THE New York Stock Exchange

RESEARCH
REPORT on:

INCENTIVES TO EXCHANGE MEMBERSHIP IN A CENTRAL MARKET SYSTEM

RESEARCH DEPARTMENT

November 12, 1973

INCENTIVES TO EXCHANGE MEMBERSHIP
IN A CENTRAL MARKET SYSTEM

> "A central market system, primarily through its communications network, can maximize the opportunity for public orders to match each other and be executed in classic auction market fashion."[1]
>
> [Emphasis added.]

That is the public policy goal enunciated by the SEC in its 1972 statement on securities market structure and affirmed in its 1973 policy statement. It is a goal which has been accepted throughout the various debates on the central market system.

The New York Stock Exchange's position on the central market system is in complete concurrence with the broad public policy goal of retaining the exchange system, to preserve both the auction mechanism and the self-regulatory framework. But no matter how much it may be in the public interest, the exchange system cannot retain its vigor if it cannot hold and attract membership. Thus, the question of the need for an incentive to exchange membership, noted by Chairman Williams, is the key issue in the creation of a National Securities Market System. The preservation of securities auction markets in this country hinges on its satisfactory resolution.

Elimination of exchange membership incentives, in effect, abrogates the concept of equal treatment of exchanges and the NASD. Incentives to join the NASD, provided for under the Maloney Act, would be unaffected by recent legislative proposals, which would, however, completely undermine incentives to join exchanges. Several changes in

---

[1] Policy Statement of the Securities and Exchange Commission on the Structure of a Central Market System, March 29, 1973, p. 7.

those proposals would be necessary to maintain parity between the NASD and the exchanges.

Within the context of a regime of competitive commission rates and the implementation of a composite quotation and transaction reporting system, the rationale for exchange membership has completely shifted ground. For the first time in the long history of the stock exchanges in the United States, the economic incentive of fixed minimum commission rates would no longer act as a magnet inducing broker-dealers voluntarily to join stock exchanges. With the loss of the right to deal with other members at a preferential rate and with the public at a fixed minimum rate, other important incentives would be necessary to induce membership. Other existing incentives offer no encouragement.

Two lesser incentives are access to the exchange floor and the prestige associated with exchange membership. Access to the exchange floor, the more important of the two, would no longer carry special significance. First, the composite quotation system available to all broker-dealers would put everyone on the same footing with regard to quotations. Second, access required to fill orders could be obtained, in effect, as a result of rate competition.

Prestige is a more ethereal incentive. Certainly, it derives to a large extent from the high standards to which exchange members are expected to adhere, and from the fact of belonging to a widely known and internationally respected organization. However, these intangibles cannot compete with economic arguments against membership.

PUTTING THE NATIONAL MARKET SYSTEM DEBATE IN FOCUS

Competition is presumably the rationale for including the third market in a national market system. In the securities industry, competition relates, on the one hand, to pricing securities and, on the other, to pricing the trading service -- the commission cost.

There appears to be considerable confusion with regard to what constitutes competition in pricing securities. Proponents of a mixed exchange and off-board securities trading system in listed stocks, suggest that off-board market-making provides a more competitive pricing mechanism.

This view ignores the crucial fact that the number of participants -- not the number of places where markets can be made -- determines the intensity of competition to establish the price at which a transaction takes place. There is no discernible pricing benefit from scattering trading in hundreds of separate offices. More likely, as discussed later, such an arrangement would actually dissipate competition: first by encouraging in-house crossing; and, second, because the inherent characteristics of a dealer market do not permit as free an interplay of competitive forces as does an auction market.

Consequently, the development of vigorous competition among market-makers on exchanges would negate even the most tenuous claim that off-board market-makers would serve as a spur to competition in the pricing of stock. The off-board market-maker could readily operate on an exchange without being any less competitive than if he were functioning as a third market dealer. In fact, his presence on the floor of an exchange could afford him a better “feel” of the market and increase his effectiveness.

The prospect of competition in the second area -- pricing the trading service -- has also lost validity as an argument in favor of permitting off-board trading in listed stocks. Resolving the commission rate issue in favor of fully competitive rates has eliminated whatever rationale may have existed.

Nevertheless, “competition” continues to be advanced as the principal reason for allowing off-board trading of listed stocks.

The concept of a national market system evolved in an environment of fixed commission rates. When the outline of the system was sketched by the SEC and others, a date certain had not been set for the complete elimination of fixed rates. Therefore, it was believed necessary in some quarters to retain third market trading as an alternative to the allegedly anti-competitive aspects of fixed commission rates. No other rationale of any consequence was advanced during the extensive debates over the structure of a central market system. But although competition has clearly lost its validity as a reason for not absorbing off-board market-makers into the exchange system, it continues to be offered as a focus of debate, reflecting the continuing misapprehension that competition among market-makers is the same thing as competition among marketplaces. As a result, the debate has inappropriately been limited to a single issue.

With the question of rate competition resolved, the focus of attention must be shifted to the other implications of a mixed off-board and exchange system. It is necessary to address such basic questions as whether to retain an exchange system and, if so, how to attract and hold membership. The regulatory implications of a mixed trading system and the question of the future of the auction trading system must also be explored. It is essential to determine how off-board trading would accord with the stated public policy goals of preserving the exchange system and maintaining exchanges as the major focus of self-regulation.

It has been alleged that an exchange market system would eliminate third market dealers as a competitive force -- when, in fact, the thrust would be to channel third market dealers' efforts onto the exchanges, where competitive forces can work more effectively in the public interest. Thus, it would be essential for an exchange system to admit all broker-dealers who meet competency and minimal financial requirements. Integrating all market-makers in listed securities into the exchange system does not imply an attempt to homogenize the way they do business. On the contrary, they should be allowed the widest possible latitude consistent with the public interest, so that investors can benefit from the distinctive contribution of each type of dealer.

WHY AN EXCHANGE MARKET?

Benefits of Auction Trading

The general commitment to preserve the exchange markets, even on the part of those who advocate a mixed exchange and off-board market system, is rooted in certain intrinsic benefits of auction trading. The essence of that commitment is to provide the public customer with the best available price. This can be achieved most directly by eliminating the dealer's arbitrage cost (the spread).

Trading Within the Dealer's Spread

Where a dealer must necessarily sell at a higher price than he pays, if he is to be compensated for the costs and risks of maintaining his inventory, an auction market permits the public buyer and seller to trade at a price falling between the quotes, affording each the opportunity to obtain a better price than a dealer can normally provide.

In other words, the dealer's profit accrues to the public. Proponents of off-board trading do not dispute that. They have not argued that dealer markets are inherently more efficient, but that the auction process simply has not functioned.

In support, they cite the fact that only a small portion of NYSE share volume involves trades between public buy and sell orders originating in the crowd. This represents an extremely restricted view of the auction process. The following table shows that, in 1972, 80% of the shares involved in public orders executed on the New York Stock Exchange -- apart from pre-arranged block crosses brought to the floor for execution -- were traded without intervention of a specialist acting as a dealer.

EXECUTION OF SHARES INVOLVED
IN NON-CROSS PUBLIC ORDERS

- 1972 -

Type of Execution	Shares Bought or Sold (Mils.)	Percent of Total Non-Cross Public Volume
Public-to-public executions in crowd (both sides)	414	7.4%
Specialist's book: public on one side; specialist acting for public on other side	3,348	59.4
Public side of non-specialist members trading for their own accounts	760	13.5
Total non-cross public volume, excluding specialist dealer trades	4,522	80.3%
Public side of specialist dealer trades	1,110	19.7
Estimated non-cross public purchases and sales	5,632	100.0%

Source: NYSE Research Department.

More than 7% of the non-cross public purchases and sales were traded by brokers in the crowd representing public customers. Another 60% of the public shares either involved orders in the crowd (30%) or were filled from the specialist's book (30%). When trading from his book, the specialist does not function as a dealer; he merely acts as a stand-in for the public customer's broker. His impact on the auction (and on the customer's price) is no different than if the broker holding a customer's limit order remained in the crowd until the order could be executed. The essential fact, however, is that in all such instances, the public customer does not pay any dealer mark-up.

Similarly, when a non-specialist member trades for his own account in the crowd, he trades on the same terms as any member of the public. The auction pricing mechanism makes no distinction between a trade by a non-specialist member for his own account and a trade for his customer's account. Thus, the public customer on the opposite side of the member's auction trade obtains the same auction benefit as if another public customer's order were on the other side. Trading between non-specialist members and the public in 1972 accounted for more than 13% of non-cross public purchases and sales. Totaling the three types of auction trades thus shows that orders representing 80% of non-cross public purchases and sales were executed without the intervention of the specialist as a dealer. That is the essence of an auction market.

<u>Better Exposure to Supply and Demand Factors</u>

A great advantage of an auction market is that it affords direct interplay of buying and selling interests, thereby providing for the quickest possible adjustment to supply and demand factors. The alternative, dealer-dominated markets, are inherently less efficient because the forces of competition operate only indirectly. Each dealer's knowledge of the market in a given stock is necessarily extremely limited. In a dealer market, intuition and trial and error play a far greater role in the adjustment of supply and demand than in an exchange market, even under an electronic quotation system.

Given a competing quotation system, the various dealers will adjust quotes in response to both their own inventory situations and the quotes offered by the competition. But since the vision of each dealer operating in his own office is necessarily limited, the forces of price adjustment are hampered by the nature of the dealer system. These "frictions" built into the dealer system result in prices which do not reflect supply and demand factors which interact directly on an exchange floor to produce the best available price at a given moment.

To illustrate, if a broker seeks to buy 2,000 shares of stock, he makes an inquiry on the quotation system. He would normally expect dealer quotes to cluster at the same price. Perhaps, for example, he finds ten offers at 50, each of which represents an interest in selling 100, 200, or even 500 shares at that price. As a practical matter, the broker (or for that matter an institution dealing directly) would not find it efficient to contact and buy a small lot from each of the ten dealers. He would then select one or two and approach them with his order. Even though there are enough scattered offers to sell at 50, no one dealer is likely to be able to assemble 2,000 shares for a sale at that price. As a result, the buying broker would, in effect, subcontract the order to a manageable number of dealers to whom he would have to pay a price penalty for their efforts to assemble the desired number of shares. In this instance, the buying broker -- and his customer -- would likely pay an average price of 50 1/8 or 50 1/4 for the 2,000 shares, even though the potential to buy 2,000 shares at 50 might exist in the market as a whole.

In a smoothly functioning auction market, the various selling and buying interests are more directly exposed to each other, with the participating brokers and dealers able to take more active roles. The broker with an order to buy 2,000 shares would compete against brokers with orders to sell, and might readily obtain the 2,000 shares at 50 from other brokers in the auction crowd -- or from limit orders on the specialist's book or, if necessary, from the specialist's own inventory. The ultimate transaction price might average out at 50 1/8 or 50 1/4, but it also might average out at 49 3/4 or 49 7/8. In any case, the buying broker -- and his customer -- would be assured that the transaction was executed at the best price available at the time of the transaction.

In a dealer system, a dealer on the opposite side of a potential trade plays a passive role on non-institutional size orders. He waits for a potential trade to come to him. In the example cited above, he never knows of the 2,000-share buying interest until he is contacted. In an auction situation, the various buying and selling interests have a better chance to interact and adjust to fundamental demand/supply factors more quickly and more smoothly to produce the best available price at a given moment. Thus, an exchange market is far more likely to maintain orderliness and price continuity than one in which competitive forces work indirectly.

Fairness

Unlike a participant in the public auction market, the dealer knows with whom he trades. He can be expected to favor the best customer. Inevitably, this accentuates the advantage that institutional customers have over individuals, and that big institutional customers have over small ones. It has been suggested the public reporting of prices of all trades will solve this problem. But it actually offers only a partial solution. No one, for example, could stop a dealer from offering a better price to a favored customer as long as orders on the specialist's book were satisfied. And, in any case, the book can provide only limited protection against price discrimination by dealers. The bulk of public individuals' orders are executed at the market.

When a pre-arranged block cross is brought to an exchange floor for execution, the auction market affords brokers in the crowd, representing the orders of individual customers, an opportunity to displace a portion of the cross on behalf of their customers. In off-floor trades the individual customer has no opportunity to participate in those transactions. In addition to other difficulties, discussed later, it is simply unfair to exclude potential trades in the auction crowd from participating in off-floor crosses.

Regulatory Framework

Public policy has historically assigned a key self-regulatory role to the exchanges. This is expected to be carried forward in the framework of the National Securities Market System. Indeed, S. 2519 envisions a major regulatory role for the exchanges under the new system.

Historically, the effectiveness of exchange regulation has rested on the ability of exchanges to provide incentives to membership. Without an economic rationale for membership, the exchanges' self-regulatory function would diminish. In fact the costs of self-regulation would themselves offer a disincentive for membership without economic incentives to counterbalance them.

INCENTIVES TO MEMBERSHIP

If exchanges are to remain viable and perform the roles envisioned for them, they must be able to attract an adequate membership. But what advantage would exchange membership offer in a mixed off-board and exchange trading system, without the incentive of fixed commissions?

As contemplated, the National Securities Market System appears to make no distinction between exchange membership and nonmembership in terms of economic benefits. Members and nonmembers would have access to the system on the same terms. Apart from the right to have a man on the floor, the economic consequences of trading in one market or another -- on an exchange or off-board -- would not be related to membership status.

Optimists have asserted that if the exchanges make good markets, they need not fear the loss of membership. But if access to those markets were available on the same terms to all, it is difficult to understand why a broker or block positioner would choose to assume the costs and obligations of membership. Withdrawal of members, in tandem with remaining members' opportunities to trade off-board would inevitably diminish the quality of the exchange markets.

The Block Positioner

Currently, the block positioning firm requires exchange membership for one reason only -- to obtain access to the floor at favorable member rates when the firm has positions to work off. For that privilege, the firm is willing to expose itself to the inconvenience of displacement on crosses as well as the additional burdens and costs of exchange regulations.

With access available on equal terms to all, the block positioner would have no reason to belong to an exchange. Simply put, a block positioning firm's membership is "…based not on member' ability to use the specialist system, but rather on their ability to use it without having to pay nonmember commissions. In other words, it must be that it is the prohibitive cost of the system to nonmembers that encourages block traders to stay with the Exchange at this time."

The Broker

If access to exchange markets is available on the same terms to members and non-members, a member brokerage firm would have little incentive to retain its membership.

Possible benefits of having a man on the floor, the only remaining advantage of exchange membership, would be dissipated by active competition. A firm would have little reason to keep one of its brokers on one trading floor when the firm's orders are flowing to several markets.

Economics stemming from floor representation depend on a heavy concentration of the firm's orders being executed on the floor. Concentration must be great enough to yield a savings over floor brokerage, after allowing for the costs of floor representation and membership. Under mixed exchange and off-board system, the concentration of order flow required to justify those costs would simply evaporate for all but the largest firms.

And perhaps even more important, the large firms would be encouraged to make drastic changes in their mode of operation, based on strong incentives to withhold orders from an exchange floor. Given sufficient order flow, the simplest, most efficient and least costly trading method for them would be to cross orders directly in the firm's order room.

The feasibility and ease of in-house crossing is readily demonstrated by the various bank investment programs that routinely bunch orders in a computer to get the advantage of commission savings on large orders. Only simple additional steps are required to cross the orders or net them out. This, of course, would remove a substantial share of volume from competitive interplay in the public auction markets and, in fact, subvert the purpose of a National Securities Market System. The impact on the auction market of in-house crossing is discussed in detail later in this paper.

The salient fact is that brokers' handling of transactions would undergo fundamental changes that would accelerate the loss of incentives for exchange membership among even the largest broker-dealers. To that end, the chairman of the nation's largest brokerage firm was reported to have said, in an interview with a trade publication:

> "The alternative that could evolve under the new central market -- allowing any firm to make markets wherever it wants -- would discourage Merrill from remaining a member of the NYSE, Regan says, adding that, in difficult times, the market for many listed stocks could become as illiquid as that for Over-The-Counter issues."[2]

The same basic point was made by the Senior Partner of another large NYSE member firm in a recent public address.

> "In my opinion, this is the single most important requirement [trading listed securities only on registered exchanges] that must be made if the markets with their depth and breadth and entry and exit can be preserved which I consider essential.
>
> "For example, if such a requirement did not exist, there would be no good reason for firms such as mine and even the so called retail houses to remain members of national securities exchanges. I feel strongly that to insure the viability of our markets, that all transactions must be transacted -- consummated at National Securities Exchanges. Otherwise, the markets will be dispersed and fragmented, and will have failed to perform their function."[3]

---

2 Wall Street Letter, October 15, 1973, p. 3.

3 Corporate Opportunity and the New Securities Markets, Keynote Address by Mr. Gustave L. Levy, Senior Partner, Goldman, Sachs & Co., to the National Investors Institute, October 22, 1973.

The Specialist

The specialist's incentive for membership would be whittled away as his "book" became public and the flow of orders to the floor diminished. If the specialist is required to compete directly with the off-board dealer, he will have a natural incentive to re-orient his own activities and conduct his market-making away from the exchange floor -- as the off-board dealer does -- unimpeded by exchange restrictions and requirements.

The question of specialists' incentives to membership is intimately related to their present inability to deal directly with institutions, a restriction imposed by NYSE Rule 113[4] and a parallel American Stock Exchange Rule 190. Clearly, if specialists cannot deal directly with institutions, while off-board dealers can, specialists will have a heightened incentive to become off-board dealers.

The exchanges have maintained that these rules are necessary to curb possible abuses that would favor institutions over individual investors. That view has been countered by the assertion that competition would limit the potential for abuses in direct dealings between market-makers and institutions. Even if that were true, the fact remains that a substantial proportion of issues traded on the exchange market system would not be subject to active competition -- if current interest provides any indication of what may be expected in the future. At present, for example, the NYSE specialist is the sole market-maker in almost 400 listed common stock issues. Total trading in over one third of the

---

4 NYSE Rule 113 bars specialists from dealing directly with institutions and corporate insiders in their specialty stocks.

NYSE-listed issues traded in the third market averages less than 10,000 shares per quarter.[5]

Thus, it is apparent that in the real world of a National Securities Market System, the perfect competitive model which could stave off potential abuses simply would not exist. Experience demonstrates that there would be no competitive market in a substantial number of stock issues. Therein lies the dilemma in determining what solution will best serve the public interest. Should the National Securities Market System:

-- abandon Rule 113, despite the large number of issues in which vigorous competition could not be expected?

-- apply Rule 113 to all issues to foreclose all possibility of abuse?

-- develop standards and a monitoring system to exempt selected issues from Rule 113?

If the exchange market concept of fair and equal treatment for all investors is to be honored, then it would appear necessary to foreclose any possibility of abuse in this area by prohibiting direct dealings between all market-makers and all institutional customers.

REGULATORY INCENTIVES

Historically, the economic incentives for exchange membership have served as a counterweight to the disincentive that a member broker-dealer is subjected to the higher regulatory standards of the exchanges. In the absence of special incentives, unequal

---

[5] NYSE Research Department, using SEC data for the first and third quarter of 1972 and the second quarter of 1973.

regulation of members and nonmembers would discourage membership. S. 2519 deals with this problem by providing for equal regulation.

But equal regulation, in essence, is the development of minimum acceptable standards. The proposed legislation is concerned primarily with regulation of market-making and the over-all regulatory structure of a National Securities Market System. Many of the specifics of regulation would be left open. Proponents of a mixed exchange and off-board trading system have noted that, in time, the existing gap between exchange and off-board regulation would narrow and possibly close. But there is a major unanswered question as to how this would occur. It seems unlikely that the gap would be closed by upgrading the standards required of off-board dealers. It is more likely that the gap would be narrowed by lowering exchange standards to meet those of competing markets. The lowest common denominator would, then, become the standard.

In any case, during the transitional period, many firms would find it convenient to opt for the less stringent regulation of off-board markets. During the period of adjustment, exchange membership and market depth would be dissipated. Subsequently, lacking any special incentive to membership, exchanges would have no way to recapture lost members and trading activity. The prospect, thus, is for impairment of exchange trading and, ultimately, a system of uniform regulation in which each self-regulator is bound by the least stringent standards that permit compliance with the law.

The effort to minimize standards would not necessarily stem from firms' desire to get away with as much as possible. Rather, it would reflect the urgent need to cut costs in a highly competitive environment. When firms do business on the same terms for a uniform product, economic prudence dictates that costs be minimized.

Exchange membership and the standards that go with it clearly entail additional costs which are inconsistent with that kind of competitive environment.

To get some approximation of what these costs might be, the NYSE asked several representative member firms to furnish data on the cost of their NYSE membership. Two regional firms estimated the additional costs in the range of 8% to 10% of commissions. Two of the largest national member firms estimated their additional costs at 7.4% of commissions and at $3.00 - $4.00 per trade, respectively. Their estimates appear in Appendix I.

FUTURE OF THE REGIONAL EXCHANGES

The loss of membership would most severely affect the regional stock exchanges. Ironically, a National Securities Market System could inadvertently undermine the widely shared objective of preserving and strengthening the regional exchanges.

Competitive commission rates would impact most directly and adversely on the regional exchanges. While the NYSE and Amex auction markets would continue to draw participants, even in the absence of a large membership, broker-dealers would have little reason to trade in listed issues on the regionals.[6] Since there would be no practical differentiation between regional specialists and off-board market-makers, the former would have no incentive whatever to make on-board markets in issues.

If they left the exchanges, regional specialists could engage in essentially the same activity as they now do, without sacrificing access to the NYSE specialists' book

---

6 "If it [the NYSE] were to move the commission structure to the competitive level, it would almost certainly monopolize the trading that does not take place in the over-the-counter market. This would include the trading done by rank-and-file investors as well as the transactions made by the over-the-counter firms in the process of evening out their positions." The Economics of the Stock Market, Richard R. West and Seha M. Tinic, p. 221.

afforded by the National Securities Market System. A system which made no distinction between exchange and off-board trading would simply squeeze the regional exchanges out of existence even if any regulatory gap between the third market and regional exchanges were produced.[7]

Stimulating Membership

The regional exchanges' only chance for survival is to offer broker-dealers and market-makers a membership advantage. The only persuasive incentive would be the right to trade listed stock. A devaluation or cancellation of that franchise would strip the regionals of any significant competitive role.

On the other hand, if the franchise were given meaning by denying listed trading privileges to broker-dealers who choose to remain outside the exchange system, the regionals could expect an influx of off-board market-makers and broker-dealers as members. Their competitive positions would be strengthened, and they could assume a more meaningful role than ever before in a truly competitive setting.

Alternatively, the regional exchanges face a bleak future in an environment of unfettered competition with the third market for dealer business, and competition with the NYSE and Amex for whatever remains of auction trading.

Implication for Regional Issues

As a by-product of regional membership growth, markets in regional issues would be stimulated. Successful small corporations would be encouraged to list, as the regional exchanges' ability to make markets is strengthened.

---

7 The SEC March 1973 policy statement on the structure of a central market system suggests, however, that the regionals' exemption from Securities Exchange Act, Rule 11b-1 be revoked (Page 66). That would serve to place the regionals under more stringent regulation than the third market.

Conversely, in the absence of incentives to regional exchange membership, regional corporations would lose the incentive to list. A dealer-market environment would increasingly blur the distinction between an over-the-counter and a regionally listed stock.

Implication for the Third Market

A securities market system in which regional exchanges, rather than off-board markets, played a major competitive role could readily accommodate existing third market firms. The exchange system umbrella is not only wide enough to accommodate all such firms but the exchanges would actively seek to attract them as members.

An exchange's ability to attract trades would rest on the number and strength of the market-makers doing business there. Given that element of competition among exchanges, market-makers are likely to be granted the widest possible latitude in their operations consistent with regulatory standards and fair business practices. The fear that exchange membership would unreasonably restrict the activities of third market-makers appears totally unjustified.

Just as competition within an exchange market system would eliminate restrictive stock pricing practices, so, too, would the integration of all listed securities markets within the framework of an exchange system permit the distinctive contribution of each type of market-maker to be maintained. A system of exchange markets accommodating the full scope of legitimate market-making activities would insure that professionals are at the heart of the market.

It is pertinent to note that exchange membership for off-board market-makers would not, in fact, be a new departure. SEC-registered third market-makers now holding membership on one or more regional exchange account for between 40% and 50% of total third market volume in NYSE issues.[8]

IMPLICATIONS FOR THE AUCTION MARKETS

Public policy is committed to both the preservation of the benefits of auction trading and the preservation of the exchanges. But these goals are, in fact, not achievable within the framework of a securities market system that would provide for, and tacitly encourage, off-floor trading.

According to the proposed National Securities Market System plan, the benefits of auction trading would be preserved, not by directing orders to the exchange floors, but by grafting a set of regulations onto the communications network to simulate exchange trading. This attempt would be made by providing access to, and precedence for orders on, the specialist's book. But the book is only one element of an exchange market. For example, precedence would not be assured on market orders in an electronic market operating in hundreds of locations scattered throughout the country. As noted earlier, competitive forces in a dealer market work indirectly. Without the benefit of the auction crowd, the competitive interaction between potential buyers and sellers simply cannot be duplicated.

Even these considerations would be of little consequence if the third market remained the minor appendage to trading in exchange issues that it now is (5.4% of total volume in NYSE issues in the second quarter of 1973). Given the new opportunities for off-floor trading, however, the basic character of securities trading operations would be transformed. The thrust would be to divert from the exchanges the steady flow of large

---

8 NYSE estimate based on SEC data.

numbers of orders on which the efficacy of an auction market depends. This process tends to feed on itself. Reducing the order flow decreases the likelihood of an auction trade, and the diminished likelihood of an auction discourages bringing future orders to the floor.

The dangers inherent in this self-stimulating chain reaction have been recognized by both the SEC and the Department of Justice.

The SEC's March 1973 policy statement suggested:

> "….it may be appropriate for exchanges to explore and develop the concept of associate membership…. [An associate member] is not permitted to be present on the floor but is subject to the whole range of normal regulatory responsibilities of a full member. Thus, associate membership appears to afford economic exchange access to all qualified broker-dealers without jeopardizing the structure of self-regulation."[9]

This suggestion was offered, however, in the context of a fixed commission rate structure. Elimination of that incentive to regular membership also eliminates any real incentive for associate membership. In any case, it is difficult to see how the opportunity for associate membership would encourage any firm to remain or become a full member, given the lack of benefits to be derived from any form of association with an exchange.

An early recommendation of the Antitrust Division of the Department of Justice, in a January 1969 memorandum, would aim directly at the heart of the problem:

> "The Commission [SEC] should, if there is any substantial decline in NYSE membership, study whether it would be desirable to take steps to foster such membership in order to achieve regulatory purposes of the Securities Exchange Act. One possibility which the Commission might consider

---

9 Policy Statement of The Securities and Exchange Commission on the Structure of a Central Market System, March 29, 1973, p. 59.

> in such a study is requiring that all brokers doing a certain amount of business in listed securities be members of the Exchange."[10]

The solution suggested by the Antitrust Division is in line with recommendations made by the New York Stock Exchange. The Exchange's recommendations stem from a consideration of structural changes in securities trading operations that would occur in the environment of a mixed exchange and off-board trading system. These changes are discussed in the following pages.

Upstairs Market-Making

Given the opportunity to trade off-floor, exchange member brokerage firms -- especially the larger wirehouses with a substantial flow of orders -- would find it more convenient and less costly simply to cross orders in their offices to the fullest extent possible. A second attractive alternative would be to execute orders through a third market dealer subsidiary. Good business judgment would reject the final alternative of continuing to direct orders to the exchange floor. The market would be seriously fragmented no matter which of the off-floor alternatives was selected.

To the extent that orders would be siphoned from the exchanges, the auction markets would thin and spreads between quotations would widen. Wider spreads would increase brokers' ability to cross in-house between the spreads and still meet their fiduciary obligations. Yet, to ban this practice would eliminate block positioning on institutional-size orders, a crucial element in a smoothly functioning securities market.

The SEC has suggested that:

---

10 Memorandum of the United States Department of Justice on the Fixed Minimum Commission Rate Structure, January 17, 1969, pp. 198 and 199.

> "More favorable bids or offers would be highly visible by means of the quotation system, and any trade consumated would have to appear on the composite tape. Trades between a firm and its customers would be subjected to the auction trading rule and the rule according preference to public orders, so the broker would be required on each occasion to bid higher or offer lower than any public order represented in the system."[11]

These requirements would not serve to discourage in-house crossing. No matter what the bids and offers, buy and sell orders could always be crossed at prices at least as favorable as the bids and offers on the quotation system. Whenever the spread is more than 1/8 of a point, the crosser could actually deliver more favorable prices to both sides. For example, if the highest bid is 50 and the lowest offer is 50-1/4, a cross could be consummated at 50-1/8 to the satisfaction of both buyer and seller.

In addition, the firm executing the cross will save trading costs. Thus, even on trades in which the dealer merely matches the competitive quote, he can charge less for his trading service and deliver at a lower total cost to his customer than he could if he brought the order to an exchange floor.

Given the multiplicity of small orders, a dealer subsidiary acting, in effect, as an odd-lot dealer in 100-share and 200-share orders in active stocks would not be unattractive. Any risk that such an operation might involve would be compensated for by savings in trading costs. The broker-dealer in this type of operation might even be able to beat the specialist's book by passing on the savings in trading costs to the customer.

Obviously, the potential for in-house crossing and market-making is considerable. Currently, orders on the specialist book account for only 30% of shares involved in

---

[11] Policy Statement of the Securities and Exchange Commission on the Structure of a Central Market System, March 29, 1973, p. 58.

NYSE non-cross orders, and, of course, for an even smaller proportion of volume in all markets combined. Since the possibility of not finding a match on the specialist book is far greater than the probability of finding one, the prospective contribution of the specialist book in drawing orders to the floor is limited.

Although the off-board market-maker's customer might gain from in-house crossing of orders at any given point in time, the practice, if allowed to become widespread, would seriously damage the overall quality of the securities markets. Crossing orders, as described above, withdraws volume completely from the price-setting mechanism. This activity merely follows the competition; it does not help make competition. Because bid/offer spreads are widened, executing crosses advantageous to both the buyer and seller becomes easier. Thereby, the process feeds on itself at the expense of securities market quality.

Burden on the Exchange Auction Process

In-house crossing and off-floor dealing would place additional burdens on auction markets weakened by the loss of order flow. A smoothly operating auction market depends on a flow of both buy and sell orders. The larger the relative imbalance, the more difficult the adjustment process. In the exchange system, the specialist is charged with lessening the temporary imbalances. In a system where a substantial portion of trades is crossed in the dealer's office, the tendency would be to send to the exchange only that side of the trade for which there is presently no match. Consequently, the floor would lose the benefit of a two-way flow and relative imbalances would grow. Similarly, dealers, especially those who function merely as fillers of small orders (an odd-lot type function) would dispose of their order imbalances by directing them to the exchange floors. The strain on the specialist system would be enormous, adding to the disincentive to act as a specialist.

Specialist operations would also be hindered by eliminating the opportunity to displace portions of large block crosses. Displacement not only affords the auction crowd an opportunity to participate on behalf of public customers at a more favorable price, it also gives the specialist an important means of positioning himself to help maintain a fair and orderly market.

When a cross is kept off the floor, away from both the specialist and the crowd, the auction market serves as a cushion for the block positioner. In effect, some of the positioners' risk is shifted to third parties -- primarily public individuals.

Paradoxically, the proliferation of off-board crosses, while seriously damaging the quality of the exchange markets, would accord fully with the SEC's proposed mandate to the dealer:

> "….to use reasonable diligence to obtain best execution for each order entrusted to him."[12]

The NYSE undertook a statistical analysis for the month of January 1972 to determine the effects of competition in a fragmented market system. Briefly, the study involved a multiple regression analysis relating the average price spread to six key variables, including regional share volume as a ratio of NYSE share volume and third market share volume related to NYSE share volume. The study included 1,381 issues. (See Appendix II for a copy of the Study.)

---

12 Policy Statement of the Securities and Exchange Commission on the Structure of a Central Market System, March 29, 1973, p. 9.

The analysis indicated that the net effect of market fragmentation is to widen bid-offer spreads on the NYSE. Where two issues show similar characteristics on the NYSE (same price, volume, volatility, etc.), the issue in which regional competition is stronger has narrower NYSE bid-offer spreads. However, the analysis also showed that if the regional volume were returned to the NYSE, the increase in NYSE trading would narrow the NYSE spread even more. The result would be narrower quotes than would occur with the competition. In other words, the salutary effect of increasing volume would be greater than that of reducing competition.

With regard to the third market, the analysis showed virtually no effect of competition on quote spreads. It did show that if third market volume were returned to the NYSE, impact on quote spreads would be even more favorable than that indicated for the return of regional exchange volume.

The Senate Subcommittee on Securities has identified two paramount goals of legislation to create a National Securities Market System:

> "First, the maintenance of stable and orderly markets with maximum capacity for absorbing trading imbalances without undue price movements. And second, the centralization of all buying and selling interest and the protection of the priority of public orders so that each investor will receive the best possible execution of his order, regardless of where in the system it originates."[13]

The preceding analyses suggest that encouragement of off-board trading in the absence of a clear incentive to exchange membership would frustate those objectives.

---

[13] Congressional Record - Senate, October 2, 1973, p. S. 18333

Implication for the Exchange List

It is axiomatic that an issuer of securities should have the right to determine where those securities are traded. When a corporation decides to list its securities on an exchange -- and agrees to accept the considerable responsibilities and costs involved -- it presumably is exercising that right in order to obtain the benefits of an auction market. It is a fact, however, that even today those same securities can be traded elsewhere -- under circumstances over which very little regulatory control exists, and even in defiance of the issuer's wishes.

If the off-board and exchange markets are permitted to exist side-by-side in a single system, the distinctive appeal of an exchange listing would be diminished. Deterioration in the quality of the auction market would weaken the advantages that listing holds for a corporation. Whatever role prestige and other non-economic factors play in the desire to list would diminish as the trading distinctions between exchange and off-board markets are blurred.

Thinning of the exchange markets in their stock would undoubtedly prompt many listed corporations to re-evaluate the benefits and costs of an exchange listing. Withdrawal of many broker-dealers from the exchanges would add a psychological impetus to delist.

Probably even more serious for the long-term future of the exchanges would be the inability to attract new listings. If listed securities can be traded away from the exchanges -- without reference to the wishes of the issuer -- an unlisted corporation would, of course recognize that listing on an exchange would make little difference in the manner in which its stock is traded.

The erosion of the list, in turn, would adversely impact on the exchange system's ability to finance self-regulatory and other responsibilities. Historically, listing fees have contributed substantially to underwriting those costs.

REGULATION AND POLICING

Equal regulation is an indispensable element of a national market system, but its importance becomes skewed in the context of a mixed off-board and exchange market system. If the exchanges cannot attract members through economic incentives, they would be impelled to minimize the regulatory disincentive by allowing regulatory requirements to fall to the lowest common denominator consistent with the legal requirements.

To avoid debasing exchange regulatory standards, it would be necessary to hold the off-board markets to high standards from the outset. As noted earlier, a transitional period would more likely close the regulatory gap by lowering exchange standards than by raising off-board standards.

The SEC has asserted that,

> "….it would be unwise to attempt to design a regulatory framework for market-makers prior to observing the pattern of trading which emerges after the system's implementation."[14]

Actually, the prudent course would seem to be to put the framework in place first, and then make the necessary adjustments based on experience. During the adjustment period, the regulatory gap would only serve to accelerate exchange membership losses, with little

---

14 Policy Statement of the Securities and Exchange Commission on the Structure of a Central Market System, March 29, 1973, p. 34.

prospect of recouping them when and if the goal of equal regulation is ultimately achieved.

Uncertainty over what would be the appropriate self-regulatory framework for off-board securities firms, if they were permitted to function independently within a national market system, and how such a framework should be developed, mitigates against the achievement of the public policy goal of equal regulation. The exchanges already have a well-developed, proven regulatory framework. The new environment of a national market system could, of course, require adjustments. But it would be far more practicable to adjust than to try to build a new regulatory framework from the bottom up.

If, for example, it is wise to regulate market-makers in "a manner as nearly comparable to the regulation of specialists as circumstances permit,"[15] then it would appear wiser still to place them under the same regulatory umbrella.

Inherent differences between the exchange and off-floor markets would preclude ever achieving absolutely equal regulation. For example, NYSE market orders are required by statute to be executed in the crowd, not by the specialist. That creates a strong incentive for third-market dealing. Similarly, it is important to apply the Public Preference Rule to third market trades.

To allow a regulatory gap to exist -- even during a transitional phase -- in a system in which all market-makers compete with complete equality of access, would be clear discrimination against exchange members and, certainly, a strong incentive to withdraw from membership.

---

[15] Policy Statement of the Securities and Exchange Commission on the Structure of a Central Market System, March 29, 1973, p. 34.

Policing

In attempting to adapt exchange rules to an off-board system, the problem of policing is of paramount importance. Routine exchange surveillance methods can present tremendous -- perhaps insurmountable -- difficulties if they must be applied to hundreds of independent, nonmembers throughout the country.

The very simple exchange task of properly sequencing trades poses a challenging problem for the off-board markets. Without an exchange funnel through which precedence of orders can be maintained, it is unlikely that the off-board markets could achieve chronological sequencing of trades -- a hallmark of the auction system. Similarly, the mere obligation to report prices raises problems for independent nonmember broker-dealers that do not exist in an exchange market.

When a nonmember broker-dealer's price is the same as that on the specialist's book, how can it be ascertained that a member broker's customer's order was directed to the book? How are short sales to be policed?

The highly sophisticated self-regulatory systems developed by the exchanges have woven these and many other surveillance activities into a distinct pattern of operations. Without the key element of exchange coordination, they loom as major policing problems.

Although the exchanges are envisioned as playing a major role in a National Securities Market System, it must be recognized, further, that if the exchanges themselves are weakened through loss of membership, the self-regulatory strengths they have painstakingly developed over many decades will also wither and atrophy.

Financing Regulation

Regardless of what solutions to the regulatory problems might be developed, implementing them could prove the toughest problem of all for the exchanges. Revenue drains from the loss of membership and listings would severely damage the exchange system's financial base.

Listing fees and membership charges contribute heavily to meeting the cost of exchange regulation. Together, they accounted for over 25% of the NYSE's total revenues in 1972. Specifically, listing fees and membership charges contributed $20.0 million and $4.3 million, respectively, to a revenue total of $95.8 million.

INTERNATIONAL IMPLICATIONS

A dwindling of auction market trading in the U.S. would not only adversely affect our domestic economic stability and growth, but would also have serious international repercussions. The U.S. equity markets are a focal point for investment funds from all over the world because of the liquidity and depth of the exchanges. In the economists' jargon, they are efficient markets.

That the U.S. exchanges require the dissemination of more significant corporate data from listed companies than occurs anywhere else in the world is an important plus not lost on foreign investors. As a result, individuals and institutions throughout the world have come to favor the equities of U.S. corporations and the exchanges on which their issues are traded.

In recent years, aggregate foreign purchases of U.S. equities have risen impressively, despite the uncertainty of dollar exchange rates. The net foreign inflow into U.S. equity markets amounted to $626 million in 1970, $731 million in 1971, and

$2.9 billion last year.[16] Based on figures for the first 8 months of 1973, more than a 50% increase can be expected for calendar 1973. These impressive totals represent an important plus in the U.S. balance of international payments.

Foreigners who have studied our financial markets express keen admiration for our stock exchange auction market system. They recognize that it constitutes a valuable national asset in mobilizing investment capital and in promoting economic growth. It is in the U.S. international, as well as national, interest to avoid any policies which would drain the strength of the equity exchanges. Whether the U.S. acts to capitalize on its exchange market system in the context of a growing economic multi-nationalism, or whether it loses its prominent role to other financial centers is a critical question which national policies will help to decide.

[16] Treasury Bulletin, October 1973, p. 112.

CONCLUSION

The public policy goals embodied in the National Securities Market Act merit the securities industry's full support. However, it appears certain that those goals can best be attained within the framework of an exchange market system.

The concept of a national market system evolved in an environment of fixed commission rates. Although the rationale no longer exists for permitting off-board markets to provide an alternative to the alleged anti-competitive aspects of fixed commission rates, conclusions based on that rationale are reflected in the current proposals for establishing a national market system.

Competition has clearly lost validity as a reason for permitting market-makers in listed issues to operate off the exchanges. The exchange system has room for all market-makers who meet reasonable competency and financial standards. They can be integrated into the exchange system without blunting competitive forces.

Conversely, to allow off-board trading would serve to sap the strength of the auction markets by diverting the flow of orders necessary to maintain a quality exchange market.

In the absence of economic incentives to membership, off-board trading, if permitted, would flourish and become the principal market. But whether commission rates are fixed or competitive, the ability to deal away from the floor would spur off-floor trading because it would be more convenient and economical for broker-dealers. Caught between the competition from off-board market-makers and the remains of the auction market, the regional exchanges would shrivel. Thus, maintenance of auction market quality would depend on a requirement that all listed issues be traded only on exchanges, regardless of the commission arrangement.

Moreover, sanctioning off-floor trading would encourage broker-dealers to cross public orders in their offices, as the most economical way of handling routine trades. The exchange floor would no longer attract a steady flow of small orders. The auction process would lose the lubricant of displacement of portions of large block crosses by brokers in the auction crowd and specialists positioning themselves to maintain fair and orderly markets. Even more damaging, the imbalance of buy and sell orders flowing to the floor would increase, since the broker-dealer would find it to his benefit to cross to the greatest extent possible and send to the floor only those orders which he cannot match in his office. An unbalanced order flow would make it more difficult for specialists to maintain price continuity and orderly markets, and would give them a further incentive to withdraw from the exchange. Inevitably, the quality of the auction market would deteriorate. These debilitating processes would feed on themselves and the American securities markets would become increasingly dealer-oriented.

Erosion of exchange membership within a system of mixed off-board and exchange markets would narrow the scope of exchange regulatory oversight and nullify the important regulatory role contemplated for the exchanges in a national market system.

Equally serious, uncertainties over how off-board broker-dealers should be regulated in a mixed system would leave a regulatory gap during a transitional period; and such a gap would be closed primarily by debasing exchange regulation to meet the competition of lower off-board standards, in an effort to combat disincentives to membership.

The clear alternative to seriously damaging both the quality of exchange markets and existing stringent self-regulatory standards is to fold third market broker-dealers into the exchange system.

APPENDIX I

NYSE MEMBERSHIP COSTS

Four Member Firm Letters

BACHE & CO.
Incorporated
100 GOLD STREET
NEW YORK, N.Y. 10038

Mr. Stan West
Director of Research
The New York Stock Exchange
Eleven Wall Street
New York, New York 10005

Dear Mr. West:

As requested by William Freund, attached is an analysis showing Bache's costs of executing trades on the New York Stock Exchange for the twelve months ended July 31, 1973. The costs were $4.72 per trade or 7.4% of total New York Stock Exchange commissions before the recent rate increase.

If I can be of any further assistance or you have any questions, please let me know.

Very truly yours,

Frederick J. Wilten
Vice President & Controller

FJW:ss

Wheat, First Securities, Inc., 801 E. Main Street, Richmond, Virginia 23219 • (Area Code 703) 649-2311

Wheat
First Securities

October 29, 1973

Dr. William C. Freund
New York Stock Exchange
11 Wall Street
New York, New York 10005

Dear Bill:

You have frequently argued that the type of central market system currently being considered by Congress would give New York Stock Exchange member firms an incentive not to do business on the Exchange. An analysis of our costs at Wheat, First Securities, Inc. provides strong support for your conclusion. During the first six months of our current March fiscal year, approximately 6.1% of our New York Stock Exchange commission dollars went to pay for floor brokerage, commission fees and the Merrill Lynch-Goodbody indemnity fund. These expenses are all directly attributable to doing business on the Exchange, i.e., they would not have been incurred had these transactions been handled in the third market. In addition, there are other significant, although less readily quantifiable, expenses associated with Exchange transactions. These include somewhat higher clearing costs, somewhat higher personnel costs, and the compliance costs associated with the stricter regulatory requirements of the Exchange. I would estimate that these costs could bring the total differential to as much as 8% - 10%. In the coming environment of competitive rates, there is little doubt that such a differential would shift business away from the Exchange.

While such a central market system would lower our costs, and, therefore, possibly result in lower commission charges to our customers, the real issue is what type of market would result. I firmly share your view that the resulting market would be inferior to our present system in terms of the safeguards and order priority afforded the individual investor. The ultimate result could be a further deterioration in public participation in the market, the efficiency of the pricing mechanism, the ability of corporations and municipalities to raise capital, and the economic strength of our nation.

If I can be of any help to you in your efforts to maintain a strong Exchange based market system, please feel free to call upon me at any time.

Sincerely,

James C. Wheat, Jr.
Chairman

November 9, 1973

Mr. Stan West
Assistant Vice President
Research Department
New York Stock Exchange, Inc.
Eleven Wall Street
New York, New York 10005

Dear Stan:

Based upon our telephone discussions of this past week, I am sending you our estimate of the variation in potential profitability between a theoretical transaction executed on the New York Stock Exchange and an equivalent transaction executed in the third market. The net result of our assumptions, adjustments and estimates indicates a cost disadvantage of $9.38 for execution on the New York Stock Exchange, based upon a theoretical transaction generating $100 of gross commissions. The related table follows:

	NYSE	Third Market
Gross Commission	$100.00	$100.00
Variable Expenses:		
Brokerage	8.00	--
Exchange Fees (including Goodbody Assessment)	1.38	--
Clearing Corporation charges	1.50	--
Interest Expense	2.50	3.00
Direct Operating charges	6.60	7.90*
Compliance/Regulatory Reporting expenses	.15	--
Carrying Cost of Seat Memberships	.15	--
Total Variable Expenses	$ 20.28	$ 10.90
Available for Non-Variable Expenses and Profit Contribution	$ 79.72	$ 89.10

*Cost variation due to estimated added costs of internal bookkeeping vs. use of a clearing corporation.

As I know you understand, each of the numbers included in the table is more of an estimate than it is a direct derivation from our accounting data. However, we feel that we know enough about the behavior of the numbers in our accounting system to have a moderate degree of confidence in the above table. You will also note that I have excluded expense items that, in our judgment, do not show any particular amount of variation between the NYSE and third market execution. Examples are compensation to registered representatives, communications expenses, order room expenses, occupancy and equipment charges, etc.

I think you are quite safe in drawing your basic conclusion--namely that it would be more expensive to execute a typical transaction on the NYSE than it would be to execute the same transaction in the third market. Therefore there is assuredly an economic disincentive to NYSE membership. Please call upon me if you think we can be of any further assistance.

Cordially,

November 7, 1973

Mr. Stan West, Assistant Vice President
New York Stock Exchange
11 Wall Street
New York, New York 10005

Dear Mr. West:

The other day when we spoke, you requested projected cost savings for if legislation should permit us to operate in the “Third Market” while still being Exchange members. We estimate that there could be savings of from $3.00-$4.00 per transaction is we were able to do this. This does not make any allowance for profit opportunities which we would have by maintaining inventories. We have no real way of ascertaining the number of transactions which would not to be taken to the Floor so, therefore, are not in a position to project total cost savings over a period of time.

I trust this information will assist you in your efforts.

Very truly yours,

APPENDIX II

EFFECT OF MARKET FRAGMENTATION ON NYSE BID-OFFER SPREADS

INTRODUCTION

This paper reports the results of a statistical analysis of the effect on NYSE bid-offer spreads by the diversion of NYSE volume to regional exchanges and the third market. The analysis covers the month of January 1972. Since the findings are generally similar to those previously obtained by the NYSE Research Department[1], it is believed that other recent periods would lead to the same conclusions.

This study consists of a multiple regression analysis of the average spread of each issue for the month related to the following variables measured over the same period:

1. Dollar value of average daily volume on NYSE. Share volume is not used because in other analyses of like market data in the past, value figures and not shares have always proved significant.

2. Average price per share.

3. Average share size of NYSE trade.

4. Price volatility, as measured by the ratio high-price/low-price.

In addition, January quotation spreads are related to the following variables measured over the first quarter of 1972, largely because third market data are only reported quarterly:

5. Regional share volume divided by NYSE share volume. Regional volume is represented by the Midwest and Pacific Coast Exchanges combined. Data are not available on other major regional exchanges.

6. Third market share volume divided by NYSE share volume.

A seventh variable used is a dummy variable for any utility issue (utility stock = 1; any other issue = 0). A dummy variable for bank stocks is not used because a prior study found this insignificant. The rationale for the utility issue variable is explained later in this report.

---

1 See, for example, NYSE Economic brief, August 1968, Appendix C.

SUMMARY

This analysis indicates that the net effect of market fragmentation widens bid-offer spreads on NYSE. In the case of two issues with like characteristics on NYSE (same price, volume, volatility, etc.) the issues with the greater regional competition would have narrower NYSE spreads. However, if that regional volume were returned to NYSE, the increase in NYSE trading would more than close that spread gap. It would produce a net result of narrower quotes than with the competition. In other words, the effect of increasing volume would be greater than that of reducing competition.

In the third market, the net result toward narrower spreads, appears even greater. Here the analysis shows virtually no competition effect on spreads. Thus, the volume effect would have no offset and, if third market volume were done on NYSE, the favorable impact on spreads would exceed that found for regional exchanges.

DETAILED FINDINGS

Data Used

As a dependent variable in the regression calculation, bid-offer spreads are averaged for January 1972 for each issue and expressed as a relative to the average price of the stock. This measure is subjected to logarithmic transformation.

The following independent variables are also logarithmically transformed: average daily dollar volume of trading, price volatility (high ÷ low), average price, and average share size of trade. Used in absolute form are the dummy variable for utilities, and the regional and third market ratios to NYSE volume. All data represent January 1972 except for regional (Midwest and Pacific Coast Exchanges) and third market volume which are for the first quarter 1972.

Model

The bid-offer spread model is intended to isolate the real relationship between the degrees of competition from the two non-NYSE sources and the quality of market on NYSE as reflected by spreads. The following table summarizes the model.

	Coefficient	Standard Error	T Ratio
Average price (log)	-.5042	.0086	-58.70
High price ÷ low price (log)	.5319	.0551	9.65
Average daily dollar volume (log)	-.1341	.0047	-28.32
Average share trade size (log)	.0873	.0112	7.81
Utility issue	-.0274	.0053	-5.15
Regional volume ratio	-.0264	.0054	-4.90
Third market volume ratio	.0022	.0033	0.67

Constant term: average spread ÷ average price (log) = -.7795

Coefficient of Multiple Correlation = .9555

Number of Issues = 1381

In isolating the relationship between the competition variables and spread, the following statistically significant characteristics of NYSE issues are revealed by the model:

Price – Price is negatively related to the spread/price ratio. In other words, the lower the price, the wider the spread in relative terms. This relationship is particularly strong because of the one-eighth point minimum on all stocks. This has a tendency to build up the spread/price ratios among low price stocks and to make the relationship nonlinear.

Price Volatility – The high/low price ratio is positively related to spread, as expected.

Volume – The higher the volume, the narrower the spread on NYSE.

Trade Size – The larger the average trade size, the wider the spread. This is in line with expectations.

Utility Issue – Everything else equal, a utility issue has narrower spreads than other issues.

An additional word about the last item. Utility issues are relatively heavily traded on both regional exchanges and in the third market. Regional volume is due in part to the fact that many utilities are "local" in nature. Thus many west coast utilities are traded on the Pacific Coast Exchange either out of a sense of "loyalty" or because they were listed there originally. The same is true for midwest utilities and the exchange in Chicago. This effect does not explain third market volume in utilities. In that case, it may be the narrowness of the spreads that causes the competition because of the lower degree of risk to dealers in trading such issues.

While bank stocks might appear to be similar to utilities in these characteristics (e.g., their local nature), previous analyses have never found such issues to warrant separate treatment.

The bid-offer spread model reveals a clear pattern of the effect of fragmentation on NYSE quotes. The key variables are volume and the competition ratios. Within the structure of the model, what would be the effect on NYSE spread if competition were eliminated and the volume on competing markets were executed on NYSE? Let us assume certain hypothetical changes in competitive patterns:

Assumed Competitive Picture

Average daily dollar volume		
-- NYSE	$	500,000
-- Regionals	$	50,000
-- Third market	$	50,000
As % of NYSE volume		
-- Regionals		10%
-- Third market		10%

Assumed Complete Recovery by NYSE of Regional Volume

Average daily dollar volume		
-- NYSE	$	550,000
-- Regionals		--
As % of NYSE volume		
-- Regionals		--
Effect on NYSE spreads by recovery		
-- Due to $50,000 increase in NYSE volume	-$	.0056[1]
-- Due to decrease in regionals from 10% to 0%	+$	.0026[2]
-- Net	-$	.0030

Assumed Complete Recovery by NYSE of Third Market Volume

Average daily dollar volume		
-- NYSE	$	550,000
-- Third market		--
As % of NYSE volume		
-- Third market		--
Effect on NYSE spreads by recovery		
-- Due to $50,000 increase in NYSE volume	-$	.0056[1]
-- Due to decrease in third market from 10% to 0%	-$	.0002[3]
-- Net	-$	.0058

---

1 Product of volume coefficient (-.1341) and difference between log $550,000 and log $500,000.

2 Product of regional competition coefficient (-.0264) and decline in regional ratio (-.10).

3 Product of third market competition coefficient (.0022) and decline in third market ratio (-.10).

A word should be said about the relationship between this study and one recently performed by Tinic[2] The findings of that study have been referred to as demonstrating that the lack of competition with the NYSE leads to monopoly pricing in that market. For example, Tinic concludes from his analysis that "the price of liquidity (illiquidity) service increases as a direct function of the….level of trading concentration in the New York Stock Exchange. Hence it is reasonable to expect monopolistic pricing policies in the New York Stock Exchange in the absence of external competitive pressures."[3]

Tinic measures liquidity by the bid-offer spread, the same measure used in this study (except that this study expresses it as a relative to price). However, it is not correct to look only at the relationship between spread and tradings concentration in a multiple regression model as reflecting the total impact of competition. What Tinic is saying, in effect, is that, everything else equal, the greater the degree of concentration of volume on the New York Stock Exchange, the wider the spreads. However, one should also consider that his model, as well as that reported in this study, both show that greater volume on NYSE relates to narrower spreads on that market. Therefore, it would be appropriate in each case to ask, within the framework of any such model, what would be the total effect on spreads if all competitive trading were done on NYSE.

The results for the model in this report are shown on the previous page. In the example used, increased NYSE volume effects a reduction in spread by $.0056 by recovery of either regional or third market volume. Only in the case of regionals is there an offset -- by $.0026 -- due to decreased competition. The net effect of eliminating regional competition is a spread reduction of $.0030. It can be demonstrated through other hypothetical examples as well that the model results in a benefit from higher NYSE volume about double the offset from a lower regional ratio.

Naturally, this assumes that trading on regional exchanges and in the third market is not a net addition to volume which otherwise would not take place if such competing markets did not exist. While it is possible that some increments of this volume may fall into this category, it is difficult to imagine that a significant portion of such trading would not occur at all without these two competing markets.

---

2 Seha Tinic, "The Economics of the Liquidity Services," Quarterly Journal of Economics, February 1972, pp. 79-93.

3 Ibid., p. 93.

Trade Size

One might make a further assumption that the volume recovered by NYSE is in larger lots than the average on NYSE. However, if one were to assume that the average size of trade on both regionals and third market is as much as 50% above NYSE[4] (say 675 shares as opposed to 450 shares), the following would be the impact:

Average share trade size	
-- NYSE	450
-- Regional or third market	675
Average share trade size after volume recovery	
-- NYSE	470
Impact on spread of increased trade size	+$.0016

This would reduce the net impact on regionals to -$.0014 and on the third market to -$.0044.

Factors Related to Competition

It should be noted that it is necessary to use some form of multivariant analysis, such as multiple correlation, to assess the impact of competition on market liquidity. A simple correlation between spreads and competition ratios without allowing for the other characteristics of issues might find much stronger relationships than those found here. The reason is that there could be a relationship between competition and volume on NYSE. The higher the number of shares traded on NYSE, the greater the competition ratios on regionals and the third market. For this reason, the simple correlation would overstate the true relationship between competition and spreads because the more active the issue on NYSE, the narrower the spread (and the greater the competition). It is necessary in the analysis to allow for this volume-to-competition factor in case it exists.

The following models, using the same data as above, relate the degrees of competition to issue characteristics:

[4] Data are not available on average trade size off NYSE. However, a tabulation of the number of trades on the Pacific Coast Exchange for a recent period indicated an average size significantly less than 50% above NYSE.

	Regional			Third Market		
	Coefficient	Standard Error	T Ratio	Coefficient	Standard Error	T Ratio
Average price (log)	- .1365	.0478	-2.86	- .1380	.0770	1.77
High price ÷ low price (log)	-1.7447	.3044	-5.73	-1.8267	.4965	-3.68
Average Daily Dollar Volume (log)	.1998	.0259	7.72	.0266	.0422	.63
Average Share Trade Size (log)	- .1262	.0623	-2.03	.2193	.1016	2.10
Utility issue	.1219	.0296	4.11	.1236	.0484	2.50
Constant term: volume ratio	=	- .2581			-.5995	
Coefficient of Multiple Correlation		.2868			.1950	

Number of Issues = 1381

Both models, while the correlations are low, are highly significant statistically. Everything else equal, a penchant for greater competition exists in both markets among utilities. Finally, issues with lower price volatility are subject to more competition in both markets. However, the main feature to be noted is that, in the regional model, the degree of competition is positively related to NYSE volume (T ratio = 7.72); the third market model shows no relationship (T ratio = .63).