

Market Regulation in a Dynamic Environment

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1. Introduction

Change, or the possibility of change, in financial markets has caused regulators worldwide to consider how best to adapt their role to achieve successful supervision of financial markets. At the core of the debate, which is current in the UK, the USA and EU, is the issue of fragmentation of the traditional monolithic (and monopolistic) exchanges into a range of different, and possibly short lived, competing market places. This induces a conflict between the regulator's desire for order, and the need to promote competition and innovation in the provision of trading venues.

Because trading venues are opening, competing in a number of dimensions, and merging in unpredictable ways, the future structure of financial markets is uncertain, and it is important that any new arrangements not be predicated on a particular view of the organization of the market. This is particularly important because any static view of the market is likely either be proved wrong, or to introduce the possibility of regulatory arbitrage by participants between regulated segments.

The focus of this paper is on factors which permit regulation without compromising the ability of markets to innovate. We begin from the position that competition between market venues is desirable and should be encouraged, and that an important condition for competition to be effective is that information should be widely available at minimal cost. This, together with the ability to monitor agents' positions and a consistent and uniform approach to the transparency of trading activity offer the possibility of 'light touch' regulation without the complexity and cost of 'per-venue' supervision¹.

Section 2 summarises the basis of UK market regulation, section 3 contains a discussion of fragmentation and competition. Section 4 discusses the regulatory options for regulators, while section 5 outlines the problems facing regulators in a fragmented world. Transparency, which is central to the debate, is considered in section 6; and section 7 outlines the problems created by the presence of OTC trading.

2. The scope of UK market regulation

The Financial Services & Markets Act² ('FSMA') has significantly extended the responsibilities of the Financial Services Authority (FSA) in the markets area. A central feature of the new Act is Parliament's establishment of four statutory objectives for the FSA which broaden considerably the FSA's existing responsibility in this area, namely to ensure the 'orderly control of business' on Recognised Investment Exchanges (RIEs). The four statutory objectives are³:

1. Maintaining confidence in the UK financial system⁴.
The financial system includes financial markets and exchanges, regulated activities and other activities connected with financial markets and exchanges (FSMA, section 3).
2. Promoting public understanding of the financial system.
This includes promoting awareness of the benefits and risks associated with different kinds of investment or other financial dealing, and the provision of appropriate information and advice (FSMA, section 4).
3. Securing the appropriate degree of protection for consumers.

The FSA must have regard to the differing degrees of risk involved in different kinds of investment or other transactions, the differing degrees of experience and expertise that different consumers may have in relation to different kinds of regulatory activity, the needs that consumers may have for advice and accurate information and the general principle that consumers should take responsibility for their actions (FSMA, section 5).

4. Reducing financial crime.

This involves reducing the extent to which it is possible for a business carried on by a regulated person⁵ or in contravention of the general prohibition to be used for a purpose connected with financial crime⁶. The FSA must have regard to the desirability of regulated persons being aware of the risk of their business being used in connection with the commission of financial crime, and regulated persons taking appropriate measures to prevent financial crime, facilitate its detection and monitor its incidence, and regulated persons devoting adequate resources to these matters (FSMA, section 6).

In discharging its general functions the FSA must also have regard to (FSMA, section 2):

- the need to use its resources in the most efficient and economic way,
- the responsibilities of those who manage the affairs of authorised persons,
- the principle that a burden or restriction which is imposed on a person, or on the carrying on of an activity, should be proportionate to the benefits, considered in general terms, which are expected to result from the imposition of the burden or restriction,
- the desirability of facilitating innovation in connection with regulated activities,
- the international character of financial services and markets and the desirability of maintaining the competitive position of the UK,
- the need to minimise the adverse effects on competition that may arise from anything done in the discharge of those functions,
- the desirability of facilitating competition between those who are subject to any form of regulation by the FSA.

Finally, the FSA's Recognition Requirements⁷ for investment exchanges and clearing houses oblige the FSA to maintain "orderly markets". This raises the question of how to define a market for these purposes. As discussed below, this could include not just RIEs but also trading arranged through Alternative Trading Systems⁸ (ATs) and over the counter (OTC) markets in particular instruments.

In the context of markets and exchanges, there are a number of ways in which the FSA may fail to meet its four objectives: (i) Confidence may be damaged if markets are opaque, open to manipulation, inaccessible to consumers, or consumers cannot be sure to get the best available price. (ii) Public understanding may be reduced if there is a lack of market transparency. This includes not just pre- and post-trade transparency, but also the way the market works (e.g. order routing decisions, internalization and payment for order flow). (iii) Consumer protection may be reduced if best execution is not achieved; and this requires transparency, access to markets and trade reporting. (iv) Financial crime may be enabled if markets are susceptible to manipulation, possibly due to the inadequate reporting of trades and positions in such a way that no single body has overall oversight. Finally, (v) there is the risk that trading through unregulated marketplaces has knock-on effects on regulated markets.

A key issue is whether the markets are to be regulated for the benefit of the existing users or a broader constituency, which includes potential users. The first can be interpreted as the maintenance of the *status quo* in which an existing group of participants trade with each other and are content with the existing arrangements for trading (e.g. in terms of transparency and market structure). The problem is that those who are uneasy about the trading conditions will tend to withdraw from (or not enter) the market, thus reducing the number of discontented users. This means that, if regulation is for the broader constituency, assurances of market efficiency made by incumbent traders are not sufficient, and regulators should be concerned about potential users of the market. Of course, the theoretical difficulty is how wide should one draw the scope of potential users and the practical difficulty of measuring latent demand. However this distinction is important, and it has certainly been

the case that practices and structures that were eminently acceptable to current users were deeply unattractive to new users. We believe that it is important that regulators consider market efficiency and confidence, not only in terms of existing users, but also in terms of potential users whose participation might further improve efficiency.

3. Fragmentation, Convergence and Divergence

A review of market structure conducted only a few years ago would have seen a much more varied landscape of trading systems than now. Exchanges had developed along their own evolutionary paths and there had been little to bring them together - except, of course, that they were all doing roughly the same thing in providing a venue for exposing interest and trading securities. These exchanges differed in a variety of ways with floor exchanges, electronic exchanges, trading crowds, dealer markets, exchanges with specialists of one kind or another, continuous markets and call-overs. Most of this diversity has gone, and the reviewer today would see a range of more homogeneous trading systems.

Twenty years ago exchanges operated in protected, segmented environments with little intellectual or commercial challenge. They had grown out of essentially OTC trading arrangements in which intermediaries combined to regulate themselves. Regulation was primarily aimed at governing how they dealt with each other, rather than how they served investors or issuers. As a result, most exchange rule books started out largely to ensure fair play between brokers, and developed piecemeal over many years as the exchange rule-makers tried to adapt their structures to accommodate changes in the environment. The result was a complex set of rules within exchanges which produced unique trading systems which were the product of the interaction of local developments and existing trading systems. Each exchange claimed that its system, by ensuring fair play between its participants, produced the best possible price discovery and maximum liquidity.

This continuous evolution tended to produce systems that were quite flexible to incremental shifts in local trading needs, but which lacked an internal logic and were frail when larger, external challenges appeared. The systems also tended to have many intermediaries, often with highly specialised roles, and with restrictions that were argued to be essential for the continued functioning of the trading process. The systems were expensive, partly because of the artificiality of many of the restrictions. The need to preserve specialised roles added layers of cost to the trading system, but this was justified by reference to the high quality of price discovery and high liquidity.

Today there is far greater homogeneity of exchanges. Even the floor versus screen debate, which was conducted during the late 1990s, now largely seems a dead issue. Practically everywhere exchanges have moved to screen trading. Where floors persist, they largely reflect the resistance of floor brokers to abandoning their home, and often need to be supported by rules to ensure sufficient orders are routed there. Almost all the electronic, screen-based systems involve a public limit order book, and in many cases it is the sole or dominant method of trading on the system. All have priorities based on price and time. While some important differences between exchanges are highlighted by our survey results, the dominant impression is of similarity.

This convergence can be explained by changes in technology and the globalisation of investment. These two powerful forces have projected the market power of the international players into ever more distant markets, and these players have tended to favour trading systems that offer safe, transparent and cheap order execution. This is somewhat paradoxical in that the dominant cross-border investors tend to come from countries (UK and USA) that have not traditionally had public order books. But it would be a brave trading system that opted to introduce a trading mechanism based on competing dealers or a specialist-driven floor system. More recently, the formation of alliances, combined with transfer of some standard trading products, has accelerated the process of convergence.

The current dominance of public order book systems owes much to the combination of low set-up cost and high transparency. But despite the apparent convergence, trading systems still show significant variation – for example in their transparency and handling of block trades.

Accompanying the trend towards the convergence of trading systems, has been the emergence of competition in the supply of trading services. Exchanges in jurisdictions where there was no concentration rule⁹ have always faced some competition from brokers who could internalise business, but since the exchanges were monopolies and could enforce reporting rules without any restriction on reporting fees, this had relatively little effect. A number of recent changes have made the market for trading services more contestable, including the globalisation of investment, (which encourages the cross-border trading of assets or the creation of competing derivatives) and the impact of technology (which has sharply reduced entry costs and increased the reach of trading systems).

In consequence, there has been an increase in competition from a number of sources, for example:

- Exchanges have generally become more commercially aware, often accompanied by changes in governance, and are seeking to extend their trading into assets that were traditionally the province of other exchanges (e.g. the provision of trading in leading global ‘blue-chips’).
- Exchanges are extending their product range into new areas. The traditional example is the cross-border trading of equities (SEAQI and ADRs), but the introduction of individual stock futures is a more current example in the US and UK.
- As broking business has tended to concentrate, so the scope for brokers matching orders from their clients has also grown. The recent changes to LIFFE’s crossing rules are a response to this situation. These rules essentially compromise market centrality in the interests of keeping the business on-exchange. Business on equity markets and on the LME is substantially internalised¹⁰, with the “central” trading system acting as a clearing house for proprietary positions.
- New entrants. This has been the most startling development for traditional exchanges (though possibly not actually the most threatening). Exchanges now face the possibility of direct competition in their market from exchange-like entities (ATs) facilitated by technology and regulatory accommodation. Exchanges that trade generic products face the strongest challenge, while those with proprietary products (and, possibly, proprietary settlement) face less of a challenge from ATs¹¹. In addition, new exchanges (e.g. Tradepoint, which transformed into Virt-x, Coredeal and Jiway) have been established.
- The growth of the OTC markets, especially in derivatives, represents a competitive threat for traditional derivatives exchanges. Derivatives exchanges may be able to prevent the trading and settlement of their own products, but cannot stop the trading of contracts that are nearly identical to those on-exchange. Electronic systems are being established to conduct such OTC trades.

The UK RIEs have shown a pattern of convergence in trading methods, with a move towards electronic trading systems which is likely to continue at the expense of floor trading. The benefits in terms of cost, information flow, access to analysis, transparency and control are such that floor systems do not generally survive long when electronic systems are on offer¹². The RIEs do retain significant differences in the areas of transparency, market centrality, exchange scope, liquidity support, protection of order priority and retail protection.

The evidence, both professional and academic, does not offer conclusive theoretical or empirical evidence either that one trading structure is absolutely better than others, or that some trading structures are naturally more suitable for trading particular products or for particular traders than are others. The microstructure of markets is a major focus of competition between trading systems, so

that, where an existing structure is unchanging and unwanted, new trading systems without the undesirable features can be expected to open.

There is also little evidence to support the proposition that different assets have inherent characteristics which require the application of a fundamentally different regulatory regime. This finding suggests that, although particular aspects of any market might justify a different intensity of regulation (for example, low liquidity might justify different levels of transparency or more intensive monitoring for market manipulation), the overall regulatory framework could be the same between markets. This means that attempts to couch regulation in terms of asset classes, other than for very specific purposes, are unlikely to be useful in the long run.

The nature of the traders who use a trading system will change over time as investor tastes change, and new marketplaces develop. As a result, instituting a system of regulation based on the current retail-wholesale divide may result in the anomalous treatment of different participants in the same trading system, or of the same participant in different trading systems. Thus, regulations based on historic client profiles might either exclude potential new institutional users because the rules were overly retail oriented, or fail to protect retail investors entering what were previously wholesale trading systems.

This suggests that, while there are criteria which an orderly trading venue should satisfy, these criteria can be satisfied by a number of different trading structures. Thus, the reduced cost of establishing new venues and the increasing ease of entry suggest that the current pattern of fragmentation, alliances, mergers and consolidation will continue. The outcome of this process is unpredictable and may itself change. This means that any regulatory stance which is based on a static picture of the market place will become increasingly inappropriate over time. Any useful regulatory position must be flexible enough to cover whatever market picture emerges, and should avoid being tailored to fit particular structures, dominant players or participant profiles.

4. Regulatory Options in Diffuse Markets

As trading fragments, it becomes increasingly difficult to distinguish between RIEs and ATs. While, according to the current RIEs, the requirements for becoming an RIE are not unduly onerous, the RIE path does not, and will not, appeal to all trading system operators. Brokers operating in-house trading systems and some entities that could be classed as ATs are already regulated as authorised firms and do not wish to take on RIE responsibilities. Such trading systems may, as in the US, also reject the idea of being regulated by, and reporting through, an exchange that they see as a competitor. Equally, the increasingly commercial orientation of exchanges may encourage them to focus only on the business passing through their own trading systems, and become less interested in being a regulator for transactions negotiated away from the exchange's own system (essentially OTC transactions), unless it offers a commercial return.

OTC markets are growing and increasingly trading products that are similar to exchange-traded assets. Additionally they are, themselves, adopting trading through electronic systems so as to reduce the costs of trading standardised products. Many parts of the OTC market are therefore becoming more like exchange markets, while at the same time parts of some exchange markets are moving to being more explicitly OTC.

While the effects on the market of increased trading through any particular non-exchange trading system are likely to be small, the collective effect of many ATs or other alternative systems may be large. Therefore basing a regulatory structure on the "materiality" of individual trading systems, with small trading systems (those below a certain market share) being exempted from any regulatory responsibilities, runs the risk that a significant part of aggregate trading will be outside the regulatory structure, even though each part is judged not material.

Lastly, the definition of what is "on-exchange" and what is "off-exchange" varies between RIEs. For example, LME transactions involving non-members are executed on a principal basis and, while

reported, are not published. In contrast, on the London Stock Exchange, such transactions are reported and published in the same way as trades through the electronic system. Much institutional business is conducted as principal business, as is retail business through Retail Service Providers. Finally, some derivatives exchanges, such as LIFFE, are able, through their ownership of the contract, to ensure that not only is business reported to them but is also actually transacted through their trading system.

Practice outside the UK varies. For example: in markets with a concentration rule, such as Italy, all orders must be brought to the central exchange and so there are no principal trades between an Authorised Firm (AF) and an investor. In those markets orders pass through routing systems where they are handled as agency orders, whereas in other markets, there is a series of principal trades resulting in changes of ownership. SuperDot in the US is an example of the former, while Nasdaq is an example of the latter. However, on the Deutsche Börse AF-investor transactions may be agent or principal, but principal client side trades are off-exchange and are not reported to the exchange or published. Our expectation is that the increasingly commercial orientation of exchanges will encourage them to focus on the business passing through their own trading systems, and they will become less interested in being a reporting mechanism for negotiated transactions that are essentially OTC.

The following two figures show the traditional pattern of trading in which almost all participants trade on a single RIE, and the emerging model of fragmentation in which participants trade on a range on market venues and outside organised venues.

In both figures the rectangle represents the market as a whole, circles represent trading venues of one sort or another and symbols represent different market participants. Figure 1 shows a monopoly RIE, with almost all trading taking place on this exchange. The RIE is indicated in the figure by the large circle and it can be seen that most trades by retail customers, institutions and intermediaries are conducted using this exchange. Only a very small amount of off-exchange trading takes place, and this is indicated in the figure by the two symbols outside the circle.

In figure 2, there is no single trading system that is the clear focus of regulation. Trading system 3 might be the original RIE, while trading system 1 is a new ATS which has chosen to become an RIE, and trading system 2 is an ATS which continues as an AF only. Of these, trading system 3 may report its trades to either of the exchanges, so that exchange 3, the 'traditional' exchange, is no longer able to see a significant part of the market's activity. It is unclear whether trading system 4 is material enough to warrant regulation, and, in addition, there is a significant amount of OTC trading. The figures, and the preceding arguments show that it is increasingly difficult to define a "market place", let alone distinguish those which should be treated as RIEs from those which should continue as AFs, or even to determine the threshold for any form of materiality condition for regulation and supervision.

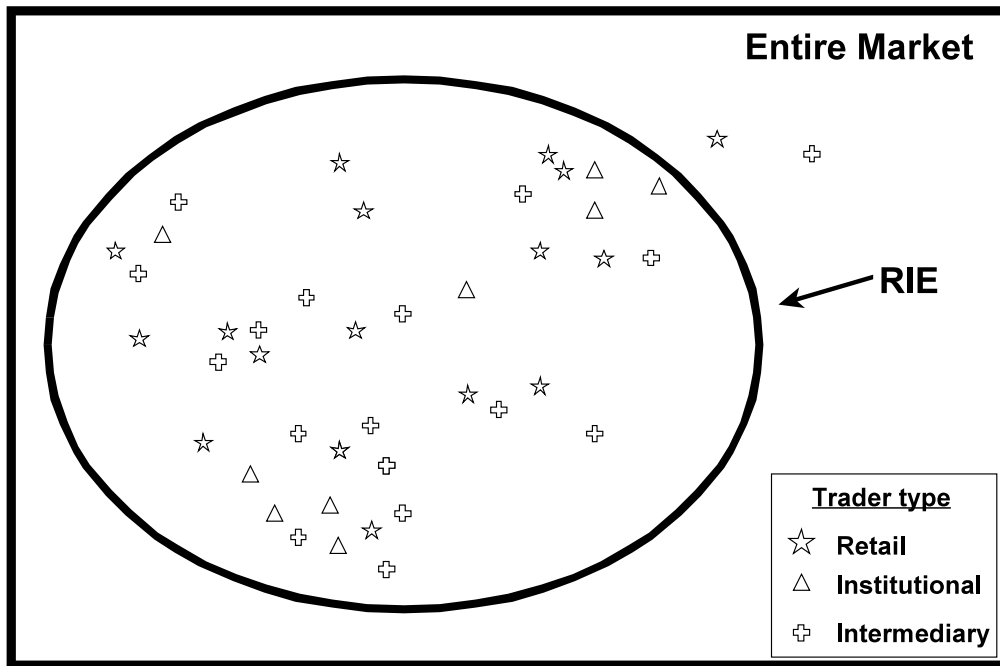


Figure 1 – Market with a single RIE through which almost all trading is conducted

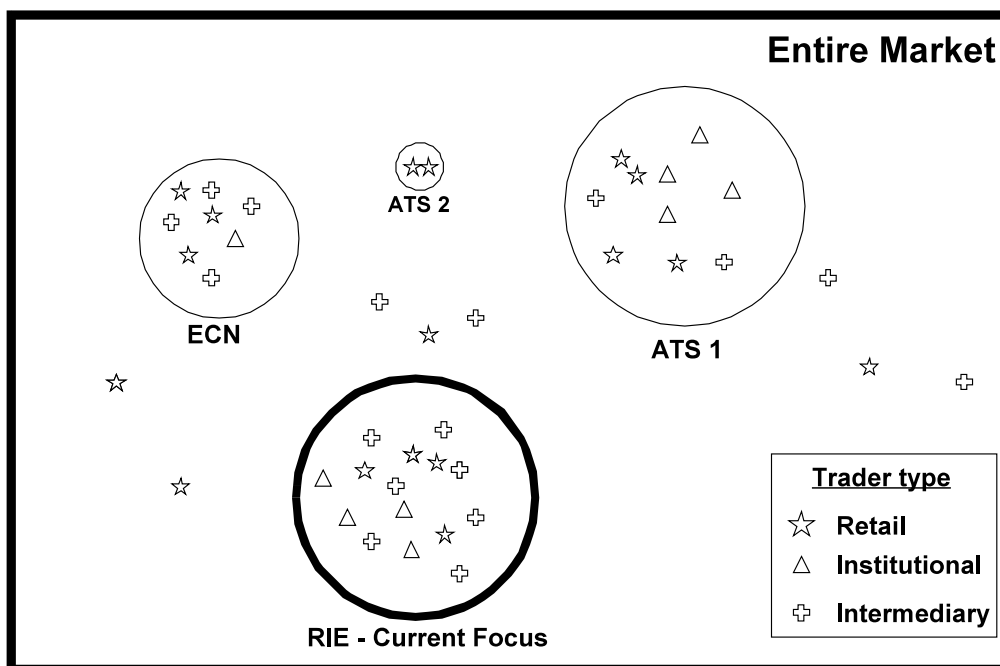


Figure 2 – Market with trading fragmented between a number of venues

4.a. Reliance on Competition

As is apparent, we do not believe that security market fragmentation *per se* is a problem. A problem only exists if fragmentation results in worse execution (for example, a widening of the bid-ask spread). Provided the benefits of a consolidated market are preserved in a fragmented system (e.g. ease of execution and monitoring), we can receive the benefits of competition and the benefits of consolidation. In monopolistic markets, the task of the regulator is to ensure that monopoly power is not abused. In contestable markets regulators can distance themselves from the competing entities, relying on competition and new entrants to eliminate market defects. However it is unclear whether regulators can rely solely on competition to deal with all market imperfections. There seem to be three levels of regulation, all of which rely on competition to a greater or lesser degree:

i) No regulation except prohibitions on overt and demonstrable barriers to entry

In competitive markets if users do not like a trading system/broker or think they get a raw deal then they can always go somewhere else. If enough people think this way then new trading systems/brokers will emerge to serve them. Provided some traders can access both the old and new systems, there will be a bridge between old and new so, allowing some margin for the costs of arbitrage, prices will equilibrate across trading venues. For example, if an "old" trading system is undesirably opaque, new trading systems will tend to be more transparent (if that is what users want), and the common access of traders to both markets will make it "as if" the trading systems were one transparent and consolidated market (or nearly so). In the absence of regulatory intervention, a "natural" level of transparency will emerge. There may, however, be barriers to entry (perhaps legacies of the monopoly exchange structure or obstacles created by the incumbents) which prevent the establishment of the new market. Such barriers will deter the emergence of genuine competition, and include such institutional rigidities as best execution rules defined in terms of one exchange, legal barriers to institutions trading outside the official exchange, and the definition of reference prices as equivalent to exchange prices. If only some traders can access both markets, there will be wealth transfers to those with access from those without.

ii) Level 1 regulation plus more aggressive transparency requirements to enhance competition

Among the reasons why level 1 regulation might not ensure competition, good price discovery or high market quality is that significant differences in transparency might impede the efficient equalisation of prices between trading systems. Efficiency will be compromised if some trading systems are opaque and if commonality of membership is insufficient to align prices. Alternatively, incumbents may be able to obstruct new trading venues with covert barriers (e.g. by refusing to participate in a consolidated tape or to publish prices in real-time¹³). As a result, competition may not arise, or promising new entrants may be immediately bought out by incumbents.

iii) Level 2 regulation plus protection for retail clients

Retail investors face a potentially severe information asymmetry when trading with professional counterparties who have more information, and will therefore require protection even with competitive markets¹⁴. Regulatory approaches to providing protection include measures to address the information imbalance and to assure fair dealing, for example:

- reducing the information asymmetry before trade (*pre-trade transparency*)
- providing information about other trades (*post-trade transparency*)
- providing information to allow assessment of trade quality

However, the nature of these participants may mean that simply publishing everything and allowing them to make their own decisions about execution quality and the like may not be enough - they need to be protected by active monitoring of what is done to and for them. For example, there might need to be strict monitoring and enforcement of best execution by a regulator, such as the proposed SEC rule to require the publication of execution summaries. Best execution is a responsibility of the AFs that act for these clients, and the ultimate enforcement responsibility is with the regulator, though there may well be a market solution to the monitoring function. For example, specialist companies can summarise the information on execution quality provided by trading venues and brokers and make this aggregate information available to investors.

4.b. Regulatory Impact of Diversity

Trading systems in the UK are already fragmenting, and so a debate as to whether fragmentation is desirable is largely redundant. As this fragmentation continues, competition may lead to consolidation in some parts of the market; but, if entry costs are low, there should also be continuing innovation from new entrants, possibly aiming at niches or offering innovative systems¹⁵. Consistent with this, the evidence so far is that competition for trading services leads to innovation and a greater more genuine focus on user needs. For example, the willingness of some traditional exchanges to make their data feeds available at zero cost (albeit with some delay) over the Internet is one example of how competitive pressures have forced trading systems to respond to a user need. However, as trading fragments, it becomes increasingly difficult to define the concept of an exchange in a meaningful way¹⁶.

One consequence of competition is that trading systems will be unable to perpetuate inefficient rules and systems. In turn, this will allow regulators to step back from their traditional involvement in the micro-management of exchanges and their rules (for example, the RIEs currently act as if they are obliged to have changes to their trading rules approved by the FSA). However, the current regulatory focus is predicated on trading in any instrument being concentrated in a small number of venues, which can be clearly classified as exchanges. This approach works best when there is either a monopoly exchange or a dominant exchange. Since we do not expect this to be the pattern for the future, the issue becomes how best to modify the regulatory system to fit the new situation, rather than to discuss the maintenance of the single-exchange model.

These conclusions suggest some significant rethinking of regulatory positions is required:

- Fragmentation of trading across multiple venues is already a fact. Given the Investment Services Directive (ISD) and the right of trading systems to be offered across the EU, fragmentation cannot be stopped. Regulators should welcome fragmentation, which is competition by another name.
- Competition will tend to eliminate inefficiencies and structural weaknesses in trading systems, and regulators can, therefore, withdraw from the detailed monitoring of trading rules. There will, however, be concerns about investor protection and barriers to competition that require regulatory intervention to set standards for all types of trading system, and a continued emphasis on the transparency of trading.
- It will become increasingly difficult to define an exchange, and a regulatory structure based on exchanges will become increasingly unstable and inconsistent. This suggests that regulators should develop a focus based on authorised firms (AFs) as the key building blocks for regulation. AFs are already the focus of Conduct of Business rules, and are a natural focus for other aspects of regulation, including trade reporting.
- We recognise that inconsistencies in the UK regulatory structure, particularly in the treatment of OTC trading, are the result of long evolutionary processes and that reform should be approached with caution. However, regulators should address these as part of a review aiming for a structure that has consistency and resilience.

We have already discussed the reasons for the convergence in trading systems – largely cost and customer preference. But it is worth enquiring whether the remaining differences reflect underlying real differences in the markets concerned. This is important because market structure and regulation are intimately connected; indeed much current regulatory effort is devoted to judging the trading mechanism choices and proposals of RIEs. Our investigation of the UK RIEs found no grounds to support the adoption of fundamentally different regulatory standards between markets. In particular, we examined two possibilities - differences between asset class and one based on differences in client type.

i) Asset class

Although there are differences in the settlement arrangements for some products (e.g. the LME generally requires physical settlement, which involves complex warehousing systems), these could operate alongside any trading mechanism. Similarly, it is sometimes claimed that the specific features of physical assets require a different type of regulation because supply and demand are relatively inelastic, and this makes them particularly susceptible to manipulative tactics, such as cornering and squeezing. While commodity markets are more susceptible to some types of manipulation, all markets are vulnerable to manipulative tactics of one type or another. For example, stock markets may be more vulnerable to insider trading or fraudulent information than some physical markets. The fact that the manipulative tactics differ from market to market means that the thrust of the regulatory effort should also vary. But the overall requirement to operate clean markets (including, for example, prohibitions on actions designed to manipulate supply or misuse of private information) remains, irrespective of the type of asset. Clearly, the intensity of monitoring may vary with the perceived likelihood of such behaviour, but we do not believe that the overall regulatory structure should be different in these cases.

We do not see why a trading system's position as the market for principal price discovery (e.g. LME and, to an extent, IPE) when the spot market is too diffuse to offer this function should dictate a particular trading mechanism. Nor is there substance in a related argument that a derivatives exchange like LIFFE is not a market for price discovery (since that was the function of the underlying market) and so deserves different regulatory treatment¹⁷.

The most persuasive reason for the rejection of asset class regulation of markets is that new trading systems are likely to offer trading in several classes of asset, making regulation based on asset classes difficult to sustain.

ii) Client type

The RIE with the largest retail element is the London Stock Exchange, while others, such as LIFFE, have some retail involvement, and the other RIEs are almost entirely institutional. Although the importance of institutional trading has led to particular features of the trading process, notably block trade facilities, there is nothing to suggest that there need be fundamental differences in the regulatory treatment of retail and wholesale clients. Therefore, we are wary of suggesting that the regulation of trading systems should be differentiated on the basis of supposed differences in the client base for a number of reasons.

- While the current user base of most UK RIEs is mainly institutional, there is no reason why this should always be the case. There is growing retail interest in equities, and no reason why retail investors should not diversify their portfolios further. It is also entirely possible that some trading systems are exclusively institutional because the structure of the trading system, through historical accident or intent, excludes retail participation (for example, the LME's contract size is too large for retail clients). The risks are that a regulatory split between wholesale and retail would either exclude retail clients from trading systems that they might otherwise enter or, more dangerously, allow retail clients to access professional systems at one remove¹⁸.
- There is a well-known difficulty of defining groups of traders in an unambiguous way. Traditionally this is done by size of transaction, but this is not entirely satisfactory – everyone knows that very large trades are almost certainly institutional and very small ones are retail, but there is always a substantial overlap in the middle. If users are allowed to self-select, then there is a strong possibility that they will all opt for the maximum protection. For example, few institutions have opted out of the protection offered by the best execution regulations.
- It is not clear that some of the possible regulatory distinctions often mentioned are actually supported by the particular user base. For example, it is often suggested that professional markets need less transparency than non-professional markets. While professional markets

are often opaque to outsiders, this has been justified by the argument that, in a professional market, everyone knows what is going on anyway. However, it is noticeable that many of the new institutional entrants into the London equity market appeared to resent its lack of transparency and interpreted “everybody knows” to mean that “everybody except us knows”, and that they were therefore disadvantaged. We conclude that a similar situation may exist in OTC markets. They operate with considerable efficiency for the current participants, but their exclusivity and opacity may tend to exclude new participants or competing trading systems.

While we do not believe that regulation should be fundamentally different for either types of asset or types of trader, there will be circumstances where it is appropriate to vary the weight of regulation (for example, block trade procedures, market opening and closing procedures or liquidity).

5. Regulatory Issues in Fragmented Markets

This section considers a number of new problems for regulators that are created by the move to multiple trading venues for each market.

5.a. Investor Protection and Best Execution

Where there is a single trading system offering a single method of execution, best advantage is relatively easy to define, at least for retail trades. It is the best price on the single system. With multiple systems best execution becomes complex for retail trades, and extremely complex for institutional trades. The range of possibilities increases the scope for brokers to exercise discretion, even for retail trades, leading to the possibility of well-intentioned and well-informed misjudgments. A more complex best execution rule is required which recognises that brokers who operate in fragmented markets, do not always make the right decisions, but should be required to justify their actions through enhanced disclosure. Multiple trading systems in the US have led to complex systems of reward, including payment for order flow. This is controversial, and it is far from clear that investors have been the beneficiaries of this development in the US, or that they will be if such practices are adopted in the UK. We note that the FSA has recently initiated a debate into the revision of the UK’s best execution rules (e.g FSA, 2001c).

5.b. Loss of Efficiency (Multiple Trade Prices)

In a fragmented market there is a possibility of loss of pricing efficiency because the price formation process may fragment, leading to multiple simultaneous trade prices¹⁹. This may have implications for investor protection, since it might imply that some investors were routinely forced to trade at a less advantageous price because they were unable to access some parts of the market. It also means that the economic signals which markets give to the real economy would be distorted, and investor confidence damaged.

While there is probably wide agreement that efficient pricing is desirable, there seems to be an emerging consensus, with which we agree, that attempts to enforce a single price through a Central Limit Order Book, CLOB, are undesirable (or unworkable). An alternative is to ensure that markets are transparent and that information on trading is widely available at appropriate cost. This will allow informal linkages to achieve the equalisation of pricing so that the costs of split liquidity (e.g. systems duplication, more executions and, maybe, arbitrage costs) are outweighed by the other benefits of a competitive market.

5.c. Access

The possibility that one class of investors might be routinely disadvantaged is particularly relevant where the available trading systems have different entry requirements, so that some types of investor are denied access to particular trading systems. For example, initially at least, ATSS in the US were generally aimed at institutional traders, and some offered facilities to allow users to exclude professional intermediaries from matching their orders.

Provided access restrictions are imposed for a good reason (for example that traders be members of a central counterparty or a clearing house), such restrictions and the consequent price differentials represent a real difference between traders and are defensible. However, it is hard to understand why trading systems that are run commercially (rather than as member clubs) would want to exclude potential users without an economic justification. This raises the regulatory question as to the criteria which could be used to justify restricting access to particular trading systems. Examples of an unsupportable difference might be the arbitrary denial of access to settlement for certain types of user, restrictions on access to information that effectively rules out some types of user, or arbitrarily high per-transaction charges that make it uneconomic for large orders to be matched by multiple retail orders.

5.d. Order Priority

Trading systems always include rules governing the sequence of execution of orders, and almost always it is price and then time²⁰. Priority rules are seen as crucial in attracting investors who are able to submit orders in the knowledge that these orders will not be traded through. Without priority there is less incentive for investors to submit limit orders as it increases the likelihood that such orders will be executed when the investor does not want their order filled (e.g. when the price has moved against them). Some trading systems have minimum tick sizes that are set above the minimum currency unit so as to ensure that users who want to jump the time priority queue by submitting an order with a better price incur a significant cost for doing so. However the recent trend is towards a reduction in tick sizes, so reducing the cost of buying priority²¹.

The existence of multiple trading venues raises the possibility that price and time priorities will not be maintained between different trading systems trading the same instrument. The limited evidence available for the UK equity market suggests that offering a better price on a different RIE, does not necessarily guarantee execution priority. More generally, while a widely-drawn best execution rule will tend to safeguard price priority, it does nothing for time priority since the broker executing an order will want the best price, but be indifferent to the time priority of the counterparty order.

Similarly, the existence of montage/order-routing entities weakens time priority, while strengthening price priority, as they tend to highlight the best available price, regardless of time priority. Even if the time priority 00 cm0.00 0.00 0T57.6000 429.960wsD(nt t9)Tj24.0000 0.000sEndat TD0 0.0(nt t9940.6t th)Tj

5.f. Barriers to Entry

Trading systems offer scope for network economies that give rise to a substantial first mover advantage. Incumbent trading systems are therefore in a strong position to see off competitors. Although cases where a challenger has dented an incumbent are relatively rare, they are not so rare as to make further inroads improbable. The LIFFE/DTB competition, the movement of European equity trading from domestic markets to SEAQI and back, and the success of ATs in the US in capturing NASDAQ business are recent examples of sharp movements of trading between systems.

If regulators are to rely increasingly on competitive forces to ensure the quality of different trading systems, they need to be assured that there will be competition, and that incumbents will not prevent new entrants by erecting barriers to entry. Dominant trading systems will, of necessity, be the main arenas for price formation, and it seems unlikely that new entrants will be successful if the incumbent trading system restricts access to trading data. Unless new entrants and their users have access to the full set of trading information, business will tend to remain where it has always been – on the incumbent trading system. The incumbent trading system will likely argue that the new entrant is parasitic and that it is free-riding on the prices generated by the incumbent's investment. The regulator's task is to identify what is a fair advantage from investment, and what is actually a barrier to entry. This suggests that an immediate regulatory need is to monitor the prices charged for real time quote (and possibly trade) data so as to ensure that the high price of trading information charged by the incumbent trading system does not create barriers to new trading systems starting up²².

The natural barriers to entry are possibly stronger where trading systems own the brands for the assets they trade, as do some derivatives exchanges, or provide other services but with restricted access. For example, control of a clearing house gives the incumbent a barrier against newcomers who must not only set up a clearing house (or negotiate a deal with an existing clearing house), but also offer clearing in the full range of assets that the competitor wishes to trade. Indeed, a new entrant might find it difficult to attract business if it did not offer clearing in the full range of assets traded on the incumbent trading system so that traders can obtain the same cross-margining benefits as on the incumbent. Again regulators will need to judge whether the barrier reflects a fair competitive advantage gained by the incumbent through investment and effort, or if it represents a restrictive practice designed to obstruct new entrants.

Even if the barrier is a fair competitive advantage, the overarching need for effective competition in trading systems may mean that the interests of the incumbent have to be sacrificed to encourage competition. This raises the possibility that regulators may be required to disadvantage incumbent trading systems if competition is to have a chance, just as regulators in telecoms and utilities have been forced to do.

5.g. Manipulation

It is harder to pinpoint market abuse in a fragmented market, particularly at the level of an individual trading system. This is particularly true as abusive practice is increasingly likely to span more than one trading venue and to involve OTC activity. As a result, responsibility for preventing market abuse should rest with the regulatory authority, which is likely to need access to trade and position monitoring information. Although the FSA has responsibility for preventing market abuse, its regime is currently principally focussed on exchange trading (where front-line policing is undertaken by the RIE itself) and there are limits to the transaction data it reviews. The ability and willingness of RIEs to engage in highly costly surveillance, including monitoring across trading systems, may well decline as commercial pressures mount. In consequence, the responsibility for preventing manipulation may well devolve to the FSA.

6. Transparency

Transparency refers to the ability of market participants fairly to observe current and recent levels of market activity. Pre-trade transparency refers to the ability to see current quotes or the limit order book, while post-trade transparency refers to information about recent trades (prices and quantities). It is important to note that the debate does not suggest the release of confidential information (e.g. the identities of the parties to a trade²³). It is widely accepted that high transparency is desirable as it is associated with improved market efficiency and the absence of systematic disadvantage to particular groups of traders.

The debate about transparency has been long and there are arguments on both sides. However, our view is that transparency is generally beneficial and has an important role to play in achieving the FSA's statutory objectives. A clear summary of the reasons why transparency is beneficial was provided by the Securities and Investment Board (SIB, 1996, p. 17): "In the SIB's view, the transparency of a market is a key factor in demonstrating its integrity because it:

- permits the demonstration of market fairness;
- is of fundamental importance to the price formation process;
- enhances competition between market intermediaries; and
- assists in the prevention and detection of a variety of abusive practices."

In spite of the arguments in favour of increased transparency (i.e. that transparent markets inspire confidence and so will attract liquidity), it is often claimed that increasing transparency will reduce the incentives for intermediaries to provide liquidity, or drive trading offshore, and that the costs of such effects will be sufficient to outweigh the benefits of increased transparency. We do not believe that this is the case because:

- There is no empirical evidence of which we are aware demonstrating that liquidity has been harmed by increased transparency²⁴. In the cases where liquidity has shifted away from markets, a number of factors, other than transparency, has been responsible²⁵.
- There is no evidence that business has been driven offshore purely because of increased transparency requirements. We accept that business has migrated in the past, however we are not aware of cases in which such movements have been caused by transparency requirements.
- Global best practice leans towards transparency – for example Principle 27 of the IOSCO Principles of Securities Regulation is that "regulation should promote transparency of trading".
- Many exchanges worldwide have voluntarily mandated high levels of transparency.
- Many regulatory authorities worldwide are insisting on increased levels of transparency.
- Users, and especially new users, are increasingly inclined to be wary of trading systems they see as opaque, and user pressure appears to be towards greater transparency.
- Even in opaque markets, dealers often share or exchange information with each other (e.g. through Inter Dealer Broker systems).

While the direct costs of moving business offshore are low, the total costs may be non-trivial. It is interesting that although UK Stamp Duty is levied at the rate of 0.5% on equity transactions, equity trading has not left the UK. This might suggest that the costs of moving offshore exceed those of paying Stamp Duty. In turn, this suggests that the costs of increased transparency would have to exceed 50 basis points before firms would make such a move. Any real costs of transparency are likely to be very significantly lower than this.

Once it is accepted that high transparency is desirable, the burden of proof shifts from the present situation in which those promoting transparency have to demonstrate the benefits of transparency, to one in which those wishing to retain opacity must demonstrate why transparency would be positively damaging to the market²⁶.

In terms of the information to be disclosed under a high-transparency regime, the information that could be published in relation

revealed differs with the type of market (e.g. dealer quotes or limit orders), requires more regulatory choice (e.g. top of the book only, the best five orders on each side of the book, order size) and offers more areas of potential ambiguity (e.g. any special procedures for block trades²⁷ and hidden orders). In addition, trading systems present their screen displays as part of their competitive advantage and, while they are similar in principle, there are important differences in detail²⁸, and any mandated pre-trade transparency levels would need to accomm

In spite of these arguments, OTC markets are subject to different regulatory standards than are exchanges. This can lead to regulatory arbitrage between the exchange and the related OTC market, which possibly weakens the efficiency of the exchange markets. In addition, where there are no reporting requirements, different regulatory standards for OTC markets weakens regulatory control of market conduct. In the US there has been repeated pressure for similar regulatory requirements to be applied to derivatives which are traded on recognised exchanges and regulated by the Commodity Futures Trading Commission (CFTC), and very close substitutes which are traded OTC (e.g. interest rate futures and interest rate swaps)³⁰.

A further consideration is that OTC markets are not currently accessible to retail investors. However, growing private wealth and investor sophistication along with the growing standardisation and ease of trading makes it likely that retail investors will be encouraged by intermediaries to diversify (either directly or indirectly) into the simpler types of OTC products. Retail investors may be more interested in some types of OTC market than others.

The benefits of bringing OTC markets into the transparency regime include enhanced price formation and market confidence, reduced scope for insiders to profit at the expense of outsiders, improved monitoring of best execution and manipulation and reduced opportunities for regulatory arbitrage.

Although we believe that transparency is both desirable and practicable, a number of arguments against increasing transparency of OTC markets is often advanced.

- Because OTC contracts are customised, there is little point in increasing transparency since the information gain would be slight. However, with the trend towards increased standardisation within the OTC markets there is, in our view, little justification for treating OTC replicas of exchange contracts and the corresponding exchange contracts differently³¹.
- Firms might object to reporting their OTC trades in exchange-traded or related instruments through RIEs. However, there are precedents for this (e.g. the London Stock Exchange used to act as a reporting agent for some Eurobond reports to the Securities and Futures Authority through its SEQUAL system). Many OTC trades are already reported for transaction monitoring (i.e. enforcement) purposes directly to the FSA (e.g. equities, gilts, fixed interest), with OTC trades representing about 15%-20% of trades reported to the FSA.
- It would be costly. Reporting involves the one-off cost to firms of altering their in-house systems to generate the required reports, and the continuing cost of a reporting charge for each trade. As the FSA currently charges 2p per trade for direct reporting, these costs do not appear onerous, particularly as all on-exchange trades must already bear the costs of being reported and published. We also note that some OTC traders voluntarily report their trades to the FSA, apparently because it is easier and cheaper to report all their trades than to separate those which must be reported from those which need not. Equally, OTC markets may be able to generate revenue from the sale of their trading information to data vendors.
- It is argued that OTC markets may move offshore if they are subject to greater transparency. However, moving offshore is rarely as simple as it sounds, and clients are suspicious of offshore entities. It has been threatened in response to many regulatory proposals, but has yet to happen in response to UK regulatory changes. For example, the UK OTC equity and debt markets have not moved offshore because they are required to report their trades for transaction monitoring purposes. However, the extent of this threat merits further discussion and it may be necessary for the regulatory authorities to address the question of OTC market transparency at a European or international level.

8. Conclusions

We have examined a number of the issues arising from the changing market environment. As the future shape of the financial markets is uncertain, regulation should be structured flexibly so as to allow maximum oversight, while not inhibiting the evolution of the market being regulated.

We argue that the present profile, but not the statutory framework, of market regulation will have to change if it is to continue to operate successfully with the emerging trading structures. In particular, we have argued that a 'light touch' is needed in which the regulators allow markets to develop, fragment and consolidate as freely as possible. Within this, the regulator needs to ensure:

- (i) competition—allowing new venues to open (and close) as smoothly as possible, and the prevention of existing venues from using their position to prevent such changes. This will permit the emergence of efficient, and desired, trading mechanisms.
- (ii) transparency – the visibility of activity taking place in different venues, *ex ante* to allow appropriate selection of the trading venue and, *ex post* to judge best execution. The data should be made available, at appropriate cost, to traders, potential traders and competitors.
- (iii) best execution – the ability for traders to judge, or have judged, the quality of their trading. Such evaluation is complex, and the current rules are under reconsideration by regulators worldwide.

Notes

1. This paper is a summary of arguments made more fully in J. Board, C. Sutcliffe and S. Wells (2002) "Transparency and Fragmentation: Financial Market Regulation in a Dynamic Environment", Palgrave, London, July 2002, 319 pages, ISBN 0-333-98634-2.
2. Financial Services and Markets Act, 2000.
3. Under the FSMA, the FSA regulates trading in shares, debt instruments (debentures, bonds, certificates of deposit), warrants, options on securities, currencies, palladium, platinum, gold and silver, futures and contracts for differences (*Financial Services and Markets Act 2000 (Regulated Activities) Order 2001*, October, HM Treasury, http://www.hm-treasury.gov.uk/fsma/regulated_activities/regulation.pdf, part 3).
4. The financial system is the financial system operating in the UK, and includes financial markets and exchanges, regulated activities and other activities connected with financial markets and exchanges. This definition of the financial system in FSMA (2000, section 3) appears to include OTC markets within the scope of the FSA's statutory obligations.
5. A regulated person means an authorised person, a recognised investment exchange or a recognised clearing house.
6. Financial crime includes any offence involving fraud or dishonesty, misconduct in, or misuse of information relating to a financial market, or handling the proceeds of crime.
7. Treasury (2000b) *The Financial Services and Market Act 2000 (Recognition Requirements for Investment Exchanges and Clearing Houses) Regulations 2001*, December, HM Treasury, section 4 http://www.hm-treasury.gov.uk/fsma/recognition_req/annexa.pdf
8. In the USA and elsewhere, these systems are often referred to as Electronic Communications Networks, or ECNs.
9. A concentration rule is a regulation designed to ensure all trades are executed through the trading system of a recognised exchange. Typically such a rule would prohibit dealers from interacting directly with investors and require all investor orders to be routed to a recognised exchange.
10. I.e. with dealers executing customers' orders against their own book and subsequently closing their position in the market.
11. ATSS have made significant inroads in the US, especially in NASDAQ stocks where they now have a combined market share of around 30%.
12. Only two of the RIEs maintain any floor trading, one for short periods and the other for only two contracts. Even this seems likely to change in the wake of the recent developments at the IPE.
13. They would also have to prevent their own members/participants who have access to price data from offering competing trading services, as the NYSE effectively does. It is worth noting that the NYSE has largely managed to see off the ATSS.
14. It is significant that the need for protection arises from this asymmetry of information not the size of the investor, the asset to be traded, or the significance of the asset for their well-being.
15. Indeed, one interpretation of the investment in multiple trading systems by investment banks is that they see themselves as investing in a venture-capital portfolio of ATSS. The opinion of James Marks (CSFB) in January 2000 is that "investing in an ATS is like purchasing an option against your worst rival controlling your business".
16. The problem is compounded by the entry of montage/order routing operations that have many of the external features of an exchange (display bids-offers and accept orders) but actually do not execute or settle business. Technology also makes it possible for companies that are essentially information vendors with order-routing capabilities to offer services that look very similar to those of trading systems, but are, in fact, mere montages of information from trading systems. Such organisations present screens showing best prices, and route orders to the trading system offering the best price, but do not themselves conduct trading. In many ways these entities are undertaking the traditional role of brokers in seeking to identify the trading system offering the best opportunities, but the way investors use them suggests that they could be treated as if they are themselves trading systems.
17. For example, there is a substantial quantity of empirical evidence that derivative markets are markets for price discovery and often lead the spot market.
18. For example, the LME is introducing a commodities index product for use by retail oriented institutions, while LIFFE has introduced the "mini-FTSE" contract.

19. A degree of price fragmentation has long been accepted as the norm in certain parts of the UK market, notably the equity market. It remains the case that institutional trades are conducted at prices that are different to, and generally better than, the prices for retail trades.
20. For example, some LIFFE short term interest rate products have price and then pro-rata allocation.
21. For example the European Alliance model for stock exchanges has a tick size of €0.01 for all equities, and, since 9th April 2001, all US stocks have traded at a tick size of \$0.01, rather than eighths or sixteenths of a dollar.
22. It could be argued that this represents a problem for the competition authorities rather than for the FSA. We argue that the concern to preserve and promote a competitive trading environment is at the heart of any successful regulatory regime. Even if it is argued that competition does not fall within the remit of the FSA, it will, at a minimum have to coordinate very closely with the competition authorities to allow it to meet its statutory objectives. In particular, we believe that, if the FSA does not remove barriers to entry, their regulatory regime will fail.
23. Although, there are those who argue for a 'sunshine' regime, in which full information, including trader identities, is disclosed, we do not believe that this is necessary or desirable.
24. Empirical investigation of the London Stock Exchange by the authors predicted that increasing transparency would have little impact on liquidity, and a follow up study revealed that no damage to the market had indeed occurred. Full details and references are contained in J. Board, C. Sutcliffe and S. Wells *Transparency and Fragmentation: Financial Market Regulation in a Dynamic Environment*, Palgrave, London, July 2002, 319 pp, ISBN 0-333-98634-2.
25. The Swedish equity market moved offshore as a result of a change in Swedish taxation, while the Eurobond market was created by the introduction of regulation Q by the US.
26. For example, this would require venues wishing to retain opacity to quantify the costs, benefits and distributional implications of its proposed structure, rather than simply relying on assertion to continue long established practices.
27. The existence of large orders is, in itself, valuable information and exchanges have found that attempts to mandate the exposure of large orders leads to a loss of business. Accordingly, most exchanges have, or are considering, some kind of block-trade facility whereby large orders can be arranged privately and brought to the market – perhaps with interaction, but not always. Since exchanges have not found it feasible to mandate the exposure of all orders, it is unlikely that a regulator would be any more successful.
28. An example is that some systems allow hidden or iceberg order functionality. Since this functionality merely automates the actions of a broker in monitoring the order book and feeding in tranches of a large order, permitting hidden orders is argued to make little difference to the market.
29. For example, if all trading systems were required to display hidden orders, how would a trading system be treated which has no hidden orders but which does have a facility to add pieces of a fragmented trade automatically as the previous piece is matched?
30. The introduction of exempt Multilateral Transaction Execution Facilities (MTEFs) meets this requirement by enabling interest rate futures to be traded on a similar regulatory basis to interest rate swaps. This voluntary code follows heated debate on the issue in the US.
31. Conceivably increased transparency might only be applied to OTC replicas; but if only OTC contracts that replicate exchange-traded products are regulated, close look-alikes (e.g. the FTSE 99) also may have an effect on the market, even if they are not exactly the same as the exchange-traded product. As a practical matter therefore, most products traded on an OTC market should be included.