

## Responding to Chairman Levitt's Call

### A Plan for Achieving a True National Market System

#### 1. INTRODUCTION

In recent years, the US equity market has been transformed. Among other things, average daily trading volume for equity securities is at unprecedented levels, a greater number and variety of participants are accessing the markets, innovations in trading strategies and techniques have led to a demand for 24-hour trading, the instantaneous execution of orders and lower transaction costs; and advances in technology and communications media have spurred the development of numerous alternative trading opportunities for electronic trading systems and provided participants with enhanced real-time price data and information about securities and their issuers.

These developments have not gone unnoticed, For example, the board of the National Association of Securities Dealers, Inc. (the "NASD") recently approved a plan to spin-off The Nasdaq Stock Market, Inc. (" Nasdaq"), which many view as a step that is necessary in order for Nasdaq to compete with other trading systems, such as electronic communications networks (" ECNs") and the New York Stock Exchange, Inc. (the "NYSE"), and voted to link to the Primex Auction System, which provides an alternative electronic trading vehicle for NYSE as well as Nasdaq securities. (I) The NYSE also recently announced its own plan to demutualize and has proposed initiatives to . enhance [its] position as the center of global business." (2) Among other things the NYSE has announced proposals to create an Internet-based (electronic order book to provide member-sponsored direct execution of orders of 1,000 shares or less, to extend trading hours, and to establish a new product that will provide a "virtual" depiction of the NYSE trading floor hours permitting customers of member firms to watch as orders are executed. (3) In addition, the securities industry, galvanized by pressure from foreign competition and a desire to reduce spreads is moving to decimalization in July 2000.( 4 )

Not all of the results wrought by these developments, however, have been positive, and today's marketplace has several significant flaws: (1) greater fragmentation of the markets, which will not only continue to worsen; (2) disparate access by market participants; and (3) increasing competition from foreign markets. In addition, the current intermarket linkage, the Intermarket Trading System (" ITS"), is inefficient and obsolete( 5 ) Accordingly. Chairman Levitt has called on leaders of the securities markets to take the lead in addressing problems in the marketplace, particularly the problem of an ineffective linkage, and has urged market participants to work together to "realize the vision for a true national market system."( 6 )

Because ITS already provides an inter-market linkage, albeit flawed, we believe that the most expedient means of addressing the above problems is to build on the existing ITS framework, As this paper discusses, the modified ITS, or Super National Market System (" Super-NMS") would be characterized by: (I) direct access to the Super-NMS for all qualified market participants; (ii) fair and representative governance of the linkage; (iii) modem technology coupled with adequate capacity; (iv) efficient execution of orders; and, ultimately, (v) automatic price/ time priority,

Following the executive summary below, Section 3 of this paper discusses the need for an improved intermarket linkage, or Supers-NMS, and suggests specific near-term means for improving the existing

linkage. Section 4 discusses the need for automatic price/ time priority. Finally, Section 5 analyzes how these reforms can be implemented.

## 2. EXECUTIVE SUMMARY

### 2.1 Shortcomings of the Current System

#### 2.1.1 Fragmentation

U. S. equity markets are becoming increasingly fragmented. Fragmentation occurs when investor order flow is directed to different markets that are not connected (or are ineffectively connected). (7) Today, the increased proliferation of electronic communication networks ("ECNs") has caused greater fragmentation, particularly in the Nasdaq market where there are no trade-through rules to assure that investors receive the prevailing best bid or offer in the marketplace. (8) ECNs contribute to fragmentation in the Nasdaq market by dramatically expanding venues of trading, complicating price discovery. (9)

Fragmentation problems also exist in the trading of exchange-listed stock, and will likely increase as recent developments, e. g. the adoption of Regulation ATS(10) and the elimination of Rule 390 to include non-19c-3 securities in the ITS/ Computer Assisted Execution System ("CAES") linkage (11), enable ECNs to register as exchanges and enable ECNs and over-the-counter ('OTC') market makers to trade in more exchange-listed securities. Fragmentation currently exists in the trading of exchange-listed stock because the ITS linkage does not provide incentives to maximize order interaction by competing for order flow across participants' market centers. (12)

Because Regulation ATS facilitates the process for ECNs to register as exchanges, it will exacerbate market fragmentation by multiplying the number of market centers trading exchange listed securities. Regulation ATS also may incentivize the creation of additional ECNs, which can register as exchanges. As the Securities and Exchange Commission (the "SEC" or "Commission") noted in its release adopting Regulation ATS, exchange registration provides attractive benefits for ECNs. For example, registered exchanges enjoy greater autonomy than broker-dealers that are self-regulatory organizations("SRO") members because trading systems that register as exchanges are not subject to oversight by competing national securities exchanges or associations.(13) Also, systems that register as exchanges benefit from the prestige and investor confidence associated with the status that registered exchanges enjoy.

With the elimination of Rule 390, more exchange-listed securities will be traded in more markets (through the ITS/ CAES linkage and on newly registered ECN exchanges), resulting in additional dispersal of orders. Moreover, as ECNs as well as Nasdaq, through its Primex linkage, expand to provide alternative venues for trading exchange-listed securities, the increased dispersion of order flow for these securities will contribute to further fragmentation of the market. (14)

#### 2.1.2 Limited Access to the Market Linkage

Access to the existing intermarket linkage for exchange-traded securities ITS, is unduly restrictive. Currently, only nine market centers participate in ITS: American Stock Exchange LLC ("AMEX") Boston Stock Exchange, Inc. ("BSE"), Chicago Board Options Exchange, Inc. Chicago Stock Exchange,

Inc. (" CHX"), Cincinnati Stock Exchange (" CSE"), NASD, NYSE, Pacific Exchange, Inc. (" PCX") and Philadelphia Stock Exchange, Inc. (" PHIX").

To date, ENS have been denied entry to ITS, (15 ) even though they have demonstrated the ability to handle a significant share of Nasdaq trading, The failure to include ECNs in ITS impairs fair competition in the marketplace by excluding potential market entrants in exchange-listed trading. ( 16 ) While Regulation ATS will enable many newly-minted exchanges to attempt to obtain access to ITS, it is not inevitable that they will obtain such access, First, the new exchanges will not have immediate access because, as past practices demonstrate, the process for achieving access to ITS likely will be protracted as a result of the unanimous vote requirement for amending the ITS plan and the historical reluctance of ITS Participants to embrace new participants. (17) Second, ECNs that do not register as exchanges still will not have access to ITS.

### 2.1.3 Foreign Competition

Foreign markets are providing increasingly attractive investment and trading alternatives to the U. S. markets. (18 ) Accordingly U S. markets are losing business to foreign markets, particularly UK markets, and will lose more business [in the future unless US. markers become more competitive in terms of cost and efficiency. Today, market participants are more likely to trade overseas markets than ever before because many foreign markets are developing at a rate that makes it easier to transact business abroad. In addition, foreign economies are developing strong capital bases and systems of regulation that rival the United States in terms of providing transparency and price competition. (19 ) In order to maintain investor confidence and preserve market share, the Commission must reform the existing intermarket linkage. Otherwise, capital Will migrate overseas where foreign markets offer increasingly attractive avenues for investing.

### 2.1.4 The Obsolescence of the Current Intermarket Linkage

One of the most glaring problems with the current intermarket linkage is technology: In his September 1999 speech at Columbia Law School, Chairman Levitt criticized the ITS Plan as "archaic," and called on the securities industry to implement much-needed reforms.( 20 )

Certain components of the ITS hardware date back to the 1970's, (21 ) and are ill-suited to the current needs of the national market system or "NMS." The technology currently in place suffers from an inefficient mesh of manual and automated subsystems within ITS. (22 ) The resulting system inefficiency creates serious capacity limitations that lead to untimely execution and delays in obtaining access to ITS. (23 ) As one market participant remarked, "[t]he U. S. is being eclipsed by more technology advanced systems in foreign markets."( 24 ) For the U. S. to remain the premier financial market in the world, the current intermarket linkage hardware must be enhanced to improve its efficiency, flexibility and capacity. Otherwise, our markets will suffer as they become outpaced by technological needs.

## 2.2 Creating a True National Market System

In response to Chairman Levitt's call to action, certain reforms art necessary to address the flaws in the current system and to achieve a true national market system:  
greater access by market participants to a linked marketplace, or Super-NMS;

- a representation in the governance of the Super-NMS by qualified market participants;
- technological improvements to the framework of the existing intermarket linkage;
- the adoption of an automatic price/ time priority rule; and
- a reduction in regulatory burdens by eliminating or minimizing the overlapping rules and procedures of multiple SROs.

As explained in subsequent sections of this paper, these proposals are consistent with goals of the national market system articulated by Congress in 1975, and by Chairman Levitt in his September 1999 speech at Columbia, (25 ) namely. to promote price discovery, best execution, liquidity and competition.

### 2.2.1 All Market Participants Meeting Objective Standards Should Have Direct Access to an Intermarket Linkage

The national market System needs to encompass all objectively qualified market participants, including eligible ECNs, ECN participation in the intermarket linkage should be mandatory, provided that objective standards are met relating to technology capacity.

### 2.2.2 Governance of the Super-NMS Should Reflect the Diverse Constituencies in the Marketplace

To ensure fair and consistent regulation, governance of the Super-NMS must provide representation reflective of the wide range of market participants. Otherwise, the current flawed linkages will be perpetuated with their inherent conflicts of interest, particularly as the NASD and NYSE demutualize. (26 ) The linkage should be governed by an independent industry body in the form of a corporation or other legal entity, which would allow it to take binding actions. The governance of the linkage should not be pursuant to a plan, which, at least in terms of the current ITS, generally requires ratification of any action by each ITS Participant's board of directors or operating committee prior to taking such action. In addition to registered exchanges and the NASD, other members of the securities industry should be represented in the governance of this future system, including ECNs, broker-dealers, and public members.

Ultimately, investors will benefit from a more democratic form of governance. This is because broad representation will promote innovations in customer service and market quality. The inability of the current ITS Participants to agree to admit new participants or permit innovations illustrates the drawbacks of limited participation in governance. (27) The governance structure of the Super-NMS must adequately represent a broad constituency of industry participants, so that the parochial interests of the NASD and exchanges will not stymie future innovation by their competitors.

### 2.2.3 A Strong, Fast and Efficient Intermarket Linkage is Needed

Chairman Levitt has called for "new approaches that use technology to strengthen the overall market."(28) Technology can and should be used to link the diverse market participants that exist and to promote even more vigorous and efficient market competition using price/ time priority, automatic execution principles. In establishing this technological linkage, the operator of the linkage (i.e., whoever is responsible for the maintenance and operation of the linkage) needs, to ensure that the linkage infrastructure is updated on an on-going basis to reflect the most up-to-date technological developments.

## 2.2.4 Automatic Price/ Time Priority

To achieve market linkages that ensure optimal market competition and efficiency, we propose that the SEC adopt an automatic execution price/ time priority rule applicable to all market centers, subject to certain exceptions discussed below. As explained in detail in Section 41 automatic price/ time priority would accomplish maximal order interaction, while redressing the problems of dispersal of order flow. This would spur more vigorous price competition. Furthermore, automatic price/ time priority would rectify trading problems that exist under current linkages, such as weakness in the commitment to trade feature of ITS (e. g., problems concerning cancellations and trading expirations).

## 2.2.5 Reducing Regulatory Burdens

Finally, to realize a truly efficient market system, we propose that the SEC maximize regulatory efficiency by eliminating redundant and inconsistent SRO rules and procedures. Currently, broker-dealers that are members of multiple SROs must comply with often overlapping and conflicting rules and requirements. Consequently, they can be subjected to duplicative examinations, inspections and audits. Also, even though the rules of the SROS may be similar, subtle differences exist, which raise the potential of inconsistent regulation and uncertainty. For example, the NASD and the exchanges may have different rules relating to short-selling, registration, arbitration procedures, know-your customer/ suitability, and reporting of customer complaints and internal investigations. These overlapping and inconsistent rules must be reconciled. Ultimately, investors bear the burdens of a confused and duplicative regulatory regime, which translate into higher transactional costs without corresponding increases in quality.

## 3 FIRST STEP: IMPROVE THE EXISTING LINKAGE

The linkage between market centers is a central component of a national market system. (29 ) Accordingly, perfecting the existing linkage is the first step that should be taken to address concerns with the current system. While, as noted above, there are problems with the existing intermarket linkage embodied by ITS, building on this communications and order routing network likely affords the most efficient means of achieving a true national market system. As such, as a first-step ITS should be modified to create a Super-NMS characterized by: (i) direct access for all qualified market participants; (ii) fair and representative governance, (iii) modem technology coupled with adequate capacity; and (iv) efficient execution of orders.

### 3.1 Access

Under the current construct, only the existing national and regional exchanges and NASD, through the ITS/ CAES linkage, have access to ITS. Other market participants, such as broker-dealers and ECNs, while active players in the market are excluded from the linkage. Such exclusions, among other things, impedes the ability of ECNs to act as agents for their customers in exchange-traded stocks because ECNs cannot provide a mechanism for customer orders in such securities to interact with the orders of others who are not customers of the ECN.( 30 )

As Chairman Levitt stated in his September 1999 speech at Columbia Law School, "[if] it is to remain

the primary linkage between exchanges, it must no longer block innovation in its participants' markets and create inordinate delays for entry... ECNs simply must be able to compete with traditional exchanges and dealer markets in an environment free from unfair advantages or unreasonable barriers." ( 31 )

Accordingly, access should be based on whether an entity satisfies certain objective standards that determine whether an entity is eligible and required to be linked to the Super-NMS. Such objective standards should be based on factors such as technology, credit, clearing and risk management capabilities. AS discussed in Section 5 below, an independent gatekeeper should determine whether a market participant is eligible or required to link to the Super-NMS, and police whether it fails to satisfy the minimum standards.

In addition, such access must be direct and not screened through other ITS Participants. For example, there has been some suggestion that ECNs should be given access to ITS through the ITS/ Computer Assisted Execution System (" CAES") linkage, which links the NASD to ITS. Not only is the hardware that supports the ITS/ CARS linkage outdated, such restricted access would permit Nasdaq to police access by its competitors. Conversely, ECNs that have access to ITS should be subject to certain requirements relating to rule changes contained in Exchange Act Rule 19b-4.

Currently, ITS Participants enjoy an unfair advantage vis-a-vis their ECN competitors because they receive tape revenue, which they derive from fees imposed on professional subscribers and retail investors for access to market information. Because these revenues are substantial, (32 ) this unfair advantage will impair that competitiveness of ECNs that are excluded from participating in an intermarket linkage. For this reason, there should also be greater fee-sharing of market data revenue. It is only logical that ECNs that participate in an expanded intermarket linkage share in the revenue generated by the tape fees, especially since these ECNs will be subject to the rules and requirements governing the linkage's participants and will be expected to contribute to the cost of maintaining and updating ITS. Thus, access to the ITS linkage must be expanded to allow the entry of more participants, such as ECNs, which should be entitled to share in the revenues generated by the tape fees.

### 3.2 Governance of the Linkage Should Be More Representative of the Market

#### · Voting Requirement

One impediment to expanded access is the current unanimous voting requirement for changes to the ITS Plan. Section 4(c) of the ITS Plan currently requires the unanimous vote of all ITS Participants (33 ) before the adoption of any amendment to the ITS Plan, including amendments to the Plan that are required to admit new Participants. This requirement impedes competition because, among other things, it allows one or more Participants to block admission of new Participants to the Plan. The Commission has recognized this impediment to competition and recently proposed replacing the unanimous vote requirement with a two-thirds supermajority vote, (34) such amendment has been tabled until the Commission publishes a concept release addressing several larger market structure issues. (35 ) Although the Commission has deferred final action on this proposed amendment until such time as it publishes a concept release on market structure issues, it has noted that a change to supermajority vote would remove a "Significant barrier to imposing new and innovative modifications to ITS by preventing a small minority of ITS Participants from thwarting innovation that could improve market efficiency." (36)

The decision-making process is further hamstrung by a two-step process that requires any action by the ITS Operating Committee ("ITSOC") to be ratified by the authorities owning body (i. e., the board of directors or executive committee) of each Participant. Accordingly, the Super-NMS should be a legal entity that is able to take binding action, rather than a plan that requires ratification of each action by the authorizing body of every participant in the linkage.

#### · Representation

Currently, ITS is governed by the ITS Operating Committee ("ITSOC"), which is comprised of a representative of each of the national and regional stock exchanges and the NASB. Other constituencies, such as broker-dealers, ECNs, issuers and institutional investors have no voice in the governance of ITS. In order for the national market system to function most effectively and fairly, all components of the market must be represented. To this end, governance of the intermarket linkage should be representative of not only the nine current Participants, but also the ECNs, broker-dealers, issuers and public investors.

### 3.3 Improvements in Technology

As noted above, certain components of the ITS hardware date back to the 1970s, and are characterized by an inefficient mesh of manual and automated subsystems. There also are serious

questions about the capacity limitations of the current linkage, which can result in delays in obtaining access to ITS and lead to untimely order executions. A linkage that is faster, includes a wider range of market participants and is more responsive to the needs of those participants is first step toward enhancing a national market system. (37 )

Constructing a strong, fast and efficient linkage may best be accomplished by putting the management and operation of the linkage out for bid rather than relying on the current facilities manager. Securities Industry Automation Corporation ("SIAC"), which is jointly owned by the AMEX and NYSE. (38 )

### 3.4 Improvements in Order Execution

#### · Address Problems Related to Commitments to Trade

To access best bids or offers in other markets, ITS Participants must enter a "commitment to trade," which takes only seconds to transmit to the destination market but remains open for one or two minutes. During this time, the originator of the order is obligated to trade according to the price and amount of the commitment. If the quote (bid or offer) is still available when the commitment reaches the destination market, and if the rules of that market allow execution at that price, the destination market can accept the commitment and execute the transaction. If the destination market does not accept the commitment within one or two minutes, the commitment expires automatically. (39 )

This lengthy order routing process leaves the originator of the commitment to trade exposed for an excessive period of time as to whether the original commitment will be accepted by the destination market. Market prices can change during this long delay while the originator of the commitment waits for a response about whether the commitment has been accepted. To redress this problem the one and two minute window must be shortened significantly to minimize delays in order executions.

Another inefficiency attributed to ITS is that it permits ITS Participants with manual systems to undermine the firm quote rule. Specifically, IT Participants' member firms can use the excuse that they are "in the process of changing their quote" to back away from their disseminated bid or offer.( 40 ) NYSE specialists have this ability, and thus Can undermine the efficient execution of

orders by allowing correctly priced ITS commitments to expire without execution or cancellation, and without having any further obligation to those commitments under the current ITS rules.( 41 ) In fact, some have charged that NYSE specialists may routinely ignore quotes displayed on the regional exchanges. (42 ) In addition, these specialists are allowed to lock the regional M markets, and are under no obligation to satisfy commitments or orders until regional markets send them a locked market notice.( 43 )

To address the inefficiencies in order routing and execution experienced under ITS, (i) the mandatory minimum period for commitments to trade should be reduced to seconds, and (ii) a customer order entered in any market should be able to interact with the best price available. The ITS Plan does not ensure this result, and causes frequent delays and failures in order execution. Another possibility is a default execution feature, which would provide for automatic execution in the event that a marketable commitment expires without cancellation.( 44 )

#### · Provide an Effective Dispute Resolution Mechanism

The Super-NMS should provide a fair and effective dispute resolution mechanism. The dispute resolution process provided in the ITS Plan is ineffective because, at best, it is perceived as unfair, and, at worst, it discourages complaints by aggrieved parties, especially where a participant alleges a trade-through violation. (45 ) Participants who seek redress for violations of the ITS trade-through rules must overcome particularly stringent procedural requirements. For instance, the aggrieved party must contact the participant who violated their trade-through rules within a narrow period of time. If the alleged violator does not receive the complaint within five to ten minutes, depending on whether the trade-through was an exchange or third market trade-through, the dispute resolution procedures will not apply, and the aggrieved party will have no recourse through the dispute resolution procedure. (46 ) For example, ITS Participants who seek redress through the ITS dispute resolution process are entitled only to a non-binding opinion. In addition, only participants who incur at least a \$5,000 loss may rely on the ITS dispute resolution procedures( J7 )

The Super-NMS should have a dispute resolution process that provides due process and an effective mechanism for obtaining redress.

## 4. SECOND STEP: REQUIRE PRICE/ TIME PRIORITY. AUTOMATIC EXECUTION

### 4.1. Introduction

Once the linkage necessary for establishing a Super-NMS is implemented, automatic price/ time priority should be prescribed to ensure that orders are executed automatically, based solely on price and time of entry, in any market. As explained in detail below, automatic price/ time priority allows for virtually instantaneous transactions in a more efficient and cost effective manner, (48 ) Automatic price/ time

priority maximizes order interaction by uniting buyers and sellers across markets, thereby consolidating order flow. Quote competition is encouraged, resulting in potential overall price improvements for investors. The benefits of automatic price/ time priority would inure to securities listed in the NASDAQ and other over-the-counter (" OTC") markets as well as to securities listed on an exchange. Accordingly, consideration should be given to the extension of automatic/ price time priority principles to trading in the Nasdaq and other OTC markets as well as in the exchange markets, Some exceptions to trades should be EXC price/ time priority, automatic execution bear consideration. For example, blocked from an automatic price/ time priority requirement because these trades generally benefit from being shopped or negotiated away from the exchange floor. (49 ) Certain alternative pricing mechanisms, such as volume weighted average pricing, also may remain appropriate in a price/ time priority, automatic execution environment, (50 ) In addition, flexibility should be built into any automatic execution requirement that recognizes that broker-dealers may be

able to provide their customers with price improvement internally on a principal basis or by facilitating agency cross transactions at the displayed quote.

#### 4.2 Enhanced Quote Competition Would Lead to Price Improvement

For a number of reasons, the extension of automatic price/ time priority principles across all linked markets should lead to price improvement opportunities. Trading should be more transparent and efficient overall, because automatic price/ time priority encourages greater inter-market order interaction and allows for virtually instantaneous executions. Among other things, dealers would be motivated to reveal their true best bid or offer in order to improve their chances of garnering order flow. (51 ) Meanwhile, significant external costs, including the costs of transacting business on an exchange floor should be reduced or eliminated.( 52 ) Assuming that automatic price/ time priority provides more efficient pricing by promoting more candid best bids and offers, greater order interaction and lower external trading costs, concerns that

the lack of exposure in an auction market would reduce price improvement opportunities with respect to any particular order should be dispelled because automatic price/ time priority should afford comparable, if not better, pricing, more efficiently and at less cost.( 53 ) In this regard, it is worth noting that the Commission has not imposed intermarket order exposure where alternative systems provide reasonable pricing mechanisms.( 54 )

#### 4.3 Markets Would Be More Liquid

Dispersed order flow impairs liquidity because it does not unite all buyers and sellers( 55 ) By enhancing intermarket order interaction (thereby improving pricing efficiencies and redressing dispersal of order flow), an automatic price/ time priority requirement should increase overall market liquidity and encourage new traders and liquidity providers to enter the marketplace( 56 )

Dealers would continue to provide liquidity in a market with price/ time priority, to demand this service. and automatic execution because (i) their customers would continue liquidity. First, dealers derive benefits by (ii) they would still be able to profit by providing liquidity themselves as full service firms that offer "one stop shopping" for all of their customers' needs. Firms that stop making markets in securities would no longer be able to boast that they are "big players," causing many of their customers to

look elsewhere for a full service firm.

Second, the opportunities for dealers to profit may increase with automatic price/ time priority because dealers will be able to compete for order flow previously controlled or internalized by other dealers. The current absence of an automatic price/ time priority requirement prompts brokers to preference customer orders to preexisting dealers, which makes it difficult for new participants to compete for customer orders and discourages them from providing liquidity( 57 ) In addition, while automatic price/ time priority would eliminate guaranteed order flow for some dealers, it would not eliminate profit opportunities because there always will be a need for dealers in the marketplace, The simple economics of supply and demand dictate that if there is a need for a service in the market, there will be an opportunity to profit.

Automatic price/ time priority also may prompt more investors to enter the market, which would further enhance overall market liquidity.(58) Investors are more willing to enter the market where, they can be assured of optimal prices, greater price discovery and faster executions.( 59 ) Greater price discovery would occur in a market with automatic price/time priority because orders would be executed faster and at the best prices. Accordingly, at any given time, the price of a security would more accurately reflect trading interest and investor valuation.( 60 ) Experience with the NASD's small-order execution system "SOW"), which provides for automatic execution of certain customer orders, underscores the contribution that auction makes to price discovery and efficiency. (61 )

The Commission has recognized that rules that improve the handling of customer orders also enhance overall market liquidity even if particular dealers stop making markets in some of the securities that they quote. For example, when the Commission proposed Rule 1 IAcl-4,( 62 ) the display rule for customer limit orders, some commenters raised concerns that this rule would reduce liquidity because dealers would not want to make the necessary capital commitment to continue their market making activities( 63 ) The Commissioners ended that the rule would not reduce liquidity, but would force less efficient competitors to stop making markets in some of the securities that they quoted. Specifically, the Commission stated that [a]lthough the rule could lead to a reevaluation by some market makers of the services they wish to provide --the Commission does not believe that there will be a significant negative impact on the markets for covered securities... customer orders are the ultimate source of liquidity to the markets, and..., a rule that improves the handling of such orders will have the effect of enhancing market liquidity . (emphasis added). (64 )

#### 4.4 Automatic Price/ Time Priority Would Preserve Opportunities for Innovation and Market Diversity

Automatic price/ time priority would continue to create opportunities and incentives for diverse, competing markets. Among other things, exchanges and other marketplaces will be able to distinguish themselves from one another on bases, such as the development of technological systems and support, listing standards, fee structure, hours of operation, member services and the strength of regulatory oversight and compliance mechanisms. For instance, consistent with past industry practice, markets could compete by providing their members enhanced technological support capabilities that respond to the increasing reliance on automated electronic trading systems. (65 ) In addition, individual markets could further distinguish themselves through the professional programs and products that they offer to members and listed companies, their hours of operation and other services,( 66 ) and their individual listing standards( 67 ) Chairman Levitt and others have recognized the value of individual market centers'

listing standards( 68 ) Preserving the brand names of the exchanges would still hold considerable value to exchanges, their listed companies, broker-dealers and retail and institutional investors as a means of instilling confidence in the trading of securities on or through the exchanges. For example, individual markets could distinguish themselves based on the proficiency of functions such as surveillance, and oversight. The NYSE, in particular, has noted the contribution that fair and effective self-regulation makes to a market's brand name( 69 )

In addition, there is no reason to believe that innovation would not continue in a price/ time priority environment, including developments such as Nasdaq's and the PCX's recently announced plans to utilize the Optimark Trading System (" Optimark").( 70 )

#### 4.5 Automatic Price/ Time Priority Rectifies Current Problems Associated with Commitments to Trade

Automatic price/ time priority across markets also eliminates the delays and uncertainties currently associated with executing inter-market orders by supplanting the commitment to trade mechanism. As explained in Section 3, commitments to trade contribute to excessive delays and problems involving cancellations and expirations of intermarket orders( 71 ) In contrast, automated price/ time priority allows for virtually instantaneous execution of orders across markets.

#### 4.6 The Move Toward Decimalization Supports the Need for Automatic Price/ Time Priority

##### 4.6.1 The Expected Dramatic Increase in Trading Volume Will Best Be Handled Through Automatic Price/ Time Priority

It is expected that the switch to decimal pricing will dramatically increase trading and quote activity, e. g., both in, terms of the volume of activity and the price variations that will be available. (7 2) A study published in April 1999 for the Securities Industry Association explained that a change in trading units from fractions of 1/ 16 to penny increments represents a 525 % increase in the number of price variations, or ticks, within a dollar (i.e., from 16 price points or ticks, within a dollar to 100 ticks within a dollar . The study estimates that if quotes change to pennies, the number of trades in listed securities on the NYSE will jump by 80 percent, and the number of quotes will rise by 139%.( 73 ) A fully automated electronic execution system will be capable of meeting the enhanced quotation volume more efficiently than a manual system due to the efficiencies that result from automation. (74 )

##### 4.6.2 Automatic Price/ Time Priority Could Alleviate Order Jumping

Automatic price/ time priority could mitigate concerns arising from decimalization with respect to "order jumping." Order jumping occurs when a market participant seeks to "take away" a bid or offer from another participant by raising or lowering the price by the smallest trading increment. (75 ) This practice is expected to grow once the trading increment changes to cents. Automatic electronic executions based on price/ time priority principles would remove, in many instances, the window of time that exists in the current auction system or market participants to outbid one another vis-a-vis any particular trade, thereby reducing opportunities for order jumping. This would alleviate concerns that "decimal pricing might Create an environment where, in effect, time and price priority could not be obtained because it always could be possible, as a practical matter, to improve the price by a penny and achieve price priority.( 76 ) .

#### 4.63 Automatic Execution Would Respond to Increased Fluidity in Stock Prices

Decimalization is expected to result in greater fluidity (i. e., the continuous shifting of stock prices) because of the greater price gradations that will be available in that environment( 77 ) An automatic execution system would address fluidity better than the one and two minute windows for commitments to trade under the current ITS by allowing market participants in disparate market centers to capitalize on price fluctuations without order cancellation and expiration rates skyrocketing( 78 ) As Professor Juntas Peace has noted:

"Since it would be possible for spreads to be as small as one cent no broker-dealer would be able to enter a customer's order in any trading system unless the system were integrated with all other trading systems so "best execution" was assured. The combination of the new trading methodologies which will be needed when decimalization is implemented. coupled with an integrated centralized system for dissemination of prices, executions and reports, should reduce the overall cost of American market systems by as much as one order of magnitude"( 79)

#### 4.6.4 Decimalization Will Lead to More Efficient Price Improvement

If, as anticipated, decimalization leads to price improvement through the narrowing of spreads, (80 ) the lack of order exposure in an auction process under a price/ time priority, automatic execution system should not merit concern, because price improvement would, in any case, be obtained through decimalization. As Professor Peake has explained, [t] here are billions of dollars which can be saved, both in lower cost of trade execution because of narrower spreads, but also --and probably even more importantly --by the improved systems and lower cost market structure which will inevitably result.( 81 )

### 5. FACILITATION OF A TRUE NATIONAL MARKET SYSTEM

As discussed throughout this paper, the U S. equity market requires significant reforms to make it more efficient and fair for investors, and to allow it to retain its preeminent position in the global marketplace. The need For these changes is evident. The question is how best to achieve them.

#### 5.1 The Commission's Authority

In Section IIA of the Securities Exchange Act of 1934, as amended (the "Exchange Act"),( 82 ) Congress set forth the objectives of a national market system;

- i . the efficient execution of securities transactions;
- ii. fair competition among and between brokers, dealers and exchange and non-exchange markets,
- iii. the availability to brokers, dealers and Investors of information about quotations For and transactions in securities;
- iv. best execution of transactions, and

v. an opportunity for investors orders to be executed without the participation of a dealer. (83 )

Congress, pursuant to the Securities Acts Amendments of 1975 (84 ) and Section 11A directed the SEC to "use its authority under [the Exchange Act] to facilitate the establishment of a national market system for securities" with "due regard for the public interest, the protection of investors, and the maintenance of fair and orderly markets"( 85 ) In Furtherance of its directive, Congress adopted Section IIA( a)( 3)( B), which mandates the Commission, by rule or order, to "authorize or require self-regulatory organizations to act jointly with respect to matters as to which they share authority under this title in planning, developing, operating, or regulating a national market system . . ."( 86 )

Congress also directed the Commission to: (i) "conduct studies and make recommendations to the Congress" as to the need for modifications to the system of self-regulation, and (ii) "create one or more advisory committees and to use one or more outside experts to help facilitate the creation of a national market system."( 87 )

Congress's direction to the Commission to "facilitate" the establishment of a national marker system was "designed to provide maximum flexibility to the Commission and the securities industry in giving specific content to the general concept of the national market system."( 88 ) The Senate Subcommittee on Securities considered it important that the Commission have the power to "shape the development of and maintain adequate regulatory control over an integrated, national market system."( 89 )

## 5.2 Congress Intended that the SEC Exercise its Authority

Although the Commission has expressed a preference for the national market system to develop without dictate, has recognized that Congress's grant of broad rule-making authority under Section IIA "was not conditioned on the expectation that the Commission refrain from using it." (90) To the contrary, the Commission has acknowledged that this broad grant of authority reflects a recognition that where market forces are insufficient to achieve Congress's goals, the Commission must act to facilitate them.

While the Commission believes that development of a national market system should remain essentially an evolutionary process, free of the rigidities inherent in any Commission attempt to dictate the ultimate configuration of that system, that development has been impeded by the inability of the several discrete segments of the securities industry to surmount the problems presented by the diversity of their interests and to settle upon a common course of' action to implement the Congressional policy.( 91 )

## 5.3 Facilitating the Needed Reforms

In light of the divergence of interests between those that currently have direct access to the intermarket linkage (the haves) and those that do not (the have-not@, it is unlikely that the requisite consensus will be reached to effect any of the needed reforms. Accordingly, white the SEC's overall philosophy of allowing competitive forces to play out and intervening only if developments in the markets threaten investor interests is consistent with the Congressional dictate,( 92 ) now is the time for the SEC to step forward to "establish, monitor and uphold the framework" necessary to facilitate linked diversity in the U. S. markets.( 93 )

Commission action pursuant to Section I 1A is far from unprecedented. In fact. the Commission

repeatedly has exercised its authority under Section, IIA when the industry has failed to act. (94 ) By initially remaining in the background and stepping forward only because the SROs have failed to act, the SEC is exercising its proper role as envisioned by Congress.

The Commission should initially seek to facilitate the needed reforms by issuing an order articulating the broad parameters of what the new marketplace should look like and enumerating the items that must be included, such. a s greater access for market participants, broader representation in the governance of the new system, enhanced technology and automatic price/ time priority, Against this framework, the SROs should be directed to work with other industry participants to design and implement a system that is consistent with the Congress's objectives. The Commission should establish a timeframe for developing and implementing the needed reforms. If the industry fails to act in accordance with the Commission's order, the SEC should exercise its rule making authority pursuant to Section IIA( a)( 3)( B) to require the SROs to act to effect the needed reforms.

The proposed reforms of a Super-NMS and automatic price/ time priority are well within the Congressional mandate of Section IIA, and are in keeping with the Commission's established practice of adopting rules pursuant to Section IIA that establish performance standards without dictating market structure( 95 ) These proposals do not involve dictating or centrally planning the securities markets.( 96 ) Rather, they involve the creation of much needed performance and conduct standards to ensure efficient, competitive and fair markets. These changes are fully consistent with the goals articulated by Congress in 1975 and with a number of prior actions of the SEC(97)

## 6. CONCLUSION

While it may be true that the U. S. equity markets are the finest in the world,( 98 ) they are not flawless, and unless the Commission directs critical reforms, they will lose their preeminent status, Accordingly, it is essential that the Commission heed Chairman Levitt's call to reform the national market system and facilitate a Super-NMS and automatic price/ time priority, Those proposals are critical for a truly efficient, linked marketplace and are consistent with the guiding national market system, as first envisioned by Congress in 1975, enhancement, of principles of a price discovery, liquidity, order interaction, market innovation and competition.

In bringing the US. equity markets into the 21st century, bold solutions are needed. To date, a piecemeal approach to address process has been slow and ineffective. Piecemeal approaches and quick-fix solutions must be problems with the national market system has been taken. This eschewed, and the Commission should not hesitate to facilitate these much-needed proposals.

As Chairman Levitt stated:

[I] et us not look back at this time as an opportunity. seized, an endeavor not realized, a challenge not taken, or a frontier not explored . . . Only by embracing change . . . will we guarantee to our investors, our economy, and our nation the world's most successful capital markets( 99 )

## Footnotes

1 . See, e, g. Terzah Ewing, NASD Board Approves Plan For \$1 Billion Nasdaq Spinoff -WALL ST J.

Jan 5, 2000, at C23; and Sandra Sugawara, Nasdaq Spinoff Proposal Advances , WASH POST Dec. 10, 1999 at E1.

2 NYSE Chairman Grasso Announce Proposed NYSE Initiatives, New York Stock Exchange Press Release: Nov. 5, 1999, available at <http://llwww.nyse.com/pres~TOOO2567A.html>.

3 See Id.

4 See Craig Plotkin & Brian Shwartz, Decimilization to Shuke Up US, Equities Business , AM. Bankr. Vol. 165, No. 3 (Jan. 5,2000); Sandra Sugawam. To-the-Penny Stocks: NYSE's Decimal Decision May Affect Investor Costs , WASH. POST, Dec. 3, 1999, at E1 [hereinafter "Suganvara, To-the-Penny Stockr "1

5 , See e. g. See Dynamic Markets Timeless Principles . Remarks of Chairman Arthur Levitt at Columbia Law School, New York, N. Y., Sept. 23,1999, available at <http://v,-.vw.sec.gov/news/speeches/spch295.htm> [hereinafter "Dynamic Markets Speech" ; Ghan Face ofCoplto1 Markets And a of Electronic Communications Networks Hearings B efore t ing e Senate Subcomm of the Senate Banking Housing and Urban Development. (1999), available at [http://www.\\$enatc.gov/banking/99\\_10\\_g/I02799/members.htm](http://www.$enatc.gov/banking/99_10_g/I02799/members.htm) [hereinafter "Changing Face of Capital Markets Written Testimony "1 (testimony of Hon. Arthur Levitt).

6 , Dynamic Markets Speech, supra note 5. Like the Commission, major securities. firms including Merrill Lynch, Goldman Sachs, Morgan Stanley, and Edward Jones & Co., have recognized the need to reform the current system, calling for changes such as greater automated trading, which would lower overall transactional costs and make trading more efficient. See Greg Ip & Randall Smith, Board's Members Face Off on the Issue of Automoted Trading , WALL ST. J.. NOV. 15, 1999, at B i g AI. Randall Smith, Goldman Sachs Chairman Urges Firms To Support Electronic Central Market , WALL ST. J., Nov. 8, 1999 at C IS.

7 See Exchange Act Release No. 40,260.67 SEC Docket (CCH) 1454, 1457 n 27 (July 24, 1998) (hereinafter "Exchange Act Release No. 40,260").

8 ECNs account for approximately 30% of Nasdaq's daily trading volume. See Michael Schroeder & Greg Ip, Levitt Urges Central Market TO Price Stocks, WALL ST. J., Sept. 24, 1999, at C1

9 , In its adopting release to Regulation ATS, the Commission noted that as more ECNs develop to offer different services to varying customers, the availability of trading information and accessibility of trading No 40,7 opportunities become fragmented. See Regulation of Exchanges, Exchange Act Release O, 68 SEC

40,760"] The Commission accompanied by negative effects, including Id

10 Under Regulation ATS trading systems that fall under Exchange Act Rule 3b-16 may choose to register as ,national securities exchanges Alternatively, trading systems may be exempt from the definition of exchange by Rule 3a1-I. and therefore the requirement to register as an exchange. Se

11. The ITS/ CAES linkage connects the NASD to ITS.

12 , In assessing the effectiveness of ITS, some regional exchanges have stated that ITS does not provide incentives to market makers to compete on the basis of their displayed quotations because traders are rarely routed on the basis of quotations. According to these commentators, it is more the for order flow by marketing quicker an cheaper executions than by attempt layer quotations. See DIVISION of MARKET Regulating N. E COMMISSION, MARKET 2000: AN EXAMINATION OF CURRENT EQUITY MARKET DEVELOPMENTS. Appendix II at IO (1994) [hereinafter "Market 2000 Report"]

13 , Exchange Act Release No. 40.760, supra note 9.

14 . Nasdaq has adopted the Primex Auction System, which will offer electronic auction price improvement and anonymous trading in both NYSE and Ands E securities, Primex may diffuse order? I stocks. By offering an alternative vehicle for trading NY VW from the NYSE auction floor See 4 Briefing for Investors Wall St. Weighs Auction Markets in NYSE Stocks, L A. Times, Dec. 9, 1999 at C4, available at <http://nrstg2p.diner.corn/cgi-bin/DJInteractive>

15 . See Dynamic Markets Speech, supra note 5 See also Changing Face of Capital Markets Written testimony, supra note 5; Federal News Service, Changing Face of Capital Markets And Impact of Electronic Communications Networks. Hearings Before the Subcomm. on Securities of the Senate Banking, Housing and Urban Affairs Comm. (Oct., 27, 1999) [hereinafter "Changing Face of Capital

Markets Hearings"] in which Chairman Levin noted that "[ I] t is my belief that ECNs will be linked in and an important part of our national market system. And I will do everything I can to make that possible " 16 The failure to fully integrate these trading systems into the national market system has had a n e active impact on the quality and pricing efficiency of secondary markets. See Exchange Act Re case NV 40,7160, supra note 9. 14

17 , For example, the NASD was not linked to ITS until 198 I --three years after the ITS Plan --as first proposed. In this year. the Commission issued an order requiring the implementation of an automated interface between ITS and the NASD's CAB, unsatisfied by the ITS Participants' ability to act more quickly. In issuing the order, the Commission noted that the market's failure to achieve an

efficient link between exchange and OTC markets frustrated objective of a national market system. See Exchange Act Release No. 17.744.22 SEC Docket (CCH) 845 (Apr. 21, 1981) Like the NASD, the Chicago Stock Exchange (CSE) was not linked to ITS until 198 I. See Exchange Act Release No, 17,532.21 SEC Docket (CCH) 1747 (Feb. 10, 1981). Indeed, in proposed amendments to ITS in July 1998, the Commission remarked on the "obstacles that a new market could face in becoming a new participant in ITS." Exchange Act Release No,

40.200, supra note 7. Specifically, the Commission criticized ITS's unanimous vote requirement, which prevents ITS from significantly evolving and enables ITS Participants to engage in anti-competitive behavior by failing to approve new amendments that would benefit competitors As an example, the Commission cited ITS's provision that provides ITS Participants with a special right of review for proposed rule changes involving the CSS's automated interfacing linkage, allowing them to prevent the CSE from improving its market. In another example of anti-competitive behavior, ITS Participants

delayed action on approving PCS's Optimark Trading System, even after the SEC had approved it.

18 . Changing Face of Capital Markets Hearings, supra note 15 (testimony of Hon. Arthur Levitt) See Also, Randall Smith, Greg Ip and Charles Gaspruno, bitter Rivals Jointly Seek Major Changes in the Markets, WALL, ST. J., Oct. I, 1999, at Cl. (" s] one of these executives speak fondly of markets in Germany and Tokyo that have gone heavily electronic, and where physical trading floors I

have been hugely eliminated And others warn that U. S. markets could suffer against such global competitors without a similar transition").

19 , Chairman Levitt testified before Congress that, "In the past, we could say investors shouldn't go to the UK, investors shouldn't go to Germany, investors shouldn't go to countries which don't have a culture of transparency . . . That's changing." Changing JQce of Ca irul Markets Hearings , supra, note 15 See also The Common Cents Stock Pricing Act of 1997 Subcommittee on Finance and Hazardous Materials , available 'in 1999 darin% ; fifj 1997) (testimony of Junius W. Peake, Monfort Distinguished Professor of Finance at the Universtiy

of Northern Colorado) [hereinafter "Peake Testimony"] (testifying that [i] f we fail to maximize price competition for securities trading we shall surely lose market share to other nations, possibly forever").

20 . See Dynamic Markets Speech. sura note 5 In subsequent Congressional testimony before Congress in October 1999, Chairman Levitt that ITS is a "creaky system" that "doesn't work right," Changing the Face of Capital Markets Hearing . supra note 15

21 . See Comment Letter from John C. Katovich. Senior VP and General Counsel of Optimark to Jonathan G. Katz, Secretary, SEC (Sept., 22, 1999) [hereinafter "KATOVICH COMMENT LETTER"] See also, letter from Adam W. Gurwitz, Vice President Legal and Secretary, Cincinnati Stock Exchange, to Jonathan Katz, Secretary, SEC (Aug. 27, 1998) [hereinafter "GURWITZ LETTER"] (in response to proposed amendments to the ITS Plan raised by Exchange Act Release No 4 0 ,2 6 0 )

22. See KATGVICH COMMENT LETTER, supra note 21; see also GURWIZ LETTER, supra 21

23 . See KATOVICH COMMENT LETTER supra note 2 1

24 Letter from Todd Greenberg, Chief Investment Officer ProActive Capital Management to Jonathan Katz, Secretary, SEC (Sept. 1. 1998) See also Changing the Fact of& pital Markets Hearing supra note 15 (testimony of Doug Atkin, President of Instinet ECN, stating that "[ In a country that, by all accounts, leads the world in technology, we are the only major country, the only major financial market in the world, that doesn't have M electronic stock exchange --the only one."

25 , See Dynamic Markets Speech, supra note 5

26 , The current market system has resulted in a regulatory framework under which the NASD and the NYSE are regulating their competitors (e. g. ECNs). Currently, all ECNs are required to be members of the NASD, which competes with ECNs for order flow in securities traded through The Nasdaq Stock Market Inc. (" Nasdaq"). Similarly, several broker-dealers who have invested in ECNs that plan to

compete with the NYSE for order flow in NYSE-listed securities are members of the NYSE, which allows the exchange to regulate certain of its competitors. As the exchanges and the NASD consider the possibility of demutualization, their ability to regulate fairly their competing member firms must be called into question? The NASD and NYSE should not be in a position where the exercise of their regulatory authority gives even the appearance that they exercised such authority to advance their own interests at the expense of their member firms and the and the markets generally.

27 The PCX's recent experience with its Optimark Trading System illustrates this points. Even after the SEC had approved PCX's Optimark Trading System approving Optimark. See Exchange Act Release NO. 40,20 ITS's Participants delayed action on , supra note 7 (proposing amendments to ITS, and citing PCX's experience with ITS as a reason why ITS's current governance structure should be reformed.)

28 , See Dynamic Markets Speech. supra note 5

29 . See S. Rep, No. 75,94th Cong. 1st Sess. 8-9 (1975) (the "Senate Report"), Dynamic Markets Speech, supra note 5.

30 Changing Face of Ca President and CEO, Trade ital Markets Written Testimony, supra note 5 (testimony of Kevin Foley, ook ECN).

31 See Dynamic Markets Speech, supra note 5 See also Changing Face of Capital Markets Hearings, supra note 15. (during which Chairman Levitt noted that, "to have an ECN operating out here without any reference to the ITS system which has kept it from being part of that system, just is unthinkable")

32 , In 1998, SROs collectively received tape revenues of \$410.6 million See Exchange Release No. 42,208, 1999. SEC LEXIS 261 I (Dec. 9, 1999) To the extent that fees changes for access to market information arc not cost-based, they, ultimately harm the investor by unnecessarily raising the cost of market access. See Joe Ricketts, Ameritrade's Ricketts: Market Data Must Flow Freely, S E C

News, July 19. 1999, available at ~[http:// nrstg2s. djnr. com/ cgi-bin/ DJInteractive-Story](http://nrstg2s.djnr.com/cgi-bin/DJInteractive-Story)>

33 I Current signatories to the ITS Plan are AMEX, BSE, CBOF, CHX. CSE, NASD, NYSE, PCX and PHIX, collectively, the "Participants."

34 See Exchange Act Release No 40,200. supra note 7.

35 . Adoption of Amendments to the Intermarket Trading System Plan to Expand the ITS Computer assisted Execution System Linkage to All Listed Securities, Exchange Act Release No. 42.21, 1999 SEC LEXIS 2609 (Dec. 9, 1999) [hereinafter "Exchange Act Release NV. 42,212"].

36 . Exchange Act Release No. 40,260, supra note 7

37 , Sec supra Section 2. I .4.

38 Letter from Craig S. Tyle, General Counsel. Investment Company Institute, to Jonathan Katz, Secretary, SEC (Sept. 2, 1998) (arguing that the Commission should consider allowing a vendor to

establish an intermarket linkage system with linkages that provide for automatic routing of orders and that (ultimately, such linkages should provide for automated execution, as well as automated delivery }

39 . See Market 2000 Report . Appendix 11, at 4, s n& 27, supra note 12.

40 GURWITZ LETTER, Supra note 2 1. Conversely, automated participants who provide firm quotes in ITS "are routinely victimized for their innovation by Participants who obtain automated executions before quotes in other markets are updated." Id.

41 , GURWITZ LETTER, Supra note 21.

42 . See letter from Daniel H. Turner, President, Rubicon Securities, Inc. to Jonathan G. Katz, Secretary. SEC (Aug. 14, 1998).

43 . See Id.

44 . See Letter from Rob H. Fomey, President and Chief Executive Officer. The Chicago Stock Exchange. According to CHX, such procedures would "protect investors and provide an expeditious mechanism for assuring compliance with the Quote Rule. Id

45 , A trade-through occurs when an ITS Participants initiates the purchase of an ITS security at a price that is higher than the price at which another ITS participating market offers the same security trade-throughs also occur when an ITS Partner price than another ITS Participant is offering. ant initiates the sale of an ITS security at a lower cc Plan for the P Intermarket. Communications Linkage Pursuant to SEction IIA(Exchange Act of 1934 (Restated May 30, 1997). Exhibit B Trade-Through 3)( B) of the Securities Rule") [hereinafter "ITS Plan" f

46 . See Market 2000 Report , Appendix 11, at \$6 n-3 I supra note 12.

47 . See ITS Plan 4( e), supra note 45. Market 2000 Report. Appendix II, at 7, supra note 12

48 . The NYSE recently acknowledged the demand for automatic execution: by announcing a proposal that would permit orders under 1,000 shares to be executed immediately at the best price than available on the exchange (if matching the exchange's auction process). See. e. g. 8 Contrats orders then existed) without the orders entering reg Ip, NYSE Studying Electronic System to Fill Small Trades Automatically ! WALL ST. J., Nov. 5, 1999, at C1 [hereinafter I , NYSE Studying Electronic System (attributing the proposed change, in part, to pressure on the NYSE's largest member firms to respond to the competitive threat of the cheaper, faster trading systems of ECNs) Characterized as one of the NYSE's "most radical changes in 20 years," the new trading option reportedly would reduce execution times of orders from an average of 22 seconds to three seconds or less while such news reports noted that about 9% of the NYSE's orders already are delivered electronically over the NYSE's SuperDot system, all but odd-lot orders of less than 100 shares (regardless of electronic delivery) still must be manually executed.

49 , See Market 2000 Repot-f , Study IV, at 8. supra note 12 (" Although individual investors clearly benefit from display of their orders, customers with very large orders, such as institutions, may prefer that their orders be "worked" by a market maker who will attempt to rind contra-side interest from

other market makers will limit the solicitation of contra-side interest to a few participants so as not to inform the market generally that a large trading interest exists. Otherwise, the customer may have to pay a larger premium for buying or selling the stock.") See also Appendix VI, at 25 (noting a commentator's estimate that 90% of the price discovery for blocks takes place "upstairs" in an off-exchange dealer environment)

30 In general, volume weighted average pricing occurs when contra orders are matched prior to the opening of trading and then priced at the cost of trading based on a volume weighted average price derived from that day's trading. See *Id.*, Appendix, at 9. See also VWAP Trading Systems <<http://www.phtx.com/educat/processtradmg.html>> (noting that volume weighted average pricing

can enable traders to reduce "the adverse impact of transient market conditions that may result from price discontinuities issued by large block trades.")

51 As Chairman Levitt stated, [none] of us can afford to ignore the possibility that rewarding the market that posts the best quote first could result in more aggressive quote competition and better prices for investors." See Letter from Arthur Levitt, Chairman, SEC, to William J. Brodsky, Chairman & Chief Executive Officer of the Chicago Board Options Exchange (Nov. 10, 1999). Conversely, in explaining that weaknesses in the present trading system would be resolved by price/time priority, automatic execution, one exchange official noted that "[a]llowing markets to match better markets creates disincentives to quote competition. Why would market makers or specialists quote tighter markets than those displayed, if they are allowed to match better markets at the time they receive public orders?" See Letter from Philip D. Defco, Chairman and CEO of the Pacific Exchange, to Arthur Levitt, Chairman SEC, (Dec. 10, 1999) (noting that "Greater quote competition yields narrower spreads. Narrower spreads reduce transaction costs. Participants are rewarded for displaying their "true" trading interests, and that generates additional liquidity and

provides more reliable price discovery.")

52 . See, e. g., Sandra Sugawara. Evolution of the Exchange: 3 Men Reshaping Markets , WASH POST Dec. 5, 1999, at H1, H4 customers and brokerage firms hereinafter "Sugawara, Evolution of the Exchange"] (noting that begun to question the necessity of financially supporting physical auction floors, and the "army of floor brokers" that man them. when automated systems could execute trades less expensively and more quickly). The CSE, for example, has eliminated its physical auction floor in favor of a fully automated electronic system in order to reduce operation costs, and the PCX plans to do so within the next few years. See, e. g., [www.stock.com/innovation.html](http://www.stock.com/innovation.html) (stating that the CSE has replaced its physical auction floor with its fully automated National Securities Trading System, which "performs all the functions of an auction market," while relieving its members "of the unnecessary overhead expense and inefficiency associated with a traditional exchange floor operation . . ."). <[http://www.pacificex.com/about/about\\_publicSEC\\_cxch-21st.html](http://www.pacificex.com/about/about_publicSEC_cxch-21st.html)> (explaining the PCX's decision to eliminate its physical auction floor as follows. "why maintain centralized floors --why continue to bear the costs of physical facilities --when real estate adds zero value to the process of executing a

trade?"). Of course pricing efficiencies depend not only on automation but on, the types of automated

systems chosen (e. g. whether they include price/ time priority features).

53 The NYSE, for example, has resisted automatic execution requirements in the past, believing instead that the interaction of buy and sell orders among traders on the exchange floor provides an opportunity for favorable bid or ask on any particular order by offering a more Market 2000 Report I particular stock is willing to quote. See, e. g., % agency-auction market o supra note 12 (noting the NYSE's view that "only the "order exposure opportunities to receive execution inside the spread" and that results in better prices-); Ip NY. 14" Studying Electronic System. supra note 48 (" The Big Board for reasonable Pricing mechanisms decades has resisted demands to automate the execution of orders, arguing an investor order got the best price through interaction with other investors on the floor.") See also Market 2000 Report , Appendices I I, at IO, and VI, at 4 1, supra note I2 (noting that the "NYSE especially believes that automated execution systems should not be extended to ITS, at least, in part, because (i) the NYSE believes that the primary method to foster best execution is to encourage order interaction in the agency auction market; and (ii) the use of a neutral order switch "would legitimize the mistaken belief that the execution of an order at the disseminated quotation represents best execution." see Ip, NYSE Studying Electronic System , supra note 48 (discussing the N Y SE's plans to introduce some automatic executions on NYSE)

54 See, e. g., Marker 200 Report . Study V. at 5, supra note I2 the structural differences between the OTC and exchange markets as a basis for not imposing or

v& h respect to Nasdaq stocks); Order Execution Obligations, Exchange Act SEC Docket (CCH) 2083 (Sept. 6, 1996) [hereinafter "Exchange Act Release No. 37.619A"] (deferring action on the imposition of requirements for price improvement opportunities in the OTC market).

55 , See Market 2000 Report, Study III, at 1, Appendix Vt. at 19, supra note I2 (discussing effect on the dispersal of order flow caused by multiple markets). In response to the Commission's solicitation of comments on a single trading system. Regents UCal suggested that the creation of a single market promotes true liquidity by unifying all efforts. See id at Appendix V& at 26. Another

commentator, Goldman Sachs, also suggested a study on the creation of a single, unified trading market to address market fragmentation.

56 , Liquidity is critical to the functioning of an efficient market because it enables securities to be traded quickly and in high volumes without substantially affecting the prices of the securities. A decline in liquidity causes wider spreads in bid and ask prices, which in turn impairs the capital formation process.

57 . See Marker 2000 Report , Appendix VI, at 26, supra note 12. In 1994, in response to the Commission's solicitation for comments on market fragmentation, one commenter Bernard L. Madoff, noted that Increased competition is necessary to provide the requisite Liquidity to assure orderly markets and that no single participant is capable of providing, enough li trading interest in the current global financial markets. See Id., Appendix VI, at acidity to support 2 -2 3 .

58 , The SEC noted in its release adopting Rule II Acl-4, the display rule, and amending Rule I Act I, the quote rule, that customer "order flow is a critical source of market liquidity." See Exchange Market Release No. 37,619A, supra note 54.

59 , See Market 2000 Report , Study 1 IL at 2, su Professor, Vanderbilt University, Owen Graduate ra note 12 (citing a study by Hans, R. Stall, school of Management, on competition and fragmentation in U. S. equity markets that notes that a time priority rule increases the fairness and orderliness of the market, and improves liquidity by increasing customer incentives to place orders.)

60 , If orders are executed based on price/ time priority, spreads will narrow because orders will be executed at the most competitive prices that are placed first. See Market 2000 Report Appendix VI, at II. supra note 12. (discussing how results of competition for order flow result in more accurate pricing which in turn, encourages more participants to enter the market)

61 . In 1987, SOES was improved to provide individual investors with guaranteed liquidity and assured access to market makers. See Self-Regulatory organizations; Notice of Filing of Proposed Rule Change by the National Association of Securities Dealers, Inc. to Modify its Small Order Execution system And SelectNet Service, Exchange Act Release No. 41,296,69 SEC Docket (CCH) 1271 (April 15, 1999) (discussing the NASD's proposal to modify SOES and SelectNet). Because SOES executes orders instantaneously, it can efficiently handle a large volume of orders, thus providing greater liquidity to Nasdaq stocks. Id. SOES has enhanced price discovery of securities traded on Nasdaq because it provides instantaneous execution of customer orders, and all orders criteria into SOES are always executed at the best available price in Nasdaq. See NASD Notice to Members, available in 1985 NASD LEXIS 443 (Dec. 11, 1985). The Commission has recognized that investors greatly benefit from SOES's automatic execution feature, which has resulted in faster order execution and more efficient market making. Exchange Act Release No. 21,742, 32 SEC Docket (CCH) 564, at 565 (Feb. 12, 1985) (stating that "[ t] he Commission encourages the development of SOES and other OTC equities systems and services").

62 See 17 C. F. R. 240.11(a)-4 (1999)

63 . Exchange Act Release No. 37,60A. supra note 54 (emphasis added). In another instance, certain exchanges strongly objected when the Commission proposed requiring firm quotation for equities? in part because of concerns that dealers would be less willing to provide liquidity. According to the Commission, "[ t] he initial concerns articulated by market participants of the negative effect on liquidity have subject to the real-time quote and proven unfounded. Indeed, liquidity for both listed and OTC equities Study IV supra note 12 trade reporting requirements has increased. Market 2000 Report,

64 . See Exchange Act Release No. 17,619A, supra note 54 (Aug. 29,1996)

65 . Nasdaq, for example, has distinguished itself by having "the only stock market in the world with a full redundant disaster recovery facility (separate from its Trumbull, Connecticut mainframe computers , located in Rockville, Maryland." A description of Nasdaq's Central Computer Complex can be found in the glossary of their Web site -4http:// www. nasdaq. com> Similarly, the Cincinnati Stock Exchange touts that, "[ w] e were the first exchange to employ the new Risc-chip hardware architecture to support our trading system. This hardware, provided by Stratix Computers, has allowed the Exchange to be second to none with respect to system reliability and performance. And, in keeping with our commitment to technical innovation, we are the first exchange to convert its network communication to TCP/ IP, the most efficient and reliable systems communication available."~ http:// www. cincinnati. com/~ cincinnati/ technology. html~ (heralding the Boston

Stock Exchanges specialized technological services to its members).

66 , For example, news reports have reported on NASD Chairman Frank Zarb's efforts to link to foreign markets and expand trading hours. See. e.

supra note 52 (" [ I ] f Nasdaq were able to offer 24-, Sugawara. Evolution of the Exchange at 114, our trading and easy access to investors around the globe and to do before the NYSE, Nasdaq might finally be able to steal some listings from the Big Board ")

67 . See. e. g., &tp:// www. amex. co~ aboutihistory\_ amcx. com. htm~ (" The AMEX provides programs for its listed companies designed to enhance visibility and provide access to the investment community , Utilizing sophisticated technology to map the investment landscape, we provide analysis and tools or companies to manage their institutional shareholder base. We organize host r

conferences and hold communications meetings, all of which provide opportunities for listed companies to bring their stories to Wall Street's attention.")

68 I See e. g., Dynamic Markets Speech supra note 5 (" I appeal especially to public directors to jealous standard guard the self-regulatory standards of the markets they oversee, particularly listing s"), Alex Fred McMillan, Why Nor Central Re <http:// cannon, coti1999/ 09/ 21 .matkets. unifi (noting Is lation (Se t. 21, 1999) at the NYS could maintain its more-stringent listing standards as a means of continuing to set itself apart from other market centers.)

69 Greg I. Grusso. Zarb Di ffer on Self-Regulation of Stock Markets , WALL ST. J. Sept. 29, 1999, at C17 (quoting NYSE Chairman Richard A. Grassso as stating for hearings before the Senate Banking Committee on public ownership of the U. S. stock markets that, [o] ur self-regulatory unit is key to the high quality of our business brand . . It is at the core of our franchise. We will vigorously defend our right to keep it,")

70 , Optimark enables investors to indicate anonymously their interest in trading across a range of price and size parameters. See, e. g., ~http:// www. nasdaq. com/ about/ n\_ evolution. stm>; <h~ p:// vw. w. pacificex. co~ about/ abtqress-optimar. html~; chnp:// www. pacificex. co~ about/ abt\_ press\_ d. html~

71 , See supra Section 3.4 (discussing commitments to trade in greater detail), See Market 2000 Report Appendix I I, at 5, supra note 12 (noting that many commitments "expire or are canceled" because they were not sent at the displayed quotation or because the quotation is no longer available when it reaches the receiving participant.") The CBGE, in its letter commenting on recent proposals to amend the ITS Plan, advised the SEC that it intends to urge for increased automation in the processing of ITS commitments including the

adoption of automatic and/ or default execution o commitments and edit checking of commitment P pricing to reduce the cancellation rate of commitments in the system." See Letter from Joanne Moffic-Silver. General Counsel & Corporate Secretary of the Chicago Board Options Exchange e to Jonathan G, Katz, Secretary SEC (Sept. 1,199s) (in response to proposed amendments to the TS f Plan raised by Exchange Act Release NO. 40,260) Stocks , supra note 4 (" noting that a tremendous as a result of decimalization). The Common on HR 1053 Before the Subcommittee on Finance and Robert M.

## Oreber Chairman and CEO of the Pacific

trading volumes and quotation traffic will increase as a

73 , See e. g. SRI Consulting , The Impact of Decimal Pricing on the U. S. Equities and Options Markets (April 1999) [www. siacom/ decimalization/ htmyreport\\_ on~ cing. h~ l~](http://www.siacom/decimalization/htmlmyreport_on_cing.html),

74 During Congressional testimony on decimalization, Finance Professor Junius W. Peake noted that decimalization arrives and successful price competition becomes essential to a firm's survival,

The required increased use of electronics for the trading process to reduce costs will revolutionize market structure. See Peake Testimony, *supra* note 19.

75 . See, e. g., Sandra Sugawara To-the-Penny Stocks *supra* note 4 (stating that many market to surge as trading moves to penny increments") The article

have a large offer to buy stock XYZ at \$20. A trader "stealing" the order from you. If XYZ's price rises wrong, he's only out a penny a share.

76 . See Payment for Order Flow, Exchange Act Release No. 33,026,5S SEC Docket (CCH) 41 1 (Oct. 6, 1993) (noting concerns raised about decimalization by commenters such as Lawrence H. Harris, Professor at the University of Southern California School of Business Administration, in a letter to Jonathan G. Katz, Secretary of the SEC, dated Oct. 5, 1992).

77 . Peter Chapman, What the Pros are Saying About Decimals , TRADERS MAGAZINE, Nov. 1, 1999 (noting, view that quotes could change rapidly in one cent increments under decimalization) hereinafter "Chapman, What the Pros are About Decimals .]

78 , peter Chapman, A Penny for Your Troubles, TRADERS MAGAZINE Nov. 1. 1999 (noting that trading is possibly just one far-reaching, result of how, decimalization will affect both buy side and sell side traders"). Chapman quotes a Nasdaq trader as saying that he expects traders would handle (more share orders and at a faster rate than he does today." One reason for this is that many, traders expect to break up large trades to attract less attention and therefore minimize risk of "order jumping"( See Sandra Sugawara, To-the-Penny Stocks *supra* note 4. See also Chapman, What the Pros are saying About Decimals , *supra* note 77 (quoting one trader as saying trading would become more intense with "a lot more message traffic. It'll probably become a lot faster, I')

79 See Peake Testimony.

80 See [http:// www. nasd. com/ faq. htm](http://www.nasd.com/faq.htm) (noting that researchers have determined that a smaller minimum price variation will lead to narrower bid-ask spreads, as investors take advantage of the greater number of price points to buy and sell at more favorable prices), Greg MacKinnon and Howard Nemtroff, Liquidity and tick size : Does decimalization matter? that spreads decrease (Oct. 1, 1999) (finding significantly and trading volume increased when the Toronto Stock Exchange switched to a decimal system in 1996, resulting in "an unambiguous gain for investors" due to lower transaction cost)

81 . See Peake Testimony. supra note Professor Peake's views are corroborated by Ian Domowitz professor from Pennsylvania State University who found that gains in electronic executions on the listed market can outweigh the costs of transactions through traditional brokerage based on a study of \$44 billion equity mutual fund's transactions during certain periods between 1992 and 1996. See Sarah Stirland Automated Trading & Processing, SECURITIES INDUSTRY NEWS June 14, 1999, at 69.

82 , 15 U. S. C. 78k-1( a)( 1)( C).

83 . Id.

84 . Securities Acts Amendments of 1975, Pub. L. NO. 94-29.89 Stat. 97 (1975)

85 IS U. K. 78k-1( a)( 1)( D)( 2)

86 . 15 U. K. 78k-1( a)( 3)( B)

87 I 15 U. S. C. 78k-a( a)( 3)( A)\*( C)

88 . H. R. Ref. No. 229,94th Cong., 1st Session 29 (1975), at 92 (" Conference Report")

89 Cong. Rec. 2446 (daily ed. Jan 17,1975) (Summary of the principal provisions of the 1975 Amendments)

90 , Exchange Act Release No. 37,619A, supra note 54. In this release the Commission adopted a new rule requiring the display of customer limit orders and amended a current rule governing publication of quotations to enhance the quality of published quotations for securities and to enhance competition and pricing efficiency in U. S. markets.

91 . Exchange Act Release No. 14,416, 14 SEC Docket (CCH) 31 (Jan. 26. 1978) (stating that the Commission was not satisfied with the rate at which steps were being taken to achieve a national market system and setting forth its views as to necessary steps to accelerate the implementation of a national market system)

92 , See Dynamic Markets Speech. supra note 5

93 , See Dynamic Markets Speech. supra note 5

94 . See, e. g., Adoption of Amendments to Intermarket Trading System Plan to Expand ITS/ CABS Linkage to All Listed Securities, Exchange Act Release No 42,212, supra note 35 (the SEC noted that it acted to adopt the amendment expanding the ITS/ CAES linkage based on its view that such amendment otherwise would not be adopted), 9~ See e. g., Exchange Act Release No. 37,619A. supra note 54, requiring the display of limit orders and improving the quality of published quotations.

96 , See Dynamic Markets Speech, supra note 5

97 , See, e. g., Exchange Act Release No. 37,619A, supra note 54. Exchange Act Release No. 42,232,

supra note 35; Order Direction Options Exchanges to submit an Intermarket Linkage Plan Pursuant to Section 11A(a)(3)(b) of the Securities Exchange Act of 1934, Exchange Act Release No. 42,029 1999 SEC LEXIS 221s (October 19, 1999); Regulation of Exchanges, Regulation of Exchanges, Exchange Act Release No. 38,672 [1997 Transfer Binder] Fed. Reg., Sec. 1., Rep. (CCH) S, 85,942 at 89,630 (May 23, 1997) Exchange Act Release No. 40,760 supra note 9.

98 . IN a September 1999 Congressional hearing on the U. S. equity markets, Senator Robert Bennett noted that foreign companies "That want to reach the pinnacle ,.. don't feel they can do so until they're good enough to be listed either on the New York Stock Exchange or traded on NASDAQ." Hearing at the Senate Banking, Housing and Urban Affairs Committee, The Offering of Stock Exchange Shares to Public Investors (Statement of Sen. Robert Bennett) (1999)

99 . Dynamic Markets Speech, supra note 5.