers have to weigh the costs and benefits of any particular regulatory action. Such analysis should serve as the basis for a proper regulatory response.

Several such trade-offs exist in the field of securities markets. One is the risk that member states will adopt protectionist regulation if they are provided with a lever of national discretion. However, this risk has to be weighed against the possibility of sub-optimal regulation that is not tailored to national specificities if an approach of detailed harmonisation at the EU-level is envisaged.

At an equally general level is the risk that regulatory actions may fail, no matter how well intentioned and well designed they are thought to have been. Regulators ought to bear such risks in mind before embarking on a particular regulatory strand. Such risks include lack of information and imperfect knowledge, regulatory capture and lack of flexibility once a regulatory response has been enacted and implemented. Even though these risks may advocate a careful attitude towards regulatory intervention, such risks have to be weighed against the benefits derived from proper regulatory intervention; e.g. highlighting and mitigating conflicts of interest, outlawing collusion and providing a framework to correct the inefficiencies arising from market failures.

More specifically, trade-offs are inherent in most of the issues relating to the concerns depicted above:

- When laying down *transparency requirements*, regulators have to weigh the benefits of the more informative prices that the transparency requirements would produce against a likely decrease in the liquidity that large traders are willing to provide. A key problem is how to deal with investors' desire to avoid informed traders. They may seek shelter from them by trading in more opaque marketplaces. If forced to trade in the open, they will protect themselves with wider spreads.
- When devising *best-execution rules*, whose aims are to reduce overall trading costs, regulators have to weigh the benefits to clients of the resulting lower spreads (as best-execution rules force brokers to shop around for the best price) against the higher commissions that intermediaries will charge their clients (search is costly).
- When laying down rules affecting the *level of consolidation* in markets, regulators have to chose between different sorts of competition. They can either promote competition among traders or intermediaries (concentrated markets) or competition among market centres (fragmented markets).
- Fundamentally, regulators have to choose whether they want to *stimulate a dynamic service climate* (fragmented markets) *or an externality-maximising climate* (consolidated markets).

Such trade-offs are inherent and cannot be avoided. In order to handle these issues properly, regulators should a) identify the trade-offs, and b) identify the main parameters in the cost and benefit side respectively, and c) weigh the costs against the benefits and only regulate if the benefits are likely to outweigh the costs or if the benefits are of such a central public interest that costs are defensible. This analysis does not necessarily have to be formal, relying on hard numbers (although US and UK regulators follow such a more formalistic approach). It is important, however, that both costs and benefits are acknowledged and that some form of systematic analysis is devoted to assessing their respective weights. At EU level, such a formalised framework for thought is regrettably missing.

7.2 Integrating fragmented markets in the US

In the explanatory memorandum preceding the November proposal, the Commission refers to prior US regulatory experience. Indeed, such comparisons are worthwhile, as many of the current trends in financial regulation emanate from a US context where regulators have been grappling with e.g. the problems of fragmentation for some time. Making comparisons is one thing, drawing regulatory conclusions another. Needless to say, the US context is in many respects different from the EU. For example, the US has a single capital market (although multiple markets in terms of corporate governance, which is regulated at the state level) with a single regulator and supervisor, the Securities and Exchange Commission (SEC). Moreover, recent events illustrate that the US regulatory system has important problems of its own. With these caveats in mind, a deeper foray into US regulatory experience highlights many of the difficulties EU regulators are currently facing. (See Box 7 for an overview of the US market structure.)

Box 7. US market structure

Securities trading in the US is dominated by the New York Stock Exchange (NYSE) and Nasdaq. There are also a number of regional exchanges, each with a different specialisation.

Listed securities

The large majority of exchange trading of listed securities takes place on the NYSE. There are de facto three different forums where trading in NYSE-listed securities takes place:

- *Specialist floor trading*. The NYSE, unlike most European exchanges, operates a trading floor where specialist firms are appointed for each traded security. These specialists are market-makers, i.e. they commit their capital to maintain two-way quotes (bid-ask prices) and they are obliged to trade on these quotes with those who are interested.
- *"Upstairs" trading*. A significant amount of NYSE trading does not go through the specialists on the floor. Member firms often match larger orders with other customers or commit their capital by also taking the other side of the transaction. Such transactions are only later crossed on the exchange.
- *"Third market"*. While the above trading methods are both on-exchange, there exists a third market. At the end of the 1970s, the SEC curtailed the scope of the NYSE's concentration rule (NYSE Rule 390). Prior to that, a limited third market did exist where member firms who wanted to avoid some rules of the NYSE (e.g. fixed commissions) carried out some trading with non-members. With the 1979 Off-Board Trading rules, where agency trades and trading in securities listed after 1979 were excluded from the scope of the concentration rule, the third market became more important and is today dominated by dealer firms that specialise in the internalisation of retail order flow. The concentration rule was eventually abolished in December 1999.

Nasdaq securities

In 1971, the National Association of Securities Dealers (NASD) started to run an Automated Quotation System. The purpose was to collect and display quotes posted by dealers in the OTC market that was regulated by the NASD. NASDAQ consisted of a quote management system that collected and displayed quotes from market-makers and ECN members of the NASD. As such it was not really an exchange, but more a decentralised dealer market. Market centres trading Nasdaq securities are currently linked by the NASD's SelectNet system.

Many of the new ECNs emerging in the 1990s catered specifically for the wholesale market. Faced with the potential difficulty of finding market-makers interested in executing retail orders, the NASD in 1984 introduced the Small Order Execution System (SOES). It allows Nasdaq participants to execute small orders automatically against the best bid and offer of a market-maker.

Faced with changes in technology and market structure, however, which increased the competition between market-makers and ECNs, Nasdaq's systems were increasingly regarded as insufficient by market participants who wanted to see more than just the best bid and offer of the trading interest of market-makers and ECNs. Hence, coupled with the decision to divest its interest in Nasdaq in due course, the NASD in 1999 proposed a new order display and collection facility, the Supermontage. In 2001, it won regulatory approval to establish this new order display and collection facility for Nasdaq-listed securities. Supermontage consists of the Nasdaq Order Display Facility (NODF) and the Order Collector Facility (OCF). It will provide a means to present a greater depth of trading interest (by adding more orders and quotes) at multiple price levels. In effect, Supermontage will be very similar to a central order book.

Source: Seligman (2001).

7.2.1 A gradually emerging public framework

In the early 1970s, some formal competition to execute trades in US securities markets existed. On the exchanges, competition largely took the form of exchange dealers

competing with floor traders and limit order submitters. Off the established exchanges, traders were formally able to execute orders in exchange listed equities. Moreover, dealers on regional exchanges were able to execute orders for those exchange-listed equities that their regional exchange had been granted the right to trade even though they remained unlisted on the regional exchange. Therefore, the formal ability to trade on other exchanges was in place. However, due to the lack of effective information about the quotes on other markets, as the various markets were not connected, traders lacked information about trading opportunities elsewhere, and quotes hence varied substantially.

Dissatisfied with the increasing fragmentation and the existing barriers to interaction between markets, the Securities and Exchange Commission in the early 1970s pondered how to stimulate a more contestable market structure while at the same time ensuring that investors had access to information from all markets. In 1975, at the instigation of the SEC, the US Congress put forward changes to the 1934 Securities Exchange Act (the "1975 Amendments"). These were far-reaching, e.g. ending fixed commission rates and granting significant new powers to the SEC. Most importantly, however, the amendments initiated the development of a national system with integrated markets.

In the Exchange Act, Section 11, Congress chose to provide the SEC with maximum flexibility in developing a market system that would "foster efficiency, enhance competition, increase information available to brokers, dealers, and investors, facilitate the offsetting of investors' orders, and contribute to best execution of these orders".[140] These aims are all very familiar to the seasoned observer of the ISD review. However, in contrast to the European Commission's decision to provide for detailed primary legislation, the US Congress restrained itself to only directing the SEC "to use its authority…to facilitate the establishment of a national market system for securities."[141]

Since then, the SEC has gradually developed a framework of secondary law which together forms the National Market System (NMS). The main components are:

- *Off-board trading rule (19c-3)*. As a first measure to increase competition, the SEC in 1979 curtailed restrictions on off-exchange order execution for listed shares (Rule 19c-3). As a result, New York Stock Exchange (NYSE) members were increasingly able to execute NYSE-listed shares against their own account on the National Association of Securities Dealers (NASD) OTC-market.[142] This provided a boost to the "third market".
- *Intermarket Trading System (ITS)*. The SEC also required the major trading venues to create links between themselves. The ITS links nine US markets and is itself linked to NASD's Computer-Assisted Execution System (CAES).[143] These links

[140] The "1975 Amendments" to the Securities and Exchange Act of 1934 (15 U.S.C.A. §78k-1(a)(2)).

[141] SEC 11 A. (a) (2) of the 1975 Amendments.

[142] The NYSE has traditionally maintained a concentration rule (Rule 390). In the late 1970s, the SEC limited this rule, however, by excluding agency trading and trading in securities listed after 1979. In December 1999, it was repealed in its entirety.

[143] These venues consist of the NYSE, AMEX, the Cincinatti Stock Exchange (CSE), the Pacific Stock Exchange (PSE), the Philadelphia Stock Exchange (PHLX), the Boston Stock Exchange (BSX), the Chicago Stock Exchange (CHX) and the NASD third market (Battalio, 1997).

permit trading across different trading venues by allowing a broker-dealer in one market centre to send an order to another market that is trading the same security.

- *Transaction Reporting Rule (11 Aa 3-1)*. This rule requires trading venues to report transactions and last sale information to their self-regulatory organisations (SROs) who in their turn file with the SEC a transaction reporting plan for equity securities listed on a national securities exchange or included in the National Market tier of Nasdaq (so-called NMS-securities) traded in its market.[144]
- *Quote Rule (11 Ac 1-1)*. Originating in 1978 but amended several times since, the quote rule requires SROs to put in place procedures whereby its members make available bids, offers and quotation sizes for exchange-listed equities, and Nasdaq National Market and SmallCap Market securities, to information vendors. It also requires these quotes to be "firm", i.e. the dealer or market maker is obliged to execute an order in any amount up to the published quote size. This rule is subject to some exceptions.[145]
- *Display of transaction reports, last sale data and quotation information rule (11 Ac 1-2)*. In 1980, the SEC put forward the display rule, which requires those (e.g. vendors, broker-dealers) providing broker-dealers and investors with market information from a single market in a security to provide information from all other markets as well ("a consolidated display of information from all reporting market centres").[146]
- *Display of customer limit order rule (11 Ac 1-4)*. In 1996, the SEC imposed the so-called "order-handling rules", which require OTC market-makers and exchange specialists to display certain customer limit orders for covered securities (all exchange-traded securities and the 1000 Nasdaq securities with the highest average daily trading volume in the previous quarter) unless some stated exceptions apply.[147]
- *Regulation ATS (17 CFR 242.301(b))*. This regulation, which was created in 1996, requires ATSs and ECNs that trade 5% or more of the average daily trading volume in an exchange or Nasdaq-listed security to display and provide execution access to their quotes through an SRO.

Moreover, the 1970s also saw the centralisation of clearing and settlement arrangements into two utilities, the Depository Trust Company (DTC) in 1973 and the National Securities Clearing Corporation (NSCC) in 1976. These were put under a single roof – the Depository Trust and Clearing Corporation (DTCC) in 1999.

[144] Seligman et al. (2001).

[145] Ibid.

[146] Ibid.

[147] SEC (1996).

Box 8. Collecting and distributing market information in the US

The rules outlined above govern the collection and distribution of quotes, trade prices and volumes in US securities and options markets. The information is collected from the stock exchanges, the options exchanges and the NASD for all exchange-listed and Nasdaq shares in near real-time. After collection, the information is consolidated and distributed. The consolidated information forms the basis of the National Best Bid and Offer (NBBO) for each security.

There are four different national market systems ("plans") that disseminate the consolidated market information. These plans govern the four networks that SROs have developed to disseminate market information:

- Network A for NYSE-listed securities,
- Network B for securities listed on Amex (or meeting Amex listing criteria on regional exchanges),
- The Nasdaq system for Nasdaq-listed securities, and
- The OPRA system for exchange listed options.

Under Network A, the Consolidated Tape Association plan (CTA) collects and distributes transaction information while the Consolidated Quotation plan (CQS) governs the collection and distribution of quote information. The information is collected from nine SROs in the two plans who all have as members venues that trade NYSE-listed securities: Amex, the Boston Stock Exchange (BSE), CBOE, Chicago Stock Exchange (CHX), Cincinnati Stock Exchange (CSE), NASD, NYSE and Phlx. Similar provisions apply to Network B. In the Nasdaq system and OPRA plan, things work slightly differently however.

Market information volumes 1980-2000

	Network A & B	**Nasdaq**	**OPRA**
Reported transactions			
1980	18,304,000	8,000,000	--
2000	312,100,000	643,000,000	42,947,524
Processed quotes			
1985	30,798,000	10,000,000	
2000	691,000,000	1,090,000,000	10,949,856,412

The collected and consolidated information is then disseminated via these networks to information vendors. The income from selling the information ($598 million in 2000) is distributed among the trading venues according to each plan's formula.

Source: Seligman et al. (2001).

7.2.2 A vivid regulatory debate

The rules underpinning the NMS have been the subject of much debate over the years. As a result they have been frequently changed. According to its detractors, the rules are unnecessary, as market competition provides the incentive to spread quote information in order to gain new orders. Moreover, the rules are claimed to have contributed to cream-skimming, effectively allowing third markets to free-ride on the central markets' price production while picking the most lucrative trades themselves. In addition, they claim that the rules have rendered permanent the reigning institutional structure and technology of the 1970s, the reason being that as market forces are replaced with

government intervention the incentive to innovate and compete for orders is reduced. The result, according to the detractors, is a decreased dynamism of markets.[148]

The order-handling rules have also provoked a significant debate, with some observers claiming it has fragmented the markets. Prior to the rules only one ECN existed, as most potential marketplaces were not sufficiently liquid to be credible venues of execution. Following the SOES rules, the number of ECNs have flourished as they have no longer been confined to orders on their own books but also been able to tap the larger Nasdaq book and market-makers who did not want to include the new quotes instead sent them on to ECNs.[149] Other observers, however, claim that even though the market may be nominally more fragmented, overall market quality has increased as different liquidity pockets are now connected.

Proponents of the US approach argue that the rules provide a framework for market forces and in the process ensure competition and market linkages. The rules, according to this line of reasoning, improve the likelihood that market forces direct their dynamism in a direction that will benefit end-users. All in all, proponents believe that it is reasonable to expect that there is no perfect overlap between the interests of service providers (markets, market intermediaries) and end-users (issuers, investors). Hence, the commercial incentives of service providers imply that a market structure directed only by market forces would be inefficient and unsatisfactory from a wider, public interest point of view. In the absence of perfectly competitive markets, there is hence an inherent reason for government intervention.[150]

Recently, the market information rules (Rules 11) have been the subject of debate.[151] Following the emergence of new trading practices (e.g. online trading), which resulted from the transition in the governance of exchanges towards for-profit structures and as decimalisation has been introduced, the way that market information is collected and distributed has been the subject of review. Online traders need information in real-time, not close to real-time as currently provided by the plans. The logic of for-profit exchanges and SROs changes the foundation on which the more utility-based networks are built. Decimalisation has the potential to increase the number of quote and transaction reports exponentially, as prices now move in much smaller increments.

7.2.3 A system in constant change

The wider debate, part of which has been recapitulated above, and changes to market structure have contributed to frequent changes to the rules underpinning the NMS. The discretion granted to the SEC has enabled it to create flexible rules, which have gradually evolved over the years as new regulatory concerns have arisen and old ones disappeared. A carefully drafted framework providing for market transparency and linkages, with appropriate exemptions and special provisions, is in place. As a result, the US has so far been able to reap the benefits of competition while at the same time

[148] Battalio (1997).

[149] Davis & Steil (2001).

[150] Nazareth & Dombalagian (2001)

[151] Seligman et al. (2001).

sufficiently mitigating the potentially negative effects from fragmentation. As such, the US experience is certainly of interest to the EU.

7.3 The ISD proposal

A cornerstones of the EU's financial market legislation, the ISD does not lends itself easily to summarising owing to its wide scope. Overall, the aim of the new proposal is to achieve a directive that better protects investors and the market integrity while promoting efficient and integrated markets. The proposal retains the division between regulated markets and investment firms.

A key aim of the new proposal is to provide a framework catering for a more contestable trading landscape.[152] A key part of the new directive is therefore the imposition of an ambitious transparency regime. The new proposal creates a coherent, if differentiated, pre- and post-trade transparency regime for regulated markets, multilateral trading facilities (MTFs) and investment firms. The new ISD also contains stronger rules regarding the operation of investment firms (e.g. conflicts of interest) and its relations with clients (e.g. conduct of business rules). It also introduces for the first time explicit best-execution rules and order-handling rules. For regulated markets, the proposal provides for more harmonised rules regarding organisational requirements, the operators of the market, admission of instruments to trading and transparency. The ISD proposal also contains elaborate provisions on supervisory authorities, particularly concerning the designation in each member state of a competent authority and the powers and resources of that authority.

Following lengthy consultations within the framework of FESCO/CESR, the ISD proposal adds new obligations for multilateral trading facilities (MTFs), which would include ATSs and crossing-systems as described above. This is in line with a functional theory of regulation, which stipulates that the functional characteristics and not the institutional form should determine regulatory rights and obligations. Accordingly, the proposal aims to impose similar obligations on MTFs as those imposed on regulated markets (e.g. transparency and capital requirements).

Critically, the proposal contains no concentration rule. Provided that i) the investor was resident of a EU member state, ii) the trade was carried out by an investment firm via its main establishment, branch or via remote access, iii) it concerned instruments listed on a regulated market and iv) the investor could avoid complying with the obligation, the 1993 ISD allowed but did not compel member states to require that trades were executed on a regulated market (Art. 14). Instead of routing all trade orders to a regulated market, investment firms will be free to settle orders elsewhere provided that their clients allow them to. This is in line with the Commission's aim to devise a directive that is neutral in terms of impact on market structure and that favours more competition. Whether the Commission has achieved that aim will be further discussed below.

Instead of presenting all parts of the ISD, the presentation below follows the regulatory instruments developed above (ch. 5) and accordingly focuses on the framework for dealing with more fragmented markets that the Commission is putting forward.

---

[152] European Commission (2002).

7.3.1 The new transparency regime

In spite of the ISD's wide scope, the proposals that have caused much lobbying and are likely to be the ground of debate as the co-decision process gathers pace once again relate to competition between trading venues and how to deal with the potentially harmful effects of this fragmentation. Accordingly, the Commission's proposal contains new transparency requirements for regulated markets and investment firms, the latter containing alternative trading systems (or MTFs in the Commission's term) and broker-dealers.

7.3.1.1 Regulated markets (Arts. 41 and 42)

The 1993 ISD already contained transparency provisions for regulated markets. These were both of post-trade (notably requiring regulated markets to publish at the end of each trading hour the weighted average price and the trading volume of the six preceding hours and every 20 minutes the weighted average price and the highest and lowest prices) and pre-trade (where prior access to information on prices and quantities, such information shall be continuous and quotes should be firm) character (Art. 21.2).

The new proposal contains a more comprehensive pre- and post-trade transparency regime. This is in line with the academic literature referred to above, which universally concludes that pre- and post-trade transparency are appropriate on public trading forums such as stock exchanges, since the very intention of routing orders to a public market is to disclose trading interest to other market participants. Moreover, stock exchanges make their living from attracting as many traders as possible, and hence have an inherent incentive to publish widely.

As for *pre-trade information*, Art. 41.1 requires regulated markets to "make public current bid and offer prices which are advertised through their systems for shares admitted to trading". In its Explanatory Memorandum, the Commission makes a distinction between quote-driven markets and order-driven markets. This is in line with the academic and expert debate which stresses the fundamentally different workings of these markets, differences that have to be reflected in pre-trade requirements. Accordingly, regulated markets will have to make public part of their order book if they are order-driven while quote-driven markets' market-makers will have to publish some of their bid- and ask-quotes. Furthermore, it provides a waiver for large transactions (Art. 41.2) and also requires regulated markets to publish the pre-trade information investment firms will post following the obligations of Art. 25.

The proposal also delegates to comitology to spell out how pre-trade obligations can be excluded for trading methods operated by regulated markets "which conclude transactions under their rules by reference to prices established outside the rules and systems of the regulated market or by periodic auction" (Art. 41.3d). This refers, for example, to crossing systems.

Regarding *post-trade transparency*, regulated markets will have to publish prices, volumes and times of all equity trades at all times on a "reasonable commercial basis" and "as close to real-time as possible" (Art. 42.1). Deferred publication is allowed for transactions that are large in scale (Art. 42.2).

7.3.1.2 Multilateral trading facilities (Arts. 27 and 28)

MTFs resemble regulated markets in the sense that they, without participating in the trades themselves, provide a trading facility where users can meet. The ISD proposal accordingly imposes transparency obligations on MTFs similar to those imposed on regulated markets. Not part of the 1993 ISD, these provisions are entirely new.

Regarding *pre-trade* information, investment firms operating a MTF will be obliged to make public "current bid and offer prices which are advertised through their systems in respect of shares admitted to trading on a regulated market." This information is to be made public on "reasonable commercial terms" on a continuous basis during the trading day (Art. 27.1). The same deferrals and exceptions applying to the regulated markets' pre-trade regime will apply for MTFs. As a result, crossing systems not involving "prior disclosure of firm indication for prices" may be exempted from the scope of the pre-trade obligation.

The *post-trade* obligations of MTFs are equally in line with the regulated market regime, as MTFs ought to "make public the price, volume and time of the transactions executed under its rules and systems in respect of shares" admitted to trading on a regulated market (Art. 28.1). The same requirements regarding content, timing and methods of publication applying for regulated markets also apply for MTFs (Art. 28.2).

7.3.1.3 Investment firms (Arts. 20.4, 25 and 26)

The Commission recognises that different transparency requirements have to be developed for off-exchange order execution by investment firms, "given the fundamental difference between bilateral dealing or order-execution by investment firms and exchanges" (Explanatory Memorandum, p. 21). Despite these differences and the uncertain effects of pre-trade transparency elaborated above, the Commission has taken the position that a high level of pre-trade transparency is the best way to prevent fragmentation and to promote investor protection. Although not being identical to those imposed on regulated markets and MTFs, the Commission for the first time accordingly extends pre- and post-trade transparency obligations to investment firms.

The *client limit-order display rule* (Art. 20.4) will require investment firms to publish those limit orders (instructions to trade at best price, but not worse than a specified limit) that they are unwilling or unable to execute themselves immediately. Such unexecuted limit orders are interesting from a price point of view and the rule's aim is to ensure that the information content of these orders reaches the market. The rule allows a number of exceptions, however. If clients request orders not to be disclosed, investment firms will not be obliged to publish. Also, the rule allows the same exceptions for large transactions as allowed for in the regulated market regime (Art. 41.2).

In its q*uote disclosure rule* (Art. 25), the Commission also proposes to require investment firms that run a trading book to publish the terms (bid and ask quotes) at which they are ready to trade typical retail transactions in liquid equities. More precisely, the article requires any investment firm that is authorised to deal on its own account to "make public a firm bid and offer price for transactions of a size customarily undertaken by a retail investor in respect of shares in which it is dealing, and where those shares are admitted to trading on a regulated market and for which there is a liquid

market" (Art. 25.1). The intention of the Commission is to calibrate the requirements so that they do not impede liquidity provision. Accordingly, the rules are not intended to capture larger-sized transactions or transactions in illiquid securities.

In effect the rules mean that investment firms have to make markets to all participants in these liquid equities. This obligation is waived for smaller investment firms that do not represent an "important provider of liquidity for the share(s) in question on a regular or continuous basis" (Art. 25.2). The quotes are to be made public in an "easily accessible" manner to other market participants, free of charge and on a continuous basis during the trading day (Art. 25.3).

When drafting these requirements for investment firms, the Commission has taken the view that an expansive pre-trade regime is needed to effectively link liquidity pools of different trading venues. It has also decided that mandated rules are necessary and that market incentives are not sufficient for a coherent transparency regime to evolve. The Commission has not entirely ignored research that suggests that quote transparency may sometimes harm liquidity. Transparency requirements differ between regulated markets, MTFs and investment firms. Moreover, as has been alluded to above, there are exceptions to the pre-trade rules on investment firms. First, clients can opt out from pre-trade requirements if they so wish, as "…investment firms, unless the client expressly instructs otherwise, are to take measures to facilitate the earliest possible execution of that order…" (Art. 20.4). Moreover, the Commission's purpose, as expressly stated in the Explanatory Memorandum, is to capture retail size transactions: the "mandatory disclosure quote disclosure rule should be confined to retail-size transactions in highly liquid equities" (Explanatory Memorandum, pp. 22-23). In addition, those investment firms that are not important providers of liquidity for shares on a continuous or regular basis are exempted (Art. 25.2). Finally, exemptions are to be further detailed by comitology (Art. 25.4). Whether these exceptions are sufficient to target retail business only will be further discussed below.

The proposal also contains *post-trade* requirements. Investment firms that execute listed shares outside regulated markets or MTFs, either for their own account or on behalf of clients, have to make public the volume and price of the transactions and the time they were concluded. This information should immediately be made easily accessible to the wider public against compensation (Art. 26.1). The same requirements regarding publication and timeliness applying to the regulated market regime (Art. 42) will apply to investment firms (Art. 26.2).

7.3.2 Provisions on best execution (Art. 19)

Not part of the 1993 ISD, EU rules will in the future also contain provisions on best execution. This is in line with the academic debate which has increasingly stated the benefits of execution rules for ensuring that the execution quality of investors is kept. Art. 19 provides that investment firms should execute client orders in such a way that the client obtains "best possible result" in terms of price, costs, speed and likelihood of execution (Art. 19.1). The article directs authorities to ensure that procedures maintaining execution quality are in place and that those procedures take into account execution conditions in the wider marketplace (Art. 19.2). These procedures should be reviewed on a regular basis so as to ensure that the investment firm has access to those venues that offer the most favourable execution for their clients (Art. 19.3).

Parts of the conduct of business rules (Art. 18) are also aimed at boosting execution quality. Paragraph 5 provides that clients shall receive information on e.g. different execution venues while paragraph 8 states that clients should receive reports on the progress and costs of their transactions. Art. 23 also provides that investment firms must maintain records for all transactions they have carried out on behalf of clients.

7.3.3 Conduct of business rules (Art. 18)

The new ISD proposal updates the 1993 provisions on conduct of business rules. The old rules were vague and left significant discretion to member states. They were entrusted to draft rules, subject to being in line with a few core principles contained in Art. 11. However, these principles were vague and over the years gave rise to different interpretations between member states. Notably, there was significant ambiguity regarding the role of home and host authorities concerning enforcement.

In order to overcome this lack of clarity, the new rules foresee the adoption of common conduct of business rules via comitology. Based on previous work by CESR, the Commission intends to differentiate these rules according to type of investment service and type of investor (retail, professional) (Art. 18.5). The new rules, for example, regulate the information flow between investment firms and their clients (e.g. marketing, timely information on nature of risks, record of agreements, etc.). Regarding branch operations, the host authority will be responsible for enforcing the conduct of business rules (paragraph 12).

7.3.4 Provisions on time priority and handling of orders (Art. 20)

The 1993 ISD contained no provision for order-handling. However, if the Commission's proposal is accepted by the Council and the EP, investment firms will have to implement procedures that ensure "fair and expeditious execution" of client orders (Art. 20.1). Member states shall ensure that investment firms implement procedures so that time precedence prevails (Art. 20.2). The stated aim is to enhance clients' confidence in the "impartiality and quality" of the execution service.

The Commission takes the view that before executing orders outside a regulated market or an MTF, a client's prior consent is required (Art. 20.3). That consent has to be renewed annually. Furthermore, as elaborated above, orders that are not immediately executed should be made public immediately, unless the client "expressly instructs otherwise" or if the order is large in size compared to normal market size (Art. 20.4).

7.3.5 Provisions on conflicts of interest (Art. 16)

Following the blurring of lines between previously differentiated lines of business, the new ISD proposal contains a self-standing provision on conflicts of interest. This was not the case in the 1993 Directive, where such conflicts were part of prudential rules (Art. 10) and conduct of business rules (Art. 11).

According to the new proposal, investment firms must identify conflicts of interest between themselves and their clients or between clients with conflicting interests (Art. 16.1). Investment firms are required to have arrangements in place to handle those conflicts and prevent them from affecting their clients' interests (Art. 16.2). If such arrangements are not enough to prevent conflicts, investment firms must disclose the

source and nature of the conflict to potential clients before undertaking any business (Art. 16.3).

7.3.6 A longer and more detailed directive

The new ISD proposal hence contains an elaborate framework aimed at countering the potentially negative effects of a more contestable trading landscape while at the same time upgrading its provisions on investor protection.

The ISD contains much more, however, than the regimes elaborated upon above. Being the most important piece of the Financial Services Action Plan (FSAP), each rule is likely to have a significant impact. Other contentious parts have not been covered in this report, e.g. the issues related to the inclusion of commodity derivatives.

While this paper has not analysed the other parts of the ISD in detail, it is clear that the higher level of ambition has resulted in a more detailed and longer piece of regulation. A simple calculation of the number of words and articles in the current ISD proposal compared to the 1993 ISD illustrates this. Compared to the 1993 ISD's 32 articles, the new proposal contains 67 articles, of which 28 concern investment firms. In number of words, this difference is cemented, with the new ISD containing 10,000 more words than the old ISD (see Table 13).

Table 13. The level of detail in the 1993 ISD compared to 2002 ISD proposal

	Number of articles	**Articles open to comitology**	**Total word count (including recitals)**
1993 ISD	32	(few, and never implemented)	14,381
ISD proposal (Commission draft, 2002)	67	18	25,556
Articles applicable to investment firms	28	12	9,188
Articles applicable to exchanges	12	4	2,715

Source: Lannoo (2003).

7.4 Assessing the new ISD proposal

These new rules for investment firms aimed at ensuring investor protection and achieving market transparency have provoked heated discussions between market participants, member state authorities and the European Commission. The vocal discontent from some traders is an illustration of how important the ISD is and how contentious the review has become. The ISD is important because it regulates traders and execution venues in the EU, hence shaping market structure. It is contentious because regulatory choices on market structure determine who trades profitably. Therefore, while the debate is certainly driven by regulatory concerns, the intensive lobbying surrounding that debate should be read in the light of competition between trading venues wanting to shape rules so that their potential to capture orders is maximised.

When devising responses to counter the concerns raised by fragmentation, it is obvious from the above that the Commission has access to several instruments. The relative importance accorded to any instrument is a matter of emphasis. The instruments are partly dependent, partly independent. For example, there is a clear link between transparency and rules on execution quality, as it is easier to assess execution quality in transparent markets. However, a regulator can compensate for a lighter touch in one area with more stringent use of other instruments. The key difficulty, as recognised by the Commission itself, is to create a regulatory framework capable of adapting as markets evolve. The regulatory concerns elaborated relate above all to the higher degree of contestability that marks today's securities markets. However, will this more contestable landscape prevail or will the inherent forces of network externalities eventually lead to a return to a more concentrated marketplace? The outcome has an impact on regulatory strategy. As no one can predict the industry's future structure, flexibility becomes a key attribute of any regulatory framework. Hence, the most important aim is to avoid forging a rigid regulatory structure. The remainder of this chapter assesses the adequacy of the regulatory framework proposed by the Commission in terms of the concerns elaborated above, and where it is found wanting, explores whether there are alternative means of addressing these concerns.

7.4.1 A flexible framework for calibrating transparency requirements

Transparent markets offer significant benefits. The rules to achieve transparent markets entail low direct costs and are less intrusive compared to other forms of more detailed command-type regulation. Hence, it is natural that a basic presumption would lean towards maximising transparency and that the burden of proof would fall on those wanting to restrict it. In that sense, the Commission is certainly correct in its high level of ambition. However, the benefits of transparency have to be weighed against its indirect costs.

7.4.1.1 Who should trade profitably?

Changes to rules that structure markets have an impact on who trades with a profit. No single transparency regime benefits all traders, as these have different needs and preferences. Accordingly, regulators are faced with the decision of choosing who to benefit. Should regulators favour retail investors, and hence apply a more ambitious transparency policy? Or should they favour the economically important wholesale or institutional sector, and hence allow a more divergent transparency approach? Which is the more important? Or, is this dichotomy false, as wholesale business fundamentally comes down to managing the investments of retail investors?

The current proposal puts some wholesale business on the line. The envisaged pre-trade regime will increase the credit and counterparty risks that investment firms face, as they would have to deal with any interested party eager to trade at the quotes that they had posted (Art. 25) or willing to fill the orders they had submitted (Art. 20.4) no matter whether that party is already a client or not. The large intermediaries are important liquidity providers in all markets, both from an internal market and global viewpoint. Even though these to some extent represent the producer interest (which per se should have no precedence over consumer interest), the danger is present and clear. In the face of these risks, liquidity providers are likely to at best hedge their bets by posting worse

prices (which results in wider spreads) or at worst, to search for a more permissive regulatory environment elsewhere.

It is also uncertain whether the pre-trade regime would benefit retail investors. Currently, off-exchange venues often offer them speedy execution at competitive costs. Moreover, as retail investors possess little of potentially harmful information, investment firms are willing to trade with them and often offer price improvements. However, if investment firms were obliged to extend these favourable quotes indiscriminately, matters would change. Investment firms would likely hedge their potential exposure by charging wider spreads. As a consequence, the prices on exchange may become the best. Finally, as the wholesale business is fundamentally about managing retail investments, any proposal that affects the wholesale cost line is likely to be passed on to retail investors.

If pre-trade transparency requirements are relaxed, however, how can the regulatory concerns be addressed? For example, how can retail investors' wider interests be accommodated? To some extent the risks to retail investors can be dealt with differently. For example, more stringent order-handling rules and conflict of interest rules may ensure that there is a reasonable level of protection for retail investors.

In addition, how can the risks of fragmentation to the functioning of the price discovery process be handled in the absence of pre-trade requirements? Fundamentally, this involves a choice. A more contestable landscape is by definition characterised by fragmentation, which comes at an economic cost (less informative central prices) but also with certain benefits (competition, choice, innovation).

7.4.1.2 A framework for integrating disconnected liquidity pools?

Micro-market structure theory predicts a number of potentially negative effects of too much transparency, notably that excessive requirements may hamper liquidity provision. Overall, research empirically testing these theoretical risks provides support for both advocates and opponents of pre-trade transparency. Current research is therefore not conclusive.

- Research on the harm of fragmentation is inconclusive: some studies offer evidence that off-exchange order execution harms market quality (e.g. the price discovery of the central market), others find no such evidence while some actually document beneficial effects.
- While post-trade transparency is generally regarded as beneficial, research findings are less straightforward on the merits of pre-trade requirements. While benefiting some traders, pre-trade requirements are likely to inhibit some traders from entering the market. These traders are important from a liquidity supply point of view, as they represent large trades or providers of capital. The effects of pre-trade requirements on overall liquidity therefore run a high risk of being detrimental.

Hence, there is a magnitude of studies supporting the theoretical risks, but equally abundant research casting doubt on the practical effect of those theoretical risks. Fundamentally, when designing pre-trade rules, regulators have to make a choice between maximising economic efficiency or promoting more service competition. The former would imply setting high pre-trade requirements so that the overall price mechanism is maximised (provided that trading does not move offshore). However, as

illustrated above, pre-trade transparency may have detrimental effects on part of the market and may prevent some investors from satisfying their legitimate needs. If regulators chose to satisfy these needs and hence limit pre-trade requirements, this comes at a certain cost in terms of economic efficiency. Informative central prices are certainly a laudable aim, but there are other aims as well, such as competition.

If off-exchange order execution venues become less of price-taker (i.e. relying on exchanges' prices when providing best execution) and more of price-maker, there is certainly a more pronounced need to bring that order flow into the public sphere. Also, if off-exchange venues become more like standardised "exchanges" and less like an "OTC", then the case for these venues to be governed equally certainly become stronger. This is in line with the functional theory of regulation which states that institutions performing similar functions should face similar regulatory obligations. Widespread off-exchange order execution also raises issues of access. If alternative trading venues become price-makers, why should some traders be left unaware of this particular trading opportunity? This could imply that some traders were systematically excluded from valuable trading.

Nevertheless, there is significant uncertainty at present about the extent in Europe of off-exchange order execution in general and internalisation in particular. Little reliable data exist and more research and empirical testing are needed. Due to the lack of data, it is very difficult to verify whether off-exchange order execution has reached such a level that the benefits of competition are outweighed by the detrimental effects on central prices. In the countries where off-exchange order execution is permitted (e.g. the UK and Sweden), there is little evidence supporting the hypothesis of harm. This suggests that off-exchange order execution should be accorded the benefit of doubt and that pre-trade arrangements should wait until more certainty has been reached.

Overall, much research highlights the advantages of off-exchange trading: traders have different needs and no single market structure can benefit all of them. Pre-trade transparency requirements risk removing the possibility that at least some of these needs will be satisfied. Further research is therefore needed on the precise effects of pre-trade transparency.

Considering the uncertainty of i) the extent of the underlying activity (off-exchange, internalisation), ii) the harmfulness of that activity in terms of market quality and iii) the effects of the remedying feature on market quality (pre-trade requirements), the Commission's proposal to introduce pre-trade requirements for investment firms appears premature. A tentative policy recommendation at this stage should accordingly be to start with post-trade transparency coupled with stringent best-execution, conduct of business and order-handling rules. Only if this proves to insufficiently protect clients should the imposition of pre-trade transparency be contemplated.

7.4.1.3 A framework for protecting retail clients?

Nevertheless, faced with uncertainty, one strand in regulatory theory states that consumer interests' should take precedence. Hence, the quote rule could be defended on grounds that it offers particular protection for retail clients. If so, it is important that the rules are carefully calibrated in order to offer sufficient scope to ensure that institutional lines of business are excluded. International comparisons suggest, however, that the draft rules are insufficiently limited and hence risk harming institutional business**.** The

EU pre-trade rules are directly inspired by US rules. Compared to US rules (11Ac1-1, 11Ac1-4), however, the EU rules (Arts. 20.4 and 25) are much wider in their scope and coverage.

At its inception, the *US quote rule* (11Ac1-1) had as a target to integrate the "third market", i.e. its scope was to target those who systematically internalise retail orders. Accordingly, the rule provides for significant exceptions for those who do not fall in that category:

- The US quote rule only applies to dealers who hold themselves out to execute certain orders on a continuous or regular basis (i.e. who routinely internalise) and not to dealers who trade for their own account or on a case-by-case basis to satisfy their clients' requests. The EU rule on the other hand forces any important liquidity provider to hold itself out, no matter whether they already do so or not.
- The US quote rule only applies to OTC trading, i.e. the "third market" described above. In other words, trading done in the US "upstairs market" described above is not included when calculating whether a dealer is an OTC market-maker. In the EU, however, there is no similar restriction. Hence, the obligation to publish quotes risks being triggered by active on-exchange trading.
- The US quote rule aims to protect retail investors. Hence, the rule is only triggered by retail-sized trading and not by institutional-sized trading. Accordingly, a dealer that only does block-size trades is not regarded as an OTC market-maker and is not covered by the quote rule. The EU quote rule has a similar intention but as it is currently drafted, the likely *practical* effect is that all liquidity providers will have to comply.
- Moreover, what constitutes a "block" in the US is much smaller than in the EU. In the US, block size starts at 10,000 shares or a value of $200,000. In Europe, market practice tends to regard blocks as larger. At the LSE, for example, for SETS trade reporting purposes, blocks start at eight times normal size, i.e. they range between 800,000 and 1,600,000 shares (£1-2million). US rules also allow a so-called "block positioner exemption", which takes into account trading strategies such as programme trades. Under this exemption, dealers are under some circumstances allowed to consider smaller transactions as part of a block, if the executions are considered part of one block transaction. No similar exemption is predicted by the European quote rule.

There are also differences between the EU's *limit order display rule* (20.4) and the US display rule (11 Ac-4), which is the closest equivalent. First, US rules do not require a generalised public display of clients' orders. The rule only applies to specialists (i.e. on-exchange market-makers who have received special responsibilities from the exchange to continuously provide two-way quotes so that markets always exist in their specialities) and OTC market-makers who in certain circumstances are obliged to reflect their clients' limit orders in their public quotes. It does not apply to other broker-dealers. The rule should be seen in its US context, where the dominant trading model for most listed securities remains the quote-driven dealer market. In such a market context, it is essential that specialists' and OTC market makers' quotes are timely, representative and inclusive. Not only does the rule only apply to specialists and OTC market-makers, it also does not oblige them to display the full extent of clients' open trading interest to the

wider market. It only requires inclusion of those customer limit orders that are either better priced than the specialist's or market-maker's current quote or add to the size of current best bid and offers. Other orders do not need to be published.

Moreover, the display rule only applies to "held" orders (i.e. orders where the intermediary has no discretion how to execute the order) that are not executed immediately. Accordingly, it does not apply to "market-not-held" orders, which are typically used when traders want their intermediary to devise a trading strategy for them, a practice which is common for institutional trading of larger-sized orders. The US rules does not apply to larger-sized orders. As for the quote rule, blocks are excluded (same limits: 10,000 shares, $200,000 value). Furthermore, the rule does not apply to "odd-lot" orders, i.e. orders that are not possible to break down in "round lots", i.e. equal pieces (e.g. 100, 200). Nor does the rule apply if the customer requests that the order should not be included. This can be done either on an order-specific basis or as part of a general agreement.

While the EU display rule also allows customers to opt out, the rule does not contain the same range of exceptions. Hence, the rule's scope is much wider and is likely to capture a much larger amount of orders. The EU rule requires intermediaries to publish unfilled customer limit orders in a "manner which is easily accessible to other market participants". If that means posting them in a limit order book, this would expose the trade intention to a much wider public than the corresponding US obligation to include them in a market-maker's quotes. Hence, there is a much bigger risk that the market will move against the trader.

As the EU rule makes no distinction between "held" and "not-held" orders, the rule risks harming a predominantly institutional business, i.e. the practice of institutional traders providing their intermediary with discretion over how to execute their orders. This would run counter to the rule's intent to target primarily retail-sized orders.

As discussed above, the market practice for deferred reporting of EU blocks is much higher than the regulated limit in the US. As the EU rule appears to be based on this practice, EU blocks for transparency purposes are also likely to be much larger. This high hurdle is likely to have as an effect that the EU rule will capture much institutional business, which today often falls within the range of 10,000 to 800,000 shares. Once again, this runs counter to the stated intent of focusing on retail business.

As a result, the EU display rule is likely to have a much wider scope than its US counterpart. This runs counter to the aims of pre-trade requirements targeted only at providing a cushion of protection for retail investors. Overly expansive rules can reactivate the fears stated above of over-inclusive pre-trade rules, which both academic theory and empirical studies suggest may hurt market quality in terms of lower liquidity provision.

Fundamentally, the two pre-trade frameworks have evolved in two different contexts. In the US, the SEC has since the 1970s tried to link together markets. Quote-driven dealer markets combined with a large "third market", where large parts of the retail order flow were being internalised by investment firms, led to the creation of a pre-trade regime for exchange specialists and "third-market" market-makers. The quote rule and display rule are key parts of that approach. In the EU there is so far little systematic reliable data providing evidence of widespread internalisation of retail order flow. This could offer

support for those who claim that regulating a potentially harmful activity before it arises is premature. However, even if retail order flow was internalised, the welfare analysis would not be straightforward. As highlighted above, internalisation offers such benefits as speedy and reliable execution, which in many surveys comes out on top of retail investors' preferences. Nor are pre-trade requirements the only way to deal with the potential risks of internalisation. Best-execution and order-handling rules also play an important role in providing cushions of protection for retail investors.

7.4.1.4 Alternatives to pre-trade requirements

Another argument in favour of waiting or abstaining to impose pre-trade rules at this stage is that alternatives to a mandated public framework of rules may exist. More specifically, while pre-trade requirements are motivated out of the concern that disconnected liquidity pools may otherwise arise with negative effects on price discovery and in the end, worse execution for large classes of investors, there may be other ways of improving the execution quality of customer orders.

Relying on market incentives?

First, pre-trade requirements may not need to be mandated. There may be market practices aimed at uncovering hidden liquidity that may make mandatory pre-trade requirements unnecessary. For example, Immediate or Cancel (IOC) orders are one way by which intermediaries currently uncover liquidity in more opaque venues. Such practices are not perfect substitutes, but they offer market-based ways of uncovering liquidity even when all trade interest is not visible.

Moreover, each trading venue has an incentive to publish as much information as possible in order to attract more orders. This should in principle apply to price quotes as well. Therefore, before embarking on a strategy of mandating quote disclosure, regulators should assess whether relying on market incentives may be sufficient.

However, for that to be the case and best practices to spread, intermediaries have to be engaged in effective competition. Contestable markets can be partly stimulated by regulators, by e.g. ensuring that barriers to entry are as low as possible. Best-execution rules also play an important part in this respect, as they would force intermediaries to contemplate a wide range of venues before executing customer orders. Such requirements would accordingly increase competition between trading venues (including intermediaries). Hence, in perfectly competitive markets, pre-trade rules may be superfluous. In less than perfectly competitive markets, there will probably be more of a need for well calibrated rules.

Sunshine trading on regulated markets?

One reason why traders want to trade off public markets is that they want to avoid trading with more informed counterparties. In addition, some traders with significant positions want to avoid signalling the size of their trading interest to the wider market. More opaque trading venues, e.g. in-house crossing services provided by broker-dealers, can assist traders in their quest to find suitable counterparts by screening out potentially informed traders. Hence, since regulated markets may not be able to provide the desired functionality, traders use off-exchange trading instead. Extending pre-trade requirements to investment firms risks undermining that possibility, by making these

trading venues just as transparent, and hence open for informed traders, as are exchanges.

An alternative to extending pre-trade requirements would be for exchanges to address the reasons why traders want to trade off the exchange in the first place. One study above (Madhaven, 2000) suggested that regulated markets ought to emulate some of the characteristics of off-exchange trading venues in order to improve their liquidity provision overall and for certain shares in particular. Exchanges have done so by e.g. extending trading hours and introducing closing auctions.[153] It has been argued that exchanges could introduce some kind of "sunshine trading", i.e. the ability of traders to know the identity of potential counterparties, hence enabling them to screen out informed traders.

Currently, European exchanges offer some exceptions to full anonymity. Traders can see the name of their counterparty both pre- and post-trade in Germany, Italy, Spain and the four Nordic markets. In Portugal that is possible post-trade, while in France, Britain, Holland and Belgium, it is not possible. Nevertheless, despite these possible reductions in anonymity, orders routed to a regulated market will at some stage have to be displayed to the public.

Overall, these results suggest that there is a legitimate need to avoid informed traders. The CLOBs of regulated markets do not always provide the desired functionality, although they may achieve some of the desired characteristics. Instead, other venues have arisen to cater for this need (in-house matching, crossing…). In the discussion surrounding transparency requirements of trading venues, these differing needs of traders should be taken into account and regulation should provide for traders' continued ability to choose trading venues depending on their differing needs.

7.4.1.5 Transparency no panacea

There are two major arguments favouring a high level of transparency. First, transparency could enable the co-existence of competing venues while ensuring that the harm from fragmentation is minimised. Second, transparency is also an effective way of redressing information asymmetries by giving retail investors more information about trading opportunities. These benefits are amplified when taking into account the administrative benefits. Relying on transparency is an attractive regulatory strategy: it requires low resources on the part of regulators and it "leans with the market", as it enables market forces to play. Hence, it is natural to have a presumption in favour of more transparency. Accordingly, any future regulatory framework is likely to have a significant transparency component.

However, while there is agreement on the general benefits of transparency, there is no consensus on how far it should extend. There is close to consensus on the merits of extending post-trade requirements to all actors dealing in securities. However, views differ on the effects of pre-trade requirements, with an important body of opinion claiming that too much transparency may under some circumstances harm market quality. While benefiting some traders, pre-trade requirements are likely to discourage

[153] It has been argued, however, that exchanges should on the contrary decrease trading hours for those shares that do not have sufficient natural liquidity to be traded all day.

traders sitting on large blocks from entering the market. These traders are important from a liquidity supply point of view, as they represent large trades or providers of capital. If they decide to retreat to a more accommodative environment, the effect of pre-trade requirements on overall liquidity risks being detrimental. There is a magnitude of studies supporting the theoretical risks, but equally abundant research shedding doubt on the practical effect of those theoretical risks.

Fundamentally, when designing pre-trade rules, regulators have to make a choice between maximising economic efficiency or promoting more service competition. The former would imply setting high pre-trade requirements so that the overall price mechanism was maximised. However, pre-trade transparency may have detrimental effects on part of the market and may prevent some investors satisfying their legitimate needs. If regulators choose to allow investors to satisfy these needs and hence limit pre-trade requirements, this will come at a certain cost in terms of economic efficiency. It remains to be decided which is the most important.

Transparency is no panacea and as stated above, there is "disquieting evidence" that too much transparency may harm market quality, as it effectively disables some liquidity provision. In addition, some of the concerns voiced above, e.g. that a too low level of transparency puts some investors at risk, can also be addressed with other means.

7.4.2 Promoting better execution

The Commission's proposal to introduce a framework for best execution is welcome. Best-execution rules are a core part of any regulatory approach adapted to a more diverse trading landscape.

The EU definition, that execution quality is not limited to price, is well in line with international consensus and practice. The best-execution rule also provides incentives for intermediaries to survey access execution opportunities in a wider range of trading venues and hence eliminates the idea that a regulated market can act as a benchmark or a safe harbour. Moreover, by requiring intermediaries to review their execution arrangements on a regular basis, the rules insert an element of change and competition. Depending on how the conduct of business rules are interpreted, the rules also foresee that intermediaries should disclose their execution arrangements to clients. By requiring intermediaries to maintain records, the proposed directive enables clients and supervisors to monitor execution quality.

These rules appear broadly appropriate, although the term "ensure" may be too harsh on investment firms. It is important that the implementing committees put a strong and rigorous framework in place. As developed above, best-execution rules are another regulatory tool to promote the consumer's interest, i.e. to ensure that investors receive adequate execution quality. Best-execution rules are certainly made more effective by pre-trade transparency, as intermediaries will have price quotes from a wider range of trading venues. However, as elaborated upon above, where to put the emphasis is a matter of judgement.

7.4.3 Stringent order priority rules

To harness the positive effects of internalisation, it also important to have stringent order priority rules. In their absence, there is a potential that the intermediary will time

the execution of customer orders to fit its proprietary trading needs and not execute the trade according to the best interest of its customer. With clear time precedence rules, such a possibility is denied.

The Commission's proposed Art. 20 will enforce time priority, i.e. first orders received are the first to be executed. The directive states little about price priority, however. Whether these rules are flexible enough to enable intermediaries to exercise proper judgement as to when to execute client orders remains a matter of debate.

If pre-trade transparency for investment firms were eliminated, the effect may well be a reduction in price priority. However, market incentives should play a major role in ensuring that investors post orders on the most liquid trading venue.

Best-execution rules in combination with order-handling rules can, if properly designed, somewhat attenuate the lack of pre-trade transparency. This is illustrated by recent FSA proposals, which would still impose a demanding regime on intermediaries – who would be obliged to explain how they set prices (disclosure), consider other venues (review) and demonstrate that outcomes of in-house matching are just as good as other execution venues (monitoring) – despite the absence of pre-trade transparency.[154] By requiring intermediaries to disclose how they handle orders to achieve best execution and how they effectively rout their orders, investors will be able to assess execution quality even in the absence of pre-trade requirements. Furthermore, if obliging intermediaries to regularly review these arrangements, pressure for change and competition are promoted and disconnected liquidity pools somewhat reconnected.

Better execution and order-handling rules are hence related to pre-trade transparency. Pre-trade rules provide information. Coupled with best-execution and priority rules, intermediaries will be obliged to act upon that information. However, if pre-trade transparency is in some cases regarded as potentially harmful, the ensuing respite for intermediaries of not requiring such transparency can be somewhat mitigated by putting more emphasis on the other rules. Regulation is accordingly a matter of emphasis. While the best solution may well be to require more transparency, the lack of transparency can somewhat be compensated for by another solution: more stringent best-execution requirements.

7.4.4 Addressing conflicts of interest

Another way of ensuring that intermediaries treat investors fairly is to strike down any potential conflicts of interest. As illustrated above, much financial intermediation contains such conflicts. Eliminating them entirely is not a feasible regulatory goal. Instead, procedures should be put in place to highlight and deal with them.

The Commission's decision to insert a free-standing provision on conflicts of interest is laudable. The proposal will decrease the risk that clients' interests are not put first when executing orders. This is essential in order to avoid situations where an investment firm's own interest takes precedence over its clients. These rules assume special importance in the face of the conflict of interest in internalisation, where intermediaries have a direct interest in executing customer orders in-house (hence avoiding exchange fees and commissions and also being able to offset inventory problems). This risk, as

[154] FSA (2002).

mentioned above, is especially important when less informed retail investors are involved. Hence, these conflict of interest rules are an essential additional cushion of protection for retail investors.

7.4.5 Competition and equal access to trading opportunities

In order to increase the level of contestability, barriers to entry should be kept low and arrangements that effectively hinder such entry should be eliminated. In this respect, the ISD should not be the primary vehicle, but rather a task falling to DG Competition. More active involvement of DG Competition is necessary. This also necessitates potential cases being brought to its attention by market participants.

Public authorities should also clamp down on unreasonable obstacles to access to trading opportunities. While some restrictions may be justified from a prudential point of view, e.g. limiting counterparty risk, trading venues (including off-exchange venues) should not be allowed to restrict access in any discriminatory manner. So far, off-exchange trading has been more leniently treated, being a relatively new phenomenon attracting a minor part of what are predominantly professional investors. However, if off-exchange trading achieves more important levels, it is important that no class of traders is systematically shut out.

Posting firm quotes, as envisaged in Art. 25, is certainly one way of granting access of traders to the trading opportunities that broker-dealers' in-house trading implies. However, such an absolute access may run counter to one important reason why traders choose to engage in off-exchange trading: to avoid informed traders by acquiring the help of an intermediary that screens these out. If the current pre-trade regime stands, intermediaries will be hampered in offering that service. While they may continue to be prepared to offer the service, they will protect themselves against informed traders by posting worse prices, which will result in wider spreads. In order to avoid this negative outcome, a more subtle method is called for.

7.4.6 Promoting flexibility by extending the use of comitology

Considering the uncertainty about the harmfulness of the underlying activity (off-exchange order execution) and the effects of the remedying feature (pre-trade transparency), the Commission's September proposal seemed reasonable. It represents a coherent regulatory strategy: if faced with uncertainty, wait, see, evaluate and possibly act down the road.

Such a strategy runs counter to the logic of legislating at the EU level, however. The EU's legislative process has an element of "now or never". The process is cumbersome, lengthy and consumes resources. Moreover, once implemented the directive assumes the character of being set in stone. It is therefore perhaps understandable that the Commission, faced with the uncertainty related to fragmentation and transparency, opted for an expansionist approach.

Since June 2002, however, the EU has been equipped with the so-called Lamfalussy process, which provides for a more flexible and speedy regulatory process. Faced with the uncertainty, one could ideally have delegated the responsibility of setting transparency standards to the European Securities Committee (ESC) and the Committee of European Securities Regulators (CESR). This would have been appropriate

considering the inherent need to continuously evaluate and calibrate these requirements. However, there are a number of problems preventing such an "easy fix". First, current comitology rules probably prohibit delegating such wide powers to committees. No level 2 measure can be put forward without specific powers having been delegated at level 1. Second, such a wide-ranging delegation carries the risk of renationalising parts of the *acquis communautaire*. The implementing committees could for example, in the context of discussing level 2 measures, decide that no harmonised legislation is needed and that powers should fall at level 3 (i.e. member state coordination). If such fears materialised, it could reiterate the drawbacks of the current ISD, where different interpretations have given rise to differences in implementation, with some member states being more lenient, others tougher. Third, wide-ranging delegation may be politically unattractive. For example, considering the European Parliament's lack of call-back right, it is doubtful whether parliamentarians would have accepted such an approach. It is therefore important that the issue of call-back is resolved so that the possibilities of the Lamfalussy process can be exploited to their full extent. However, the Council is not likely to be comfortable with delegating such a broad range of powers to implementing committees.

Faced with what is currently a cumbersome process, the importance of getting any regulatory regime "right" from the outset becomes important. Bearing in mind the differences in context, a comparison between the EU's choices with those in the US is in this case salutary. The US regulatory framework for integrating markets described above has emerged gradually over the last three decades. While the initial push for creating a National Market System (NMS) came from the top (Congress and the SEC), regulatory developments have since had more of a bottom-up character, as the SEC has petit-à-petit added rules contributing towards constructing and upholding the NMS. This process has been slow-moving, as each step has been preceded by careful deliberations and consultations with concerned parties.

In comparison, the EU's attempts to integrate markets are more recent. While the Community has certainly been grappling with the integration of markets since its inception and discussions regarding the raison d'être of e.g. concentration rules have been a part of the somewhat repetitive debate since the 1960s, it is only with the current ISD review that the Commission has put forward a more or less complete transparency regime. Combined with the strictures of EU rule-making, with binding rules emanating from the Community institutions, the EU's approach is more top-down.

This is not surprising or for that matter inappropriate, as it is natural that the EU builds on prior experience. Accordingly, the EU does not necessarily have to take the same time to put a similar transparency regime in place. However, there are inherent weaknesses to an accelerated top-down approach. By attempting to put an entire regime in place at once, it is easy to underestimate the challenge of drafting well calibrated rules. Moreover, considering the wide range of market structures catering for the different needs of traders, it is doubtful whether any regulatory agency has the skill and the resources to properly manage the imposition of a complete system.

With these caveats in mind, the priority should be to put a flexible, carefully drafted and calibrated transparency regime in place. In this respect, the Commission's proposed pre-trade regime for investment firms at first sight appears inadequate. It is rigid, as its foundation is spelled out in level 1 legislation. It is drafted with insufficient care, as

international comparisons suggest that the current rules will cover too much ground in light of its stated aims. Considering the inherent difficulties in and the need for frequent changes to any pre-trade regime, it would have been better if these issues were referred to comitology level. The US precedence, where Congress only gave an indication of the desired end goal (an effectively integrated market system) while leaving the actual choice of means of achieving that end in the hands of the SEC, is interesting. While the Commission's decision to put more detail in what is supposed to be a framework directive is understandable, given the rules of comitology, the risk to the *acquis* and the European institutions' reluctance to delegate detailed rule-making power, it is an unfortunate decision as it will put in place a rigid regulatory regime which, if not carefully drafted, risks harming European securities markets.

7.4.7 The importance of investor education

Today's marketplace is considerably more heterogeneous than yesterday's. With the proliferation of trading venues, intermediaries have a much wider choice of where to execute orders. This inherently gives rise to misjudgements as regards best execution. The regulatory framework dealing with this more fragmented marketplace is also likely to be more complex.

All the rules in the world cannot replace the value of having capable investors who are aware of the complexity of today's trading processes and who know their rights and hence are able to exert pressure on their intermediaries. Educated investors are especially important as the EU's presently segmented securities markets will integrate. Even though a harmonised framework of law will be in place, this is likely to be of predominantly minimal nature. As illustrated above, this is all together natural and appropriate considering the wide structural differences between member state markets. However, with the advent of investors increasingly being able to reap trading opportunities in other member state markets also comes the potential of misjudgements. These may be caused by e.g. persisting differences in regulatory approaches. More educated investors will be more capable of handling such difficulties.

That said, however, it is difficult to see any provisions on investor education being part of a future directive. Taking into account the subsidiarity principle, this is a task falling squarely in the lap of member state authorities. Currently, member state approaches to investor education differ widely – with some member states having a stronger equity culture than others. It could therefore be useful for one of the common institutions, say the Commission or CESR, to coordinate a process of benchmarking and spreading best practice. The more educated an investor, the lighter the regulatory touch required.

7.4.8 Concluding remarks

Regulators have to make difficult choices. Should they give priority to the maximisation of network externalities at the expense of choice and competition? Should they put the interests of retail investors first, at the risk of hurting the institutional business? Such choices are not unique. There are indeed formalised strategies to deal with such uncertainty. As stressed before, many of the concerns can be somewhat dealt with differently and any regulatory approach to deal with a changing marketplace needs to be composed of several instruments. Their relative importance and prominence is a matter of emphasis. Instead of pre-trade transparency, more stringent order-handling rules for

example may partly alleviate some of those concerns. More fundamentally, measures aimed at boosting competition are essential. Transparency rules, even though effective, are not the only option.

In sum, i) considering the potential harm of overly ambitious pre-trade requirements, ii) in view of the limited extent of many of the supposedly harmful activities in Europe so far and iii) bearing in mind the danger of putting detail in an inflexible directive, the inclusion of pre-trade requirements for investment firms appears premature. If particular protection should be provided to retail clients, then at a minimum the current rules should be rewritten so that they i) capture the intended harmful activity (dangers of certain execution manners to retail investors), as appears to have been done in the US, and ii) do not unnecessarily harm liquidity provision. However, even for the execution of retail-sized trades, many of the concerns above apply. Bearing in mind the general drawback of putting detail in a rigid directive, it would have been better if the whole transparency regime was referred to comitology as part of a strategy of waiting and seeing. It is unlikely that such a course of action would have been possible, however, under current comitology rules.

Alternatives to the disputed pre-trade requirements exist that somewhat mitigate the effects of not having pre-trade rules. In order to integrate markets and protect retail investors, more emphasis could be put on best-execution rules. By forcing investment firms to screen and have access to several trading venues and by requiring them to regularly review their execution practices, dynamism and change are introduced. Trading venues will have incentives to gain them as customers and hence are likely to compete more aggressively. By requiring investment firms to disclose their execution arrangements and costs, retail clients will have effective tools for disciplining their service providers. Order priority rules are also effective in structuring the discretion of brokers concerning the way they can execute client orders. Conflict of interest rules offer an additional cushion. These rules in combination with post-trade transparency will offer quite a rigorous regime for achieving the twin goals of integrated markets and protecting retail investors.

Considering the rapidly changing nature of securities markets, a flexible regulatory framework is of the utmost importance. When devising future rules, it is therefore important that the full potential of the flexibility offered by the Lamfalussy process is exploited. For this to be possible, however, trust between the regulatory institutions has to be in place, which is not the case at present. The EP has repeatedly signalled that in the absence of the right to call back implementing measures, it will take a very restrictive stance when delegating powers to committees. As a result the ISD, which supposed to be a framework directive, contains too much detail. The EP should rapidly be granted a call-back right. As the Commission and the EP agree on this, the ball lies with the Council of Ministers.

Last but not least. regulations cannot replace the value of well educated investors. This falls within the remit of member state responsibility. Current levels of education and professionalism differ from one country to another, and perhaps the Commission or CESR could assume a role in coordinating a process of spreading best practice.

REFERENCES

Association for Investment Management and Research (AIMR)(2002). "Trade Management Guidelines", Public Comment Request, 12 November 2001. Charlottesville: AIMR.

Autoriteit Financiële Markten (2002). "In-house matching", *Position Paper*. AFM: Amsterdam.

Baldwin, Robert and Cave, Martin (1999). *Understanding Regulation: Theory, Strategy and Practice*. Oxford University Press: Oxford.

Barclay, Michael J.; Hendershott, Terrence; McCormick, D. Timothy (2002). "Information and Trading on Electronic Communication Networks" (www.papers.ssrn.com).

Battalio, Robert H. (1997). "Third Market Broker-Dealers: Cost Competitors or Cream Skimmers?", *The Journal of Finance*, Vol. 52, issue 1 (March).

Battalio, Robert H.; Greene, Jason; Jennings, Robert (1997). "Do competing specialists and Preferencing Dealers Affect Market Quality?", *The Review of Financial Studies*, Vol. 10, Issue 4 (Winter).

Biais, Bruno; Glosten, Larry; Spatt, Chester S. (2002). "The Microstructure of Stock Markets" in *CEPR Discussion Paper Series*. CEPR: London.

Biais, Bruno and Davydoff, Didier (2002). *Internalisation, Investor Protection and Market Quality*. IDEI/IEM.

Birinyi Associates (2002). "Global Equity Markets" in *North America Equity Research*, Deutsche Bank (US).

Board, John; Sutcliffe, Charles; Wells, Stephen (2002). "Market Regulation in a Dynamic Environment" in *Financial Market Group Working Papers*. London: London School of Economics.

Clearstream International (2002). "Cross-Border Equity Trading, Clearing and Settlement in Europe", *White Paper*, Clearstream International (Deutsche Börse Group).

Crane, Dwight; Froot, Kenneth A,; Mason, Scott P.; Perold, André F.; Merton, Robert C.; Bodie, Zvi; Sirri, Erik R.; Tufano, Peter (1996). *The Global Financial System: A Functional Perspective*. Harvard Business School Press: Boston.

Davies, Ryan; Dufour, Alfonso; Scott-Quinn, Brian (2003). "Building a competitive and efficient European financial market", *ECMI Occasional Paper*, ISMA Centre Reading/ECMI (forthcoming).

Davis, E. Philip and Steil, Benn (2001). *Institutional Investors*, MIT Press: Cambridge, Massachusetts.

Davydoff, Didier; Gresse, Carole; Grillet-Aubert, Laurent (2002). *Internalisation of the Order Flow*. IEM Finance/FESE.

Deutsche Börse (2003). *Deutsche Börse Group: From Trading Floor to Virtual Marketplace*(http://deutsche-boerse.com/INTERNET/EXCHANGE/index_e.htm).

Domowitz and Madhavan (2001). Cost Savings in the POSIT Trading System - The Posit Value Equation (<www.itginc.com>).

Domowitz, Ian and Lee, Ruben (1998). "The Legal Basis for Stock Exchanges: The Classification and Regulation of Automated Trading Systems".

Domowitz, Ian and Steil, Benn (1999). "Automation, Trading Costs and the Structure of the Securities Trading Industry" in *Brookings-Wharton: Papers on Financial Services 1999*, pp. 31-81. Washington DC: Brookings Institution Press.

Easley, David; Kiefer, Nicholas M.; O'Hara, Maureen (1996). "Cream-skimming or Profit-Sharing? The Curious Role of Purchased Order Flow" in *The Journal of Finance*, Vol. 51, Issue 3, July 1996.

Economides, Nicholas (1993). "Network economics with application to finance" in *Financial Markets, Institutions and Instruments*, Vol. 2, No. 5.

Euronext (2003). *Euronext: organisation and procedures* (http://www.euronext.com/extra/pdf/euronext_organisation_12_2002_en.pdf).

European Asset Management Association (EAMA)(2002). *Best Execution: Executing Transactions in Securities Markets on behalf of Investors* (http://www.eama.org/publications/bestexecution.pdf).

European Commission (2002). "Proposal for a Directive of the European Parliament and the Council on Investment Services and Regulated Markets", *COM (2002) 625 final*. Brussels: European Commission.

European Commission (2000). "Upgrading the Investment Services Directive" in *Communication from the Commission to the European Parliament and the Council, COM (2000) 729 final*. Brussels: European Commission.

European Commission (1993). Council Directive 93/22/EEC on investment services in the securities field. Brussels: European Commission.

European Commission (1985). "Completing the Internal Market", White Paper from the Commission to the Council, COM (85) 310 final. Brussels: European Commission.

Financial Services Authority (FSA)(2002). "Best Execution", *Consultation Paper*, No. 154, October 2002 (http://www.fsa.gov.uk/pubs/cp/cp154.pdf).

Fong, Kingsley; Madhavan, Ananth; Swan, Peter (1999). "Why Do Securities Markets Fragment?" in *Marshall School of Business Working Paper*, No. 18, November 1999.

Frutos, M. Ángeles de and Manzano, Carolina (2002). "Risk Aversion, Transparency, and Market Performance" in *The Journal of Finance*, Vol. 57 (2), p. 959-984.

Goldfinger, Charles and Levin, Mattias (2002). "Internet and Securities Markets" in *FIWG Position Paper*, Financial Internet Working Group (FIWG, www.fininter.net).

Goodhart, Charles; Hartmann, Philipp; Llewellyn, David; Rojas-Suárez, Liliana; Weisbrod, Steven (1998). *Financial Regulation: Why, how and where now?* Routledge: London.

Hansch, Oliver; Naik, Narayan Y.; Viswanathan, S (1999). "Preferencing, Internalization, Best Execution and Dealer Profits" in *The Journal of Finance*, Vol. LIV, No. 5, October 1999.

Harris, Larry (2002). *Trading and Exchanges: Market Microstructure for Practitioners*. Oxford University Press: Oxford.

Hasan, Iftekhar & Schmiedel, Heiko (2003). "Do networks in the stock exchange industry pay off? European evidence" in *Bank of Finland Discussion Papers*, No. 2 2003.

Hasan, Iftekhar; Malkamäki, Markku; Schmiedel, Heiko (2002). "Technology, automation, and productivity of stock exchanges: International evidence", *Bank of Finland Discussion Papers*, No. 4 2002.

Hasan, Iftekhar & Malkamäki, Markku (2000). "Are Expansions Cost Effective for Stock Exchanges? A Global Perspective" in *Bank of Finland Discussion Papers*, No. 20, 2000.

Huang, Roger D. (2002). "The Quality of ECN and Nasdaq Market Maker Quotes", *The Journal of Finance*, Vol. LVII, No. 3 (June).

IOSCO (2001). *Transparency and Market Fragmentation*. Report from Technical Committee. November 2001.

Lannoo, Karel (2003). "The new ISD: a symptom of excessive harmonisation in the implementation of the Lamfalussy approach?", *CEPS Commentary*, February 2003.

Lannoo, Karel (2001). "EU Securities Market Regulation: Adapting to the Needs of a Single Capital Market", *CEPS Task Force Report*, March 2001.

Lannoo, Karel & Levin, Mattias (2001). "The Securities Settlement Industry: Structure, Costs and the Way Forward", *CEPS Research Report*, November 2001.

Lee, Ruben (2002a). *Capital Markets that Benefit Investors: A Survey of the Evidence on Fragmentation, Internalisation and Market Transparency*. Oxford Finance Group.

Lee, Ruben (2002b). "The Future of Securities Exchanges" in *Wharton Working Paper Series*, Wharton Financial Institutions Center: Pennsylvania.

Lee, Ruben (1998). *What is an Exchange?* Oxford: Oxford University Press.

Levitt, Arthur (1999). "Best Execution: Promise of Integrity, Guardian of Competition", Speech by SEC Chairman at *Securities Industry Association*, November 1999.

Lo, Andrew W. (1996). *The Industrial Organization and Regulation of the Securities Industry*. NBER/University of Chicago Press: Chicago.

London Economics (2002). *Quantification of the Macroeconomic Impact of Integration of EU Financial Markets*. November 2002, Brussels: European Commission.

Madhavan, Ananth (2000). "Market Microstructure: A Survey" in *Marshall Business School Working Papers*, No. UCLA, March 2000.

Madhavan, Ananth; Porter, David; Weaver, Daniel (2000). "Should securities markets be transparent?" in

Malkamäki, Markku (1999). "Are there Economies of Scale in Stock Exchange Activities?" in *Bank of Finland Discussion Papers*, No. 4 1999.

Moloney, Niamh (2002). *EC Securities Regulation*. Oxford Law Library, Oxford University Press: Oxford.

Nasdaq (2002). "Market Mechanics: A Guide to U.S. Stock Markets", *Nasdaq Educational Foundation*.

Nazareth, Annette L. and Dombalagian, Onnig H. (2001). "Lending a Hand to the Invisible Hand: How a National Market System Contributes to the Evolution of the US Securities Marketplace", *SEC Major Issues Conference*, Northwestern University School of Law.

Pagano, Marco (1997). "The Changing Microstructure of European Equity Markets" in *CSEF Working Paper*, No. 4. Fisciano: Centro Studi in Economia e Finanza.

Schmiedel, Heiko (2002). "Total factor productivity growth in European stock exchanges: A non-parametric frontier approach", *Bank of Finland Discussion Papers*, No. 11 2002.

Schmiedel, Heiko (2001). "Technological development and concentration of stock exchanges in Europe", *Bank of Finland Discussion Papers*, No. 21 2001.

Securities and Exchange Commission (SEC) (1996), *Securities Exchange Act Release No.37619A* (September 6, 1996), 61 FR 48290 (September 12, 1996) ("Adopting Release").

Segré Report (1966), *The Development of a European Capital Market*, special report by a Group of Experts appointed by the EEC Commission.

Seligman, Joel et al. (2001). *Report of the Advisory Committee on Market Information: A Blueprint for Responsible Change*. SEC, September 2001.

Steil, Benn; Victor, David G.; Nelson, Richard R. (eds)(2002). *Technological Innovation and Economic Performance*. Council of Foreign Relations/Princeton University Press: Princeton.

White, Lawrence J. (1996). "Technological change, financial innovation, and financial regulation in the US: the challenges for public policy" in *Technology and Finance: Papers from the Discussion Series of the New York Academy of Sciences*, September 30, 1996.

Weston, James P. (2000). "Competition on the Nasdaq and the Impact of Recent Market Reforms", The Journal of Finance, Vol. LV, No. 6 (December).

ANNEX 1. SELECTED ARTICLES FROM THE 2002 ISD PROPOSAL

Article 16

Conflicts of interest

1. Member States shall require investment firms to take all reasonable steps to identify conflicts of interest between themselves, including their managers and employees, and their clients or between one client and another that arise in the course of providing any investment and ancillary services, or combinations thereof.
2. Member States shall require that investment firms whose activities give rise to conflicts of interest maintain and operate effective organisational and administrative arrangements to prevent those conflicts from adversely affecting the interests of clients, or otherwise manage them so as to achieve the same result.
3. Where organisational or administrative arrangements made by the investment firm to manage conflicts of interest are not sufficient to ensure, with reasonable confidence, that risks of damage to client interests will be effectively avoided, the investment firm shall clearly disclose the general nature and/or sources of conflicts of interest to the client before undertaking business on its behalf.
4. In order to take account of technical developments on financial markets and to ensure uniform application of paragraphs 1, 2 and 3, the Commission shall adopt, in accordance with the procedure referred to in Article 59(2), implementing measures to:

   (a) define the steps that investment firms might reasonably be expected to take to identify, prevent, manage and/or disclose conflicts of interest when providing various investment and ancillary services and combinations thereof;

   (b) address conflicts that arise from any inducement that is received or self-interest that arises in connection with the performance of an investment service which may compromise the quality or fairness of a related investment service that is performed on behalf of or provided to a client.

Article 19

Obligation to execute orders on terms most favourable to the client

1. Member States shall require that investment firms providing services which entail the execution, whether by the firm itself or another investment firm, of client orders in financial instruments ensure that those orders are executed in such a way that the client obtains the best possible result in terms of price, costs, speed and likelihood of execution, taking into account the time, size and nature of customer orders, and any specific instructions from the client.
2. The competent authority shall verify that investment firms implement effective and efficient procedures which form a systematic, repeatable and demonstrable method for facilitating execution of client orders on terms that are most favourable to the client. In assessing these procedures, regard shall be had to the extent to which the procedures enable the firm to obtain the best possible result having regard to the conditions prevailing in the marketplace to which the investment firm can reasonably be expected to have access.
3. Member States shall require investment firms to review, on a regular basis, the procedures which they employ to obtain the best possible result for their clients and, where necessary, to adapt those procedures so as to obtain access to the execution venues which, on a consistent basis, offer the most favourable terms of execution available in the marketplace.
4. In order to ensure the protection necessary for investors, the fair and orderly functioning of markets, and to ensure the uniform application of paragraphs 1, 2 and 3, the Commission shall, in accordance with the procedure referred to in Article 59(2), adopt implementing measures concerning:
   (a) the factors that may be taken into account for determining best execution or the calculation of best net price prevailing in the marketplace for the size and type of order and type of client;
   (b) the procedures which, taking into account the scale of operations of different investment firms, may be considered as constituting reasonable and effective methods of obtaining access to the execution venues which offer the most favourable terms of execution in the marketplace.

Article 20
Client order-handling rules

1. Member States shall require that investment firms authorised to execute orders on behalf of clients implement procedures and arrangements which provide for the fair and expeditious execution of client orders, relative to other client orders or the trading interests of the investment firm.
2. Member States shall ensure that investment firms operate procedures or arrangements for executing otherwise comparable client orders in accordance with their time of their reception by the investment firm, and for preventing client interests from being adversely affected by any conflicts of interest.
3. Member States shall ensure that investment firms obtain the express prior consent of clients before proceeding to execute client orders outside the rules and systems operated by a regulated market or MTF. Member States shall allow the investment firm to obtain this consent either in the form of a general agreement or in respect of individual transactions. If the prior consent of clients is given in the form of a general agreement, it should be contained in a separate document and should be renewed annually.
4. Member States shall require that, in the case of a client limit order which cannot be immediately executed under prevailing market conditions, investment firms are, unless the client expressly instructs otherwise, to take measures to facilitate the earliest possible execution of that order by making public immediately the terms of that client limit order in a manner which is easily accessible to other market participants. Member States shall provide that the competent authorities are to be able to waive the obligation to make public a limit order that is large in scale compared with normal market size as determined under Article 41(2).
5. In order to ensure that measures for the protection of investors and fair and orderly functioning of markets take account of technical developments in financial markets, and to ensure the uniform application of paragraphs 1 to 4, the Commission shall adopt, in accordance with the procedure referred to in Article 59(2), implementing measures which define:

   (a) the conditions and nature of the procedures and arrangements which result in the prompt, fair and expeditious execution of client orders and the situations in which or types of transaction for which investment firms may reasonably deviate from prompt execution so as obtain more favourable terms for clients;

   (b) the procedures for obtaining and renewing client consent prior to executing those orders outside the rules and systems of a regulated market or MTF;

   (c) the different methods through which an investment firm can be deemed to have met its obligation to disclose unexecuted client limit orders to the market.

Article 25

Obligation for investment firms to make public firm bid and offers

1. Member States shall require any investment firm authorised to deal on own account to make public a firm bid and offer price for transactions of a size customarily undertaken by a retail investor in respect of shares in which it is dealing, and where those shares are admitted to trading on a regulated market and for which there is a liquid market.

   Member States shall require that the investment firms referred to in the first subparagraph trade with other investment firms and eligible counterparties at the advertised prices, except where justified by legitimate commercial considerations related to the final settlement of the transaction.

2. Member States shall provide that the obligation set out in paragraph 1 is waived in respect of investment firms which do not represent an important provider of liquidity for the share(s) in question on a regular or continuous basis.

3. Member States shall ensure that the bid and offer prices required under paragraph 1 are made public in a manner which is easily accessible to other market participants, free of charge, on a regular and continuous basis during normal trading hours.

   The competent authority shall verify that published quotes reflect prevailing market conditions for that share, and that the investment firm regularly updates the bid and offer prices that it makes public pursuant to paragraph 1.

4. In order to ensure the uniform application of paragraphs 1, 2 and 3, in a manner which supports the efficient valuation of shares and maximises the possibility of investment firms to obtain the best deal for their clients, the Commission shall, in accordance with the procedure referred to in Article 59(2), adopt implementing measures which:

   (a) specify the size of transactions customarily undertaken by a retail investor in respect of which the investment firm shall make public firm bid and offer prices;

   (b) define the shares or classes of share for which there is sufficient liquidity to allow application of the obligation under paragraph 1;

   (c) determine which types of investment firms shall be exempted, pursuant to paragraph 2, from the obligation under paragraph 1;

   (d) specify the means by which investment firms may comply with their obligations under paragraph 3, which shall include the following possibilities:

      i) through the facilities of any regulated market which has admitted the instrument in question to trading;

      ii) through the offices of a third party;

      iii) through proprietary arrangements.

MEMBERS OF THE CEPS TASK FORCE

The report does not reflect a common position of the member of the Task Force. Accordingly, each member of the Task Force does not subscribe to every assessment contained in this report, nor does the report necessarily reflect the views of the respective institutions to which they belong.

Rapporteur: Mr. Mattias Levin
Research Fellow
CEPS

Mr. Ludovic Aigrot
Special Adviser
European Affairs
Euronext Brussels

Mr. Paul Arlman
Secretary General
Federation of European Securities Exchanges (FESE)

Mr. Alberto Baltanas Nunez
Economist
Banco Santander

Dr. Matthias Bock
Executive Director & Counsel
Goldman Sachs International

Mr. Richard Britton
ISMA - International Securities Market Association

Ms. Asuncion Caparros
Vice President
EU Liaison Office
ABN Amro Bank N.V.

Mr. Nick Collier
Director
European Government & Reg. Affairs
Instinet Europe Ltd

Mr. Ronny Cosijns
CAPCO

Mr. Daniel Dax
Deputy Director
Luxembourg Stock Exchange

Mrs. Simonetta Di Cagno
Head of Representative Office
Assonime

Ms. Sophie Gautié
EU Representative
General Secretariat
BNP Paribas Securities Services

Mr. Kyriakos Gialoglou
Research Fellow
CEPS

Mr. Charles Goldfinger
Managing Director
Global Electronic Finance

Mr. Daragh Grant
Public Policy Analyst
UBS AG

Mr. Alasdair Haynes
Chief Executive Officer
ITG Europe

Ms. Ellen Hörth
Referent
Capital Markets Policy
Deutsche Bank AG

Mr. Staffan Jerneck
Deputy Director & Director of Corporate Relations
CEPS

Mr. Adam Kinsley
Head of Regulatory Strategy
London Stock Exchange

Mr Jens Krenchel
Adviser
Confederation of Danish Industries - DI

Mr. Karel Lannoo
Chief Executive
CEPS

Mr. Henry Manisty
Head
Government & Regulatory Affairs
Reuters

Mr. Alex Marin
CAPCO

Mr. Jose Ramon Martinez Resano
Senior Economist
Operations Department
Bank of Spain

Ms. Colleen McBrien
Manager
Policy Development
London Stock Exchange

Mrs. Arianna Mellini Sforza
European Affairs Office
San Paolo - IMI SpA

Mr. Wim Mijs
Senior Vice President
Head of Representative Office Brussels
ABN Amro Bank N.V.

Mr. Joaquin Monells
Deputy General Manager
Head Representative to the EU & ECB
BBVA

Mr. Salim Nehmé
Senior Adviser
French Banking Federation

Mr. Gregor Pozniak
Deputy Secretary General
Federation of European Securities
Exchanges (FESE)

Mr. Fabio Recine
Legal Counsel
European Central Bank

Mrs. Wendy Reed
Senior Manager
PERAS
PricewaterhouseCoopers

Mr. Donald Ricketts
Consultant
GPC International

Ms. Sophia Saridou-Zafiropoulou
General Director
Association of Members of the Athens
Stock Exchange

Dr. Stephan Schuster
Managing Director
Capital Markets Policy
Deutsche Bank AG

Ms. Kleanthi Seimanidi
Lawyer
Association of Members of the Athens
Stock Exchange

Ms. Helen Stack
European Policy Advisor
Centrica plc.

Mr. Massimo Suardi
Economist
DG ECFIN
European Commission

Ms Angela Teke
Director
Wholesale and Regulation
British Bankers Association

Mr. Henning vom Stein
Assistant Manager
Deutsche Bank AG

Mr. Christoph Wengler
Assistant Manager & Analyst
Commerzbank EU-Liaison Office Brussels

Mr. Georgios Zavvos
Member of the Legal Service, former
Member of the European Parliament (MEP)
European Commission

INVITED GUESTS AND SPEAKERS

Mr. Manuel Altemir Mergelina
Internal Market DG
European Commission

Dr. John Board
London School of Economics & Political Science

Mr. Niall Bohan
Internal Market DG
European Commission

Mr Carlo Comporti
Committee of European Securities Regulators (CESR)

Dr. Carmine Di Noia
Chief Economist
Assonime

Prof. Ian Domowitz
Managing Director
ITG Inc.

Mr Sabino Fornies Martinez
Internal Market DG
European Commission

Mrs. Rebecca Jones
Permanent Representation of the United Kingdom to the EU

Mr. Emmanuel Lacresse
Deputy Financial Counsellor
Permanent Representation of France to the EU

Dr Ruben Lee
Managing Director
Oxford Finance Group

Dr. Patrice Müller
London Economics

Dr. Giovanni Notaro
London Economics

Mr. Wiclef Poesiat
Permanent Representaion of the Netherlands to the EU

Mrs. Theresa Villiers
MEP, Committee on Economic and Monetary Affairs
European Parliament

Mr. Mats Walberg
Permanent Representation of Sweden to the EU

ABOUT CEPS

Founded in 1983, the Centre for European Policy Studies is an independent policy research institute dedicated to producing sound policy research leading to constructive solutions to the challenges facing Europe today. Funding is obtained from membership fees, contributions from official institutions (European Commission, other international and multilateral institutions, and national bodies), foundation grants, project research, conferences fees and publication sales.

GOALS

- To achieve high standards of academic excellence and maintain unqualified independence.
- To provide a forum for discussion among all stakeholders in the European policy process.
- To build collaborative networks of researchers, policy-makers and business across the whole of Europe.
- To disseminate our findings and views through a regular flow of publications and public events.

ASSETS AND ACHIEVEMENTS

- Complete independence to set its own priorities and freedom from any outside influence.
- Authoritative research by an international staff with a demonstrated capability to analyse policy questions and anticipate trends well before they become topics of general public discussion.
- Formation of seven different research networks, comprising some 140 research institutes from throughout Europe and beyond, to complement and consolidate our research expertise and to greatly extend our reach in a wide range of areas from agricultural and security policy to climate change, justice and home affairs and economic analysis.
- An extensive network of external collaborators, including some 35 senior associates with extensive working experience in EU affairs.

PROGRAMME STRUCTURE

CEPS is a place where creative and authoritative specialists reflect and comment on the problems and opportunities facing Europe today. This is evidenced by the depth and originality of its publications and the talent and prescience of its expanding research staff. The CEPS research programme is organised under two major headings:

Economic Policy

Macroeconomic Policy
European Network of Economic Policy Research Institutes (ENEPRI)
Financial Markets, Company Law & Taxation
European Credit Research Institute (ECRI)
Trade Developments & Policy
Energy, Environment & Climate Change
Agricultural Policy

Politics, Institutions and Security

The Future of Europe
Justice and Home Affairs
The Wider Europe
- South East Europe
- Caucasus & Black Sea
- EU-Russian/Ukraine Relations
- Mediterranean & Middle East

CEPS-IISS European Security Forum

In addition to these two sets of research programmes, the Centre organises a variety of activities within the CEPS Policy Forum. These include CEPS task forces, lunchtime membership meetings, network meetings abroad, board-level briefings for CEPS corporate members, conferences, training seminars, major annual events (e.g. the CEPS International Advisory Council) and internet and media relations.