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# CAN THE CITY ADAPT?

Lecture 4

## THE CHALLENGES OF REGULATION IN AN ELECTRONIC AGE

by

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# THE CHALLENGES OF REGULATION IN AN ELECTRONIC AGE

**Professor Daniel Hodson**

Bold is he who stands before an audience as broad and attentive as this one usually is, and attempts to lecture on the subject of regulation. Some might say that one would do better to talk about the pleasurable life of a traffic warden. Indeed there are those who place the two in the same bracket, alongside those who believe that the only good regulator is an unemployed one. I changed the original cliché for politically correct reasons. Amongst these might be found the great Professor Merton Miller, of University of Chicago fame, whose approach to regulation is encapsulated by his oft repeated statement that, when it comes to the topic, he will just about settle for traffic lights at road junctions, but nothing more.

However you may feel about it, regulation is a broad subject, and I intend to focus on three areas of which I have had direct personal experience. I shall start by looking at self-regulation in the electronic age, and ponder whether it can long survive the eclipse of open outcry by electronic trading. I will then move to electronic trading and the some of the challenges it poses to regulators of and intermediaries in these markets. Finally I will consider the regulatory future of an increasingly important participatory class, the retail or individual investor.

To those, not many I expect, whose knowledge of the subject is limited, a few very simple words about the application of regulation to financial markets. Essentially it is about ensuring that they are safe and fair for all participants, intermediaries, traders, and end users. Both safety and fairness are relative words and there is potentially a world of difference between wholesale markets, populated mainly by institutions, corporates and professional individual players; and retail markets where the investor is quite simply the man in the street. The wholesale market can in theory operate with a much looser regulatory touch because of the greater sophistication, knowledge and risk appreciation of the participants, while retail markets require a stricter framework to prevent the unscrupulous taking advantage of 'Sid's' comparative naivete, inexperience and inability to spot a scam, and ensuring that he is in possession of the maximum appropriate information with which to take a decision. There is also the issue of a market being 'proper', as applied to formal markets or exchanges. This is a much discussed term, but broadly means providing an environment which is appropriate for the market that it sets out to create; liquidity is for instance a key ingredient of properness.

In my career as CEO of LIFFE I was ex-officio the senior regulator in what is known in the jargon as a self regulating organisation or SRO. We were charged with regulating our market and the behaviour of corporate and individual participants within it in accordance with a framework laid down by the Financial Services Act (or FSA) and administered first by Securities and Investments Board (aka SIB), and then by its successor the Financial Services Authority (or, confusingly, also FSA), which is the senior and umbrella regulatory organisation in the UK. We were allowed to set our own rules provided they fell within boundaries set by the FSA (the regulator not the Act, although they had to comply with that too). I give you this modest helping of alphabet soup not as a form of homeopathic mogadon, but because it's important to understand the interrelationships. Certainly in the 'anglo-saxon' regulatory idiom as seen on both sides of the Atlantic, formal exchanges are important cogs in the national regulatory engine.

Self-regulation itself originated from the need and desire of formal markets to persuade would-be and actual brokers traders and investors that they were safe and fair in which to participate. Until the coming of the electronic age of course most markets were effectively co-operative, and the 'self' element was provided by the members of the co-operative themselves and the exchange staff that they hired to supervise the regulation. Although there might prima facie appear to be a potential conflict between the interests of the members as users and customers of the exchange and their ability to regulate objectively and often against their immediate financial self interest, national regulators have tolerated and even supported and encouraged the practice. Indeed it seemed to work very well and for the following reasons:

1 – the not for profit ethos meant that effective regulation would not be sacrificed to profitability; this could have occurred through skimping on regulatory resources both within the exchange and member firms (in my time at LIFFE we actually continually built up and strengthened our regulatory capabilities at the insistence of the members and Board), or by the possible commercial attractions of a less regulated environment (itself a mixed blessing in my view as it would be as likely to put investors off as to bring them in)

2 – co-operative governance generally brought an enlightened view of the need for an effective regulatory environment. co-operative members could be relied on to see and put into practice the close relationship between self interest and good regulation, as a protection for their interests and to build business.

3 – in a constantly developing and changing market, with highly complex and sophisticated elements it was difficult for professional regulators, at one removed and without the necessary specialisation, to keep on top of the necessary technology. Better to have it handled by those who were at the front line and dealing daily with the evolving marketplace.

4 – many, perhaps most abuses occur in real time and/ or in the actual marketplace itself, and are spotted and dealt with only by those directly supervising and interfacing with the market.

5 – the changing and complex nature of trading and the market, together with a need for an understanding of market psychology and motivation meant that, in disciplinary proceedings arising from rule breaches and abuses, those best placed to decide and pass judgement were market participants themselves. Co-operatives could be relied upon to create and manage an effective and fair disciplinary process structured around the judgement of their members.

6 – the importance of effective regulation to the perceived self-interest of a co-operative meant that the latter were prepared to provide the resources and to bear the cost of self-regulation, thus reducing the load of central market regulation, even though there was a considerable element of duplication, ie in market and member analysis, and the process of exchange rule and general market development.

This represented a workable, effective, but finely balanced relationship between co-operative exchange and external regulators, but the onset of electronic trading is tending to upset the ecology.

Taking each of the previous points in turn, co-operative exchanges across the globe are rapidly moving to commercial organisations with a for-profit motive, which, it could be argued, will, where there is a standoff between regulatory interests and profitability, be more likely to put the interests of the shareholders first, particularly on resources dedicated to regulation.

Again, in these new line exchanges, former co-operative members become customers and are, for the most part, excluded from decision making, where formerly they had direct involvement in decisions covering every aspect of the exchange's activities and at every level. Would the staff of a plc have the same enlightened self interest?

Furthermore external regulators are becoming more sophisticated and specialised; indeed a necessary part of their professional and vocational training is an in depth understanding of the market area in which they are operating. The power of IT is such, too, that the regulatory market supervisory function will be performed necessarily away from the participants who will be distributed in front of screens round the globe: does it have to be carried out in and by the exchange itself? Can it not equally take place within a regulator's domain, using the same electronic information, but conveyed to and analysed in a different place? Regulators are increasingly in possession of intermediaries' off-market, OTC or over the counter positions, and does it not make sense for them to be consolidated with those from other formal markets and examined in one place?

And then disciplinary proceedings are becoming increasingly litigious, necessitating copious use of lawyers on every front. There is a strong argument for, for instance, hearings in front of panels consisting mainly of lawyers, regulators and independents, with some industry specialists for technical input. Are these not a suitable replacement for panels made up exclusively of members of the relevant market and appointed and organised by the exchange, particularly whem they find it increasingly hard to attend for the length of time so many cases are taking in today's world? It is however worth saying that an innovation introduced in recent years at LIFFE, and one which has finessed much of this legal entanglement, allows a 'guilty' plea in return for more lenient sanctions and vastly streamlined procedures.

And finally exchanges' costs are increasingly under pressure as fees come under pressure and profitability becomes a fundamental motive. In the case of equities, much of the competition, in the form of ECNs, is unregulated anyway. Why not shift the responsibility for regulation back on the regulators themselves, particularly where there is already a degree of overlap?

And so every element of the arguments for self regulation is coming under pressure. I do not believe that this should result in all aspects of exchange self-regulation moving at a stroke to some external regulator. But I do think that pressure will come from both sides for a radical reduction. Exchanges will ask whether in the cutthroat world of today they want to undertake regulatory tasks which could equally well be done elsewhere, thus improving their financial results and removing the complexity or their organisations. At the same time ambitious regulators have a natural – but not necessarily commendable – empire building tendency. In hanging on to their old regulatory roles post the demise of floor trading are exchanges merely indulging the warm feeling and macho of being a regulator alongside their other functions? Or is there a key symbiotic relationship too important to leave to third parties, however well qualified? Alternatively, is there anything in the argument that a disaggregated regulatory environment, built in part on a pattern of self-regulatory organisations (SROs) is a much more flexible and efficient national regulatory framework than having the vast majority of regulatory power reside in some monolithic central regulator?

My own view is that financial pressures will prevail, and that exchanges will eventually cede most of their regulatory activities to their regulators. Some may hold out longer than others, but once a pattern is established amongst previously self regulating organisations, the end will not be in doubt. There will of course still require to be market rules – approved always of course by the regulator, but many of them a matter of choice, not of regulatory necessity – and the ability in particular to approve and reject those who operate as members, brokers or traders of an exchange, but market supervision, as well as the disciplinary process will evolve to the professional regulatory bodies.

I turn now to the fate in the electronic environment of the supposed great virtues of open outcry trading – price discovery, liquidity and transparency.

One of the vaunted advantages of open outcry trading is that of its rigorous approach to price discovery or the determination of the true market price. In an open outcry environment, if there was any liquidity in the contract at all, a participant in search of a price would go into the relevant pit and enquire 'what's there?' without revealing whether he was buying or selling. He would then get an immediate feel for market price since he would receive a response from one or several traders indicating what the price was for buying and selling. If perchance one of the traders was offbeam with his price, the others, sensing an opportunity, would quickly force the errant trader back in line by trading with him at his 'wrong' price. Pit trading provided an automatic self correction mechanism for price discovery.

It is certainly true that certain forms of electronic trading do have a 'what's there?' type of price discovery built in, particularly where the particular market is very sporadic and such a feature becomes a substitute for normal liquidity. A good example is LIFFEConnect's 'Request for Quote' or RFQ facility which apes electronically the process of asking what's there. But this is not the norm, and the combination of lack of liquidity in the relevant contract and the inability to see all the participants can lead to breaches which are damaging to the market.

Principal amongst these are trades which are 'put through' the market either at the wrong price and without the ability of other traders in the market to participate. Typically two traders in the same house or even separate ones will agree to trade in a certain commodity at a certain volume at a certain price, the latter being quite possibly off the market. There are various motives for this ranging from the simple desire genuinely to match two client orders without the problem of outside traders intervening, to significant dishonesty, like matching a client sell order at too low a price with a buy trade on behalf of one of the traders involved to establish a cheap long position on behalf of the latter. Such a trade had a threefold effect: it gives the wrong price to the outside world, it opens the door to regulatory abuse since any trade at the wrong price means that somebody has been disadvantaged, and it reduces the liquidity in the contract since the trade has not in reality gone into the market.

It is impossible to argue that such things did not occur in a pit environment, but they were more difficult since any form of prearrangement, particularly in a pit which was not trading constantly, was relatively easy to spot. Also other would-be participants were on the spot and would either snap up an offmarket price or alternatively instantly cry foul to the pit official who would be obliged to take action. It does however seem to be a regular feature of electronic trading, particularly in less liquid contracts, and one which must give regulators considerable concern. Two traders collude at the end of the telephone one with his finger on the 'buy' button and one with his finger on the 'sell' button, and it's a simple case of 'One, two, three…go'!

In one sense liquidity provides the answer for it is very difficult to perpetrate abuses of this type in a highly active contract. However the irony is that it is increasingly clear that electronic trading has significantly reduced the liquidity in all but the most voluminous contracts. This has several facets, the principal being that individuals trading for themselves – known in most exchanges as locals – no longer find it always profitable to be active in such contracts.

Specifically they are not automatically able to trade at the prevailing price, since electronic trading rules conventionally insist that the last trader to 'join' or match a price is 'filled' (or has his bid or offer accepted) last, instead of the position in pit etiquette where in theory at least any trader could expect to receive a share of any order being traded, large or small. It is worth noting that it is perfectly possible to adopt, exceptionally or otherwise an alternative algorithm, spreading the business as in open outcry as for instance LIFFE has done in respect of its short term interest rate contracts. Another related reason for declining liquidity are the increased number of put-throughs taking place, and of course the 'need' for these increases as liquidity declines, a classic vicious circle.

The issue of liquidity in exchange traded contracts is a sensitive one as it falls squarely into the definition of a 'proper' market'. Exchanges have an obligation in all low volume contracts constantly to test them to make sure that there is any liquidity in them at all. If not, the fear is that price manipulation will be much easier and/ or that those with positions in them will be unable to close them. This has for instance led, as I pointed out in my last lecture, to regulatory unwillingness to sanction exchanges introducing 'clearing' type products where the exchange appears only to provide branding, an element of regulation and a means whereby a transaction can be cleared, but not the key exchange attributes of liquidity, transparency and price discovery.

Another form of abuse associated with low liquidity and which has greater potential in an electronic market is one where trading takes place to give the illusion of liquidity and activity but where the underlying trades are between individuals in the know who wish create that impression. Those with long memories will remember that this was the downfall of the 1992 regime at the London Fox exchange, the predecessor to the London Commodity Exchange, now part of LIFFE. An interesting historical sideline, to which I drew attention in another lecture, was the indisputable fact that when the Frankfurt based DTB's Bund contract was trying to build up volume, it was continuously and tenaciously supported by a number of Frankfurt based institutions with an interest in seeing it succeed. It is also true that the market share of Frankfurt over not just months but years, literally until the moment when terminals began to be freely available in London, New York and Chicago, was always remarkably close to exactly 30% by the end of every day. There is no suggestion that this was outside the rules of the DTB, but it does raise questions as to how much of that volume was genuine economically motivated trading, ie on behalf of clients and/or intended to generate profitability for the house, and how much was trading for the sake of it, with the long term purpose of achieving the repatriation of the prestigious Bund contract. I have two comments. First that such civic collaboration as undoubtedly existed would have been impossible to achieve in London, except in highly exceptional circumstances and over very short periods; and my second is that it worked....There must be a regulatory and a commercial lesson there.

There must be a fine line between a rigged market with false liquidity designed for gains and coups in the short term; and one where trading is continuous, and, if not economic in the short term for all participants, at least has a long term goal. The latter was, we are led to believe, the motive behind the false trading at London Fox, but there are certain key differences between that and the DTB, notably that LIFFE was very liquid and provided the price discovery mechanisms for the two markets. Any attempted price manipulation at the DTB should have been duly arbitraged out via LIFFE.

However the issue of what constitutes a proper market in an electronic environment will continue to exercise regulators. My own view is that the software associated with the RFQ mechanism is now widely understood, and that this should become a compulsory feature of less liquid contracts to ensure liquidity and price discovery. The difficulty is to ensure that the quotes contingent on RFQs are actually forthcoming. This requires a formal or informal commitment on behalf of individual traders or firms to quote when requested and in most circumstances, a process known as market making or less formally price making. So the challenge for electronic exchanges and regulator alike is when and if to enforce a requirement for RFQs and the rules of the related market making arrangements in order to perpetuate a proper market.

I turn now to transparency, the ability to see exactly what is going on in the market, price participants, trades and other activity. Most of the publicity about the eventual closure of the LIFFE floor focussed on the traders as a colourful, often greedy and unruly breed, who probably deserved their demise at the hands of the technical revolution. We missed them – so did the owners of the local hostelries – but there was nothing of value, nothing of which we should mourn the departure in their activities; they merely provided an interesting and amusing footnote in the history of the City.

But this was not always the case. Many adherents of open outcry thought of it as the true religion, and electronic trading as the Great Satan. Those who advocated the latter were unclean and potentially twisters, to be kept at bay with the market equivalent of bell, book and candle or a clove of garlic. One or two were so extreme that they were thought certifiable, and there were certainly times in the great struggle for the hearts and minds of the LIFFE market over electronic trading when I for one wished that they were safely ensconced in an institution. Of course like many people of extreme or eccentric views there was more than a grain of truth in their reasoning.

After all, a trading floor is about as transparent an arena as could be imagined. The process can be observed and heard from the arrival of the client or house order in the broker's booth to its execution in the pit itself and then back to the booth, it fulfilment to be communicated. Furthermore all telephone lines were recorded and the pits themselves were supervised by exchange officials or 'observers' who were the front line regulators and had considerable powers to keep the relevant market fair and 'proper', as difficult a word exactly to define in a regulatory context as can be imagined.

Open outcry had its funny old ways, too. Many people who transgressed in the pit – and such miscreants weren't always breaking the rules when they did, but merely the well worn procedures of trader etiquette – were dealt with without the intervention of the exchange by a form of pit kangaroo court; in practice usually a single, powerful senior trader or 'local' trading for his own account. 'Go away, laddie, and take a week's holiday' they would say, or more colourful words to the same effect, and off the offender would go, his livelihood deprived for a week. One can't approve of such activities but it was certainly interesting as an illustration of self-regulation at its most basic and – be it said - cheapest

Contrast this of course with the opportunities offered by a screen environment where the individual participants might be separated by literally thousands of miles, and where nobody outside the immediate vicinity of that person could see what they said or did. One of the most heinous form of regulatory abuse is known as frontrunning; using inside information of a client or house order to take a position oneself in the same product and benefit from any change in price when the order was fulfilled. There is of course no end to the deviousness of the human mind when greed takes hold, but certainly the open outcry environment made such games quite hard to play. Not so in an electronic environment where collaboration could be achieved without record at close quarters within the trader's office, or half a globe away through unrecorded telecommunication, out of a tiny PC in the trader's back pocket. Electronic trading to that extent is opaque and very difficult to pin down.

Many of the more sophisticated broker/trader participants impose their own quasi pit environment in their offices with all telephone calls recorded (near to universal these days) and all activity in dealing rooms recorded. But they can't catch what goes on at the beach in Phuket. The plain fact is that the potential is there and the burden of regulation has moved a step back from the exchange to the intermediary.

Focussing now on the latter, one oft referred to impact of electronic trading is potentially to give their former customers direct online access to exchange markets, without any intermediation at all. This theoretical possibility may indeed occur outside the mainstream group of international regulatory environments. But it is difficult to see how regulators would and should allow the removal of so important a filter and control as the intermediary, providing as it does the settlement function, the exposure management, advisory and execution skills for the client's benefit, and in its dealing rooms an increased role in frontline regulation.

Intermediaries/brokers will continue to have a major role in sophisticated and attractive wholesale markets at a number of levels. Where liquidity is already low they will continue to offer the possibility of fulfilment of client orders through market knowledge, as in the past. And it is an irony that in many more liquid contracts their skills will be more in demand than in the highly competitive years which accompanied the final era of pit traders.

Electronic trading will however bring them under pressure in two areas. First the broking opportunities in high volume, highly liquid contracts, will continue to be eroded by competition and the negligible marginal cost of effecting a trade in such an environment. In these circumstances the broker will look to collateral activities to bring in the bacon, such as clearing and settlement, and enhanced margins through advisory services rendered.

But here the potential of online access and the power of the internet will play a role. Execution and advice are two totally separate activities. In the past much brokerage revenue had stemmed from clients' willingness to place execution business at brokerage rates designed to reflect value added services, such as advice. Even today the role of the execution only broker – one who offers only the plain vanilla service of execution, albeit bringing a wealth of market knowledge and understanding to the party – is in a relatively small minority of those brokers active on, say, the London Stock Exchange. But the ease, cheapness and breadth of distribution offered by online access, means that the advisory activity will increasingly be undertaken by boutiques and specialist entities, leaving the traditional broker the remaining relatively commoditised activities of execution broking and settlement, and the potentially more financially attractive business (at any rate in a derivative environment) of clearing.

This is not of great regulatory significance in a wholesale environment, where the participants and their clients are relatively sophisticated. But it raises regulatory issues of the greatest significance in retail markets, not least in respect of the key retail regulatory mantra 'know your client'. This means that the broker intermediary is charged with ensuring that, because of his detailed knowledge of the client's affairs, he only executes business on the client's behalf which is appropriate for that client, in terms of risk, investment objectives and sophistication. He supplies a layer of regulatory filtration which not only presumes detailed knowledge of the client's financial position and aspirations on his part, but also assumes responsibility for ensuring that a client does not trade or invest beyond his or her means or understanding or ability or willingness to accept risk.

The fact is that the personal one-to-one advisory element of the retail broker client relationship – at this stage mainly confined to equities – is the key to ensuring that the client is appropriately treated, without which a major shield is potentially removed from the regulatory protection of the client.

Now two factors are tending to upset this balance. First, as with wholesale markets, an increasing amount of advice will be disaggregated from execution. Many retail investors are now purchasing electronic, highly commoditised and therefore cheap execution services from execution only brokers; whilst seeking the related market and stock advice from a different source, paid for that service only.

Secondly, the power of the internet and its related technology is such that full service retail brokers will use electronic techniques to reach their audience more immediately, but less personally. For instance most brokers now have an early morning conference to determine the approach to the day's markets and events and to specific companies. In the past the client service manager could only contact a select few of his clients over the next few hours (out of possibly several hundred) to give them the benefit of his advice – a highly focussed but constrained approach. For the rest he was probably limited to printed material and the occasional call. In the future technology will enable him to record his views and advice immediately after such a meeting on video and circulate it instantaneously around his clientele by email or as it is coming to be called videomail or v-mail. The personal touch will be less, but the reach and service far broader.

This could of course be a weak link; individuals could be sold inappropriate products on inadequate information, and it does represent a substantial regulatory risk for the future. But there are two antidotes to be administered by the regulatory authorities.

The first is to ensure that details not only of products and the risks associated with them but also the risks associated with financial ecommerce are widely disseminated by intermediaries and regulators alike. It would be like a series of public health warnings, but care should also be taken not effectively to kill products which, though complex and with some limited downside, might be of intrinsic value to the investor.

And, secondly, intermediaries should be obliged to use the power of technology to protect the individual by obtaining an immediate overview of his or her financial circumstances at the commencement of the relationship, and then updating and enhancing it by the observation and analysis of financial transactions performed on his behalf. Thus a continuing and dynamic view of the client's financial profile and requirements can be kept. If then the client attempted to perform an inappropriate transaction, or had one 'sold' to him by an illinformed or unscrupulous client adviser the transaction would be at worst queried and quite possibly blocked. As with so many aspects of the electronic revolution the loss of one valued attribute may be covered by the acquisition of another.

This particular approach will undoubtedly become more important as electronic trading opportunities for the more financially adept individual move from the equity market to derivatives. In this area a limited amount of business has been done in equity options, but with a fairly rigorous 'know your client' approach.

But I am much more concerned about the seemingly inevitable access of non-professional individuals to other fast moving derivative markets of considerable complexity where positions can be nominally huge and values can change sharply. In the past they have been strictly wholesale and professional, but this will change, and already across the globe such players are creeping into the market. It is only a matter of time before they become a significant portion of the volume of many derivative contracts. It will certainly result in even more intense focus on 'know your customer' but it will pose a huge problem to exchanges, who will need to reexamine their rule books to ensure that they are appropriate for the joint participation of the traditional players and new and by definition less sophisticated retail investors.

There is at least one major protection offered by electronic markets, and that is the inevitable levelling of the playing field between wholesale and retail participants, both in the advisory and execution function. The immediacy of advice – say post the stockbrokers daily morning meeting – will be available in much more comparable form to the largest fund managers in the world and the lowliest online retail investor. The latter will be in a position to receive a daily v-mail from his client adviser, at the same time as the fund manager may be assimilating comparable information from different sources at the same firm. He will be able to tune into streamed video – just like television broadcasts, but available on the internet – of results conferences, hitherto the exclusive preserve of analysts, and the major investing institutions who received the corporate commentary first, based on information not strictly in the public domain.

Furthermore the retail investor will be on equal pricing terms with the wholesale, who may be acquiring or selling lines of shares a hundred or more times greater. And retail investors will soon enough be provided with the same 'web-crawling' software as wholesale players, enabling them automatically to buy, in a commodity or share traded at several exchanges and ECNs, at the market which offers the best price. Retail investors will not of course be able to participate in the 'upstairs,' OTC or 'block' markets which exist for very large trades, but these transactions bring special issues of liquidity which regulators have generally been prepared to trade off against transparency and immediate price reporting.

These very advances in the relative position of retail investors have given increasing rise to the phenomenon of daytrading, a cause of increasing concern to regulators. It simply means the practice of trading a commodity – cash or derivative – and closing a position during the day that it was opened, and thus having no overnight exposure or risk. This activity is pandemic in wholesale and professional markets and has, certainly in major derivative contracts, generated important volumes, as I have indicated earlier. Where, as I explained earlier, it was virtually obligatory to include as many pit participants in a trade if they were prepared to match the going price, this was not a particularly high risk activity; it was possible for a professional trader to make a living without taking too much directional risk – which way is the stock going to move? – by taking advantage of the so-called spread between buying and selling prices. However the first in first out algorithm of electronic trading means that day traders, professional or retail, must normally take a directional position, and will lose money if the commodity traded does not move in their favour. In addition retail daytrading in equities has two other hazards: stamp duty would be payable on both sides of the equation, and spreads are normally wider than in comparable liquid derivative contracts; the stock has to move even further for the daylight investor even to break even.

It is certainly a risky business, and there is statistical evidence that up to 90% of day trades lose money for their perpetrators. On the other hand the ease and speed of access to the market in a retail environment means that, short of draconian and highly selective regulatory, fiscal or statutory restrictions, the practice will grow. Once again it is vital that the risks are fully exposed both at regulatory and intermediary level and that any weakening of the link from disaggregation of services, is more than offset by the power of electronic data analysis and its ability to build a financial profile and to synthesise a safe framework for the client and his intermediary to operate within.

And so, once again, we are thrown back on the almost unlimited ability of modern software to absorb information at an atomised level and to process it into patterns of interest for decision making and analysis. This is a theme running through this lecture whether it be a key weapon in a national regulator's armoury or a defence against the changes which may undermine the retail intermediary's requirement to know his client.

As one contemplates the possibility of yet more regulatory staff being hired to cover the additional duties of exchange regulation, there is a golden thought that is illuminated by this prodigious information crunching power. How much regulation currently performed by human individuals will be performed in the future by well trained and educated electrons through the medium of intelligent systems? More than one might imagine, perhaps. It would be good to feel that the regulatory industry, which has necessarily spawned so many costs and burdens for market participants at every level, might eventually start to decline in numbers employed – without of course losing any of its impact in preserving the markets and protecting their players. There might indeed be an increase in the numbers of good – unemployed that is – regulators. I wonder how long is the lease of that splendid building now occupied by the Financial Services Authority in Canary Wharf? It might come on the market sooner than you think.