I will focus on exchanges but will make some comments on clearing and settlement as well. I want to divide my talk into three key areas: In the first, I am going to look at some key trends and conceptual issues about how the various markets operate. In the second, I am going to make some predictions. In the third, I want to address the drivers for change.

1. Key trends

On the trends and conceptual side, there are six relevant areas: Automation, market structure, governance, regionalisation, regulatory and political issues.

Automation

Automation has, in my view, two key effects which are insufficiently appreciated today. First, in our digitised trading environment, the marginal cost of doing an extra execution on any trading system is basically zero now. Second, the marginal cost of disseminating information is also basically zero. This means that, to the extent that there is competition in those two areas, we would expect prices to go down to zero. In some automated trading systems that is exactly what we see: people are even paying to attract order flow. They pay by subsidising market makers, giving incentives, and so forth. Another key aspect of automation which is self-evident but which has not been appreciated enough, is that economies of scale are much less important now than they were in the past. That is simply because it has become much cheaper to build a trading space. USD 10'000 for a PC and a trading software, which you can buy off the shelf, will do it.

These two factors dramatically influence where the revenue sources of the exchanges and trading systems will be in the future. Historically, they have been membership fees, listing fees, trading fees, clearing and settlement fees in some instances, revenues from the sale of company data, and revenues from the sale of trade data. I would argue that all but one are subject to competition. Membership subscriptions have all but disappeared with demutualisation. Listing fees, apart from a few major centres where the "prestige factor" of listing is still significant, have become very competitive. Trading fees are going down to zero. Clearing and settlement fees: those exchanges that still have that function inhouse benefit from it, but many exchanges do not have that. Selling company data has for many years been separated from exchange business and has come under a lot of price pressure as well.

That leaves only the area of trade data. I mentioned before that the marginal cost of disseminating trade data is going down to zero. But this is an area where it is very different to "compete away" an advantage a particular exchange or trading system has.

Let me be more explicit: In any market were there is a single exchange or trading system, that entity is the dominant source of trading data. There may be alternative trading systems, ECNs, ATS's or whatever they are called, but these new systems are essentially passive about the information flow. It is very difficult to compete with the provision of pricing data, and very rarely has a new trading system taken that away from an established one.

That leads to a problem for exchanges: On the one hand, pricing data is an area where they want to enlarge their proportional source of revenues. On the other hand, where there has been regulatory intervention in that area, the regulators have typically applied the philosophy - in my view mistakenly - that it should be the marginal cost which, as I mentioned, nowadays equals zero. My view is that proportionally more revenues from price data will become important for exchanges in the future, but there is a regulatory tension here.

Market structure issues

The first market structure issue is the so-called network externality. A network externality is associated with liquidity and order flow. It is a benefit that a particular network has as regards the provision of its services. That benefit arises by the fact that the more people are using the service, the more useful the service is. The oldest example is the telephone network. It is only useful for you if other people also use it, so you can call them. In the exchange context the issue is hat the likelihood of your order being executed is greater the more other orders are sent to that trading system.

A very important question is how network externalities are affected by new technology advances in automation. To the extent that networks stay separate, they are not at all affected. If it was the case that you could stop other networks linking to your network, then advances in technology do not undermine the advantages that you have. It remains very difficult for competitors to take away your trading volumes unless they can have access to your network.

However, those sorts of restrictions are typically regulatory in nature. To the extent that regulators can unbundle networks, meaning that they can force people to open up their networks, then new technology can undermine a network externality. It now becomes possible for a new trading system to get access to the order flow in your system. However, this is much more difficult to crack than the network externalities associated with clearing and settlement to which I will come in a moment. In the trading area, the regulatory barriers are much greater and linkages are much harder to agree unless it is done consensually, and typically the dominant network provider will not agree to do that.

Other factors affecting where trade flows go, include the fact that we now have different trading preferences. As Sandra Boss indicated, some people have a need for speed of execution, some may be happy to wait, some may want to send contingent orders, others want to send basket orders or portfolio orders - a whole range of different preferences.

Another area is the notion of disintermediation. Automation has done wonders here. In trading systems where investors have direct access to the trading system without having to go through an intermediary, they can avail themselves of lower prices. That is a problem for mutual exchanges which by definition are owned by their brokers. It is very difficult for them to allow disintermediation because that goes against their very existence. That is one reason why demutualisation starts to show signs of delivering benefits, in that it can allow direct access.

Governance

A very complicated area. I want to raise two key points. The first is to say - contrary to accepted wisdom - that demutualisation has costs as well as benefits, specifically when contrasted with the mutual structure. Why is that? If we have a monopoly, and if that monopoly is a for-profit company, then it will do what all monopolies are doing: it will seek to maximise profits. It is very difficult from a regulatory perspective to stop that. There is a range of available mechanisms, but it remains difficult. One market way of stopping that, is to allow the customers to own the institution. Then the customers who are paying excessive prices can say: We do not want the monopoly to charge monopolistic prices, we want competitive prices, and we as owners are going to mandate that. So, if you have a monopolistic institution for whatever reason, then the mutual ownership has some benefits. Of course it also has costs.

The second issue about governance is that we actually do not know what the "right" structure is. There are a wide range of different market governance structures and we simply haven't yet come to know if there is a single best one and what that might be.

We should be wary of being too prescriptive about that.

Regionalisation

Let me move on to regionalisation. A range of benefits can be put forward for regionalisation. First let's be specific about what the term means, both in the context of exchanges and clearing and settlement providers. Regionalisation always implies some form of link-up between different markets. It might be within the same geographical region or across regions. And there are a wide range of different possible link-ups: Joint ventures, one exchange purchasing services from another, third party service provision, all sorts of contractual arrangements. By contrast, mergers are not a link-up, that is a different dimension.

My view about regional link-ups is that, of all the many that have been proposed, very few have been implemented, and most of those have failed. There are many reasons for this: overly optimistic IT assumptions, the fact that people do not understand the governance implications and that institutions can find ways through their governance structures to stop the linkage from working, difficulties across jurisdictions, legal and regulatory issues in general.

Regulation

In the regulatory area with regard to exchanges, three key issues have been raised. *Fragmentation* is perceived to be the most important one. Fragmentation has a pejorative notion to it. It implies that somehow, if trading is split between different systems, then the performance of that market is worse. Then there is the *transparency* issue, primarily to do with how much price and quote information is available. Another issue is *internalisation*. My view is that, regulatory involvement on those three issues is for the most part inappropriate. The monopoly situation is the regulatory problem, not fragmentation or the other two. And to the extent that there is fragmentation, there is evidence generally, that market performance is not adversely affected.

Politics

Finally, politics. That is an area which is vastly underestimated. It is important in determining who will win. There are three factors which lead to significantly increased political intervention

The first: Vested interests are beginning to face competition. If they see themselves unable to compete economically, they will leverage their political contacts to stop such competition.

The second: To the extent that we see consolidation and aggregation both in the trading arena and in the clearing and settlement arena, we see an aggregation of market power, and that will not go unnoticed by politicians sensitive to monopolist behaviour.

And the third, competition and consolidation is much more international than it was and that brings to the forefront national pride and politics associated with that.

All these three arenas mean that politics will be a much more important determinant of the future market structure than has been in the past. I also want to highlight a different type of politics which I think some people are very adept at manipulating: the politics of managing different constituencies in the market. Those people and institutions which can do that successfully, will in my view survive.

So, having outlined these various conceptual structures for exchanges, let me make a few more points about clearing and settlement and then come to my predictions. My key point is somewhat contrarian to the rabidly capitalist views of "Gordon Gecko Hobson" and also John Gilchrist's hope for competition.

I find there are good economic reasons why the provision of clearing and settlement services in a competitive manner will be very difficult. These are the network externalities and economies of scale associated with clearing and settlement. I do not want to go into the details of these, and my view is that they are non-determinative, but they are nevertheless very powerful. What that means is that it is simply naïve to hope that there could be competition between various different systems, because that will not last. What one then needs to do, is to make the best of the second-best world and have the appropriate responses, which will both be market responses and regulatory responses. Competition is wonderful but we have to recognise that it cannot always exist.

So, on that basis let me now make my rash predictions.

2. Predictions

Europe

In Europe - I agree with John Gilchrist - we have not seen effective competition between exchanges. Most trading in national equities remains on the national exchange. And notwithstanding the recent proposals for competition between Euronext in London and other institutions, my view is that they are wonderful and they keep people on their feet, but they will just not work. That said, I think that the key determinant of structure in Europe will essentially be political and not at a national level, but managing and manipulating market constituencies.

We have a troika of strong exchanges: London, Frankfurt and Paris. Smaller ones may gravitate towards those power centres. My view is that this troika is unstable. If any two get together, they will have a significant advantage over the third. You lay your own bets to which two it would be!

In terms of clearing and settlement, I am more optimistic than Dominic and John are, but only slightly more optimistic about the regulatory process. Having been an adviser to the European parliament, and a range of different other institutions, my belief in the regulatory system to deliver optimal solutions is not as high as it might perhaps be. Nevertheless I think that the only major solution to the network externalities and economies of scale that exist in clearing and settlement, is a European regulatory solution. I would support a directive on clearing and settlement as long as it can open up the markets. It is a difficult proposition that it would actually succeed, but given the current situation, giving it a try is better than keeping the status quo.

Asia

If we look at Asia, I generally agree with what Sandra Boss was saying but I am a bit more pessimistic. The national institutions have been incredible in terms of their organisational restructuring and in terms of automation. But it is simply impossible to conceive of there being five regional centres in Asia. We know that there at least five that want to be a regional centre and that will not come about. Any notion of regionalisation will be much more difficult to achieve in Asia than in Europe since notions of national sovereignty and pride remain powerful.

USA

In the US arena, we can't get any more consolidation in the clearing and settlement arena than we already have, so there is nothing to predict. We could get slightly more consolidation in the exchange arena. NASDAQ and NYSE could merge but that will not happen for a range of different reasons. Political ones, but also because of the impact of 9/11 - there are merits in having two trading centres.

3. Drivers

Let me conclude with drivers. I am sceptical about the use and role of *standards*. Standards tend to be protectionist. They tend to entrench current knowledge. But we do not know what the future is about and we should be modest about our ignorance. In general, standards tend to be useless or unnecessary. Useless because we cannot agree on them, or unnecessary because we can and then there is no need to have them! And I think that standards often tend to underplay the costs of implementing them and overplay the benefits they pretend to deliver. That said, I actually do believe that there are strong arguments for cooperation in a range of ways and that we can enhance our systems by working together. I would like to pick up on something John Gilchrist said, which is the need for a more widely shared understanding of what is going on in the world. That is very difficult. If standards help spread that knowledge that is fine, but I would not put too much hope in them.

Competition is of course an important driver - I love competition.

Regulation has a well known range of problems - being captured, being inefficient and so forth. But as much as I am a rabid capitalist, I recognise that in clearing and settlement, and maybe even on the exchange side, competition is very difficult to implement for good economic reasons. On that basis, I would be more positive about the regulatory initiatives that are going on, and specifically about those in the European Union.

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