

**DEMAND FOR OFF-EXCHANGE
TRADING SYSTEMS: TRADING
PREFERENCES OF INVESTORS
ON THE LONDON STOCK EXCHANGE**

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Demand for Off-Exchange Trading Systems: Trading Preferences of Investors on the London Stock Exchange¹

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Abstract

The London Stock Exchange (LSE) faces rising pressure in its efforts to maintain its position as a favored market of institutional fund managers and professional investors. Customers are satisfied with the current state of the LSE market, but member firms are pricing institutional brokerage and market making services below economic cost. The LSE's position will be significantly damaged when the effective subsidy ends, and commissions and dealing spreads reflect the costs incurred by members firms. Competition in the supply of trading services has increased, and a range of alternative, off-exchange trading systems could draw order flow away from the Exchange market. These trading mechanisms provide order matching, crossing of basket and portfolio trades, and reduce investors' commissions and trading spread costs. Fund managers in the U.S. are using the systems more actively, and the result has been an erosion of the position of the New York Stock Exchange. The LSE's customers are also using an expanding range of portfolio management techniques, many of which require low-cost trading, and do not demand immediate order execution, as traditionally provided by London's market makers. The Exchange needs to respond to the changes in fund managers' demand for trading services, and to the growing competition in the supply of off-exchange trading services. Enhancements to the existing LSE market structure are the best response to these threats.

1. Introduction

Financial markets are changing in many ways and the changes are pressuring established securities exchanges to adapt and change. The application of new fund management techniques,

¹ This paper was prepared with the financial support of the City Research Project, London Business School, and is based in part on interviews conducted between December 1991 and February 1992 in London and New York with institutional investors, securities brokers, stock exchange officials, and investment industry consultants. The authors agreed not to attribute interview comments to individuals or firms.

the increasing competitive pressure on fund managers for performance, and the availability of alternative off-exchange trading mechanisms are all transforming the needs of professional investors for trading services. Stock exchanges that fail to respond may find themselves threatened by an erosion of trading volume and deterioration of market quality. The position of London as a financial center is buttressed by the London Stock Exchange's (LSE) ability to provide high quality markets for domestic and international shares. If the LSE is not perceived as the highest quality market for U.K. equities, London's ability to attract trading in non-U.K. stocks and other financial instruments will quickly diminish.

The LSE's greatest potential weakness is its reliance upon a single mechanism for trading at a time when alternative investment management approaches are flourishing, and investors' trading needs exhibit growing variation and segmentation. A competing market maker system is best suited to only a subset of investors' strategies. In recent years, the New York Stock Exchange (NYSE) has suffered a significant, measurable loss of market share in the trading of its listed stocks to off-exchange alternatives. The floor auction market has struggled to accommodate the demand from institutional investors for trading shares at minimum cost with a lower level of order disclosure and trade urgency, and for trading a number of securities at once. Since the NYSE has not accommodated these investor demands, a considerable portion of trading volume has moved off-exchange.

Although trading volumes in the U.S. and the U.K. have resumed a gradual growth trend in 1990 and 1991, the ability of major exchanges to remain central markets in their listed securities is more precarious than ever. Investors are seeking greater international diversification, and exposure to more markets. They are making greater use of derivative instruments and are applying increasingly sophisticated methods to manage funds and control risk. A typical institution's reliance on any particular market or financial instrument continues to decrease. At the same time, deregulation has opened up market competition reducing brokerage commissions, and technology has made markets more transparent and dealers' pricing margins thinner. Mechanisms now exist for investors to bypass the Exchange and its member firms entirely and trade among themselves. One effect of competition has been to stimulate innovation by exchanges and their member firms. But because member firms' profits from

traditional market intermediation will probably never return to previous levels, exchanges will find their memberships less inclined to sacrifice privileges or profitable operations for the good of the market. Thus, changes to the Exchange's market structure should be carefully researched and justified to the Exchange community; member firms, investors, listed companies, and regulators will all want to understand the impact of any changes.

Exchanges are moving in the direction of greater automation. At the time of Big Bang in 1986, the introduction of SEAQ led to the departure of traders from London's stock market floor to firms' well-equipped dealing rooms. The NYSE has spent \$600 million on computer and communication equipment for order routing and handling in last 10 years. In spite of enhancements (or, perhaps *because* of them), seat prices (a barometer of the value of membership) have fallen nearly 75% from \$1.15 million in 1987 to \$301,000 in September 1990.

Previously, most exchanges could rely on a geographically-defensible near-monopoly position in the trading of their listed securities. Information and communications technology, however, has opened many new methods of trading equities and other financial instruments. Viable alternatives to exchange-based markets now exist, and their use is growing as institutions' investment strategies change and they pursue lower-cost trading methods. The two factors forcing exchanges to act are:

Competition in the Supply of Trading Services. Alternative trading mechanisms include cross-listings on overseas stock exchanges such as SEAQ International, cross-listing via American Depository Receipts (ADRs), off-hours networks that "cross" buy and sell orders such as The Crossing Network and SPAWorks, and open quote display and order matching screens such as Instinet. These trading alternatives threaten to draw significant proportions of trading volume away from established exchange markets; as importantly, they limit what exchanges can charge for their services, since alternative sources now exist for these services.

Changes in Demand for Trading Services. Developments in fund management, such as *passive investing*, *indexation*, and *quantitative strategies* have generated demand for new

approaches to trading. In many cases, investor trading needs have become less dependent upon the immediate execution of trading orders typically provided by member firm intermediaries in continuous markets on established exchanges. On the other hand, rapid access to price data has facilitated complex hedging and arbitrage trading strategies, which require more rapid, nearly instantaneous execution of trading orders.

Exchange Competitiveness. In this environment — change and heightened competitive pressures — an exchange's survival depends its ability to attract investor customers and trading volume to its market. Exchanges will need to have a better understanding of investors' trading choices as more competing markets are available. Growing numbers of alternatives for trading will test the quality of an exchange's planning, and its ability to improve its trading mechanisms.

The City of London has an interest in the success of the London Stock Exchange (LSE). Part of this concern should involve assessing the Exchange's ability to remain the *central marketplace* for U.K. securities, and to strengthen its position as a market in overseas securities and new financial instruments. The LSE provides noteworthy public goods such as regulatory and monitoring mechanisms to ensure fairness, the capacity to handle peak trading volumes, and the open discovery and dissemination of quotes and prices. The value of price information is large, and provides protection to participants in the market, as well as information about the market's appraisal of companies and stocks, which is useful for owners and managers throughout the economy. Although there are numerous beneficiaries of these public goods — no one can be excluded from "consuming" the public good — only those who use the LSE actually pay for the process of generating and distributing prices. The growth of alternative off-exchange trading systems, which often base their trades on the major market's prices, will make it increasingly difficult to recover the costs of providing the Exchange's public goods. Policy toward the Exchange should thus ensure that it continues to face fair competition, and that it has adequate incentives to perform its role as a marketplace and support its membership's ability to service investors.

The long-term goal of the LSE should be to facilitate a broad and encompassing market that maximizes investor participation. Increasingly, this requires multiple trading mechanisms

to be provided to meet the emerging trading demands of institutional investors. Evidence is accumulating in the U.S. that investors will use alternative trading systems for low-cost, non-time-sensitive trades, and in cases where they do not want full disclosure of their trading intentions and prefer the anonymity of an order matching or crossing systems. Traditional market making and capital commitment will continue to have its place in London, but changing investment strategies and the specter of growing off-exchange trading volumes will ultimately require the LSE to enhance and augment its existing market design with facilities for limit order handling, passive order matching, and portfolio crossing. Integration of these trading mechanisms as part of the Exchange is preferable to erosion of order flow to off-exchange alternatives with associated loss of fairness, transparency, quality of price discovery, and careful regulatory oversight. The LSE faces significant long term threats; eventually it will stand at a crossroads similar to that faced in 1983 when the decision was made to develop SEAQ as an essential part of the 1986 market reforms.

This report is organized into seven sections. The second section will review the literature on choice of market by investors. The third section describes the strength of the relationship between the LSE and investment institutions. Section four reports on the current range of trading mechanisms available to institutional investors, and details the experience of these systems in the U.S., where they have had the greatest impact. The fifth section describes the trends in fund management, and how they have led to new trading strategies for institutions. Section six outlines the threats to the LSE and London. Section seven gives our conclusions.

2. Academic Literature

Academic research on investors' choice among alternative markets is inconclusive. There are conflicting measures of market quality and thus different opinions on the ideal way to structure a market. Among the recognized criteria for market quality are *liquidity*, *tightness*, *depth*, *resiliency*, *transparency*, *continuity*, and *access* [KYLE85][COHE85][CMSW86][CLEM89]. *Liquidity* is perhaps most important, but also the most difficult to measure. It represents an investor's ability to convert securities to cash and back again with minimal delay, and without an excessive effect on the price. *Tightness* is the size of the relative difference

between the market's buying quote (bid) and its selling quote (offer). *Depth* is the quantity of shares available at or near the current market price. *Resiliency* is the market's ability to move quickly back to an equilibrating price after an imbalance in traders' demand or supply of the security. *Transparency* reflects the ability of a market participant to observe the trading and price discovery processes. Markets that are *continuous* enable investors to buy and sell at any time, rather than at specified times as with a call auction market. *Access* is the ability of investors to enter the marketplace and place buy and sell orders for themselves, rather than through an intermediary.

The literature on investor trading decisions does not point to a single trading mechanism (eg., order-driven auction market, or a quote-driven dealer market) that is optimal for all investors, or using all measures of market quality. In fact, examining the choice between immediate execution against a bid or offer quote and waiting via limit orders for a more advantageous price, Handa and Schwartz (1991) found that immediate execution of trading orders (as generally occurs on the LSE) is "desirable for some but not all market participants". Clemons and Weber (1991) found that in comparison to a pure order matching system, many investors' transactions costs were lowered by the presence of a designated market maker, such as the NYSE specialist.

Recent empirical work on comparative market quality, such as Pagano and Roell's (1990) work on dually traded securities on the Paris Bourse's continuous auction market and LSE's SEAQ International competing dealer market, found that the two competing markets imposed different transactions costs on investors. However, a direct comparison of the merits of the two market structures was impossible because market quotes were available for large trades in London and only for smaller share quantities in Paris. Furthermore, transactions costs for executed trades in an auction market need to reflect the opportunity cost of an extended negotiation or waiting period before the participant on the other side of the trade was found, whereas a dealer generally offers certain, immediate trading.

Even when multiple markets are available for a single security, the likely outcome of multiple market competition is difficult to project. Several fragmented markets may exist for

securities, but individual incentives may not encourage a socially desirable consolidation of trading in a single, more liquid market [PAGA89][ECON88].

We find that the optimal design of trading mechanisms, and a stock market's response to competitive threats, remain empirical questions with only general indications available from the research literature. Since theory cannot recommend a single best market structure, the LSE faces trade-offs. We examined customer needs and interviewed Exchange users as a way of understanding these trade-offs and evaluating the market mechanism choices. The preferences of professional investors are most crucial since they make up seventy-five percent of the equities trading volume in London, and because they are most capable of trading in alternative markets.

3. Exchanges and their Professional Customers

Exchange markets generally have two classes of participants: *members* or member firms, who act as broker-agents and principal traders, and *customers*, who are either private clients or non-member fund management institutions that supply investment capital, manage portfolios, and use member firms of the exchange to execute trades. Member firms act as financial intermediaries and facilitate capital raising through underwriting, and contribute to secondary market liquidity by acting as agency brokers or as dealers trading against the public order flow. Historically, exchange memberships have conferred privileged access to the market and have had considerable franchise value. For instance, there are a fixed number of New York Stock Exchange membership seats (1,366), and at the peak in 1987, they sold for \$1.15 million each.

Institutional investors may manage in-house the assets of their organization, as in the case of an insurance company, or they may be agents for a sponsoring organization, such as a corporation's pension fund. In general, U.S. and U.K. institutions have had little operational contact with the exchanges, but have been served by the members of the exchange. They access the exchange markets through brokers and securities houses who charge a fee or a commission on trades.

Increasingly, institutions regard the selection of a trading mechanism as a way to enhance investment performance and to control costs. For instance, electronic crossing networks were introduced in the U.S. in 1986 as an alternative for institutional investors to bypass the established exchanges, and reduce transactions costs. For some institutions, the established exchange may no longer be the market predominantly chosen for trading in its listed securities.

The principal choices an exchange makes that affect the attractiveness of the market to institutions are its *market structure* and its *trading rules*. Knowing which rules and which market structures appeal to which investor segments and for what reasons is crucial to exchange planning as institutional trading alternatives grow, and as investors' demand for trading services change.

We examined these issues in interviews with a range of market participants, and solicited their views on the current state of London's equities markets. We find that the LSE faces growing threats to its ability to serve as the focal point for investors' trading activities, and that it can prepare itself better to address the needs of investors. The Exchange's present position is remarkably strong, and at present the trading services provided by LSE member firms are meeting the needs of institutions, which are not likely to move their trading away from the LSE. However, this position is due in part to the fact that most member firms are not earning an adequate return for their risks, expertise, and commitment of capital. They are, in effect, subsidizing investors' market activities. When LSE member firms are no longer willing or able to continue this subsidy, transactions costs will rise, and the Exchange will face a weakening of its position with investors.

3.1. Customer Evaluations of the LSE We solicited opinions on what an established, and regulated exchange provides to investors, what off-exchange alternative mechanisms offer, and why have they not been more successful than they have been to date in London. We find fund managers are content, indifferent toward the Exchange, favor liquidity to trade publication, and do not regard the choice of trading venue of non-U.K. shares — SEAQI or home market — to be vitally important.

Content. Institutional investors are satisfied with the SEAQ market. Most concurred with a Bank of England study that concluded that trading costs are low and the regulatory regime is not onerous in London.² A major London-based investment manager identified a legal record of the trade, and the traceability of transactions as part of the inducement to use the Exchange. Although this manager crosses some trades internally between portfolios, the price is verified in the market, a contract note written, and stamp duty paid. Asked about their trading via any off-exchange market alternatives, the head trader said it "was too small to mention." A senior fund manager and head trader of another institution agreed that "the drive to lower transactions costs is not significant here", and stated "we don't expect to go direct to other institutions for trading." A director of a major market making firm told us that "performance measurement was becoming visible among their institutional customers, but that little attraction currently existed to off-exchange systems." The availability of immediacy and continuity from SEAQ market makers led a senior executive at one institution to point out that it is "less time consuming for us and other institutions to use the intermediaries."

Indifferent. Institutional investors are generally indifferent toward the Exchange. A major European fund manager in London explained that:

"Trading is a minuscule part of our business. The LSE is just there to fulfill a function and offer its SEAQ screen. It's what the brokers provide us — research, dealing skill, etc. — that leads to our activities there. The LSE is not providing us a service."

In a published interview, Dean LeBaron of Batterymarch Financial Management echoed that sentiment for the U.S.:

"Most investors with the tools and sophistication will want to go to the place where the market is the deepest, wherever it may be. ... We trade indifferently and if a market is competitive, more trades will take place there. We are looking for natural buyers and natural sellers to be brought together efficiently."³

² Reported in Cochrane, W. "London is Top Centre for Foreign Share Deals", *Financial Times*, 13 May 1991, p 4.

³ Wayne, L. "All-Night Trading Called Beneficial", *New York Times*, 26 June 1990, p. D5.

Favor Liquidity over Transparency and Trade Publication. Most U.K. institutions believe they are sophisticated enough to read the LSE market accurately. If forced to choose, institutions favor liquidity via market maker commitment of capital to immediate trade publication. One pension fund executive in London told us "as a large institutions we have clout and we choose liquidity at all times — we want to shift large parcels of stock and publication is not a major concern." One investor recognized this was "implicit collusion between the institution wanting to move a large position and the market maker." Without trade publication, the investor did not feel severely disadvantaged: "we know the average large trade is from another institution, and we feel as knowledgeable as they."

Trade Venue for Non-UK Stocks was not a Major Consideration. In the choice between SEAQI and the stock's home market, institutions had little preference for one over the other. One investor noted, "we may not actually know where the deal gets done." Finding the best price was considered the role of the agency broker, although investors felt that the brokers' performance needs to be monitored. Brokers are more decisive in their choice of market, and one U.S. broker based in London said, "we want to use the real (home) market and be able to watch the market we trade in."

3.2. Assessment of Customer Satisfaction. The current transactions costs of trading on the LSE are comparable to the lowest available on any major market. Low-cost transactions for institutional bargains mean that there is little potential savings to trading away from LSE. However, the continuing and well-publicized difficulties with Taurus indicate settlement and clearing inefficiencies in London are not likely to be reduced soon. Settlement is often referred to as the "glue" that holds some exchanges together, and the LSE's settlement process is comparatively expensive. One of the institutions mentioned that they had sent an operations manager to the Fidelity initiative for a real-time institutional trade confirmation system, and agreed that adding prices to such a system was feasible and "the Stock Exchange should be worried."

Since the LSE and the NYSE markets have been deregulated and open to outside entry and competition for five and sixteen years respectively, a useful comparison for SEAQ dealing costs is the costs of trading in New York.

London Stock Exchange: Trading Category	Average Spread ⁴	New York Stock Exchange: Capitalization Quintile	Average Spread ⁵
Former Alpha: Top 150 stocks	0.84% (1989) 0.9% (1991)	1: Top 340 stocks	0.80%
Former Beta: Second 350 stocks	2.57% (1989) 4.3% (1991)	2: Second 340 stocks	1.13%
SEAQI: 16 stocks in French Sector	1.52% (1989)	3: Third 340 stocks	1.49%
Average institutional commission (1990) ⁶	0.16%	Average institutional commission rate = 8 cents per share with average share price = \$36.50 ⁷	0.23%

⁴ Pagano and Roell (1989), p. 83 and p. 91, and [BID91].

⁵ Dimensional Fund Advisors, Presentation at Conference on New Equity Trading Alternatives, New York, NY, February 1989.

⁶ Quality of Markets Report, Transactions Survey, London Stock Exchange, 1990.

⁷ Chan and Lakonishok (1991) sampled 1.2 million transactions with a value of \$387.6 billion by 37 equities fund managers. Simple average commission was 0.23%. The median trade value was \$93,075, and represented 2% of normal daily trading volume in the stock traded. The average trade value was \$319,375, or almost 7% of normal daily trading volume. Hence the typical institutional trade is not a major event in the daily trading of most stocks. For stocks in the sample in the lowest quartile of trading volume, the median trade was somewhat more substantial, representing 24% of normal daily volume.

Comparable data on U.S. bid-ask spreads also comes from a separate study of bid-ask spreads in the U.S. for generally larger stocks in the S&P500 index and those not in the index for 1982 and 1988.⁸ Sample sizes are in parentheses:

Year	S&P500 Stocks	Non-S&P500 Stocks
1982	0.97% (238)	1.61% (338)
1988	0.86% (283)	1.96% (293)

Transactions costs in London are roughly equal to those in New York, and compare favorably with those in other European centers (See [PAGA90], p. 78.). The cost of a round-trip transaction (buying and later selling the stock) is the bid-ask spread plus two commissions, and New York and London costs for the most active shares average about 1.2%-1.4% of the price of the security. For less actively traded shares, costs can rise to 3 to 5 percent. As has been well publicized in London, trading in the former gammas, the least active share category, imposes costs as high as 10 percent [BID91]. Since institutional activity is highest as a proportion of total activity in actively traded, high capitalization companies, the most relevant comparison is in the actively traded category, in which London's institutional trading costs are low.

4. Supply of Trading Services

A growing number of alternative trading systems have been introduced in recent years in the U.S. and Europe. These systems offer lower cost, off-exchange execution and enable institutions to trade directly with one another. Alternative market mechanisms threaten to draw significant proportions of trading volume away from established exchange markets.

⁸ Sametz, A., *Institutional Investing*, Salomon Brothers Center, New York University, 1991, p. 187.

Ariel, an inter-institutional trading system, was introduced in the U.K. in 1974. Activity on Ariel never reached a significant level, and the initiative was phased out shortly. A London fund manager familiar with Ariel, said "there was not enough client (institutional) liquidity to make it successful. An active market will itself initiate trades, but Ariel was never active." Until recently, there have not been any visible initiatives for electronic, inter-institutional order exposure and trading in the U.K. since Ariel. The recent introduction of U.K. versions of successful U.S. off-exchange trading systems — Posit and Instinet — has once again provided institutions with an opportunity to trade away from the LSE. Although the impact of off-exchange systems in London may not yet be as evident as in the U.S., this should not justify complacency. U.K. securities firms already trade actively in the shares in certain British companies away from the Exchange in ADR form,⁹ and the pricing of U.K. equities dealing services below cost may not endure, leading to greater volumes of off-exchange trading as a way of reducing institutional transactions costs.¹⁰

U.S. Experience. In the U.S., there appears to be elasticity of demand for transactions; at lower costs, investors submit more orders to trade. A managing director of a major institutional brokerage house in New York remarked that "institutions are so cost-conscious they'll bypass the floor and us any way they can to trade directly with each other." This particularly applies to index portfolio trades that are informationless, but that improve a fund's cash and asset balance. One of the largest pension fund managers in the U.S. uses active management for only 7% of its U.S. equities portfolio, and pointed out that "the lion's share of our trading now is over electronic systems, and if we had to pay full freight (about 5-10 cents) we would not do the trades. Our commission is at most 2 cents per share this way, and if it were 5 cents the strategy would be unprofitable."

⁹ ADRs representing about 60 million shares in British companies trade daily in U.S. markets. Maher, P. "Inside the Strange World of ADRs", *Investment Dealers Digest*, 4 November 1991, pp.14-18.

¹⁰ See Muehring, K. "A Trader's Trader Attempts a Final Turn", *Institutional Investor*, January 1992, pp. 54-58, for background on several independent initiatives for off-exchange trading in the U.K.

Alternative trading mechanisms have long existed in the U.S., but only recently have they captured a significant proportion of order flow. As recently as 1980, the NYSE had 88% of the trading volume in its listed stocks.¹¹ The rest was regional exchange volume and trading by upstairs dealers. In the last 10 years the advent of program trading (trades involving baskets of 10 or more stocks), and passive or quantitative fund management have led to the rapid development of fourth (disintermediated, inter-institutional) markets, and the growth of overseas trading volumes of U.S. stock by institutions and brokers. London, Amsterdam, Tokyo, each report trading volume in their cross-listed U.S. stocks. An explanation commonly given is that most trades are arranged crosses and that overseas trades are useful for avoiding U.S. exchange

¹¹ [SHAP91], p. 5.

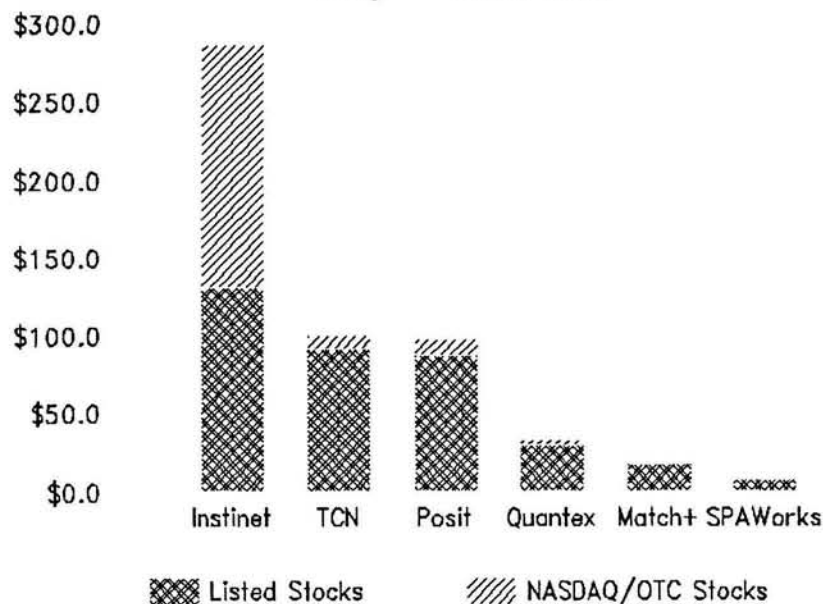
restrictions on short-selling, and the possibility of the trade being broken-up by limit orders if routed to a U.S. exchange floor.

Table 1

OFF-EXCHANGE TRADING ALTERNATIVES IN THE U.S.		
Type	Mechanism/Basis for Trading Price	Examples (Introduction date) — Pricing, Owner, Daily Trading Volume estimates
Crossing Network	Batch trading based on closing prices from NYSE or mid-spread of NASDAQ	The Crossing Network (1986) — Run by Reuters, 1 cent per share, 3 million shares
Single Price Auction	Call auction. Price set by intersection of supply and demand curves from submitted orders	SPAWorks (1991) — 0.8 cents per share. 45 institutions, 200,000 shares
Portfolio Crossing	Use volume weighted average price of day's trading. Trades in morning and around noon.	Posit (1986) — 2 cents per share. Run by Jefferies, used by 80 institutions managing 80% of US pension fund assets. Traders must enter orders for at least 10 stocks. 3 million shares
Order Matching	Continuous open order book for individual shares or portfolios	Instinet (1969) — Run by Reuters, 1 cent per share, 13 million shares Quantex (1990) — Run by Jefferies, used by 30 institutions, 1 million shares MatchPlus (1991) — Run by Morgan Stanley, 200,000 shares
International Off-Hours Markets	Screen display of market-makers' quotes for U.S.-listed stocks	SEAQ International, U.S. Section (1985) — indicative quotes, 5-10 million shares NASDAQ (January 1992) — 3:30 am to 9:00 am N.Y. time, firm quotes, 100,000 shares
<u>NYSE Responses</u>		
Crossing Session I	Enter orders from 4:15 pm to 5:00 pm, to cross at NYSE closing price at 5:00 pm	Member firms enter orders from institutional clients, 8.5 million shares entered per night with 10% executing
Crossing Session II	Paired (prearranged) orders for 15 or more stocks with value greater than \$1 million are executed when received Operates from 4:00 pm to 5:15 pm.	805,000 shares per night

The following graph indicates the approximate value of trading for off-exchange trading systems in the U.S. For comparison, the average daily trading value in 1991 on NYSE was \$6.0 billion, and on NASDAQ \$2.6 billion.¹²

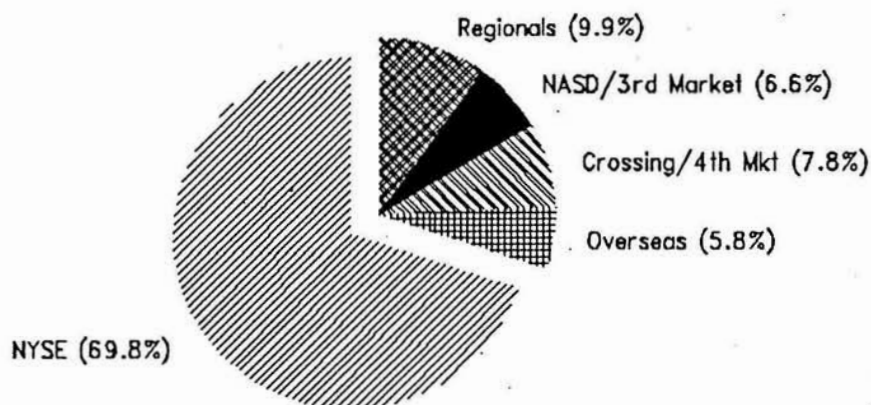
TRADING VALUE ON OFF-EXCHANGE SYSTEMS Daily -- 1991 Data



The next graph indicates how the trading volume of NYSE-listed stocks is distributed. Most troubling for established exchanges, the fastest growing segments of trading volume in the U.S. are the fourth market (inter-institutional order matching and crossing systems) and the third market (off-exchange market making by securities houses). Reuters' fourth market offerings — Instinet and The Crossing Network — allow for direct institution-to-institution trading, and grew an average 45% annually between 1986 and 1991, compared to less than 10% for the aggregate trading volume of the NYSE and NASDAQ markets. If current growth trends were to continue, the NYSE will account for less than half of trading volume in its own listed stocks by 1997.

¹² *Investor Activity Report*, Securities Industry Association, New York, NY, 3 January 1992.

Market Share of Trading Volume NYSE-Listed Equities - 3Q 1991



The lesson from the U.S. is that exchanges must recognize the demand trends for trading services, and work to encompass and bring together all order flow to the benefit of all market participants. A New York-based broker felt that "with the order flow all over the place, the established market sees fewer and more difficult trades ... it is best for everyone if the order flow centralizes." Alternative, off-exchange trading mechanisms that offer lower costs and mid-spread trading will continue to be introduced, and continue threatening to draw order flow away from the central market. An exchange's response should be to preempt these alternatives by offering a ranging of linked trading mechanisms, including competing market maker quotes, limit order facilities, and periodic crossings. Keeping order flow from deserting an exchange requires augmenting the market structure with alternative, lower-cost trading mechanisms. In London this entails making innovative and ground-breaking modifications to the LSE market structure in the near future. These enhancements are as necessary for the Exchange's survival as the *Big Bang* changes made in 1986.

5. The Changing Demand for Trading Services

Fund management has been transformed by the introduction of indexation and passive investing. In addition, computerized research databases and real-time market price data have enabled institutions to conduct extensive analyses, and select over- and under-valued companies. Institutions' demand for trading services will increasingly reflect their chosen management approaches. Since markets offer alternatives such as continuous vs. periodic trading, negotiation vs. automated execution, and differing degrees of quote and transaction visibility, exchange planners need to understand which trading mechanisms appeal to which investor segments.

The Passive-Active split. In the late 1960s, several detailed studies of the investment performance of fund managers made clear that the majority were generally unable to achieve even the returns registered on the benchmark unmanaged indexes of the market. Malkiel's *A Random Walk Down Wall Street* (1973) popularized the notion that active stock picking was unlikely to lead to performance that is consistently better than the return on the market. In fact, because active managers trade their portfolios more aggressively, they incur greater costs, making it more likely that they will underperform. In addition, ERISA legislation enacted in the U.S. in 1974 made pension plan sponsors responsible for ensuring cost-effective investment management.

Passive Management. Indexation and low-cost passive investing have been the response to fund manager underperformance, and these have become increasingly popular in the 1980s. Such strategies create information-free trades, which are not time-sensitive. Today, estimates are that between 30 and 35 percent of institutional equity holdings in the U.S. are passively managed index matching funds. A September 1989 survey¹³ of 36 of the largest U.S. pension funds with assets totaling \$259 billion found 34% of their domestic equities holdings were indexed, a 4% increase from 1986. Matching an unmanaged market index demands a low-cost

¹³ Committee on Investment of Employee Benefits, "Survey of Pension Fund Investment Practices", Financial Executives Institute, Morristown, NJ, 1990.

trading strategy, and requires less turnover than active management. The respondents reported the following turnover rates for their portfolios:

CIEBA Survey of 36 U.S. Pension Funds	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Assets Managed in Market Index/Passive Strategies	30%	30%	31%	34%
Turnover Rates of U.S. Equity Portfolios				
Passive	19%	24%	15%	13%
Active	56%	66%	48%	47%
TOTAL	46%	51%	38%	31%

Passively managed portfolios are suited to computerized periodic auction markets for either individual stocks or baskets of stocks. Trades are generated not by market or informational events, but by the need to manage cash flows and periodic rebalancings. Since there is no informational motivation, there is no time urgency, and thus no need to pay for immediate execution and market makers' commitment of risk capital. As a result, "by some estimates, as much as 90% of the major index funds' trading (in the U.S.) is done either internally or through off-exchange systems"¹⁴

Active Management. Trading is principally driven by the stock selection function of active fund managers. Most institutions that are active managers feel they distinguish themselves on the basis of investment strategy, with low trading cost a secondary consideration. One London fund manager referring to the organization's actively managed portfolio remarked "we are not worried the odd 1p or 2p (in trading costs)." In addition, information technology has enabled investors to receive more real-time market data, and has facilitated "hair-trigger" trading for hedging and arbitrage strategies. These informationally-motivated trades demand greater immediacy and are more time-sensitive. The current London Stock Exchange market structure

¹⁴ Anders G. and Torres, C. "As Computers Bypass Middlemen on Wall Street, Controversy Stirs", *Wall Street Journal*, 2 September 1991, p. 9.

provides the greatest support for active institutional fund managers, who will pay for member firms' brokerage and market maker services even at prices that represent their full cost.

6. Threats to London Stock Exchange Market

There are a number of regulatory threats to the position of the London Stock Exchange in Europe. The European Commission's draft investment services directive was identified as potentially being used to force all European stocks to be traded the same way under the same regulations. London's international equities market has succeeded on the basis of market maker capital commitment and relative regulatory laxity, and the LSE could be hurt by a formal sanctioning of trading using only continental European auction market structures. In addition to the decreased role of dealers in continental European markets, 43% of equity trading does not take place on stock markets at all, and is not reported to market authorities.¹⁵ Thus, the liberalization of Europe may lead to SEAQI business repatriating to home market.

Observers have identified several inadequacies in the current market structure that may expose the Exchange to challenges from off-exchange alternatives. Due to the *preferencing* of order flow,¹⁶ the most willing market maker may not receive orders, damaging the central price discovery function of London's quote-driven market. In addition, due to the amount of trading that takes place inside the SEAQ touch, several prices may exist for what is ostensibly the same trade. This demonstrates at least some degree of market fragmentation on the LSE. The inconsistency of the market makers' services was also noted by one London institution: you "don't get the prices you expect in difficult and uncertain times."

¹⁵ Water, R. "Bourses Build Up Defences", *Financial Times*, 24 September 1991, p. 17.

¹⁶ Preferencing occurs when a market maker not on the SEAQ touch receives investors' orders and executes trades at the touch price or a negotiated price. Because of preferencing, a touch market maker, who is obligated (in shares with firm quotes) to trade at the inside price, will not necessarily be rewarded with order flow for the added risk taken by posting better, inside prices. Data on the extent of preferencing in the LSE market was reported in [CLEM89].

London's unique attraction is capital commitment, but some withdrawal from market making has occurred since 1987. In spite of the withdrawals, the remaining dealers' gross margin (dealing revenue \div trading volume) in U.K. equities fell from 0.10% in 1989 to 0.06% in 1990, while the industry return on capital dropped from 15.9% to -11.1% in the same period. Capital employed by member firms fell from its 1989 peak of £3.5 billion to £3.1 billion in late 1990.¹⁷ Removal of market makers' privileges such as stamp duty exemption and stock borrowing may further reduce members' willingness to commit their own capital to facilitating customer trades.

Derivatives and equities surrogates are becoming more popular, and may accelerate the trend toward patient, less-time sensitive trading. A trader can acquire positions rapidly in derivatives, and can be more patient executing orders in the underlying stocks. Warrants and futures are often traded over-the-counter, and can be used to replicate or synthesize the performance of a portfolio of the underlying securities, thus reducing the need to trade through a traditional stock exchange mechanism.

7. Summary and Conclusions

The current structure of the LSE market is well-suited to the demands of active fund managers, who seek to outperform market indexes on the basis of superior research and stock selection. Active managers need to trade rapidly and will pay for market makers' commitment of capital and for the services of a broker in executing trades. Passive fund managers have less time-sensitive trading needs, and are motivated to lower trading costs to improve their performance relative to the benchmark index they are tracking. Early adopters of off-exchange, inter-institutional trading systems in London are thus likely to be passive managers who have patient trading strategies and would benefit most from minimum commission, mid-spread transactions.

¹⁷ [QOM91], p. 12.

At present, all institutional trades executed in the London Stock Exchange require time-sensitivity costs and risks to be borne by Exchange members. No opportunity exists for institutional investors to submit orders for shares and portfolios to a lower-cost trading mechanism and to avoid paying for unnecessary immediacy. With just a single channel for all trading, potential patient and informationless traders subsidize time-sensitive traders. Since member firms services are not covering their costs, the LSE has been pressured to adopt market rule changes to restore profitability.

Information and communications technology has eroded exchange monopolies and facilitated new off-exchange trading alternatives. Fund management developments have led to the growth of more patient strategies and changed demands for trading services. The effect of these pressures on the LSE will be increasingly evident. Without a response and enhancements to the current market structure, the Exchange faces the prospect of erosion of its central market position, deterioration of market quality, and falling trading volumes. Fortunately, institutions are presently content with the trading services available in the LSE market, and the Exchange is in a strong position to move forward again, and reinforce the strengths of its market position in U.K. and international equities trading.

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