

**WHOSE MARKET IS IT ANYWAY?  
INTERMEDIARIES' OR INVESTORS'**

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## **WHOSE MARKET IS IT ANYWAY? Intermediaries' or Investors'**

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## Abstract\*

The U.S financial markets have been structurally designed to benefit market intermediaries -- especially market makers -- rather than investors. By limiting the use of technological advancement, these intermediaries have succeeded in perpetuating demand for certain of their services and have thus increased the cost of trade execution. In 1975 Congress charged the SEC with the task of "facilitating" the development of a national market system. What they have created instead is a set of fragmented market centers which are overly costly and technologically obsolescent.

The most critical aspect of fragmentation are the costs that are incurred by the market centers and must be paid by the investor. Some of the associated costs which are inevitable when a number of market centers trade the same securities at the same time include: information system expense; market selection system expense; lobbying and advertising expense; and increased regulatory expense.

To improve the structural soundness of the equity markets we make the following recommendations: First, establish a price/time priority rule in which best bid, first entered into the trading arena would always have the opportunity to meet the best offer, first-entered. Secondly, issuers would be prohibited from listing their securities on more than one market center at the same time. Instead, all listing contracts would be renegotiable at least every other year. Finally, rules that artificially inflate minimum trading price increments -- such as the NYSE's Rule 62, which mandates minimum price differentials of 12 1/2 cents -- should be prohibited. Smaller price differentials, such as those as small as one cent, would maximize price competition, reduce trading costs and eliminate pricing artificialities which make such practices as payment for order flow economic.

The result of these simple changes would be a global, low-cost, electronic auction arena for each issue. Such a system would be able to display the entire supply-demand schedule of each issue to all interested participants, regardless of geographic location and encourage competitive market making.

This would increase market transparency, improve the efficiency and fairness of markets and increase liquidity. International trading would be facilitated in a global automated trading arena. Market makers and other intermediaries would pay lower costs because of more efficient, lower-cost operations. Traders would be able to manage their risk in real time and perform more sophisticated transactions. It is important to keep in mind that "best" execution can only be achieved in a system which guarantees that best bid, first-entered, always has the opportunity to meet best offer, first-entered.

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## INTRODUCTION

There are enough operational problems in the equity markets for the Securities and Exchange Commission [SEC] to undertake an inquiry into changes that should be made by the year 2000<sup>1</sup>. Most of the troublesome issues best execution, payment for order flow, "trade-throughs," alternative market systems, real-time reporting, "stopping" stock, improved transparency and market linkages, as well as a variety of other problems—have developed as a result of the Commission's policies, which promote cascading market center fragmentation in the name of competition, and which would disappear or be alleviated if replaced with properly-designed trading systems.

A few simple changes in the regulations could solve the problems with which the SEC is concerned, but they would result in transfers of wealth about which the losers would hardly be enthusiastic. The changes we propose would relate to the way trading of national market system stock would take place, as follows:

1. The introduction of a price/time priority rule which would assure every participant in the market that the best bids and offers made would be executed in the order in which they were received.
2. The prohibition of any rule preventing an issuer from moving its listing from one market center to another after it has been listed on a given market center for a small number of years, say two.
3. The prohibition of any rule that effectively prevents decimal pricing.

The first change would require the industry to devise a method of making that rule effective. As far as we can tell, it would force industry to design and introduce an order driven, screen-based trading system. This change would result in a total confluence of all orders in each issue to assure that highest bid and the lowest offer would be able to be executed if their prices matched or crossed.

The first and second changes together would convert the current two-tiered competition for order flow into separate competitions among broker-dealers for order flow, and competitions for listings among market centers. This shift in focus would result in true competition, and would stimulate market centers to maintain state-of-the art trading facilities and low-cost, efficient services.

The third proposed change would significantly increase price competition, reduce the cost of trading and eliminate the conditions that make payment for order flow possible.

We discuss these at length below.

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<sup>1</sup> U.S. Equity Market Structure Study, Exchange Act Release No. 34-30920, 57 Fed Reg. 32,587 (1992) [hereinafter Market 2000].

## The Economic Functions of a Secondary Market

The economic functions of a financial market are essentially very straightforward. A financial market provides a mechanism for allocating the financial capital of those with investment funds to corporations and other issuers which seek such funds. The initial distribution of securities is made in the primary market. The secondary market provides the liquidity<sup>2</sup> in which originally-purchased shares may be sold inexpensively and quickly. It facilitates the finding of counterparties by investors who wish to trade. The more effective this facilitation, the more accurately securities prices will reflect the true value of the securities and the easier it will be for industry to raise funds through the sale of securities. Those economic functions are performed most efficiently when all traders' orders for a particular financial instrument interact within a single trading arena. This fact clearly indicates the economic need to create central marketplaces which compete for listings rather than for order flow.

### Overview

In the United States, regulation of securities markets and professional intermediaries is at three levels: federal, state and industry self-regulation. Because of an historical anachronism, market centers, particularly the New York and the American Stock Exchanges and the National Association of Securities Dealers [NASD] were given the responsibility of operating their markets and regulating their members under the oversight of the SEC.<sup>3</sup> The Commission's Division of Market Regulation has identified a number of issues which should be studied, including: market fragmentation, market transparency, "best execution," "soft dollar" commission payments, payment for order flow and equal regulation among market centers<sup>4</sup>.

These issues have arisen from a single source: the deficiencies of the existing structure of the equity market.

### The Trading Arena

In secondary markets, dispersed buyers and sellers compete for fungible intangible financial instruments such as stocks. The information about the bids and offers and transactions which result from that competition are supposed to be made available to all market participants.

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<sup>2</sup> "Liquidity" is defined in this paper as the market's ability to absorb new orders without making a substantial impact on the current price.

<sup>3</sup> Exchange Act § 15A(a), 15 U.S.C § 78o-3 (1988).

<sup>4</sup> Market 2000, supra note 1.

Only four things can happen in a trading arena:

- A bid can be entered;
- An offer can be entered;
- A bid can be hit; and
- An offer can be taken.

When a bid is entered at one price and an offer entered at a higher price a quotation ["market"] is established<sup>5</sup>. A trade will occur only if a bid is hit or an offer is taken: in other words when an offer is made at the same price as the existing bid or a bid is made at the existing offer.

If the spread between the best existing bid and the best existing offer exceeds a market center's minimum price differential, it is possible for a new higher bid to be entered, an existing bid to be raised and/or a new lower offer to be entered, or an existing offer to be lowered. Any one of these events would narrow the spread and creates a new quotation. This is the natural state of a quote, for as soon as a bid and offer match, and only then, will a trade take place. The bid or offer which was hit or taken will disappear, and the quotation will then change to the next-best bid or offer. A market order to buy or sell, in effect, raises the bid or lowers the offer to the point at which the bid and offer match exactly, thus effecting an execution.

Market centers publish schedules which show the minimum price increments at which bids and offers can be entered. In many market centers the price schedule is customarily set at 12 1/2 cent increments. In other words, if the bid for the security XYZ were 20 1/4, the lowest offer that would not be executed instantly would be 20 3/8.

If the spread were 25 cents or greater, a bidder or offeror could enter a new bid or offer which narrowed the quotation. If that occurred, the quotation would change to reflect the new bid or offer.<sup>6</sup>

In the United States, an equity security can trade in many market centers at the same time. This creates fragmented markets. In 1975 the Congress, recognizing the disincentives for market center operators to modernize their facilities, passed the Securities Acts

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<sup>5</sup> The highest bid and the lowest offer constitute the true "inside" market. Bids and offers can be entered by market makers or brokers representing investors. In only a few market systems do they interact.

<sup>6</sup> For a comprehensive discussion of the benefits and structural effects of shifting the permitted minimum price variations to one cent from 12 1/2 cents, see J. Peake, Brother, Can You Spare a Dime? Let's Decimalize the U.S. Equity Markets, in Global Equity Markets: Technological Competitive and Regulatory Channels (Robert A. Schwartz ed., Irwin Professional, Burr Ridge, forthcoming 1994).

Amendments, which directed the SEC to "facilitate" the development of a national market system for securities which would assure appropriate use of the newly-developing technologies. In its attempt to implement this directive, the SEC established policies which actually encouraged market fragmentation.<sup>7</sup> Their rationale for adopting such policies must be the belief that the benefits afforded to investors by permitting competition among multiple market centers for order flow in the same securities outweigh the costs to investors of not having a centralized price discovery mechanism. The SEC is wrong.

The Commission confuse the pseudo-advantages of competition for order flow with the real advantages of competition among market centers. As we have noted above and shall argue below, the proper competition among market centers is competition for listings. Mr. William Schreyer, then President of Merrill Lynch, noted:

... [T]hat efficient and liquid markets come from the interaction of all orders with one another ... when competition between market centers tends to fragment order flow instead of centralizing it, we believe that neither the investor nor the market is served.<sup>8</sup>

Real competition for exclusive listings could be achieved by the simple process of limiting the term of an issuer's listing contract to a single market center, renewable every two years. This type of competition would achieve the beneficial effects the Commission seek to derive from competition for order flow, without the unfortunate consequences of the latter.

When more than one market center competes for order flow in the same issue, one is likely to become dominant, since traders prefer to send their orders to the market center with the greatest order flow, and thus the highest probability of order execution. Market centers have many of the characteristics of natural monopolies, and there is almost always some gravitation of order flow to the dominant market center.

However, some order flow will be diverted if the dominant market center becomes operationally inefficient, delivers non-competitive services and/or charges more than market rates for intermediation services. When this occurs, at least some users of that market center will seek -- and usually find -- alternative market centers which serve them better.

The customers of market centers are not the same as the customers of broker/dealers. The customers of most existing market centers are broker/dealers, not investors. As a consequence, market centers must cater to the demands of broker/dealers. Those interests are seldom congruent with those of investors. In fact, they are sometimes contrary to investors' best interests.

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<sup>7</sup> Exchange Act § 11A(a)(1)(2), 15 U.S.C., § 78k-1.

<sup>8</sup> Progress Toward the Development of a National Market System, Joint Hearings before the Subcommittee on Investigations and the Subcommittee on Consumer Protection and Finance of the Committee on Interstate and Foreign Commerce, House of Representatives, 96th Cong., 1st Session, 70, (1979) [hereinafter '79 Hearings].

In Mr. Schreyer's 1979 appearance before the House subcommittees, he recognized that fact, as follows:

Brokers and dealers compete with each other for a customer's order. They do this by offering services, advice or in some cases discounted execution costs to attract and keep a customer. This kind of competition is basic in an industry and does not concern us here [in a discussion of the national market system]. Exchange markets [market centers] also compete for a customer's order, but they attempt to serve the broker, who now has control of the order rather than the customer himself. The most obvious way of doing this is by offering the best price, by insuring that there are well capitalized market makers who are willing to take risks in order to maintain deep and liquid markets.

There is another way exchanges compete. They provide efficient facilities so that the cost of executing and clearing a transaction is low. These costs can be a significant factor in times of high volume. The situation can also pose a dilemma for a broker with a substantial order flow. He may have to choose between a system with a smooth and efficient processing system but less able market makers and another market center with superior market makers but inadequate floor facilities. It is plain that a "best execution" rule which assumes that the best quotation always provides the best execution is not helpful. It should also be clear that the customer who wants to buy or sell stock, has gained very little from this type of competition.<sup>9</sup>

### **The Impact of the Telecommunication Revolution**

Modern computers and telecommunications have revolutionized the way information is disseminated and the way transactions, especially in intangibles like financial instruments, can be effected. In a return to the early days of the coffeehouses, where buyers and sellers met face to face, they now meet directly through computer systems.

The market intermediaries who have been earning their living providing middleman services are hardly happy with the prospect of being rendered significantly less important, and in some cases redundant. These intermediaries, who have owned, controlled and operated the market centers which service investors, are not eager to see those markets redesigned in a way that reduces or eliminates the need for their services. As a consequence, almost all market facilities have become suboptimal and the services they render are no longer being delivered economically.

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<sup>9</sup> Id. at 69-70.



Unfortunately in their attempt to execute the directives of the '75 Act and to set new standards and develop the system, the SEC turned to the very group of market center managers who were dead set against designing themselves out of business.

The results were predictable: The "new" systems designed retained the intermediaries at every step of the trade. The industry designers provided complex, expensive systems to route and display orders among the many market centers which traded the same securities. They automated everything but what they should have automated: The execution.

The regulators required that all market centers be interconnected through yet another set of inefficient systems: the Intermarket Trading System, ["ITS"], the Consolidated Quotation System, ["CQS"] and the Consolidated Tape System, ["CTS"]. The result: a Byzantine set of systems which would have put the late cartoonist Rube Goldberg's fertile imagination to shame. As Mr. Schreyer pointed out:

ITS, which links the New York with some regional exchanges is a communications device and nothing more. It is as far from the concept of an automated, efficient marketplace as a tom-tom is from a communications satellite.<sup>10</sup>

The consequences were inevitable. Powerful investors, the most important customers of the financial services industry, seeking to reduce trading costs, turned to alternative methods of executing their orders. These alternatives enabled them to avoid the inefficient, expensive traditional trading arenas. These became especially useful for those that employed an indexation strategy, the successful implementation of which required the lowest possible transaction costs.

Not surprisingly, the Congress and the Commission are now faced with a dilemma: (a) Should the present systems, in which fragmentation is cascading with each passing day, be continued and permitted to increase in number; or (b) should the legislature and regulators step back into the picture and mandate some type of system which will centralize the trading of each security within an electronic trading arena; or (c) should the SEC repeal anti-competitive rules for the national market system as a whole, leaving the industry alone to develop their own technologically-efficient systems which would enable the market to implement the rule?

The economic consequences of these approaches would be major: If the status quo is allowed to continue, broker-dealers will ever-increasingly turn to non-traditional market centers for low-cost, efficient execution of their trades. U.S. securities markets are turning into two-tiered systems, with institutional investors being able to obtain cheap, efficient executions, while the individual investors, who are not willing to accept bare bones execution services from discount brokerage houses, are left to the not-so-tender mercies of the more traditional market centers and to the broker-dealer systems in which all trading is done as principal.

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<sup>10</sup> Id.

The second alternative is equally undesirable. The government is too far removed from the operation of the market to design a technologically efficient system.

With the third alternative, the Congress and the Commission could allow free competition for short-term exclusive listings with a price/time priority rule to determine the best market structure. However, this alternative would require the repeal or amendment of many of the regulations which have themselves created the present structural nightmare. Among those which would have to be amended is the NYSE's Rule 500 which constitutes a major obstacle to competition for listings.

Section 12(d) of the Exchange Act of 1934<sup>11</sup> reads, in part, as follows:

A security registered with a national securities exchange may be withdrawn or stricken from listing and registration in accordance with the rules of the exchange, upon such terms as the Commission may deem necessary to impose for the protection of investors ....

The New York Stock Exchange's Rule 500 states that the voluntary delisting by an issuer of a security listed on the New York Stock Exchange [NYSE]:

[W]ill not be removed from the list upon request or application of the issuer, unless the proposed withdrawal from listing is approved by the security holders at which a substantial percentage of the outstanding amount of a particular security is represented, without objection to the proposed withdrawal from a substantial number of individual holders of the particular security ...<sup>12</sup>

In their written interpretation of the meaning of this rule, the Exchange states that:

... in the absence of special circumstances, [it] will consider approval of the proposed withdrawal from listing by 66 2/3 % of the outstanding security, together with a failure of 10% of the individual holders thereof to object, as the minimum requirement.<sup>13</sup>

The NYSE's overly-tight restrictions on voluntary delisting by an issuer greatly resembles the theme promoted by a cockroach removal product, known as the Roach Motel. "Once in, they cannot get out." We believe issuers should be able to select and deselect the

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<sup>11</sup> 15 U.S.C. § 78l.

<sup>12</sup> **Constitution and Rules**, N.Y.S.E. Guide (CCH), November 1 1993, at 4231.

<sup>13</sup> Id. at 4242.

market center on which their securities are to trade more easily than they can under present rules.

The issue before the Commission should not be whether electronic crossing systems operated by non-exchanges somehow subvert the high ideals set forth in the Securities Exchange Act of 1934, but rather whether the present set of markets meets the policy objectives of the Securities Reform Act, and will enable the United States to retain its position as having the most modern financial markets of the world.

During investigative hearings in 1971 and 1972<sup>14</sup>, and legislative hearings in 1973 and 1974<sup>15</sup>, the Congress studied U.S. financial markets and determined that it was in the public interest and for the protection of investors for the SEC to facilitate the creation of a national market system for securities.

The details of this national market system were not precisely defined, but in Section 11A of the Securities Exchange Act of 1934 five broad characteristics were laid out as a guide for the Commission to follow, as follows:

Sec. 11A (a) (1) The Congress finds that --

"(A) The securities markets are an important national asset which must be preserved and strengthened.

"(B) New data processing and communications techniques create the opportunity for more efficient and effective market operation.

"(C) It is in the public interest and appropriate for the protection of investors and the maintenance of fair and orderly markets to assure --

"(i) economically efficient execution of securities transactions;

"(ii) fair competition among brokers and dealers, among exchange markets and markets other than exchange markets;

"(iii) the availability to brokers, dealers, and investors of information with respect to quotations for and transactions in securities;

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<sup>14</sup> Subcomm. on Commerce and Finance of the House Comm. on Interstate and Foreign Commerce, Securities Industry Study, 92nd Cong., 1st Sess., Study of the Securities Industry 117-130 (Comm. Print 1972).

<sup>15</sup> Subcomm. on Securities of the Senate Comm. on Banking, Housing and Urban Affairs, 93rd Cong., 1st Sess., Securities Industry Study, 89-135 (Comm. Print 1973) [hereinafter **Senate Study**].

"(iv) the practicability of brokers executing investors' orders in the best market; and

"(v) *an opportunity, consistent with the provisions of clauses (i) and (iv) of this subparagraph, for investors' orders to be executed without the participation of a dealer.*" [Emphasis added]

The Act goes on to say that:

"(D) The linking of all markets for qualified securities through communication and data processing facilities will foster efficiency, enhance competition, increase the information available to brokers, dealers, and investors, facilitate the offsetting of investors' orders, and contribute to the best execution of such orders.

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"(2) The Commission is directed, therefore, having due regard for the public interest, the protection of investors, and the maintenance of fair and orderly markets, to use its authority under this chapter to facilitate the establishment of a national market system for securities (which may include subsystems for particular types of securities with unique trading characteristics) in accordance with the findings and to carry out the objectives set forth in paragraph (1) of this subsection. The Commission, by rule, shall designate the securities or classes of securities qualified for trading in the national market system from among securities other than exempted securities."

The Commission's Division of Market Regulation is again undertaking a broad examination of the U.S. equity market's structure and regulatory milieu<sup>16</sup>.

### **The National Market System**

Chairman Bob Eckhardt noted Congress's intent of achieving a centralized market in his opening statement during the House hearings on the progress being made toward a national market system in 1979:

It was envisaged that ultimately orders for the purchase and sale of stocks anywhere in the country would contact *all* other orders

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<sup>16</sup> Market 2000, supra note 1.

throughout the country. The result, of course, would be a better marketplace and better prices for investors.<sup>17</sup>

When the Securities Acts Amendments became law, most people believed that the congressional mandate was to develop a national system for trading securities in which best bid entered for a stock would always have the opportunity to meet best offer. Unfortunately for investors in the United States and abroad, the current systems do not honor the order queue so that neither the first-entered best bid nor the first-entered best offer are assured execution in the next trade even when there is no price improvement.

The Chairman's interpretation of the Act was not unique. At the same hearings, William Schreyer, President of Merrill Lynch, accompanied by Leopold Korins, now President of the Pacific Stock Exchange, stated that:

I want to repeat here what we [Merrill Lynch] have said over and over again; we feel that a basic element of a national market system is competition among orders. We maintain that efficient and liquid markets come from the interaction of *all* orders with one another. Market makers will continue to be needed during periods of imbalance and for transactions of unusual size, and anyone who wishes to risk his capital in that fashion should be permitted to do so. But when competition between market centers tends to fragment order flow instead of centralizing it, we believe that neither the investor nor the market itself is served.<sup>18</sup>

Mr. Schreyer then described Merrill Lynch's vision of a national market system:

1. All orders come together so that they have the opportunity to interact;
2. Automatic execution, particularly for active, liquid issues with narrow spreads;
3. Locked-in trades with automatic comparison and clearing so that stock certificates can be immobilized or eliminated to a substantial degree;
4. Fair and equal opportunity to compete for all who have the capital and willingness to make markets;
5. Full limit order protection so that the public customer has an incentive to come into the market;

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<sup>17</sup> '79 Hearings, supra note 8, op. cit., p.1 (emphasis added).

<sup>18</sup> *Id.* at 70. (emphasis added).

6. Finally, market information, such as firm bids and offers, sizes and transaction reports is promptly and accurately available to all.

We believe the SEC should define the national market system as one which contains these elements. It would then be a simple matter to direct the self-regulatory organizations and the industry to design and build a system which incorporates them."<sup>19</sup>

At the same hearings, a former member of the SEC's National Market Advisory Board, Professor James Lorie of the University of Chicago, added his voice to the debate:

What can the SEC do that it has not done which would advance this cause [development of a national market system]? Well, let me suggest some things.

The objective of their actions, keep in mind, should be to create a system, as everyone endlessly says, in which all orders meet and in which the seller gets the highest bid and the buyer gets the stock at the lowest offer, regardless of the size, location, character or personality of the customer, or the historical business relationship<sup>20</sup>.

Thus a senior executive of the Nation's largest brokerage firm, the Chairman of the House subcommittee charged with oversight of the SEC and a world-renowned academic from a university with an international reputation for championing free market competition have all defined the key criterion of the national market system in same way. All spoke in favor of an equity market system with centralization of order flow for each security. Unfortunately, the Commission chose to ignore this advice.

### The Basic Problem to be Solved

The SEC has posed a variety of problems which have surfaced in today's market structure. Quite appropriately, issues of fairness and cost have been raised by the Commission<sup>21</sup>. The paramount question: *For whose benefit do America's equity markets exist: Investors and issuers, or broker-dealers and market center operators?* was not explicitly asked.

Organized financial markets have been designed and controlled by broker-dealers and the trading organizations such as the New York and American Stock Exchanges, the regional exchanges, and the NASDAQ system. However, advances in technology, especially in digital computers and telecommunications, have created an environment in which the goals

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<sup>19</sup> *Id.* at 71.

<sup>20</sup> *Id.* at 81.

<sup>21</sup> Market 2000 *supra* note 1.

articulated so well by Chairman Eckhardt and others can easily be achieved; best bid can always have the opportunity to meet best offer, but for the resistance of those who control and operate the market mechanisms.

### **The Power and Politics of New Technology**

When competition is not tampered with by cartels or governments, better systems will inevitably develop and make the old obsolete. Unnecessary functions will be rendered redundant, and those who provide overly-expensive or unneeded services will wither away, as they should. However, securities trading in the United States does not operate unhampered. Self-regulators (cartels), state regulators and the Commission make rules which regulate the operation of the markets, and often inhibit innovation.

As an analogue, consider the technological development of the automated teller machine (ATM), which also uses digital computers and telecommunications systems to access large financial information data bases, to deliver specific on-line financial information and to process financial transactions. Two decades ago these did not exist. Today they are almost ubiquitous. There were relatively few regulatory barriers to their installation, and their arrival disintermediated millions of banking transactions. Almost all of the people displaced were bank tellers, although there are still many banking functions which require personal attention and are not yet suitable for automation. But just think: How many ATMs would there be today if bank tellers had controlled bank technology?

Computer-driven equity trading systems perform economic functions similar to ATMs: Users (traders) interrogate on-line data bases (bids and offers previously entered by other traders), and the users make decisions whether to engage in transactions (enter bids or offers, cancel previous bids or offers or hit existing bids or accept existing offers). The system updates the data base (processes the transactions) and notifies the users and their counterparties of the details of the transaction. It is a trivial task for the system to provide the necessary details of all trades (security identification, such as symbol, quantity, price and time of transaction) on a broadcast basis for publication by information vendors such as Quotron, Knight-Ridder, Telerate and Reuters.

While change can be delayed, it cannot be stopped indefinitely. Eventually the new technology will overcome those who oppose it for their own economic self-interest. What must be kept in mind, however, is that excessive delay may allow the affected industry to become inefficient, to move to foreign shores, or be supplanted by new competitors.

### **The Politics of Economics**

Ever since the Securities Exchange Act of 1934 was amended in 1975, the market center operators have lobbied the Congress and the Commission very hard to limit technological improvements to functions related to the actual trade execution process itself.

Exchange executives have expressed grave misgivings about the potential costs and operational problems automated execution systems would bring about<sup>22</sup>. Automated execution systems were denigrated as "monolithic black box systems" in which trades would somehow be executed without human judgment<sup>23</sup>. Dire warnings about a massive loss of liquidity and other shortcomings were made. SEC Commissioner Roberta Karmel, later a director of the NYSE, said in a speech in 1978<sup>24</sup>:

One reason the Commission rejected the electronic national book with automatic execution, or so-called "black box" solution, as a model for the national market system was our serious concern about the broker-dealer conflicts that could surface in such a system.

No evidence was presented to support the assertions regarding loss of liquidity. Commissioner Karmel, having leveled her serious charge against the National Book System<sup>25</sup>, did not set forth a single argument to support her assertion. Indeed, no Commission release or other public statement by a commissioner has ever supported Commissioner Karmel's charge, or provided a single shred of evidence that such a system might promote broker-dealer conflicts of interest.

A central electronic execution system which executes orders on a strict price-time priority basis by time of their arrival into the trading arena actually reduces the possibility of broker-dealer conflicts of interest significantly. No front-running can be done without leaving an absolute, real-time audit trail behind.

Although, it should be noted, Commission members recognized that markets would ultimately become non-geographic<sup>26</sup>, the Commission never sought evidence to support the assertions about liquidity. It was alleged that no orders would appear on the books since no

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<sup>22</sup> **Impending Changes for Securities Markets: What Role for the Exchanges**, 104-105 (Ernest Block and Robert A. Schwartz eds., Jai Press Inc. Greenwich, CT 1979).

<sup>23</sup> For a comprehensive discussion of these views, see preceding footnote.

<sup>24</sup> Speech to the Compliance and Legal Seminar of the Securities Industry Association (March 20, 1978).

<sup>25</sup> The title of the proposal **The National Book System** (1976) submitted to the National Market Advisory Board by Junius W. Peake, Morris Mendelson, and R. T. Williams in response to SEC Release No. 12159 (March 2, 1976) Reference File No. S7-619. This system has since become known as the Peake- Mendelson-Williams [PMW] System, see Morris Mendelson, Junius W. Peake, and R. T. Williams, Towards a Modern Exchange: The Peake-Mendelson-Williams Proposal for an Electronically Assisted Auction Market, in **Impending Changes for Securities Markets: What Role for the Exchanges?** (E. Block and R. J. Schwartz eds., JAI Press, Greenwich, CT 1979).

<sup>26</sup> Exchange Act Release No. 34-30920 SEC Docket (CCH) at 8 (July 14, 1992).



one would want to expose their interest. This argument has since been buttressed by noting that putting an order on the books is the equivalent of writing an option for no premium<sup>27</sup>. Under the present system no opportunity cost is incurred by the failure to expose one's orders. What that argument overlooks is that in a price-time priority regime, that opportunity cost rises significantly.

From the size and complexity of the problems which have arisen and are discussed below, it should be clear that the present market structure is seriously flawed. The Commission's assertions that today's systems are "economically-efficient"<sup>28</sup> are suspect. There has been no accompanying data or evidence to support that claim, and logic suggests that there is none that would do so. Tinkering around the edges and trying to fine tune the existing system will, at best, cover up fundamental deficiencies or create new and different problems.

## ISSUES: Fragmentation

### Fragmented or Centralized Markets

The paramount structural question today is: Should U.S. equity markets be centralized or fragmented?

The terms "fragmented" and "centralized" must be defined and agreed upon. Professor Hans Stoll, Director of the Owen Financial Markets Research Center of Vanderbilt University, defined market fragmentation as: "...the inability of an order in one market to trade with an order in another market."<sup>29</sup>

By contrast, a centralized market is one in which there is a total confluence of all bids and offers in a security, regardless of the nature or identities of the persons or organizations entering them<sup>30</sup>.

Under Professor Stoll's definition, most of today's equity trading in U.S.-domiciled issues takes place in fragmented markets, whether listed on exchanges or not. For example, in the case of exchange-listed stocks, each market center (stock exchange) is a self-contained trading universe, not integrated with any other market center. An investor's order arriving at one market center cannot be certain of interacting with another investor's contra order

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<sup>27</sup> S. Grossman, Trading Technology and Financial Market Stability, in Innovation and Technology in the Markets: a Reordering of the World's Capital Market Systems 47-56, 57 (Daniel R. Siegel ed., Probus Publishing Co. 1990).

<sup>28</sup> Id. at 10.

<sup>29</sup> Hans Stoll, Principles of Trading Market Structure, 6 J. of Fin. Services Res. 75, 92 (1992).

<sup>30</sup> Obviously, access to such a market system, as with any other financial market, will have to be properly regulated to guard against unauthorized or illegal trading.

arriving in different market center, even if both are entered at the same price and time. Many with vested interests make sure that markets stay fragmented. Since investors and issuers pay all the costs of operating financial markets, including transaction fees, information systems, market center development and operations, market making costs, brokerage services and any costs of intermarket arbitrage, the resolution of this issue is important to them.

The economic answer is simple: centralized markets. Fragmented markets favor intermediaries; centralized markets favor investors and issuers. Intermediaries know that if all orders are able to meet and interact, there will be considerably less need for their services. Investors' orders will need, at most the services of an agent. The need for dealer services will diminish. Consequently, in the United States, the established market centers and their members have fought tooth and nail to prevent centralization, as well as automation of the actual trade execution process itself ever since the passage of the "National Market System" legislation in 1975.

In the over-the-counter market and in several proprietary systems such as that operated by Bernard L. Madoff Investment Securities, each broker-dealer is a separate market center, making independent markets. In the OTC market, almost all customers' executions are made with a market maker on the opposite side of the trade. Only in the NASD's Small Order Execution System, [SOES] can like-priced buy and sell orders entered by two customers hope to meet. SOES was originally designed to relieve NASD market makers of the effort of answering telephones to execute small orders in the stocks in which they made markets. However, even in SOES, the matching of two like-priced buy and sell orders entered by two customers, is totally at variance with the letter and spirit of the 1975 Amendments since execution is deliberately delayed to allow the intervention of dealers<sup>31</sup>. Originally participation in SOES was voluntary. After the crash of 1987, during which many NASD market makers refused or declined to answer their telephones and make their quoted markets good<sup>32</sup>, the NASD made a rule in which the use of SOES became mandatory for all market makers on NASDAQ<sup>33</sup>. Every market maker was then required to execute between 200 and 1,000 shares (depending on the particular security involved) per order received until the market maker changed his quotation<sup>34</sup>.

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<sup>31</sup> Securities Exchange Act of 1934 § 11A(a)(1)(C)(v), 15 U.S.C. § 78K-1 (1988).

<sup>32</sup> Report of the Presidential Task Force on Market Mechanisms, Submitted to The President of the United States, The Secretary of the Treasury, and The Chairman of the Federal Reserve Board, Government Printing Office 50 (1988).

<sup>33</sup> Pursuant to Part VI, Section 1 of Schedule D to the By-Laws, participation as a SOES Market Maker is required for any NASDAQ market maker registered to make a market in a NASDAQ National Market System (NASDAQ/NMS) security. NASD Manual (November, 1992) SOE Rules, Rules of Practice and Procedures for the Small Order Execution System.

<sup>34</sup> "In Notice to members 88-43 (June 22, 1988) the NASD announced that the maximum order size for NASDAQ/NMS securities traded on SOES shall be 1,000, or 200 shares and that the applicable maximum order size for each NASDAQ/NMS security would be determined generally" by criteria which followed. Recently, the NASD has proposed reducing the maximum order size from 1,000 to 500 shares. Christi Harlan,

## The Three Types of Fragmentation

A variety of problems have developed as a result of the Commission's policies, which promote cascading fragmentation in the name of competition, and which would disappear or be alleviated if replaced with properly-designed centralized trading systems. Markets can fragment in three ways: by having the identical securities trade in more than one trading arena at the same time (spatial fragmentation); by restricting some bids and offers from interacting within the same trading arena (internal fragmentation); and by spreading order flow over a period of time (temporal fragmentation).

The bad effects of market fragmentation are typically: a loss of liquidity and/or higher trading costs for investors. Although the amount of liquidity loss and increased costs will vary depending on the type of fragmentation involved.

### A. Spatial Fragmentation

The first and most costly type of market fragmentation is spatial fragmentation. If only a portion of all orders in a single security is delivered to a central trading facility, such as a stock exchange, economic necessity demands that some type of information system be constructed which allows market participants in one trading arena to know the prices in the other arenas. Such a system has costs of construction and operation which will vary little, regardless of trading volume.

In addition to having to create an information system for price dissemination, an inter-arena trade execution system must also be constructed. If no such system exists, the prices at which the same securities traded in the multiple trading arenas will move out of line, providing profit opportunities for investors and market professionals who correct the discrepancies in prices by intermarket arbitrage. Intermarket arbitrage is defined as buying and selling identical financial instruments on two or more marketplaces concurrently, seeking to profit from the differences between their prices. When a price differential exists which is large enough to permit a professional intermarket arbitrageur to execute both sides of the trade and earn more than his execution and clearing costs, a trade will take place. The possibility of intermarket arbitrage alone is *prima facie* evidence of an inefficient market.

By contrast, if there is only one trading arena per issue and all bids and offers in that issue can interact, intermarket arbitrage could neither exist nor be needed. Then investors do not have to pay the costs of an intermarket price dissemination system which informs market participants about the prices in the different arenas. And finally, an intermarket trade execution system would not be needed, since there would be only one market per security. All these existing costs of market fragmentation would be saved. Intermarket arbitrage is a costly reminder of how far we are from an efficient market.

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NASDAQ Small-Order Plan Draws Protest, WALL ST. J., Dec. 21, 1993, at C1.

## B. Internal Fragmentation

Internal fragmentation consists of limiting the types or sources of order interaction within a market center. A stock exchange is internally fragmented if it has rules which permit a member to execute both sides of a trade without exposing either side to any other orders previously sent to the exchange. The NYSE recently had just such a rule approved by the Commission<sup>35</sup>. This rule allows a member firm to cross (execute both sides of a trade) a large order at a price equal to the best quoted bid or offer without first clearing the resting best bids and offers on the order book. This rule was enacted by the NYSE in response to the existing practice in which members "bused" large blocks to regional exchanges to avoid the NYSE order queue.

Neither practice is helpful to investors. Among other things such steps will further discourage individual investors from investing directly in equities. They will -- and for good reason -- believe that those who operate and regulate America's financial markets are determined to create a two-tier structure favoring institutional over individual investors. Internal fragmentation has many of the same problems as spatial fragmentation.

A more egregious type of fragmentation was attempted on SOES. The Securities and Exchange Commission approves some rules of the NASD, which had the effect of barring the use of SOES to certain investors. Although these investors were not registered broker-dealers, they were labelled "professional investors," as though the term were pejorative. They were classified as "professionals," they had none of the privileges available to the real professionals: the market makers. These rules, which were apparently enforced selectively by the NASD came under legal attack. Fortunately, following a recent decision by the District of Columbia Court of Appeals<sup>36</sup>, the NASD abrogated its "professional trader" definition. The rationale for the restrictive rules set forth by the NASD in its proposal was that these "professional investors" took unfair advantage of market makers by using SOES to trade when new information was received and before the market makers could change their quotes, thus "picking off" the market makers<sup>37</sup>.

The argument was and is fatally flawed. First, the NASD has promulgated rules which require market makers to keep their quotations up-to-date, and provide severe penalties for "backing away" from their quotations. The NASD appears to be somewhat schizophrenic in their rule making approach. On the one hand they want their market makers' quotations to be up-to-date and firm. At the same time they would like to protect market makers who are

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<sup>35</sup> Exchange Act of 1934, Release No. 34-31343 57 Fed. Reg. 46,645 (1992).

<sup>36</sup> *Timpinaro, et al v SEC*, 2 F. 3rd 453 (D.C. Cir. 1993) Morris Mendelson was a consultant for one of the plaintiffs.

<sup>37</sup> However, other restrictive rules against the use of SOES were approved by the Commission on December 22, 1993. See SEC to Limit NASDAQ Setup for Small-Order Execution, Wall. St. J., December 23, 1993, at A6.

not from having to deal with investors who happen to trade frequently and/or rapidly at the market maker's stated quotes.

The NASD's analysis seems to conclude that market makers lack public sources of information. Surely a professional market maker has access to at least as much market information and economic data as does an individual, even one sitting in a broker's office. New technology permits on-line parsing of digitized data streams which carry news and other relevant market information. If a user wishes to do so, he or she can list and monitor key words and phrases, which if detected by the program, will instantly send out audible and/or visual warnings and messages to the recipients. These systems, many of which can read all the data in the price reports of the **Wall Street Journal** in three seconds, can generate automatic bid-offer adjustments in real-time if necessary. They can certainly do so as fast as "professionals" can enter orders. In short, arguments by market makers that certain investors hold an unfair advantage about information appear specious and should be documented. They have not been to date.

The NASD's solution is clearly the wrong approach to solving the problem, if, indeed, there is a problem. The NASD should switch to an order driven automated execution system such as we have long advocated elsewhere. In such systems, rules permitting, market makers would be free to enter narrow spreads for small amounts of stock, and wider spreads for large amounts. This would deepen the market and enhance liquidity, as well as permit market makers to remain anonymous within the system.<sup>38</sup> Any market maker who wished to advertise its prices to the world would still be free to do so.

We recognize that participation in SOES was made mandatory in the aftermath of heavy criticism of NASD market makers behavior during and after the 1987 crash. We also recognize that some would cry "foul!" if the NASD again made SOES voluntary. But in reality, if the emasculation of SOES is permitted to continue, painful step by painful step, the net result will be almost the same as volunteerism. The National Market System Congress demanded will come to fruition only when the regulatory establishment finally realizes that: (1) there exists no absolute method of guaranteeing that market makers will "be there" even when markets are collapsing; and (2) changes their mind set to one of centralized markets with equal and open access that do not require uneconomic affirmative or negative obligations from market makers.

### C. Temporal Fragmentation

Temporal market fragmentation is the subject of much debate, especially within the United States at the present time. We first look at two models, the continuous market, and the periodic call market. Most international financial markets are of a continuous type. Trading in the issues on that market can be conducted at any time from the market's opening until its official closing time (and sometimes even later). Very recently, however, there has been a move toward restoring the second type of market: a periodic call. SPAWorks, the system created by Steven Wunsch (and now known as the Arizona Stock Exchange), is the

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<sup>38</sup> For an example of the NASD's approach to dealing with successful SOES traders, can be seen NASD Suspends SOES Abuser, **WALL ST. & TECH.**, October 1992, at 6.

prototypical example of the new call market. This type of trading system has as its antecedent the call markets of the late 1700s and early 1800s. In a call market trading in a stock can only take place when that stock's turn comes up in a rotation, usually once daily. Waiting until a set time for all trading, proponents argue, allows the interaction of a greater number of orders, and establishes a single price for each security reflecting the collective judgments of investors *at that point in time*.

Those in favor of call markets argue that a continuous market is subject to two unnecessary costs. The first unnecessary cost, they say, is caused by the randomness of the arrival of orders, which results in unnecessary intra-day price volatility. The second cost is the cost of obtaining immediate trade execution. That cost is embedded in the lower bids and higher offers made by dealers to provide immediacy.

Those in favor of continuous markets as the preferred system argue that investors want the option to be able to buy and sell at times of their own choosing, especially immediately after significant news --war or earthquake, for example-- arrives. They argue that the benefit of trading at times of their own choosing outweighs the costs of temporal fragmentation.

The movement toward periodic call markets has been spurred by two factors in the development of modern portfolio management theory. Many large institutional investors now keep at least some percentage of their assets indexed--their portfolios are designed to track the overall price movement of the market as a whole--or at least of a large segment of the market. Those who index do not buy or sell on news. Instead, they execute transactions to invest newly-received funds, to rebalance their portfolio to keep it closely weighted to track the particular index being followed, or to make changes in their asset allocation formulas--such as by increasing the percentage of their funds invested in debt, and thus reducing their equity percentage.

To those investors who "index," as the term is now known, timing of their trades is relatively, but not absolutely, unimportant. However, great pressure exists for managers of indexed portfolios to obtain execution costs as close to zero as possible. When they trade at the close of the market, they trade at the same prices that are reflected in the index.

If trading in a stock is sporadic, that stock may well be best traded in a call market. But, just because a call market may be better suited to some stocks is no reason why it should be the only method for trading all stocks. However, even though a call market is appropriate to the opening of trading even when trading is continuous the rest of the day, the arguments in favor of call markets are fundamentally flawed. The basic shortcoming of spatially and internally fragmented markets is that they permit trading to take place at different prices at the same point in time and in the context of a given information set. Temporal fragmentation should not really be classified as fragmentation because it permits the market prices to adjust to changes in the information set as they occur. Thus, while it is true that the randomness of the arrival of orders may result in unnecessary intra-day price volatility, it is not at all clear that the price is not worth paying. If investors could only sell a stock at a set moment in time, the flow of capital to volatile industries could be severely curtailed.

The second argument in favor of call markets is also flawed. The fact that many money managers are indexers is irrelevant as long as there is a good deal of money that is not being managed on an index basis. Furthermore, even many indexers try to enhance their performance by actively managing a fraction of their portfolio. And finally, many retail investors buy and sell on news. Since in a call market the value of news is significantly less, there is much less incentive to research issuers.

It was noted above in stating the case for call markets that "Those who index do not buy or sell on news." It may be true that they do not buy and sell *stock* on news. That does not mean that they do not react to news. If a news item leads a money manager to conclude that the market is heading south, he would be irresponsible if he waited till the end of the day to take measures to protect his portfolio. He would presumably short the requisite number of index futures contracts. But there is the rub. If the market for the underlying securities were only a call market, the futures market would not provide the hedging possibilities that exist today in a continuous market. The call markets of today can operate as effectively as they do because of the existence of a continuous market.

### **The Cost of Fragmentation**

While this paper does not quantify the total costs of market fragmentation, it does list some of the components of additional expense required to operate multiple market centers which trade the same issues at the same time. Both social costs and costs that have to be borne by the individual firms exist. Among the social costs we have to include the cost of intermarket arbitrage and the cost of unnecessary dealer intervention when investors' orders cannot interact directly.

#### **A. Information System Expense**

Systems must be designed, developed, and operated which enable investors and market intermediaries alike to keep track of the prices being quoted and traded on the various market centers. The United States has two such information systems, CQS and CTA, referred to above.

In addition to these two systems, commercial information vendors have created their own systems which collect the data from these systems and deliver the information to brokers, dealers, other market intermediaries and investors for their use. The market centers also have their own systems which make the information available to those who will pay for it.

#### **B. Market Selection System Expense**

Dealers and brokers which are members of a market center must have some method of sending their own orders or their customers' orders to another market center of which they are not members if prices on that center are superior, or if they wish to lay off a portion of their position. To do this, market centers have created a "wholesale" order delivery system, ITS. As noted above, that system does not execute orders. It simply delivers them from one market center to another for possible execution at the other center.

Order gatherers other than market centers, such as broker dealers, use separate order delivery systems. Since they are responsible for providing their clients with "best execution" under SEC regulations<sup>39</sup>, they must subscribe to or build order routing systems that send their orders to the market center they believe has the best price at that moment. However, as we note below<sup>40</sup>, because the best price may not have been entered into the information or delivery systems, it is impossible to know where the best price may be at a moment in time.

While some broker-dealers make a conscientious effort to route their orders to the market center having the highest bid or lowest offer, many others do what is rational for their own self interest: They send their orders to the market center which provides *them*--not their *customers*--the best deal. Those deals have many facets, almost none of which improves execution prices for investors.

There are many reasons orders are sent to a market center. Competition for order flow by market centers is fierce -- and getting fiercer -- but in the long run, that competition *costs*, rather than saves money for investors. It costs investors money because investors pay not only for the operation of all market centers, but also for all the costs of linking them together and all the costs of the systems which route orders among market centers, whatever the reason for doing so may be.

Some market centers capture order flow by the practical expedient of enacting rules which will restrict their members' order routing options. The best-known such rule is the NYSE Rule 390, known by them as the "Market Responsibility Rule." This rule, which has been under strenuous and repetitive attack as anti-competitive since the 1960s by the Anti-Trust Division of the Department of Justice, members of Congress, SEC Commissioners and many academicians, still remains the cornerstone of the Exchange's ability to dominate the secondary market in the securities listed there.

In addition, the NYSE attracts order flow by displaying only a portion of the bids and offers sent in by their members. A recent analysis by Professors McInish and Wood of Memphis State has shown that there is a large body of what they call "hidden" orders which are used as bait to attract order flow to its floor<sup>41</sup>. Their study, made using the NYSE's own data, shows that more than half of the time for stocks with more than a minimal price differential in the quotation, the displayed quotations were wider those actually entered on the exchange.

The NYSE also employs small armies of lobbyists to convince the Congress and government regulators to make law and policies which will preserve the position of advantage

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<sup>39</sup> Exchange Act Release No. 11,942, 41 Fed. Reg. 4507 (1976) [hereinafter "December Release"].

<sup>40</sup> See infra note 41.

<sup>41</sup> McInish, Thomas H. and Wood, Robert A., Hidden Limit Orders on the NYSE (August 1992) (Unpublished manuscript, Fogelman College of Business and Economics, Memphis State University.)



it holds. Stock exchanges have specialists assigned to act as sole market makers in a set of assigned securities. Recently, independent specialist firms were sold or merged with large broker/dealers which have a broad business, including a myriad of retail offices. These combinations were fostered by the Commission itself, since after the 1987 crash one of the regulators' solutions was to insist on more capital for specialist firms to provide a greater cushion against market collapses<sup>42</sup>.

The result has been that some retail brokerage firms have bought specialist firms, including specialist firms on regional exchanges. Needless to say, it is in their self-interest to send orders to buy and sell the securities in which they specialize to themselves. This results in great-than-normal order flow at some regionals in some stocks. Diffusing order flow in this manner accentuates market fragmentation, and is not necessarily in the best interests of investors.

Still other market centers attract order flow by paying the broker/dealers cash for each share of stock sent to them. This "payment for order flow" has been the subject of much discussion and debate<sup>43</sup>. The main argument against paying cash for order flow seems to be that if there is any money paid, it should be paid to the customer whose order it is, rather than to the broker/dealer who directed the order to a particular market center. If this argument has merit, then why would not any benefits which accrue to broker/dealers by sending orders to an exchange on which they are the specialist in that stock be paid to the investors also?

Payment for order flow is possible for only two reasons: First, the minimum price increment in most market centers is customarily 12 1/2 cents per share. If a market center operator can pay up to two cents per share for each order, both buy and sell, it means that the market center operator (usually a broker/dealer) can make a profit on a turnover of as little as eight and one-half cents per share, i.e., twelve and one-half cents minus two cents paid to each broker/dealer. The solution is simple: Reduce the minimum price differential from 12 1/2 cents to one cent. Spreads will immediately narrow to their economic level from their current artificially-high level.

The second reason payment for order flow exists is that market centers must compete for order flow. They hold out attractions which benefit their customers. However, their customers are not investors, but broker/dealers whose interest are not always congruent with those of the investors they serve. Centralization of order flow would stop this practice in its tracks.

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<sup>42</sup> Division of Market Regulation, SEC, The October 1987 Market Break 4-66, to 4-67 (1988).

<sup>43</sup> Payment for Order Flow, Exchange Act of 1934 Release No. 34-33026, 58 Fed. Reg. 52-934 (1993).

### C. Lobbying and Advertising Expense

In a properly-structured market, marketing expenses will be kept in line through competitive forces alone. Lobbying expenses will be reduced because many of the regulations that keep the market fragmented will no longer exist, and thus will not need protection.

### D. Regulatory Expense and Equal Regulation of Market Centers

We believe it is important that broker/dealers be able to select the market centers they wish to use strictly on the basis of price, since market center operation is a commercial, not a regulatory business.

Whether market centers should also be self-regulators has been the subject of some prior discussion<sup>44</sup>. Some market centers do perform both functions today. For example, the NYSE employs more than 400 people who are involved in self-regulation, from compliance with capital rules to overseeing the trading floor.

Some argue that market center operators who do not perform self-regulatory functions have a competitive advantage over those who bear that responsibility<sup>45</sup>. The Commission can attempt to make certain that competing market centers carry equivalent self-regulatory loads in two ways: force market centers which are not self-regulators to become self-regulators, or separate self-regulation from market center operation. The NYSE has suggested the first approach; we recommend the second. This second approach would place all market center operators on an equal footing, and would enable the Commission and the broker/dealer community to observe the comparative advantages of each market center operator.

It was merely an accident of history which gave market centers self-regulatory authority. Clearly market centers must have rules under which their trading systems operate. When they also operate trade settlement systems as well, they need rules under which their users will pay for and deliver the securities traded.

Today, however, settlement and custody systems are physically, legally and operationally separated from trading systems. The National Securities Clearing Corporation combined the previous functions of the New York and American Stock Clearing Corporations, as well as the National Clearing Corporation operated by the NASD.

Similarly, it would be entirely possible and desirable for the stock exchanges and the NASD to separate their self-regulatory functions from their market center operation functions, and to create a single industry self-regulatory organization which would be removed from providing commercial services.

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<sup>44</sup> See Junius W. Peake, *The National Market System*, **FIN. ANALYSTS J.**, July-Aug. 1978, at 2; Morris Mendelson and Junius W. Peake, *Equity Markets in Economies in Transition*, 17 **J. OF BANKING & FIN.** 913 (1993).

<sup>45</sup> See New York Stock Exchange comment letter on *Market 2000*.

Today, market center operators who also self-regulate have an important real hold over the members they supervise. If one of their members objects to a particular market center practice or rule which relates to the operation of the trading process, that member may well be inhibited from criticizing the market center operator openly because of a fear--whether real or imagined--that such action may provoke regulatory or operational retribution.

In sum, it still costs a great deal for investors to execute trades, far more than it should with properly used modern technology. Before making structural changes to the equity markets, the Commission should perform a cost-benefit analysis of the existing market structure and compare it with the costs and benefits of other systems proposed. Perhaps then the SEC will finally "facilitate the development of a national market system" as it was ordered to do by Congress in 1975.

### **Market Linkages**

Certainly no existing market center is likely to offer to go out of business voluntarily. Every stock exchange has a chief executive and administrative staff. They also have members with vested interests in maintaining their exchange. Every private company which operates a market center, hoping to compete for its share of the nation's order flow, has made a significant investment it does not wish to lose.

The Commission have based their national market system strategy on the assumption that these centers can be linked together, thus creating a national market system in which competition among centers would force the centers to use state-of-the-art technology. They appear to believe that taking different trading arenas which trade the same securities at the same time and connecting the information derived at each market center will somehow integrate the market. They are wrong.

Instead of creating a national market system, the Commission permitted the existing market centers to develop a pseudo-national market system by constructing three separate, inefficient systems (ITS, CQS and CTA) which are supposed to integrate the market centers into one national market system.

There is only one way in which a true national market system can be created: Require price/time priority for all national market system stocks, prohibit multiple listing, and require short term listing agreements. These requirements would permit the private sector to develop its own means of complying with these requirement while permitting effective competition for listing and provide the sought after incentive for constantly improving the markets. Such an approach also provides for the total confluence of order flows.

#### **A. The Intermarket Trading System**

ITS is claimed by many--including the Commission--to be the keystone of the Commission's national market system. However it is not used to enable traders who enter their orders on one market center to meet those orders entered on another market center, as the name of the system implies. ITS is primarily used by dealers to avoid trade throughs and to match prices as demonstrated in the following example.

Assume an investor enters a bid for 500 shares of stock "XYZ" at \$20 per share. The investor's bid is the highest bid in Market Center A. In Market Center "B," the specialist is bidding \$19 7/8 for XYZ. An order from another investor to sell 500 shares of XYZ at \$20 arrives in Market Center "B." The specialist on Market Center "B," seeing the \$20 bid on Market Center "A," raises his bid to match the first investor's price, and buys the seller's stock at \$20 a share.

Unfortunately, price matching is not a satisfactory solution to the structural problem. Each trade has two parties; both have needs which must be met. Price matching allows a market maker to insert himself between two investors, or between an investor and another market maker whose quote was entered first at a price in the marketplace. Those deprived of an execution because of price-matching are the victims of a form of front-running, since the intruding market maker inserts a bid or offer ahead of another market participant to gain an execution advantage, a practice which has been castigated by the Congress, federal regulators and market center operators alike<sup>46</sup>. ITS is, and always has been, technologically obsolete. It is merely a message transmittal system--a "glass teletype"--which requires human intervention to respond, even when sufficient information has been delivered to create trades.

#### B. The Consolidated Quotations System (CQS)

CQS is supposed to make the best quotations on all market centers (highest bid and lowest offer) available publicly to all market participants so investors and other traders can find the best prices. The system has long been used by a number of market centers as the basis for pricing trades on orders sent to them.

Unfortunately, as noted above<sup>47</sup> at least one market center, the NYSE, does not always make the best bids and/or offers available to CQS. In addition, many of the market centers show quotations only of their own market makers rather than the bids and offers of public customers. Frequently a customer's bid does not reach a like-priced customer's offer entered on another market center because a market maker on a different market center would trade ahead by matching the customer's offer. This practice is pervasive in today's systems. As with others, it flies in the face of the congressional mandate to build a national market system in which investors' orders have an opportunity to meet without the unnecessary intervention of a dealer<sup>48</sup>.

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<sup>46</sup> Exchange Act of 1934 § 9(a)(1), 15 U.S.C. § 78i (1988).

<sup>47</sup> See McInish & Wood, *supra* note 41.

<sup>48</sup> Securities Exchange Act of 1934 § 11A(a)(1)(c)(v), 15 U.S.C. § 78k-1(a)(1)(C)(v) (1988).

### C. The Consolidated Tape System (CTS)

The CTS prints a record of almost all transactions from all market centers during trading hours. However, certain after-hours transactions on the New York Stocks Exchange and elsewhere are not reported at all, and often trades are reported out of time sequence. Also trades made at price increments of less than 12 1/2 cents are rounded up to the nearest eighth of a dollar.

#### ISSUES: The Alternative

##### The electronic, multi-market market maker auction market.

The authors and our colleague, R.T. Williams, Jr. proposed the original design of this system ("the PMW System") in 1976 during testimony before the congressionally-mandated National Market Advisory Board. The system creates a single electronic auction trading arena *per issue*<sup>49</sup>. This approach encourages competitive market making and allows like-priced customer orders to be executed without dealer intervention, specified as a desirable objective by Congress in the 1975 legislation. Instead of having a monopolist market maker, such a system displays, in summary form, the entire supply-demand schedule of each issue to all interested participants wherever they may be located. Examples of this type of market include several variants of Toronto's Computer Assisted Trading System [CATS].<sup>50</sup>

Among the equity markets in the United States only the Cincinnati Stock Exchange uses this type of system, although many leading analysts of market microstructure have argued in favor of such a system, including America's largest retail broker-dealer, Merrill Lynch, whose president testified in favor of such a system at the congressional hearings in 1979, and made a proposal very similar to the PMW System before the National Market Advisory Board in 1976.<sup>51</sup>

In electronic execution systems in which all order flow is centralized, trade reporting, as with quotation dissemination, is a simple by-product of the trading system, since reports of every trade, with time, price and size can be delivered in real-time to counterparties, information vendors and other interested market participants.

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<sup>49</sup> R. Shriver Associates, *The National Book System: An Electronically Assisted Auction Market* (April, 1976).

<sup>50</sup> Jay Schmerkson, *How Computer Assisted Trading is Making the Toronto Stock Exchange Purr*, *Wall St, Computer Rev.* 71-97 (December 1987).

<sup>51</sup> *Id.*

Such an electronic system combines the functions of all three existing systems into a single, integrated system. Instead of having one system to disseminate quotations, another for executions, and a third for trade reporting, all these functions are embedded within a single system. We believe that such a system is cheaper to build, operate and regulate, and provides the greatest amount of meaningful information to investors in a timely manner, and totally eliminates transcription error. It is easier and cheaper to regulate because the computers provide a complete audit trail. It provides the investor most of the supply and demand schedule at all times. Since a price match triggers an execution, all the required information is captured by the computers which relay the messages back to the brokerage offices where the firm's computers relay the information to the relevant accounts and prints all the necessary documents. Since there is no transcription, there can be no transcription error.

### An Analogy

The state of today's equity securities markets in the United States can be compared to the early days of the telephone industry, when separate telephone systems were built for each site. If a subscriber wished to speak with someone on a different system, it was necessary to call an intermediary who subscribed to both systems. The caller would ask the intermediary to place a call to the party on the second system, and the intermediary would then relay the conversation back and forth until it was completed.

Needless to say, this procedure was awkward, inefficient and expensive. Frequently information was lost or misinterpreted because of the required use of an intermediary. The remedy was simple, but politically difficult: Create an interface standard which would allow calls from one system to be switched through to any other system. The various Bell systems developed a *de facto* interface standard, and their economic muscle finally made that standard nationwide. The result is that today a person can reach any other telephone in the world with the press of a few buttons, even though there are competing systems.

### What Went Wrong?

The Commission clearly took the wrong road toward a national market system. Reluctant to dictate to the securities industry the kind of trading mechanism it should employ, and having failed to recognize that a time-price priority rule combined with real competition for listing would force the securities industry to develop a true national market system, the Commission rejected out of hand the use of centralized, electronic auction systems for trading equities. Instead, the Commission have spent eighteen years patching the existing system. The result is a system which require volumes of arcane rules in an endless, but futile attempt to maintain "fairness."

The question of "fairness for whom"? was not clearly confronted. Is it fair if an investor entering an order in an actively-traded listed stock is forced to trade with a specialist because his broker happens to hold the specialist franchise in that stock on a regional exchange, or has a reciprocal order-swapping agreement with the firm which is the specialist?

Instead of asking for the technological and regulatory equivalents of "baling wire and string" to upgrade the U.S. equity market structure, the Commission should step back for a moment and explore what it would take for American ingenuity and competitiveness to build an equity market structure with limited regulations that could become a new world standard, while at the same time meeting all the requirements of the congressional mandates.

The concept of "sunk costs" is familiar to accountants. When a factory becomes obsolete, good business judgment may often conclude that it is better to abandoned the factory and build a new one than to pour money into the modernization of the old factory. While the Commission and its Division of Market Regulation continue to assert that our Nation has the "...largest, most diverse, and most innovative securities markets in the world,"<sup>52</sup> other countries are developing trading systems which are far more modern and automated than ours.

## ISSUES RELATED TO MARKET STRUCTURE

### Monopoly Concerns

In a free enterprise economy, fair and open competition is the best method of assuring the lowest prices and highest quality for goods and services. The Commission's greatest reservation with respect to a centralized trading arena for each issue has been that such a step would create a monopoly for the system's operator. While this is a legitimate concern, it need not be a problem. Competition for listing in a screen-based automated trading system instead of competition for order flow makes it possible to have centralized trading arenas and competitive pressure to keep costs low and state-of-the-art markets.

The bottom line for equity markets is: the Commission should oversee the development of communications standards enabling competitors to build competing systems which are integrated into a single cohesive, efficient system. However, no market center should be allowed to create monopolies in the market making function, as is now the case on the exchanges. If monopolistic market centers are perceived as "evil," why should monopoly market makers be considered "good?"

### Market Transparency

A market is considered "transparent" when key information about transactions made on it, such as the prices currently quoted by prospective buyers and sellers, the quantity of securities traded and the price at which the trades occur are published at the time the transaction is made. Transparency improves the efficiency and fairness of markets. It furnishes investors with timely, accurate information to assist them in making informed investment decisions.

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<sup>52</sup> Supra note 3.

Market transparency would be maximized if executions in the national market system took place on a strictly anonymous<sup>53</sup> basis with price/time priority. The first bid entered at the highest price would be executed first if the security traded at that price. The first offer entered at the lowest price would be executed first if the security traded at that price.

This approach would permit market makers and any others who entered their bids and offers to do so without revealing their identities for all, including their competitors, to see. Investors could also anonymously indicate interest since all bids and offers would be shown only in aggregate form at each price. Negotiations, which could then be conducted in a visual auction trading arena instead of an auditory one, would be multilateral instead of bilateral<sup>54</sup>. The investors or their agents could then deal as equals and actually lead the negotiations rather than being limited to reacting to bids and offers.

The Commission has been committed to increasing market transparency<sup>55</sup>, but there are now some market participants, primarily over-the-counter market makers, who are seeking to reduce present levels of transparency by delaying the reporting of large transactions (trades of more than 100,000 shares) in order to maintain their anonymity. These market makers believe their competitors take advantage of the fact that it is frequently possible to deduce the identity of the dealer who has traded, and as a result, to trade against that market maker's interests. The result, the argument goes, is that market makers will not trade as aggressively if they believe their competitors will derive useful information from immediate trade reporting.

One of the reasons market makers are able to deduce their competitors' identities is that, in contrast with the system we advocate, in the existing trading systems the identity of all market makers is broadcast. On NASDAQ, each market maker is a "mini" market center, publishing its own quotations in the securities in which it makes markets, and handling its own order flow separately.

Market makers prefer to go "one on one" with an investor with an order rather than be just another participant in the trading crowd. The way the present OTC system works, multilateral negotiations are impossible. The investor or the investor's agent, a broker, selects one market maker from the array of market makers quoting the same prices, and calls that market maker on the telephone. At that point, the market maker gains a significant advantage over the investor because the market maker knows that the investor wants to trade and also has specialized knowledge about order flow. If the market maker had one of the best bid prices on the NASDAQ system, but an inferior price on the offer side of the market, the market maker can assume the investor must be a seller, for otherwise the investor would not have called him.

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<sup>53</sup> "Anonymous," in this context, means that the identities of the investors or their agents are not disclosed by the system.

<sup>54</sup> This does not preclude telephone negotiations as long as any resulting trade is crossed on the system with due regard to price and time priority.

<sup>55</sup> Securities Exchange Act of 1934 § 11A(6)(c)(1)(B), 15 U.S.C. § 78k-1 (1988).



Once negotiating with one market maker, the investor cannot concurrently negotiate with any others, even though another may be able to do a better deal for the investor. Many times a particular market maker is called first by a broker because of an informal agreement to do so. That agreement may well be for the two firms to "swap" order flow, giving each other first crack at the business. These arrangements may not always be in the best interests of investors, since "sweetheart" deals by competitors who behave in a friendly fashion can lead to a subtle corruption of the system, even if neither party is conscious of its occurrence.

### Liquidity

In the system we advocate, an investor, by being able to show a bid or offer publicly in the trading arena, could attract potential counterparties, including other investors as well as market makers. This should produce both true price improvement for all investors. The immediacy market makers provide will only be needed when an investor when an investor does not find bids and offers elsewhere.

Liquidity is the *sine quae non* of a market. The more liquid a market, the better it is. Liquidity comes in two forms: macro and micro. Macro-liquidity is the liquidity created by the entire market for a security, especially the liquidity provided by other investors.

Micro-liquidity, on the other hand, may more properly be called "immediacy" (as it is by academia), since it provides liquidity only to the party who pays for it, and not to the market as a whole. When a market maker buys an investor's unwanted position, the market maker then "stands in the shoes" of the investor. An unwanted position held by an investor becomes an unwanted position held by a market maker. In fact the market maker may well be a more eager seller of the position than was the investor. Since the market maker's profits are based on position turnover, it will try to resell the securities as quickly as possible. In addition, the market maker must also be concerned that the investor knows something he does not<sup>56</sup>.

When market makers are involved in every trade, they require much more capital than when they are involved only when they are really needed. A market system designed to permit investors to find each other when potential public counterparties exist would reduce the need for market maker services and lower their capital costs and investors' trading costs. In short, the best way to increase liquidity is to make certain that all orders have an opportunity to meet each other, and to display for the world to see the aggregate size of all the bids and offers in at each price. This results in showing the total supply-demand schedule, instead of merely the best bid and offer made by market makers. It would make the market's true liquidity available to investors and other market participants.

### Off-Exchange Trading Systems

There is nothing sacred about trading on a stock exchange as against trading on a non-exchange market center. If stock exchanges were perceived by their users--members and

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<sup>56</sup> Peake, Where is the Investor's Market? *Investment Mgmt. Rev.*, 30 July-Aug. (1988).

investors--as the best places on which trades should be made, all trading would take place there. However, increasingly that is not the case.

Off-exchange systems developed because the exchanges did not meet the economic needs of their users. Broker-dealers prohibited from becoming market makers on one exchange joined other exchanges which permitted them to perform that function. Other broker-dealers, discovering that there were multiple market centers to which their customers' orders could be sent, make reciprocal deals with their competitors. "I'll send you my order flow in the stocks you trade, if you'll send me your order flow in the stocks you trade." An approach like this didn't necessarily help the clients; it did, however, increase the revenues of the broker-dealers. Still other broker-dealers are paid cash for their orders, a practice discussed in more detail elsewhere in our comments.

Some market centers opened earlier or stayed open later than the exchanges. Others charged smaller fees for their services. None of these comparative advantages did anything to improve the amount of money paid or received by clients for their trades. In fact we would argue that this fragmentation of markets worked to the detriment of investors, since all orders did not have a chance to interact. Some commentators believe that investors' costs have been reduced because lower costs charged by market centers are passed through to investors.

#### Minimum Price Differentials

Because of the way securities have been traded, bargaining has been based on "splitting the difference." Whole dollars became half-dollars. Half dollars became quarter dollars. Quarter dollars were split into eighths. It was easier to do it that way when records were kept on hand held scribbled sheets of paper.

The American currency unit is decimal based. The smallest currency unit used in commerce is one cent, one one-hundredth of a dollar. Brokerage commissions, as the Release has pointed out, have come down substantially since commission rates were unfixed in 1975. In fact some commissions are even lower than one cent per share. It thus seems anachronistic that the minimum price differential used on most market centers is still twelve and a half times that amount.

In today's market structure, market makers have an economic incentive to keep minimum price differentials large enough to deter investors' orders from interacting directly. If the difference between the bid and asked prices could be as little as one cent, market makers would not make money providing immediacy services at that small spread. Thus, they have every incentive to keep spreads large enough for them to be able to offer immediacy services at a profit<sup>57</sup>.

One-eighth of a dollar is too large a minimum price differential. Some market center operators, such as Bernard Madoff, pay submitting brokers up to one cent per share on each

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<sup>57</sup> Gretchen Morengson, Fun and Games on NASDAQ, *Forbes*, Aug. 16, 1993), at 75.

side. This fact provides hard evidence that market makers' spreads can be at least as small as eight and one-half cents and be profitable.

#### Fourth Market Trading

Investors trade among themselves because it is cheaper for them to do so. No investor wants to pay for unnecessary intermediation services. Intermediation services add to transaction costs, and institutional investors compete intensively to bring in higher rates of returns than their competitors. Every cent spent on transaction costs reduces that return.

It should not be surprising, therefore, that there is a "fourth market," one in which investors trade directly with one another. What is important, however, is that these trades be done at prices which provide best execution for both sides: buyer and seller. As long as that is the result, the Commission should not prohibit such trading, although the investors trading in the fourth market should be required to substantiate that they have achieved best execution.

#### International Trading

Much of the present so-called "international" trading of U.S. equities is merely the movement of prearranged trades overseas to avoid anti-competitive rules, such as the NYSE's Rule 390. There is, of course, real overseas trading which takes place when U.S. financial markets are closed or unavailable. To encourage trading in U.S.-domiciled equity securities to take place in U.S. markets, these markets must be readily and cheaply accessible to foreigners. Automated trading arenas accomplish that objective, especially when they are available during normal business hours in all countries. The solution to the flight of stock trading from our shores is for the Commission to enact rules which encourage the development of electronic markets. This would enhance U.S. competitiveness greatly and encourage foreign investors to use American market centers.

#### Market Making

The core player in U.S. equity market systems is the market maker. Most of the debate about market structure revolves around the proper role of the market maker: What persons or organizations should be allowed to become market makers; how should market makers be compensated; what duties and/or obligations should market makers have, if any; what special privileges should market makers receive, if any; and how should market makers interact within the market mechanisms?

It is always useful to define a term so the writer and the reader both have the same frame of reference. In this paper, a "market maker" is defined as any person or firm which, in the regular course of its business, buys and sells securities from the public, attempting to make a profit from the differences between the purchase and sales prices. That definition is not quite the same as the one customarily used in the industry. The traditional definition of

market maker is a broker/dealer ready to buy and sell a particular set of securities during market hours and *obliged to do so*.

Note that the traditional definition limits market making to broker/dealers; we do not make that limitation because we believe that investors, too, provide market making potential and will do so increasingly in the future. The traditional definition also requires that market makers stand ready to make markets in their selected or assigned securities whenever the market is open. We do not believe that requirement is either necessary or desirable.

Market making is an economic function. As long as it serves a useful economic purpose, it will be offered as a service. There are times, however, when market making services are not needed at all, and there are also times when they are desperately needed, but not available at any price. Market makers operate in conjunction with various types of market mechanisms. On most U.S. stock exchanges, particularly on the New York and American stock exchanges, each listed security has been assigned to a market making unit. On these exchanges, these units are called "specialists," since they make markets only in the securities assigned to them. Specialists have both affirmative and negative obligations in trading their securities. When there is an order imbalance, they are obliged to step in and fill the gap -- at least to some reasonable degree. When other members are ready to trade, specialists must avoid intruding into that process as principals, except to the minimum degree needed to keep trading orderly and maintain price continuity<sup>58</sup>.

In the over-the-counter market, market makers have different responsibilities. In the NASDAQ system operated by the National Association of Securities Dealers, market makers are not assigned by anyone; any NASD member with the requisite skills and capital may volunteer to become a market maker in any security. However, once a market maker has volunteered and been allowed to post their bids and offers on NASDAQ, that market maker must maintain "continuous two-sided markets" in that issue, and is subject to rules which require that trading be done at the prices quoted, and that a market maker ceasing trading in a registered issue and may not make a market in that issue for a minimum of 20 days<sup>59</sup>. In non-NASDAQ over-the-counter securities, market makers have no obligations, except to refrain from making fictitious markets, and to deal fairly with the public.

There are a number of financial markets in which there are no formal market makers designated as such. These markets include the Tokyo Stock Exchange, which operates with a special type of exchange member, called a "saitori," whose duties include monitoring the trading in his assigned stocks, and making certain that the flow of orders and prices is as smooth as feasible under whatever market circumstances exist. Market makers, as we have defined them, provide two basic services: Counterparty search and immediacy.

As has been noted earlier, a primary economic function rendered by an organized financial market (like an exchange) is search service: Finding the other side of a trade.<sup>60</sup>

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<sup>58</sup> Rule 104, 2 N.Y.S.E. Guide (CCH) @ ¶ 2104 (1992).

<sup>59</sup> National Association of Securities Dealers, NASD Manual, Schedule D, Part V, § 9, ¶ 1825 (1991).

<sup>60</sup> See supra note 2 and accompanying text (explaining the functions of a financial market).

Some market makers, such as block traders, provide access to the search services of exchanges and other organized markets. They also provide search services when the exchange mechanism needs assistance. After all, if a natural buyer for a sell order appears with an acceptable bid on an exchange, there is no need at all for any services beside access to the market mechanism. That access is what a non-market maker broker or a market maker, when acting in a broker capacity, can offer. Using a broker rather than a market maker to gain access to a centralized search mechanism is cheaper than selling an unwanted position to a market maker who immediately assumes the investor's position, wondering what the investor knows that the market maker does not. An investor about to submit an order does not know whether natural counterparties will be found readily through exchange facilities.<sup>61</sup> Frequently, and especially when the trader is a large institution with a sizable position, there is no way of knowing in advance whether the search services of an exchange system will be sufficient, or whether those of a market maker will be needed, or some combination of the two. As a consequence, such orders will often be sent to a securities firm for execution or an exchange with the understanding that if necessary, the firm will supplement that search for counterparties, and possibly buy the position or part of it for its own account if the search for counterparties is not wholly successful.

Market makers make it their business to know the identities of investors--mostly institutional investors--who may be interested in buying or selling the issues in which they are willing to deal. As a result, when an order arrives from a client which cannot be readily traded through the regular exchange mechanism, the first thing the market maker will do, if given the time, is to canvass those investors and other possible counterparties. The market maker will always prefer to locate a counterparty, since doing so will provide the firm with compensation from both sides of the trade as well as relieve the market maker of the price risk that is incurred when the market maker acquires the position itself.

The second service rendered by market makers is immediacy, which satisfies impatient traders. When an investor wishes to liquidate a position immediately, there may not always be willing counterparties waiting to deal at a mutually-agreeable price. This creates a need for a market maker to assume the unwanted position with its own funds. The market maker buys the position "immediately," hence the name for the service.

When immediacy services are required, they may be provided in a number of different ways, depending on the size of the order, the nature of the security being traded, and the amount of the perceived risk to the market maker. In normal cases a market maker buys all or part of a client's position or sells a new position to him, hoping to trade out of the position at a profit. Having taken on risk, the market maker becomes a seller of the position, and is usually even more aggressive than was the client. Market makers seek buyers for their positions in order to make another (hopefully profitable) trade.

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<sup>61</sup> In the example cited, we refer to a large order; small orders can almost always be accommodated by normal exchange mechanisms, especially in active securities.

### Payment for Order Flow and Minimum Price Differentials

Non-exchange member broker/dealers can also trade listed stocks over-the-counter. One of the most successful of these firms is Bernard L. Madoff Investment Securities. Madoff has made excellent use the market's structure for trading listed securities, and offers his clients--other brokerage firms, for the most part--a guaranteed electronic execution of up to 5,000 shares of approximately 400 of the largest issues traded. Execution will take place at the best bid or offer displayed through the ITS system, and in some cases, between those prices.

Recently the Madoff firm, which is managed by two brothers, Bernard and Peter Madoff, took the very original business tactic of offering some of their clients a "rebate" of one or two cents per share for orders executed in their system. This offer was made to attract additional order flow. This move caused some consternation at the managements of certain exchanges, since their market makers were paid, not paying, for orders.

An ethical issue was immediately raised: Since the orders that were sent to Madoff by its client firms belonged, for the most part, to investors, shouldn't any rebates go to the investors, rather than to their brokerage firms? As of this writing, this issue has not yet been resolved. If the past is indeed prologue, the SEC will most probably rule that the rebate does, in fact, belong to the investor whose order it was, rather than to Madoff. What they should do, however, is a great deal simpler, and would be far more beneficial to the investing public.

The SEC should prohibit market centers from establishing minimum price differentials. If the SEC were to do so, the spread would decrease for many securities. Each stock would then have a spread to which it was entitled by the forces of competition, rather than by exchange custom or SEC fiat.

Most of the stocks which Madoff trades are generally quoted in eighths. This term means that the bid-asked spread is twelve and one-half cents per share, the customary minimum spread allowed on most stock exchanges for stocks trading at two dollars or more.

Madoff is trading for something less than eight and one-half cents per share and making a profit. The fact that the firm can trade listed stocks over-the-counter at the minimum spread and rebate one or two cents, clearly signifies that the minimum spread permitted is too large. If the SEC instead of prohibiting minimum price differentials, forces the firms that trade through Madoff to surrender their rebates to the investors, it will shelter that excessive minimum spread. If the SEC permits Madoff to continue, hopefully the exchanges will be forced, sooner or later, to abandon eighths in favor of a more reasonable minimum. We have long advocated that if there is to be a minimum spread, it should be one cent, our basic unit of currency<sup>62</sup>.

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<sup>62</sup> See note 27.

With no prescribed minimum, rather than the current twelve and one-half cents, investors could enter their orders at prices which assured that all the market centers of the world kept their spreads at the minimum. There would be no need, or room, for rebates of any kind. A market maker's spread could be narrowed to provide superior service.

Clearly in today's systems, Madoff needs no special incentives to make markets in listed securities. Madoff has no obligations to make markets; but he does so voluntarily. The firm uses the cutting edge of technology to support their traders and keep costs to the minimum. Why, then, should today's market systems require obligations and special privileges?

The obligations of specialists and other market makers should be eliminated because they cost investors a great deal of money. As Professor Harris notes:

[C]onsider what happens if exchanges try to compel dealers to offer liquidity [make markets] that they would not otherwise be willing to offer. The liquidity that dealers are normally willing to offer depends on the expected profits and risks that they associate with their trading. When their expected profits are high and their perceived risks are low, dealers will readily offer liquidity. If either condition is unfavorable, dealers will offer little or no liquidity. Efforts to compel dealers to offer more liquidity must somehow increase their expected profits or lower their perceived risk. Otherwise dealers will simply quit...Efforts to compel dealers to offer liquidity face a serious regulatory problem and a serious practical problem. The regulatory problem is that it is nearly impossible to connect the value of the additional liquidity offered to the value of the franchise granted... The practical problem of compelling dealers to offer liquidity is that the value of a unique franchise on one exchange declines when trades can take place on other exchanges<sup>63</sup>.

In short, the cost of a service a firm is compelled to offer is greater than the cost would be if offered voluntarily. Those costs--as do all costs--fall on the backs of investors, since investors pay for the entire cost of operating all financial markets.

#### Anonymity

The costs and benefits of having anonymity of bids and offers in a market system is seldom discussed. Under all systems, financial or otherwise, there must be tradeoffs. This is true in market making. No single market maker can service the entire customer

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<sup>63</sup> Lawrence E. Harris, Liquidity, Trading Rules and Electronic Trading Systems, (July 1990) (University of Southern California, Department of Finance and Business Economics Working Paper #90-21).



universe<sup>64</sup>. No single market maker can operate in a closed universe within which the market maker alone sets prices. What alternatives remain? Systems exist which disclose some or all of the market makers' quotes to other market makers. This type of trading system has a problem, one which has been the cause of some concern in London's SEAQ system. There, some dealers (unofficial market makers, some would say) take advantage of registered market makers, who are required by the system to show the prices at which they are willing to trade.<sup>65</sup>

Another approach--one used by a number of debt and foreign exchanges and some bond markets--is to satisfy the demand for anonymity by using the services of one or more intermediaries, known as inter-dealer brokers, who, for a fee, provide trading services to the market maker community. For some reason this technique has never been successfully applied to equities markets, perhaps because of costs, or because it makes trading more cumbersome. Whatever the reason, in the US equities markets, both exchange and over-the-counter, there is little doubt as to the identity of professional bidders and offerors. On exchange floors, specialists see the identities of almost all bidders and offerors; in the over-the-counter markets, such as NASDAQ, competing dealers' quotations are posted for all other market makers to see.

Anonymity, however, has value; people pay for it. The best and least costly way to assure anonymity, while at the same time guaranteeing that every market maker is exposed to all declared bids and offers, is to use a screen-based automated execution system. Under such a system, all entered bids and offers would be queued by time of arrival within price, and the sum total of all bids and offers at each price would be displayed. The first bid at the highest price would have preference for execution at that price; likewise, the first offer entered at the lowest price would have similar rights. All market participants could see the "book" of unexecuted bids and offers. However, no one except system officials would have access to the identities of those who entered them.

The economic benefits to a market maker of such a system should outweigh any drawbacks. At all times each market maker would know what his own orders were, their location within the order queue. Each trade would show price, time and volume, and the aggregated size of all declared bids and offers at each price.

As a result, each market maker and every investor would be assured that his bids and offers would be exposed to all buying or selling interest every time an order was entered, thus

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<sup>64</sup> For example, the NYSE specialist is a monopolist who operates in a limited world. There are over-the-counter market makers, specialists on other exchanges, institution to institutional crossing networks. The last thing a market maker would like is to reveal his actions to competitors.

<sup>65</sup> SEAQ, like NASDAQ, is not an automated execution system. Rather, it is an electronic billboard, on which registered market makers alone are allowed to enter bids and offers in their selected securities. Neither bids nor offers entered by any other broker or dealer, or by any customer, are allowed to be placed on these billboards.

maximizing liquidity. In addition, a market maker could still attract order flow from customers on the basis of its expertise and service. The would solicit bids or offers from investors, offering to try to improve the price or to act as broker, executing orders through the system against bids and offers on the electronic book. In addition, a market maker could still service large trades by finding counterparties for all or most of the trade and absorbing the remaining order before executing through the system. Otherwise the firm could simply offer immediacy to its clients by buying or selling at a better price when that seemed advantageous. However, no market maker or investor should be prohibited from disclosing their current or past buying or selling interests via any commercial means, such as Reuters, Dow Jones, etc..

CLOSE:	50.25	* ABC *	HIGH:	50.30
OPEN:	50.20	LAST: 48.95	LOW:	49.80
BIDS	PRICE		OFFERS	
	50.15		5,000	
	50.10		1,000	
	50.05		10,400	
	50.00		600	
	49.95			
	49.90 --		1,500	
**	49.85	**		
	49.80			
	49.75			
2,000 --	49.70			
1,400	49.65			
11,000	49.60			
200	49.55			

The screen shows that the market is 49.70 bid for a total of 2,000 shares; 1,500 shares are offered at 49.90; the last sale was 49.85. All bids and offers are aggregated at each price. No identities are disclosed. At each of the prices the bids or offers could be from a single participant or an aggregate of bids or offers from a number of participants<sup>66</sup>.

<sup>66</sup> We have used a price differential of five cents. In an electronic system, trading in this smaller differential, or even in a one cent difference, is a trivial task; it seems archaic to keep the traditional twelve and one-half cent minimum price differential when a commission is a small fraction of the present minimum spread.

Assume a customer wishes to sell 10,000 shares at a price of 49.70 or higher. If the market maker is willing to buy this stock at 49.70, he would first enter the customer's sell order at 49.70 for the 10,000 shares, and immediately thereafter enter a buy order at the same price for his own account for 8,000 shares. The customer's sell order would execute 2,000 shares against the bid at that price; the remaining 8,000 shares would then be "crossed" against the market maker's order<sup>67</sup> unless another participant in the market by chance entered an order which took price and time priority. The result would be that the market maker has provided immediacy for his client. The market maker would continue to have an incentive for soliciting order flow from clients. Once having taken a position, the market maker would know that he is able to access the best possible available bids for that position at all times. Since all bids and offers would be cleared through the system, displacement by superior-priced orders would always be possible.

Some argue that "sunshine trading," the disclosure of the bids and offers with size, will not work, and that an open order book will be an empty one. Professor Grossman has recently written, "[A]nyone giving ... firm bids and offers [in an electronic system] ... is giving the market a free option."<sup>68</sup> He goes on to imply that few people will enter orders into an open order book. We do not agree. He is correct with regard to those systems in which there is no cost associated with being coy. In an electronic execution system with time priority a participant will never get his or her order executed unless that participant (a) enters a bid or offer; (b) hits an existing bid; or (c) accepts an existing offer. Furthermore, in a properly-designed electronic system bids and offers would always be subject to cancellation at any time before execution. They would always disappear if executed. No one could predict when or whether a bid or offer would be canceled or executed. Therefore, since the duration of such options is so short, they cannot possibly have more than a trivial value. The market information of greatest value to the marketplace continues to be actual executions. Executions are real; they cannot be withdrawn; money changes hands.

Grossman also overlooks the fact that market makers enter bids and offers all the time. Investors who wish to execute orders will enter them into a properly designed fully-automated execution system. They may exercise some caution in doing so, but they will enter orders. In an electronic execution system, executions could take place largely as they do now on the NYSE. The broker handling the order could still attempt to find the other side, and when he has enough size to match the order he has been charged with executing, he can cross it in the system. He will be able to see how much he will have to give up to the system because of price and time priority and act accordingly. However, since multilateral negotiation on screen is possible, it is also possible for an institution with a large order to have that order

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<sup>67</sup> Note that the marketplace does not know the identity of the buyer or seller, nor for whom the order was executed, unless either the market maker or client chooses to disclose that information. Anonymity has served a useful purpose, and when the market maker wishes to dispose of his new 8,000 share position, he may do so, assured that he will be able to expose it to all outstanding offers, without having the market know for certain that he is the seller.

<sup>68</sup> Grossman, supra note 27, op. cit. at 56.

entered on the screen on the theory that there exist potential counterparties who will reveal themselves if the opportunity arises.

It is the disclosure of the identity of the buyer or seller which often provides more valuable information than the bid or offer price. This is one reason specialists are able to achieve unusually high rates of return on their capital investments<sup>69</sup>. While it is true that bids and offers provide information to the market, prices alone are not enough. Bids provide more information than do offers. Since an investor may be selling his asset for a variety of reasons unrelated to his perception of the asset's future value<sup>70</sup>, the informational content of an offer can not be very great.

With the proliferation of index strategies in portfolio management, many bids and offers have no informational content about the future value of individual stocks. There is no informational value about a single stock's potential worth if the order for that stock is entered as part of an order to buy the S&P 500 index. Under a properly-designed automated execution system, since no person except the order initiator knows whether a specific order is based on an indexed trade, the informational content of the aggregate of all bids and offers will be of little value to others. Those who wish to minimize informational content can enter "passive" orders to be executed at the opening on a call market basis.

An automated execution system would require that all trade be executed in it, so the system could not be empty if any trading is to be done. To the contrary, there should be many anonymous bids and offers entered for varying periods of time and at different prices. Every bid and offer entered into an automated system would be real and executable until canceled. That fact will make attempts to manipulate prices foolish; the built in audit trail that a computerized system generates enables regulators to detect price manipulation, and thus acts as a major deterrent to fraud.

#### More Efficient, Lower-Cost Operations

The Group of Thirty published a report setting forth nine recommendations for improved clearance and settlement of financial transactions<sup>71</sup>. The report promotes a number of badly needed and long overdue suggestions for improved financial transaction processing. The Group of Thirty avoids commenting directly on automated execution

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<sup>69</sup> In 1987, for example, the average rate of return on NYSE specialists' capital approximated 38%, although that rate of return has diminished recently.

<sup>70</sup> For example, an individual may sell a stock to raise money for taxes, education or vacation. A pension fund may sell stock to provide funds for pensioners or to rebalance a portfolio. However, a buyer is making his decision from an unlimited universe of choices (except when covering a short sale). Buyers and sellers of index funds do not convey the same type of information when they enter an order.

<sup>71</sup> **Clearance and Settlement Systems in the World's Securities Markets**, Group of Thirty, New York and London (March 1989).

systems, but says: "In an ideal world, [trade] comparison would be instantaneous."<sup>72</sup> Instantaneous trade comparison is only possible within an automated execution system. The Group of Thirty made no recommendations about trading systems, but the "ideal world" referred to is doable given today's technology<sup>73</sup>. It is also the best solution. The issue is whether there is sufficient political will to implement automated execution for cash, futures and options markets.

Market makers' volumes are variable; they would like their costs to be variable as well to match their transaction-based revenue streams. Today's financial markets have many fixed costs and are expensive to operate. The Securities Industry Automation Corporation (SIAC), is the technological arm for the New York and American Stock Exchanges, and also provides services to the NSCC, the Composite Tape Association and the Consolidated Quotation System. SIAC spent almost \$160 million (total expenses) in 1987<sup>74</sup>; NSCC's total expenses were more than \$73 million the same year.<sup>75</sup> These sums do not take into account other monies spent by the NYSE, the American Stock Exchange, the regional exchanges, the NASD, the boards of trade (futures exchanges), options exchanges, their clearing corporations, or by their members and member organizations. While the totals are not easily determinable except by regulators, the entire cost of executing and processing financial transactions is many billions of dollars annually.

A fully-automated execution system for financial trading will cost only a small fraction of these numbers. Whether operated by financial information companies, exchanges, vendors, entrepreneurs or some combination, the probability is that charges for these automated execution facilities will be based largely on transactions<sup>76</sup>. Market makers and other market intermediaries will be better able to control their costs and will be less subject to the risks of high fixed costs and variable revenues.

#### More Efficient Use of Margin.

In an automated trading system, keeping track of risk is much simpler than in non-automated systems. In a real-time system, there is also the capability to perform instant cross-margining of positions in cash, options and futures, and in markets of different countries and in different currencies. By contrast, today market makers are required to allocate capital

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<sup>72</sup> Id. at 23.

<sup>73</sup> Indeed, The Association of Swiss Stock Exchanges is planning such a system.

<sup>74</sup> **Annual report of the Securities Industry Automation Corporation, 1987.**

<sup>75</sup> **Annual Report 1987, National Securities Clearing Corporation.** There is some inter-company expense which flows between SIAC and NSCC which has not been eliminated. NSCC is the organization which handles comparison, clearing and settlement functions for the NYSE, the ASE, the NASD and a number of other over-the-counter markets.

<sup>76</sup> Globex bases the bulk of their fees on the number of transactions.

far in excess of that required if all positions across markets, countries and currencies were netted<sup>77</sup>.

### Centralized Order Flow

In the market making world of the 1990s and beyond, investors tell us they would like to see each financial instrument's order flow centralized. In an electronic system, such centralizing is easy. The benefits of such a system would be great. First, with a centralized order flow, each participant would always have access to all bids and offers, not just a subset. Such a system would even permit on-line access to qualified entities operating in foreign countries. This would truly maximize market liquidity.

Secondly, market makers would have flexibility with respect to the securities in which they make markets and when to make markets in those securities. This would enable them to economize greatly in the use of market making capital. Regulators insist upon firms having a designated amount of capital for each security in which they make a market. With the flexibility to cease making a market in a particular stock without penalty, the amount of capital needed to make markets would be significantly diminished.

If all bids and offers were accessible, market makers could insert bids, and/or offers in any security whenever they believed its spread was wide enough for them to profit or when they wished to trade a position for their own account or for a client. They could then make optimal use of market making capital by supplying market making services in any financial instrument for any period of time, and would no longer be saddled with the requirement to make "continuous markets" in certain instruments, whether or not these instruments needed market making participation at the time. Finally, whatever a firm's position in an instrument, under an automated system, a market maker would be assured of access to the maximum amount of liquidity available, since all order flow would be centralized. This too would reduce risk and lower costs.

### Improved Trading Strategies

With an integrated, fully-automated execution system encompassing cash, futures and options markets, the full power of computers can be employed in support of market making and other trading operations. Under such a system, traders will be able to make larger trades using the same amount of capital as at present, since they will be able to measure their total exposure at all times, and in real-time. Today this is not possible; investment and commercial banks must build in capital cushions to accommodate the added risks that imperfect position information requires. With a combination of real-time information, a locked-in trade, cheap

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<sup>77</sup> In futures markets (and on sellers of options), there is no "margin" deposited in the sense used in the securities markets. The monies which are required by futures commissions merchants and brokers are actually good-faith deposits to assure performance of the obligations.

and variable transaction costs, instant execution and a functional integration of markets, the entire business of trading will be revolutionized.

### Payment for Order Flow

The practice of market center operators paying brokers for sending orders in certain securities to their system for execution is another result of market fragmentation, and would be unnecessary in a centralized execution system. It would be unnecessary because in such a system, all order flow in each issue would interact. There is no need for a market center operator to attract order flow from broker-dealers since all market makers would have access to all order flow.

Even under the present market structure, the practice should be irrelevant to the investor, but is not. It should be irrelevant because the payment for order flow is between two intermediaries, both of whom are needed under present circumstances. The costs are embedded somewhere in the trade. Such payments become relevant, however, because when trades in a single issue are dispersed among several market centers, the price discovery mechanisms are not as efficient as they could and should be, thus adding to investors' costs. In addition, since a market maker becomes the counterparty to all trades executed on that trading arena, additional immediacy costs are also added. All stock exchanges, including the NYSE, "pay" for order flow. They take expensive, large-sized advertisements which openly ask readers to direct order flow to their market center. They employ small armies of lobbyists, one of whose primary tasks is to convince the Commission and members of congressional oversight committees that market centers which compete for order flow, especially their own, should be preserved.

### "Best" Execution

"Best execution" has become a buzzword in the industry and at the Commission. It has been bandied about ever since the passage of the Securities Acts Amendments of 1975. What most observers believe "best execution" means--including every single institutional and individual customer we have ever met--is that at the moment of the execution the net price paid is the lowest or the net price received is the highest available. Such executions can be assured only in a system which guarantees that best bid always has the opportunity to meet best offer, and makes optimum use of the latest labor saving automation.

In today's markets what actually constitutes a best execution is highly ambiguous. As we have noted, over 50% of all quotations are not actually the best prices<sup>78</sup>. This enables the NYSE to claim that they can often provide "price improvement" by trading "between the quotes," and thus provide a better execution than the order would have achieved if it was sent to another market center trading the same issue. This assertion, made in official submissions, press releases, print and electronic advertising, is, at best, disingenuous. What the Exchange really means is that they can often trade between the *disclosed* quotes. In fact, this can only be done because, as we have noted, there are often bids and offers which the

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<sup>78</sup> See supra note 42.

Exchange has failed to disclose on the CQS. When this happens, only floor members who happen to be in that security's trading crowd at the moment can ever be aware of these improved prices. The updated quotation is not made available to the entire marketplace, and "price improvement" does not actually occur. The Commission, acting on the belief that the best execution can be achieved on the basis of the information available on the Consolidated Quotation System, has actually been instrumental in depriving investors, whose orders are executed at the best bid or offer displayed in the system, of best execution.

In addition, if a dealer on one market merely has to match the best bid or offer on another market center to make a trade, many investors, whose bids or offers have been a component of the best bid or offer, are deprived of an execution by the matching dealer, who is actually "front running" an investor's order by placing the dealer's order ahead of the investor's.

### Conclusion

The existing market structure is seriously flawed. These flaws cost American investors billions of unnecessary dollars per year. The flaws include a structure in which market intermediaries have far too much say in the way the markets are organized, run and regulated. These intermediaries--retail brokers, dealers, specialists, two dollar brokers and market center operators--have organized the market system in such a manner that their services are required at nearly every step of a trade.

No investor wants to pay more for trading than is absolutely necessary. The existing trading systems are excessively costly, since they are inefficient, slow and--most importantly--do not meet either the present or future needs of investors. After all, isn't the purpose of financial markets to serve investors?

The equity market should be structured so that market centers compete for listings, not for order flow. Once that is the case, almost every problem enumerated in the Market 2000 Release will disappear or be greatly alleviated. To be sure, regulations must be made limiting the ability of any market center to monopolize listings. Modern technology, with its ability to interconnect traders using high speed telecommunications lines across continents and oceans, can now bring the trading arena itself into the offices and homes of the world. The demand for intermediation services under those conditions will be reduced so long as the system itself is fair and does not unduly favor any market segment.

With an automated execution system, market making will enter a new era, and market liquidity will be maximized. This will happen because investors as well as professional intermediaries--market makers--will be able to add their financial resources to the liquidity pool and will supply immediacy to the markets. Already some large institutional investors are becoming *de facto* market makers. Under a fully-automated execution system that trend will accelerate. Because the presence of investors as market makers will add immensely to market liquidity, the risk for the professional market makers will be reduced.

Reduced risk should narrow spreads and increase market depth. Greater depth implies less market volatility. Lower volatility should attract more investors to the market. The



existence of more investors suggests more business and profits for market makers and brokers.

That, at least, is how an automated execution system of the sort recommended here should work. The components needed are: the automation of execution systems for cash, futures and options markets into a integrated whole; competition for listing; anonymity of participants within the system; a best price/first-come, first served rule (price-time priority); centralized order flow; regulations and systems which permit optimizing of market makers' capital use by harmonizing and shortening the settlement periods for all financial instruments and creating the capability of netting offsetting positions for margin purposes; the enabling of improved trading strategies; and elimination of the present uptick rule. This combination of innovations will restore America's financial markets to their position of world leadership. Should we fail to bring our markets up-to-date, we may fall to a second-rate power in global financial markets. The Commission's responsibilities are great, and time is short.

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