

substandard performance in any one objective measure, currently set at two out of three consecutive review periods, will be changed to the first instance of substandard performance;

(9) The standard for Market Performance Committee review for substandard performance in any one objective measure, currently set at three out of four consecutive review periods, will be changed to two out of three consecutive review periods;

(10) The standard for Market Performance Committee review for substandard performance on the overall program, currently set at two out of three consecutive review periods, will be changed to the first instance of substandard performance; and

(11) The Overall Program score, currently at 5.80, should be increased to 6.70 to account for the proposed changes to the threshold levels and weights.

The threshold levels for Turnaround Time, Holding Orders Without Action and the Questionnaire, as well as the staff review standards, will remain unchanged. The Exchange believes that together, these modifications will enhance the SPEP by providing:

(A) More appropriate threshold levels when overall performance has improved beyond the current limits;

(B) More effective measure weightings which reflect the industry's current market quality focus; and,

(C) A more realistic approach to committee review in view of the time horizon required to address substandard performance.

In addition, the Exchange is currently reviewing additional market quality statistics in an effort to develop other measures of performance for inclusion in the SPEP, and hopes to file for additional modifications to the program in the near future.

## 2. Statutory Basis

The basis under the Act for the proposed rule change is Section 6(b)(5) of the Act<sup>4</sup> in that the SPEP results weigh heavily in stock allocation decisions and, as a result, specialists are encouraged to improve their market quality and administrative duties, thereby promoting just and equitable principles of trade and aiding in the perfection of a free and open market and a national market system.

### *B. Self-Regulatory Organization's Statement on Burden on Competition*

The Exchange does not believe that the proposed rule change will impose any burden on competition that is not necessary and appropriate in furtherance of the purposes of the Act.

### *C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others*

Comments on the proposed rule change were neither solicited nor received.

### III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Within 35 days of the publication of this notice in the Federal Register or within such longer period (i) as the Commission may designate up to 90 days of such date if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which the self-regulatory organization consents, the Commission will:

(A) by order approve the proposed rule change, or

(B) institute proceedings to determine whether the proposed rule change should be disapproved.

### IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing. Persons making written submissions should file six copies thereof with the Secretary, Securities and Exchange Commission, 450 Fifth Street, N.W., Washington, D.C. 20549. Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying at the Commission's Public Reference Section, 450 Fifth Street, N.W., Washington, D.C. 20549. Copies of such filing will also be available for inspection and copying at the principal office of the Exchange. All submissions should refer to File No. SR-BSE-96-05 and should be submitted by July 11, 1996.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.

Margaret H. McFarland,

*Deputy Secretary.*

[FR Doc. 96-15664 Filed 6-19-96; 8:45 am]

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[Release No. 34-37302; File No. SR-NASD-95-42, Amendment No. 2]

### **Self-Regulatory Organizations; Notice of Filing of Amendment No. 2 to Proposed Rule Change by National Association of Securities Dealers, Inc. Relating to the NAqcess System and Accompanying Rules of Fair Practice**

June 11, 1996.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act"),<sup>1</sup> notice is hereby given that on June 6, 1996,<sup>2</sup> the National Association of Securities Dealers, Inc. ("NASD" or "Association") filed with the Securities and Exchange Commission ("SEC" or "Commission") an amended version of the proposed rule change as described in Items I, II, and III below, which Items have been prepared by the NASD. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

### **I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change**

Pursuant to Section 19(b)(1) of the Act, the NASD and The Nasdaq Stock Market, Inc. ("Nasdaq") propose to amend the proposed rules governing the operation of Nasdaq's NAqcess system, a new system that would offer nationwide limit order protection and price improvement<sup>3</sup> opportunities for orders entered in the proposed system. Specifically, the NASD is proposing several amendments to NAqcess designed to allow the entry into NAqcess of: (1) Proprietary orders by registered Nasdaq market makers and

<sup>1</sup> 15 U.S.C. § 78s(b)(1) (1988).

<sup>2</sup> The NASD initially filed the proposed rule change on September 22, 1995 and, on November 9, 1995, the NASD filed Amendment No. 1. Notice of the original filing and Amendment No. 1 was provided by publication in the Federal Register. Securities Exchange Act Release No. 36548 (Dec. 1, 1995), 60 FR 63092 (Dec. 8, 1995).

<sup>3</sup> Commission Note: The NASD's use of the term "price improvement" in this proposal differs from the use of the term in recent Commission releases. Specifically, the Commission has used the term when referring to the opportunity to receive a price that is superior to best bid or offer. See, e.g., 17 CFR 11Ac1-3(a)(2); Securities Exchange Act Release No. 34902 (Oct. 27, 1994), 59 FR 55006 (Nov. 2, 1994) at text accompanying n. 32. The NASD's use of the term in this proposal, on the other hand, refers to the opportunity to receive a price that is better than the best market maker quotation, which may not be the best bid or offer to the extent NAqcess limit orders are included. In its recent rule proposal concerning the obligations of market makers executing customer orders, the Commission asked for comment on whether automated systems that include the possibility of the interaction of market orders with limit orders should be deemed to satisfy the proposal's requirement that market orders be provided with an opportunity for price improvement. Securities Exchange Act Release No. 36310 (Sept. 29, 1995), 60 FR 52792 (Oct. 10, 1995).

<sup>4</sup> 15 U.S.C. 78f(b)(5).

other specific categories of broker-dealers performing a registered market making function (collectively, "market makers"); and (2) limit orders by investors and market makers of up to 9,900 shares in the 250 most active Nasdaq National Market Securities as measured by median daily dollar volume during the most recent calendar quarter; and (3) other technical changes to the proposed rule language. The NASD also proposes to revise the opening process for NAqcess. Finally, in conjunction with the approval of an expanded NAqcess by the Commission, the NASD intends to discontinue the SelectNet service, except for the purpose of maintaining a communications facility for use in special market conditions. Exhibit A contains a revised version of the NAqcess Rules, Exhibit B contains the new Interpretations and the new rule in its Rules of Fair Practice related to NAqcess and Exhibit C contains proposed amendments to the Schedules to the By-Laws. Additions are italicized and deletions are bracketed.

## II. Self-Regulatory Organization's Statement of the Purpose of and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the NASD included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The NASD has prepared summaries, set forth in Sections (A), (B), and (C) below, of the most significant aspects of such statements.

### (A) Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

On September 22, 1995, the NASD proposed rules governing the operation of NAqcess, a new service for the delivery, handling and execution of investors' agency orders.<sup>4</sup> As originally proposed, NAqcess would have been a new system that offers nationwide limit order protection and price improvement opportunities for customer orders. NAqcess was a significant advance in terms of both the transparency of the Nasdaq Stock Market and increased access to faster executions and better prices by retail customers.

Subsequent to the NASD's filing of NAqcess, the SEC proposed four

significant changes to SEC rules that could have far-reaching and wide-ranging effects on the overall U.S. equity markets, including the Nasdaq Stock Market.<sup>5</sup> The Commission's goals in proposing these change are fully consistent with the views of the NASD regarding investor protection and transparency of limit orders in the Nasdaq Stock Market. While the NASD believes that NAqcess, as originally filed, was consistent with the Commission's Order Exposure Release, the NASD has determined to seek the Commission's approval of refinements of NAqcess that are even more closely configured to the SEC's approach.

Through this amendment, the NASD proposes to further enhance Nasdaq's transparency and customer access to prompt executions by increasing the size of limit orders eligible for entry and permitting market makers to enter proprietary market and limit orders. These proposed amendments to NAqcess closely parallel certain of the SEC's proposals regarding order exposure and handling, in particular those rules relating to the display of customer limit orders (proposed Rule 11Ac1-4). The changes to NAqcess that are proposed herein are responsive to the goals of the SEC's proposed rules, and also maintain an environment where the substantial benefits to issuers and investors that the Nasdaq competing dealer system provides can be continued.

#### A. Increased Eligibility Size for Limit Orders Entered Into NAqcess

The NASD proposes to increase the size of limit orders eligible for entry into NAqcess to 9,900 shares for the 250 most active Nasdaq National Market securities as measured by median daily dollar volume over the previous calendar quarter.<sup>6</sup> The NASD believes that this increase in the size of NAqcess-eligible limit orders should enhance market transparency and increase the likelihood that there will be sufficient

trading interest available in NAqcess for other orders to execute against in a timely manner. Through this change, the NASD envisions that customer limit orders will more likely be executed because customers with larger orders, including the institutions that make up a significant portion of the investor base of many highly liquid Nasdaq securities, will be able to enter orders into NAqcess. At the same time, the approach that the NASD is taking with a revised NAqcess (limiting the increase size eligibility to the 250 most active National Market securities) attempts to balance the transparency objectives against other core market and regulatory objectives, such as maintaining market liquidity and improving market quality for all investors.

As explained in greater detail below, the proposed limitation provides the NASD and market makers with an opportunity to develop experience with larger limit orders to determine if or when the size requirements may be expanded to less liquid securities. The NASD believes at this time that the trading activity in securities below the most active 250 Nasdaq securities may not be sufficient to provide the incentive for substantial market maker participation if limit orders up to 9,900 shares were eligible for NAqcess. Market makers bring significant amounts of capital to bear in support of the trading of new and smaller-capitalized companies in which there may not be significant natural liquidity. A market maker's willingness to sponsor new companies is directly related to its return on capital for the risks incurred. Market maker participation could diminish if Nasdaq did not provide market makers a reasonable opportunity to obtain a fair return on investment. In turn, lack of market maker sponsorship could seriously damage the capital-raising abilities of small issuers at an early stage in their growth. As is well-known, Nasdaq's competing dealer market structure historically has provided strong support for smaller issuers as they built investor interest and support. It is appropriate, then, to permit Nasdaq to constructively refine its market structure as it seeks to provide greater benefits to investors using the market, while continuing to maintain market maker incentives in its structure.<sup>7</sup> The NASD believes that its

<sup>5</sup> Securities Exchange Act Release No. 36310 (Sept. 29, 1995); 60 FR 52792 (Oct. 10, 1995) ("Order Exposure Release").

<sup>6</sup> The NASD has chosen 9,900 shares as the largest limit order eligible for entry into NAqcess because such size is the largest round lot size below 10,000 shares, the order size traditionally defined as "block size." The SEC's proposed Rule 11Ac1-4, as currently proposed, would exempt orders 10,000 shares and larger from its display requirements. Because the NASD is attempting to develop NAqcess to parallel the SEC's rule, it has chosen to permit certain limit orders below 10,000 shares into NAqcess. An order size of 9,999 shares, however, would have an odd-lot of 99 shares embedded in it that would present difficulties in execution. Accordingly, the NASD plans to program the system to accept orders up to the largest round-lot below 10,000 shares, i.e., 9,900.

<sup>7</sup> The NASD also notes other significant benefits that a competing dealer structure brings to the marketplace in addition to issuer sponsorship and liquidity. Dealers also provide immediacy of execution to persons demanding such and willing to pay the costs associated with immediacy. Additionally, dealers provide significant capacity to

<sup>4</sup> Securities Exchange Act Release No. 36548 (Dec. 1, 1995); 60 FR 63092 (Dec. 8, 1995).

approach provides an appropriate balance of these competing objectives.

Based upon an analysis of the trading activity in Nasdaq securities for the first quarter in 1996, the 250 most active National Market securities are significantly more liquid than other Nasdaq securities. For instance, median daily dollar volume for the 250 most active securities was \$13,788,823.<sup>8</sup> For the next 250 most active securities, first quarter median daily dollar volume was \$3,604,481. The median daily dollar volume for the remaining securities in the Nasdaq National Market list was \$268,228.<sup>9</sup>

These figures demonstrate a drop off in trading activity in stocks ranked below the 250 most active securities.

deal with unbalanced order flow in times of market imbalances or in cases of very large trades by institutions, such as pension funds and mutual funds, that represent large numbers of individual investors.

The NASD notes that other markets in the U.S. and around the world have developed special arrangements to encourage and facilitate dealer participation to handle block trading and order imbalances. For example, the specialist system in U.S. exchange markets requires dealer participation in what are typically referred to as "auction markets." Block trading rules used at exchanges in the U.S. and the Paris Bourse's special rules regarding the "contra partie" system also encourage dealer participation to accommodate block trades. The NASD refers to these hybridized market structure approaches only to note that it is important that the regulator allow market forces, within a strong regulatory framework, to determine an appropriate, flexible, balanced approach to serving the diverse needs of all market participants—issuers, retail and institutional customers, and market professionals, including market makers.

<sup>8</sup>The NASD believes that the best measure for determining trading activity for these purposes is the median daily dollar volume over the course of a quarter. Dollar volume provides a clearer measure than share volume because it normalizes across diverse share prices. Because of merger activity among Nasdaq issuers and other phenomena that can cause temporary volume surges, share trading statistics can be skewed. The temporary spikes in share volume could displace from the most active list more substantial companies that regularly trade in heavy volume. The median is a measure of central tendency that limits the importance of temporary volume surges.

However, even with the median daily dollar volume calculation, the trading history in an initial public offering ("IPO") may be skewed to such an extent that the NASD does not have an accurate picture of the true trading characteristics of that security. For that reason, the NASD will exclude an IPO from the Top 250 calculation until the security has two full calendar quarters of trading history after which a more accurate determination can be made. The NASD will use the second full calendar quarter of trading to determine whether an IPO falls into the list of the Top 250 securities. The first full calendar quarter will not be used in the calculation.

<sup>9</sup>These statistics were derived from the first thirteen Thursdays of trading in 1996 (January 4–March 28, 1996). The NASD excluded Small Cap issues and any issue that did not trade on each day of the sample period. The calculation was derived by first finding the median daily dollar volume for each issue and then finding the median value across the grouping.

Market makers currently are willing to quote in these securities on a regular and continuous basis and will buy from or sell to any customer that seeks to trade. Market makers may not be willing, however, to incur the substantial risk to their capital in low liquidity securities when forced to compete with limit orders that in effect could act as fair-weather market makers, *i.e.*, displaying priced orders when there is natural investor interest on the opposite side of the market, but disappearing as soon as market conditions turn unfavorable. Market makers that must compete on such unfair terms would likely seek more productive uses for their capital and would withdraw from market making in such securities.

In addition, if market makers withdraw, the NASD believes at this time that other sources of liquidity may not provide an adequate replacement. The liquidity provided by typical investor order flow through limit orders in low-liquidity stocks is likely to be overwhelmed or non-existent, and accordingly, it may be difficult to sustain price continuity. The NASD believes volatility may increase and investors will receive poorer executions as a result. Ultimately, investors may seek investment opportunities in other securities and issuers may find it more difficult to raise capital.

It is important to emphasize that these less liquid securities would continue to have the NAcqess limit order facility available for limit orders of 1,000 shares or less. This feature clearly permits the average retail investor the opportunity to compete with market makers and to seek price improvement opportunities over the dealer quote. The NASD notes that in the SOES limit order file, the typical retail investor limit order size (excluding day traders) averaged under 500 shares. Based on this information and information from NASD members, for securities below the Top 250, the eligible limit order size provision should satisfy retail investors. Accordingly, the NASD believes it is appropriate to create two different size levels of limit orders eligible for entry into NAcqess.

Moreover, both the NASD and the SEC, together with market participants, will be able to learn from the experience gained in expanding the limit order size for the most active Nasdaq securities. The tempered approach proposed by the NASD will permit it to determine the empirical effect that larger-sized limit order exposure has on these securities, especially on liquidity and continued market maker participation. After a sufficient study period of two years (if

not sooner), the NASD will be in a better position to evaluate additional steps that may be warranted.

The NASD also notes that under the proposed rules it would permit a continuing, gradual expansion in the list of securities eligible for large-sized limit order entry. This gradual expansion would occur because the NASD would not delete issues from the list even if supplanted by other issues in subsequent recalculations of the 250 most active securities. For example, if securities ranked 240 through 250 as measured in the initial ranking were to be replaced by other securities not previously ranked, the NASD would add the new most active securities to the eligibility list but would not delete those supplanted. In this way, the list would eventually expand in size, providing investors with additional opportunities to place larger limit orders.

Of course, if a security ranked in the 250 most active list were to experience a fundamental change in trading characteristics, the NASD would delete the security from the list. By fundamental change, the NASD means it would examine the median daily dollar volume activity to determine if its dollar volume had fallen below the 1,500 most active securities, or that it no longer qualified as a National Market security. In either case, the security would be deleted from eligibility for larger limit orders entry into NAcqess.

#### *B. Market Maker Proprietary Orders in NAcqess*

The NASD also proposes to amend the NAcqess rules to permit broker-dealers that are registered as NAcqess market makers, or other broker-dealers that perform market making functions (defined as "eligible market makers" in the amended rule), the opportunity to enter proprietary orders into NAcqess. Proprietary orders are orders entered by a market maker for the firm's own principal account or as a part of a riskless principal trade on behalf of a customer.<sup>10</sup> Eligible market makers may enter proprietary orders that are priced orders (*i.e.*, limit orders), unpriced orders (*i.e.*, market orders), or priced orders entered at the current best dealer

<sup>10</sup> Under the original NAcqess proposal, market makers would have been able to enter "marker orders." A marker order was defined as a principal order that a market maker entered for the purpose of effecting, in essence, a riskless principal transaction with a customer. The proprietary order proposal eliminates the need for the marker order concept. Under the proposed revision, market makers may enter priced or unpriced principal orders for their own account, or principal orders on behalf of a customer as part of a riskless principal transaction.

bid or offer (*i.e.*, marketable limit orders), consistent with the general order entry requirements for NAqcess.

### 1. Proprietary Limit Orders

The entry of proprietary limit orders in NAqcess should increase the size and depth of the limit orders in the facility and may help to further tighten the spreads in stocks. Market maker limit orders should permit such firms to aggressively price securities anonymously and to attract additional orders to them through this anonymous display. Consequently, the NASD believes that this amendment will increase the likelihood that customer orders will be executed more quickly, more frequently, and at better prices.

In addition, the entry of proprietary limit orders responds to the transparency concerns that the SEC raised with respect to orders placed in widely disseminated electronic communications networks ("ECNs") and will assist market makers in managing their risk by eliminating the potential for double executions that would be possible under the SEC's proposal. The SEC's proposed Rule 11Ac1-1(c)(5) would require that market makers reflect in their quotes the prices of orders that they place in ECNs. As the NASD noted in its comment letter on the Commission's proposed rules, this part of the SEC proposal may act as a major disincentive to market making because it would destroy the benefit of anonymity provided by ECNs. Every quote from a market maker in Nasdaq has the market maker's own unique identifier. The quote-display requirement with the attached identifier increases substantially the risk that a market maker would incur in establishing or liquidating a larger position because it telegraphs to the entire market the inventory position of the market maker. Moreover, displaying a better price in both the individual quote and in an ECN exposes the market maker to the risk of multiple executions at the same price.

The proposed revision to NAqcess that would allow proprietary limit orders by market makers in the NAqcess file addresses both the transparency concern and the double execution issue. NAqcess limit orders, whether agency or principal, that establish the best prices on the market would be reflected in the Nasdaq best bid and offer, *i.e.*, the inside market.<sup>11</sup> Because the inside market is

publicly disseminated, price discovery would be enhanced and best execution obligations would be more readily met. In other words, small investors would have access to the same prices that institutional and professional traders have in ECNs. Further, because the order would be anonymously reflected in the inside market, the problems that surface under the SEC proposal are diminished. In sum, this change to NAqcess should enhance the price discovery function of the Nasdaq Stock Market, while continuing to promote the liquidity that multiple market makers bring.

### 2. Proprietary Market Orders

Additionally, the NASD is amending the filing to permit eligible market makers to enter market orders for their own accounts, *i.e.*, proprietary market orders.<sup>12</sup> Proprietary market orders would be handled in the same manner as agency market orders. In other words, proprietary market orders would be subject to the same maximum order sizes and would be processed and executed in the same way agency market orders are to be handled. The intention in this amendment is to promote market maker participation in Nasdaq and to aid market makers in their ability to reduce risk from inventory by laying off positions through an automated means.

The NASD believes, at this time, that the proprietary market order entry feature provides a significant benefit to market makers and the marketplace as a whole. The ability to enter proprietary market orders allows market makers the ability to swiftly access other market makers' quotes and receive executions at those displayed prices. As a result, the accessibility of these quotes will encourage market makers to take positions in those securities and thereby aid in the liquidity of the market. The NASD believes that it is appropriate to limit use of NAqcess for proprietary trading to market maker orders. The purpose of proprietary trading in NAqcess is to enhance price discovery and to provide market makers with the tools to continue to function effectively

holds. However, this type of proprietary order may not be representative of an order larger than that eligible for NAqcess in the first instance. Entry of split orders, whether as part of an agency order or as part of a riskless principal proprietary order transaction, is not permitted.

<sup>12</sup> Because marketable limit orders are the equivalent of market orders, this amendment also permits the entry of proprietary marketable limit orders. When used in this discussion, the term "market orders" encompasses marketable limit orders as well.

as a market maker.<sup>13</sup> The NASD's goal is to promote liquidity and to provide incentives to market makers to maintain that liquidity and to continue to sponsor new issuers.

Accordingly, to the extent that proprietary trading capability is not extended to other broker-dealers and thus considered a competitive burden, the NASD believes that any such burden is appropriate and in furtherance of the purposes of the Act. In particular, by quoting firm, two-sided markets on a regular and continuous basis in addition to entering proprietary limit orders, market makers perform an important liquidity-provider function that is at the core of the Nasdaq Stock Market. Non-market-makers do not provide such liquidity. In fact, broker-dealers that seek execution of orders for their own account without incurring any of the risks associated with the display of firm quotes reasonably related to the current market could potentially harm the market and investors. They are demanders of liquidity competing with investors for a scarce commodity. It does not further the purposes of the Act to create a market structure that could harm investors by allowing market professionals to exhaust market liquidity for their own gain without imposing a corresponding obligation to provide support to the market. Any broker-dealer seeking access to this particular feature of NAqcess may seek to register as a NAqcess market maker and contribute to Nasdaq liquidity.<sup>14</sup>

### 3. Proprietary Orders—Generally.

The NASD believes that it would be appropriate to extend the capability to enter proprietary orders to registered Nasdaq market makers and to other broker-dealers that perform Nasdaq-security-related market-making functions in other markets. The

<sup>13</sup> With respect to options market makers, the NASD notes that this approach should address the concerns expressed by the Commission in its approval order regarding the NASD's Limit Order Protection Interpretation (NASD Rules of Fair Practice, Article III, Section 1, Interpretation .07). Securities Exchange Act Release No. 35751, May 22, 1995. In that order, the Commission stated that it "recognized the importance of price discovery and market efficiency and liquidity for options specialists and market makers to have efficient and economical opportunities for laying off risk in the Nasdaq market." *Id.* at 21. Because of the important options market liquidity role that options market makers have, and because options market makers' orders will enhance liquidity and the likelihood of prompt executions in NAqcess, the NASD determined that proprietary orders from these types of firms should be allowed.

<sup>14</sup> The NASD notes that NAqcess rules continue to allow any NASD member to enter customer limit orders on behalf of their customers and to enter takeout orders on behalf of customers or for their own accounts.

<sup>11</sup> A proprietary limit order may be entered by the firm as principal for the firm's own account or as part of a riskless principal transaction. In riskless principal transactions, the limit order entered may be of representative size, *i.e.*, it does not have to be for as large a size as the customer order the firm

proposed amendments specify that proprietary orders may be entered by three separate groups of market makers: (1) Registered Nasdaq market makers that also have registered as NAqcess market makers; (2) UTP exchange specialists; and (3) registered options market makers. Market makers must be registered as market makers for the specific security for which they seek to enter a proprietary order. Thus, a market maker registered and actively quoting as a market maker in one Nasdaq security (or, in the case of options market makers, an option on a Nasdaq security) may not enter a proprietary market or limit order in another Nasdaq security, unless separately registered as a market maker in that security as well. It is important to note that mere registration as a market maker is not sufficient to allow the entry of proprietary orders. A market maker must also have commenced quoting the security and the quotation must be active, *i.e.*, the market maker may not enter proprietary orders when it is in a closed quote state. Additionally, all proprietary orders must be entered by an associated person of the eligible market maker who is actively engaged in a market making capacity for Nasdaq securities. The NASD seeks to ensure that the entry of proprietary orders is properly managed by the eligible market maker.

As to UTP exchange specialists, the exchange specialist must be registered with an exchange that is a signatory to the Nasdaq/NMS/UTP Plan and must accept responsibility for market order executions at its quotation pursuant to the NAqcess market order execution process. Specifically, the NASD notes that the extension of this privilege to UTP specialists is contingent upon UTP exchanges and Nasdaq coming to terms on access to UTP exchange quotes for the purpose of market order executions. The best way to provide the reciprocal capability of one market being able to access the other is through the provision of Nasdaq Workstations to UTP Exchanges. In that way, UTP Exchange specialists will be able to enter proprietary orders into NAqcess and in return, NASD members can directly access exchange quotes in Nasdaq securities through NAqcess. Until such time as NASD members can obtain executions of market orders in NAqcess against the UTP exchange specialist when a UTP exchange is setting the best price in a security, the NASD believes that it would be unfair to allow UTP specialists to enter proprietary orders into NAqcess. The NASD is fully willing to negotiate with UTP exchanges an appropriate approach to access to all

Nasdaq systems as a part of the Nasdaq/NMS/UTP Plan. In this regard, prior to filing this amendment to the rule filing, the NASD has contacted the UTP Exchanges to inform them of this proposed function and to commence discussions on reaching a successful resolution of the access issue.

A registered options market maker that seeks to enter a proprietary order in a security must be registered as an options market maker in that same security on an exchange that trades options on that security. Options market makers that are not NASD members with access to Nasdaq Workstation II equipment may place NAqcess orders through an NASD member, whether a market maker or a NAqcess order entry firm.<sup>15</sup>

All proprietary orders will be accorded the same priorities and, for limit orders, price protection as provided to any other order in NAqcess. Accordingly, a proprietary limit order in NAqcess that has price or time priority over any other limit order will be executed ahead of all other limit orders. Further, the price protection rule also applies to proprietary limit orders in NAqcess in the same way that the rule would apply to an agency order.<sup>16</sup> Proprietary limit orders will not have any distinguishing characteristic viewable to market participants to differentiate them from other limit orders.<sup>17</sup> Similarly, proprietary market

<sup>15</sup> To clarify the rule on takeout orders, the NASD also proposes to amend the rule to specifically allow takeout order entry on behalf of registered options market makers, as well as customers. In the original proposal, takeouts were described as principal orders or orders entered as agent for a customer. Under NASD rules generally, customer is defined not to include brokers or dealers. The NASD has added the term "customer" to the list of definitions in the NAqcess rules and have redefined "takeouts" to include options market maker orders. Because UTP Exchange specialists will have access to Nasdaq Workstations, they will be permitted to enter takeout orders directly. In adding the definition of customer, the NASD reiterates that agency orders entered within a five minute period may be deemed to be based on a single investment decision. In this regard, it also noted that entry of computer generated orders could be considered orders based on a single investment decision. See Securities Exchange Act Release No. 36548, at n. 16 (60 FR 63095).

<sup>16</sup> The equivalent price protection rule does not apply to proprietary limit orders because such rules only apply to customer orders. Thus, to the extent that a member firm holds a limit order from an options market maker outside of NAqcess, the firm is not obligated to provide equivalent price protection for such order.

<sup>17</sup> A member entering a proprietary order on behalf of an options market maker must ensure itself that the firm placing the order is eligible to do so. Thus, if a member receiving an order from another firm claiming to be eligible as a registered options market maker knew or should have known that the firm claiming the right to enter the order did not in fact qualify, the member could be deemed to have violated the NAqcess rules.

orders will be handled in the same order delivery and execution process as agency orders. In addition, proprietary orders, both limit and market orders, may not be entered for sizes larger than the maximum order sizes permitted under the rules, *i.e.*, 9,900 and 1,000 shares for limit orders, and 1,000, 500, and 200 for market orders. It should be noted, however, that proprietary orders will not be aggregated under a single investment concept approach when the proprietary orders are strictly for the market maker's own account. On the other hand, to avoid allowing a customer to circumvent the maximum order size rules, a market maker may not enter a series of proprietary orders in order to execute as riskless principal a customer order that is in excess of the maximum order size. For example, if a market maker receives a customer limit order for 20,000 shares, the firm is not permitted to enter four 5,000 share orders at that same price with the expectation that the firm will pass along the benefit of the executions to the customer.

#### 4. Elimination of SelectNet

The entry of proprietary orders and larger sized limit orders provides significantly greater functionality in the NAqcess system. It is the NASD's view that this new functionality provides members with the capabilities substantially equivalent to the most used functions in SelectNet. Members use SelectNet in several ways. Members most frequently broadcast smaller or medium size orders in an attempt to obtain price improvement for a customer order over the current dealer quotation. NAqcess provides a similar ability in a more efficient book display and interaction environment.

Market makers also occasionally use SelectNet to send orders to other market makers when they cannot reach them by telephone. NAqcess will provide market makers similar capabilities and because orders will not scroll off the screen unexecuted as occurs in SelectNet, it will provide for more efficient executions.

Members also can use SelectNet to broadcast larger orders in an attempt to seek negotiation or execution of those orders. NAqcess will provide the ability to send orders up to 9,900 shares for certain securities, but, unlike SelectNet,

Members entering such orders are required to document that the order is eligible for entry. Members will be required to place an appropriate indicator in the order entry window on the Nasdaq Workstation to denote whether a limit order is an agency order, a principal order, a riskless principal order, or an order on behalf of an options market maker.

it will not permit unlimited size for all securities. The NASD notes, however, that although SelectNet allows the display of unlimited size orders, it is rare that orders larger than the NAQcess size limits are executed in SelectNet. The NASD examined certain trading days in the first quarter of 1996 to determine a representative picture of SelectNet use.<sup>18</sup> Of the 250 most heavily traded issues as determined by median dollar volume, there were 52 trades in SelectNet larger than 9,900 shares on the days studied. Over the same time period, the total number of trades for these securities was 2,085,544. Thus, SelectNet trades greater than 9,900 shares accounted for .0025% of total trades. The numbers related to other securities present a very similar pattern. There were 27,646 SelectNet trades greater than 1,000 shares for all other Nasdaq securities in this time period, as compared to a total number of trades of 1,827,282. This represents 1.51% of total trades.

Overall, NAQcess provides a very similar opportunity for market makers to lay off positions and to obtain a better execution for their customer and proprietary orders. Further, and more important, NAQcess will consolidate market information that previously was fragmented and not transparent to the entire market. Moreover, merging SelectNet trading activity into NAQcess should increase the likelihood that public limit orders displayed in NAQcess will receive a quick and advantageous execution. Because NAQcess provides capabilities analogous to the most used capabilities permitted in SelectNet, the NASD believes that SelectNet is no longer necessary. Accordingly, through this filing, the NASD proposes to terminate the SelectNet service.

Finally, the NASD intends to maintain the communications capability of SelectNet to provide an emergency communications mechanism among members in case of market exigencies. This feature is essentially the original SelectNet service first provided after the 1987 market break. Nasdaq will maintain this feature running in the background on the host processor operated by Nasdaq, and if necessary to provide additional communications capabilities during special market circumstances, Nasdaq will commence operation of this communications facility. Under such limited circumstances, NASD members would be able to direct an order through

SelectNet to a particular market maker in lieu of calling on the telephone.

### C. Other Changes

The NASD has made several other changes to the NAQcess rules, in particular with respect to the preopening procedures.

#### 1. Opening

The NASD has revised the opening process it will use at the startup of NAQcess to greatly simplify the process of opening NAQcess. The NASD has deleted all of the opening procedures previously described in the original rule filing. In its place, the NASD proposes the following procedures: NAQcess will not accept any limit or market orders entered into NAQcess outside of normal market hours, *i.e.*, 9:30 a.m. to 4:00 p.m. Eastern Time. Members will be able to cancel resident GTC agency or proprietary limit orders prior to the opening, as well as after the market has opened. This will allow members to exercise their fiduciary duties as to their customers when material news in a security occurs after the market has closed on the previous day.

The rules regarding the opening will provide a special exception to the normal mechanism for dealer quotations that match or cross orders not executed the previous day or cancelled prior to the opening. Under the newly proposed opening process, a dealer quotation that matches or crosses limit orders on the file at 9:30 is subject to immediate execution of the limit orders at its quotation price. Thus, if a market maker were to move its opening offer at 9:30 to 19 $\frac{7}{8}$  to set the inside market when a limit order to buy 8,000 shares at 20 was resident on the file at 9:30, the 8,000 share limit order would automatically execute against the market maker at its 19 $\frac{7}{8}$  quotation. Moreover, the execution would not deplete the market maker's minimum exposure limit. If multiple market makers quote through resident limit orders, each limit order quoted through will be distributed to the market makers at the best dealer bid or offer on a time sequence basis. In other words, if two GTC limit orders to buy 3,000 shares each at 20 are resident in the file at 9:30, and at 9:30, two market makers set the inside by quoting on the asked side of the market at 19 $\frac{7}{8}$ , each market maker will receive an execution report for 3,000 shares at 19 $\frac{7}{8}$  delivered to it. The executions against their quotes will not have an effect on their exposure limits.

Orders entered at 9:30 and thereafter and any limit orders already resident in NAQcess from the previous day will be processed according to the normal

market procedures described in the NAQcess rules.

#### 2. Inside Market—Best Dealer Bid and Offer

The NASD revised the use of the term "inside market" and added the term "best dealer bid and offer" throughout the proposed rule.<sup>19</sup> The NASD has made these revisions to provide a clearer definitional framework for several reasons. The new definition of "best dealer and offer" is necessary to establish, for example, when a limit order is to be treated as a "marketable limit order." This new definition sets the condition that a limit order is to be handled as market order when the limit order is priced the same as or outside the dealer bid or offer, as the case may be. Similarly, the two definitions, working in tandem, are critical to determine when limit orders establish the inside market and when such limit orders are to be automatically executed against each other.

#### 3. Self-Directed Orders

Consistent with the proprietary market order change discussed above, the NASD has also eliminated the requirement set out in the original proposal concerning agency market orders entered by market makers for their customers. The original proposal required that such orders be self-directed to the market maker. The NASD does not believe that requirement is necessary in an environment where market makers can enter proprietary orders. Nonetheless, market makers will be able to self-direct any market order.

#### 4. Odd-Lot Orders

The NASD has amended the proposal regarding the eligibility of odd-lot orders in NAQcess. The smallest normal unit of trading in Nasdaq is a round lot of 100 shares. At least for the initial operation of NAQcess, the NASD has determined that odd-lot orders (*i.e.*, orders 99 shares or less) should not be handled through NAQcess, because of

<sup>19</sup> The NASD also plans to develop a new approach to the requirement related to updating a market maker's quotation after its exposure limit has been exhausted. Currently, NAQcess rules provide that a market maker has up to five minutes to update its quotation after the exposure limit has been exhausted. The NASD plans to submit a system and rule revision to the Nasdaq Board for review and approval. The proposed revision would be to create a system alert function that would advise a closed quote market maker after one minute that it should refresh its quotation. If the market maker does not take any action by the end of three minutes in a closed quote status, the market maker would have a choice between system-assisted reentry of a quotation in accordance with market maker predetermined parameters or suspension as a market maker in the security for 20 business days.

<sup>18</sup> NASD Economic Research examined SelectNet activity on Thursdays in the first quarter in 1996.

the potential adverse cost impact that odd-lot executions may have on round-lot customer orders. Thus, the proposed Rules are being amended to delete references to the entry of odd-lot orders, except insofar as a partial execution of a mixed lot order (*i.e.*, an order consisting of at least one round lot and an odd-lot) may occur. In the case of a partial fill of a mixed lot order, the remaining unfilled odd-lot, if it is a limit order, will be stored in the NAQcess limit order file. However, it will not establish the inside market if it is the best priced limit order, nor will it be displayed in the Top of File display. The unfilled odd-lot will not be matched against incoming limit or market orders. Execution of the odd-lot limit order will occur when the best dealer bid or offer matches or crosses the odd-lot order; the odd-lot will automatically execute against the dealer quote. If the order was a mixed-lot market order that obtained a partial fill against a limit order, the unfilled remainder will be automatically executed against the next available market maker at the inside market without the possibility of being declined. The NASD also has amended the Rules of Fair Practice regarding the customer's discretion on NAQcess order entry to reflect this limitation on odd-lot order entry.

The NASD will continue to assess the need for development of an odd-lot order handling facility and may propose to revise NAQcess at a future date to permit such a capability.

#### 5. Agency Orders—Family Members

The NASD is proposing to change the prohibition regarding the entry of agency orders on behalf of an immediate family member. The current proposal retained the SOES prohibition that stated an order is not considered an "agency order" if it is for any account of a member of the immediate family of an associated person who has physical access to a device capable of entering orders into NAQcess.<sup>20</sup> These provisions were intended to prevent the creation of multiple accounts by a firm to evade the maximum order size limit in SOES.

Upon consideration of the purpose of the restriction on immediate family members in light of the new order delivery risk management features in NAQcess (*i.e.*, the ability of a market maker to decline an order if it has just effected a trade and is in the process of updating its quotation), the NASD has determined at this time to eliminate the restriction. However, it should be noted

that the restriction's elimination is being done based upon preliminary views that the order delivery function of NAQcess should provide sufficient tools to market makers to handle multiple market orders sent for execution at a dealer's quotation. If experience in NAQcess teaches that firms attempt to set up multiple accounts using family members as a technique to evade the order size restrictions, the NASD will seek to amend the NAQcess rules to address such subterfuges.

#### 6. Amendment to Schedule D, Part V, Section 2(a)

The NASD has amended this rule to be consistent with the criteria for maximum market order size in NAQcess.

#### (B) Self-Regulatory Organization's Statement on Burden on Competition

The NASD believes that the proposed rule change will not result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. The NASD has attempted to consider the various perspectives and competing interests and to determine an approach that provides maximum benefits for investors while reducing the costs to the lowest level possible. The NASD has carefully weighed the competitive implications of these changes, including the effect that larger orders and proprietary limit orders will have on competing systems and markets, and has determined that the benefits provided by greater transparency of limit orders and the increased likelihood of execution of public limit orders resident in NAQcess outweigh any competitive concerns. Specifically, NAQcess provides a limit order display that drives the inside market, thereby generally increasing competition in Nasdaq through the increased transparency of limit orders. The changes involving proprietary limit orders proposed in this amendment further increase the competition among orders. Increased competition among orders and quotations is inherently pro-competitive. Further, by permitting market makers to enter proprietary market orders, market makers can access other market makers' quotations more readily, resulting in an increased willingness to provide liquidity.

Finally, the NASD believes that any adverse competitive impact resulting from the entry of proprietary orders to market makers is far outweighed by the positive impact that the change will have on market liquidity and market making competition.<sup>21</sup>

The NASD notes that NAQcess will provide new opportunities to satisfy investor demand that Nasdaq provide an investor with an ability to interact with another customer's order without the intermediation of a dealer, a goal stated in Section 11A of the Act. In comment letters on NAQcess and the SEC Order Exposure Release, institutional investors and companies listed on Nasdaq noted that this was an important feature that they wanted.<sup>22</sup> The NASD believes that it is important that every market listen to its ultimate customers and provide capabilities that those customers request. Further, it is critical that Nasdaq market makers, and other firms that perform market making functions in Nasdaq securities, or options related to Nasdaq securities, maintain incentives to continue to make markets and provide liquidity for those securities. Opening NAQcess to proprietary orders from any broker-dealer would permit any firm to effectively operate as a fair-weather market maker by competing with market maker quotes through limit orders. This would allow non-market makers to compete risk-free with market makers and would drive market makers from the risk position they occupy when they enter two-sided quotes on a regular and continuous basis. Because market makers are a significant source of market liquidity, it is essential that the system is structured to provide incentives to continued market maker presence.

As to the competitive effect on ECNs, the NASD emphasizes that NAQcess is voluntary in nature. The decision as to whether to enter orders into NAQcess will be determined by investors seeking the best available market in which to obtain an execution of their orders, priced and unpriced. NAQcess does not restrict broker-dealer opportunities to offer a competing service. Accordingly, the NASD believes that NAQcess as revised herein provides significant investor benefits that outweigh any competitive effects on others. Finally, as to the general benefits that the NASD believes will result from the implementation of NAQcess and its accompanying rules, the NASD's Economic Research Department has developed a report regarding the benefits NAQcess will bring to investors

<sup>20</sup> See changes to proposed definition I. G. and Order Entry Restrictions IV. B. 3 and 4.

<sup>22</sup> See *e.g.*, letter from Harold Bradley and IRC.

<sup>21</sup> See changes to Section 11A(a)(1)(C)(i), (iv) and (v) of the Act ("It is in the public interest and appropriate for the protection of investors \* \* \* to assure \* \* \* economically efficient execution of securities transactions, \* \* \* the practicability of brokers executing investors' orders in the best market; and an opportunity \* \* \* for investors' orders to be executed without the participation of a dealer.").



in Nasdaq stocks. The report is attached as Exhibit D to this filing.

*(C) Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others*

Written comments on the amendments were neither solicited nor received.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Within 35 days of the date of publication of this notice in the Federal Register or within such longer period (i) as the Commission may designate up to 90 days of such date if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which the self-regulatory organization consents,<sup>23</sup> the Commission will:

A. By order approve such proposed rule change, or

B. Institute proceedings to determine whether the proposed rule change should be disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing. The Commission requests comments generally concerning whether the NASD's proposal is consistent with the Act. In addition, the Commission invites interested persons to address the following specific issues:

(1) The NASD proposes to allow limit orders up to 9,900 shares in the 250 most active Nasdaq securities, determined by the median dollar volume over the previous calendar quarter. Further, once a security is included in the 250 most active Nasdaq securities, the NASD proposes to continue to allow limit orders up to 9,900 shares in the security until the security's median daily dollar volume brings it below the 1,500 most active Nasdaq National Market securities. The Commission seeks comment on:

(a) Whether the median dollar volume is the most appropriate measure for determining the most active Nasdaq stocks or whether a different measure or alternative measures should also be considered;

(b) Whether it is appropriate, as the NASD has proposed, to exclude IPOs from the quarterly assessment of which securities meet the median dollar

volume test until the second full calendar quarter after the IPO; and

(c) Whether it is appropriate to maintain the maximum limit order size for the top 1,500 most active securities or a lesser or greater number of securities.

(2) As under the SOES rules, the NAQcess rules generally would prohibit members from splitting orders to comply with the NAQcess order size limitations. Two or more orders based on a single investment decision would be considered one order for purposes of determining whether an order was split. As a general rule, orders entered by an order entry firm within any five minute interval would be presumed to be based on a single investment decision. Notwithstanding the single investment decision limitation, market makers would be permitted to enter multiple proprietary orders, unless the order is a riskless principal order. The Commission seeks comment on whether the exception to allow market makers to enter multiple proprietary orders is appropriate.

(3) The proposed NAQcess "equivalent price protection" rule would require member firms that do not enter NAQcess-eligible customer limit orders into NAQcess (e.g., firms that internalize) to provide these orders price protection at least equivalent in substance to that which the order would have received had the order been entered into NAQcess. This rule, however, would not apply to proprietary (i.e., non-customer) limit orders. Thus, if a firm internalizes a limit order it receives from an options market maker, it would not be required to provide it price protection. The Commission seeks comment on whether this exception is appropriate. In addition, the Commission seeks comment on the practical impact of the "equivalent price protection" rule. Specifically, the Commission is interested in commenters' views on whether this rule, in effect, would require member firms to place their customers' limit orders in NAQcess.

(4) The NASD developed SelectNet in response to the difficulties experienced in the Nasdaq market during the market break of October 1987. SelectNet is an electronic screen-based order routing system allowing market makers and order-entry firms to negotiate securities transactions in Nasdaq securities through computer communications rather than relying on the telephone. Through SelectNet, NASD members can either direct an order to another member or broadcast an order to all market makers in the security or all members watching the security. The NASD

proposes to terminate its SelectNet service but intends to maintain for "special market conditions" the ability of market makers to use the directed feature in SelectNet. The Commission seeks comment on whether the NASD should continue to operate the directed feature at all times, rather than reserving it for "special market conditions," if NAQcess is approved.

(5) At least for the initial operation of NAQcess, the NASD proposes to prohibit the entry of odd-lot orders (i.e., orders of less than 100 shares). The NASD is concerned that the cost imposed on a round-lot customer order that matches with an odd-lot order might be excessive. The NASD recognizes, however, that even though the entry of odd-lots would be prohibited, round-lot orders might be partially executed and result in an odd-lot remaining. Under this situation, the NASD proposes to immediately execute the remaining odd-lot automatically against a market maker as soon as the order becomes marketable (i.e., immediately if the order is a market order or, if it is a limit order, after the inside market moves so that a buy (sell) limit order equals the inside ask (bid)). The Commission seeks comment on whether odd-lot orders should be entered in NAQcess and the appropriate methodology for executing these orders, including consideration of immediate automatic execution of marketable orders.

(6) Under the proposed NAQcess rules, a limit order priced at the quote (i.e., buy (sell) order priced at the bid (ask)) would not have time priority over market makers' quotes. For example, if the inside market consists of two market makers bidding \$20 in a security and a limit order to buy at \$20 is placed in NAQcess after the market makers began bidding \$20, incoming market orders would be directed to the market makers before they are matched with the limit order priced at \$20. Given that market makers would have an opportunity to decline market orders entered into NAQcess (consistent with the Firm Quote Rule), but market orders matched with limit orders would be executed immediately, the Commission seeks comment on whether limit orders should have priority over market maker quotes, so that incoming market orders would be matched with limit orders first.

(7) Under the NASD's original NAQcess proposal (similar to current SOES Rules), members would have been permitted to enter orders during non-market hours (market orders: 8:30 a.m. to 9:28 a.m.; limit orders: 8:30 a.m. to 9:28 a.m. and 4:00 p.m. to 6:00 p.m.).

<sup>23</sup> The NASD has consented to an extension until August 30, 1996 for the Commission to act on the proposal. Letter from Eugene A. Lopez, Assistant General Counsel, Nasdaq, to Michael J. Ryan, Jr., Special Counsel, SEC (June 11, 1996).



Immediately prior to the opening, NAqcess would have applied to the orders in its book special pre-opening procedures that, generally, would have first matched limit orders with limit orders and then market orders with limit orders. Any orders that remained unexecuted after the pre-opening procedure would have been subject to the normal intra-day procedures. Under the amended proposal, the NASD proposes to prohibit entry of any orders outside of Nasdaq market hours. The Commission seeks comment on the appropriateness of eliminating the entry of orders outside of Nasdaq market hours. Further, to the extent commenters believe that pre-opening and post-closing orders should be permitted, the Commission seeks comment on the appropriate pre-opening procedures.

(8) Like SOES, the current NAqcess proposal would provide a market maker up to five minutes to update its quotation after its exposure limit has been exhausted. The NASD has represented, however, that it intends to recommend that the Nasdaq Board adopt a new approach. Specifically, the NASD is expected to create a system alert function to advise a closed quote market maker after one minute that it should refresh its quotation. If the market maker does not take any action by the end of three minutes in a closed quote status, the market maker would have a choice between a system-assisted reentry of a quotation in accordance with market maker predetermined parameters or suspension as a market maker in the security for 20 business days. The Commission seeks comments on:

(a) Whether the one minute and three minute parameters are appropriate; and

(b) Whether, after three minutes have lapsed, the NASD should allow a market maker to choose between having its quotation updated and being suspended or whether the system should then automatically reestablish the market maker's quotation, with the market maker being limited to selecting the update parameters.

(9) The NASD proposes to allow UTP exchange specialists to enter proprietary limit and market orders in NAqcess. To obtain access, UTP exchange specialists must, among other things, provide electronic access that permits NAqcess market and limit orders to be executed against the specialist's published quote. The Commission seeks comment on the most appropriate mechanism for providing this electronic access.

(10) The NASD has represented that many of its member firms have expressed an interest in integrating

NAqcess into the firms' internal order handling systems. The Commission understands the NASD has provided its members with the technical specifications necessary to begin integrating NAqcess. The Commission requests that commenters provide an estimate of the time necessary from Commission approval of NAqcess to complete the changes necessary to integrate NAqcess. Further, the Commission seeks comment on members' and other commenters' views on the capacity for the current Nasdaq network and Workstation to manage expected NAqcess order flow.

Persons making written submissions should file six copies thereof with the Secretary, Securities and Exchange Commission, 450 Fifth Street, N.W., Washington, D.C. 20549. Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room. Copies of the filing will also be available for inspection and copying at the principal office of the NASD. All submissions should refer to the file number SR-NASD-95-42 and should be submitted by July 26, 1996.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.<sup>24</sup>

Margaret H. McFarland,  
Deputy Secretary.

#### Exhibit A—Rules of Operation and Procedures For the NAqcess System

##### I. Definitions

[The terms used in this Section shall have the same meaning as those defined in the Association's By-Laws and Rules of Fair Practice, unless otherwise specified.]

A. The term "NAqcess" shall mean the limit order and market order delivery and execution system owned and operated by The Nasdaq Stock Market, Inc. (a wholly owned subsidiary of the National Association of Securities Dealers, Inc.).

B. The term "NAqcess participant" shall mean either a market maker or an order entry firm registered for participation in NAqcess.

C. The term "NAqcess eligible security" shall mean any Nasdaq National Market or Nasdaq SmallCap equity security.

D. The term "open quote" shall mean a market maker's quotation price and size (up to its designated exposure limit) in an eligible security against which orders may be executed through the NAqcess system during normal market hours, as specified by the NASD. For the purposes of these Rules, a market maker has a "closed quote" when its exposure limit in NAqcess has been exhausted or it has been deemed "closed" pursuant to Section IV. A. 9 below.

E. The term "NAqcess market maker" shall mean a member of the Association that is registered *and quoting with an open quote* as a Nasdaq market maker pursuant to the requirements of Schedule D to the NASD By-Laws and as a market maker in one or more NAqcess eligible securities.

F. The term "NAqcess order entry firm" shall mean a member of the Association that is registered as an order entry firm for [participating] *participation* in NAqcess which permits the firm to enter agency orders of limited size [for delivery to and execution against] *that may be (1) delivered to NAqcess market makers [and customer limit orders in NAqcess that are included in] or UTP Exchange specialists that are at the best dealer bid and/or offer or (2) executed against limit orders that are at the inside market.*

G. The term "agency order" shall mean an order from a [public] customer that is entered by the NAqcess order entry firm or NAqcess market maker on an agency basis.

An order will not be considered an agency order if it is for any account of a person associated with any member firm or any account controlled by such an associated person.

[An order will not be considered an agency order if it is for any account of a member of the "immediate family" (as that term is defined in the NASD Free-Riding and Withholding Interpretation, Article III, Section 1 of the Rules of Fair Practice) of an associated person who has physical access to a terminal capable of entering orders into NAqcess.] H. The term "customer" shall have the same meaning as set forth in the Rules of Fair Practice, Article II, Section 1(f).

[H] I. The term "directed order" shall mean an order entered into NAqcess and directed to a particular NAqcess market maker or an order entered by a NAqcess market maker that is self-directed. Each market maker has the ability to select order entry firms from which it will accept directed orders.

<sup>24</sup> 17 CFR 200.30-3(a)(12).

[I] J. The term "non-directed order" shall mean an order entered into NAqcess and not directed to any particular market maker [,] or [a directed] an order that has been directed to a market maker that has not identified the order entry firm as one from which it will accept directed orders, or a directed order sent to a [firm] member that is not registered as a market maker in that security.

[J] K. The term "limit order" shall mean an order entered into NAqcess that is a priced order.

[K] L. The term "marketable limit order" shall mean a limit order that, at the time it is entered into NAqcess, if it is a limit order to buy, is priced at the current [inside] best dealer offer or higher, or if it is a limit order to sell, is priced at the [inside] best dealer bid or lower.

[L] M. The term "executable limit order" shall mean a limit order that, at the time a limit order, market order, or marketable limit order on the opposite side of the market is entered, is either [included in the inside market] within the best dealer bid and offer or is equal in price to the inside market and has time priority over other [limit] orders or [dealer quotations included] quotes in the inside market.

N. The term "proprietary order" shall mean an order for the principal account of a broker or dealer. A proprietary order may be a limit order, a market order or a marketable limit order.

O. The term "UTP exchange specialist" shall mean a broker-dealer registered as a specialist in Nasdaq securities pursuant to the rules of an exchange that: (1) Is a signatory as either a participant or limited participant in the Joint Self-Regulatory Organization Plan Governing the Collection, Consolidation and Dissemination Of Quotation and Transaction Information For Exchange-Listed Nasdaq/National Market System Securities Traded On Exchanges On An Unlisted Trading Privilege Basis ("Nasdaq/ NMS/UTP Plan"); (2) provide for electronic access that permits a UTP exchange specialist to enter proprietary orders and permits NAqcess market and limit order executions against a UTP exchange specialist at its published quote; and (3) permit all transactions to be cleared and settled through a registered clearing agency using a continuous net settlement system.

P. The term "registered options market maker" shall mean an exchange member registered with a national securities exchange as a market maker or specialist pursuant to the rules of such exchange for the purpose of regularly engaging in market making

activities as a dealer or specialist in an option on a Nasdaq-listed security.

Q. The term "eligible market maker" shall mean a NAqcess market maker, a UTP exchange specialist or a registered options market maker. Eligible market makers may enter proprietary orders only for those Nasdaq securities for which they are registered as a NAqcess market maker or an exchange specialist or for a Nasdaq security for which they are registered as an options market maker in an option on the underlying Nasdaq security.

R. The term "takeout [M. The term "marker] order" shall mean an order entered by an NASD member firm or a UTP exchange specialist, acting as principal or as agent on behalf of a customer or a registered options market maker, that executes against [NAqcess limit orders viewable by that firm.] limit orders consolidated in the inside market or displayed in the NAqcess Full File Display.

[O] S. The term "inside market" shall mean the best dealer bid, UTP exchange bid, or NAqcess limit order(s) to buy and the best dealer offer, UTP exchange offer or NAqcess limit order(s) to sell, as the case may be, displayed by Nasdaq.

T. The terms "best dealer bid," "best dealer offer" or "best dealer bid and/or offer" shall mean the highest priced bid quotation from a Nasdaq market maker or a UTP exchange specialist and/or the lowest priced offer quotation from a Nasdaq market maker or a UTP exchange specialist.

U [P]. The term "UTP exchange" shall mean any registered national securities exchange that has unlisted trading privileges in Nasdaq securities [,] pursuant to the Nasdaq/ NMS/UTP Plan.

[Q] V. The term "matched or crossed file" shall mean the entry of: (1) a bid quotation by a market maker equal to or greater than a limit order to sell resident in the NAqcess file in the same security; or (2) an offer quotation by a market maker equal to or less than a limit order to buy resident in the NAqcess file in the same security.

[R] W. The term "maximum market order size" shall mean the maximum size of individual market orders for a NAqcess eligible security that may be entered into or executed through NAqcess. The maximum market order size for each security shall be advertised in the system and published from time to time by the Association. In establishing the maximum market order size for each Nasdaq National Market security, the Association generally will give consideration to the average daily non-block volume, bid price, and number of market makers for each

security. Maximum market order size for Nasdaq National Market securities shall be 200, 500 or 1,000 shares, depending upon the trading characteristics of the securities.<sup>1</sup> These sizes may be adjusted on an issue by issue basis, depending upon trading characteristics of the issue and other relevant factors as determined by the Association. Maximum market order size for Nasdaq SmallCap securities shall be 500 shares.

[S] X. The term "maximum limit order size" shall mean the maximum size of a limit order for a security that may be entered into or matched through NAqcess. The maximum limit order size for Nasdaq National Market securities shall be 1,000 shares for each tier of Nasdaq National Market securities, except for the [securities that comprise the Nasdaq 100 Index<sup>2</sup>] 250 most active Nasdaq National Market securities as measured by a security's median daily dollar volume over the most recent completed calendar quarter, which shall have a maximum limit order size of [3,000 shares.] 9,900 shares. A National Market security that is the subject of an initial public offering ("IPO") shall not be considered for inclusion in the list of Top 250 securities until such security has had two full calendar quarters of trading history on Nasdaq. Initial inclusion of an IPO in the Top 250 category will be based on the IPO's median daily dollar volume in its second full calendar quarter. A security designated as eligible for the entry of limit orders of 9,900 or less shall not be deleted from this list of eligibility if its median daily dollar volume causes it not to be included in subsequent calculations of the 250 most active securities, unless there is a fundamental change in its trading characteristics that causes the median daily dollar volume to fall below the highest 1,500 most

<sup>1</sup> The applicable maximum market order size for each Nasdaq National Market security is determined generally by the following criteria:

- (i) A 1,000 share maximum market order size shall apply to Nasdaq National Market securities with an average daily non-block volume of 6,000 shares or more a day, a bid price of less than or equal to \$100, and three or more market makers;
- (ii) A 500 share maximum market order size shall apply to Nasdaq National Market securities with an average daily non-block volume of 2,000 shares or more a day, a bid price of less than or equal to \$150, and two or more market makers; and
- (iii) A 200 share maximum market order size shall apply to Nasdaq National Market securities with an average daily non-block volume of less than 2,000 shares a day, a bid price of less than or equal to \$250, and that have two or more market makers.

<sup>2</sup> [The Nasdaq 100 Index is an index comprised of many of the largest capitalized issues quoted in the Nasdaq National Market. The securities that make up the Nasdaq 100 are changed from time to time and The Nasdaq Stock Market publishes notice of such changes as they occur.]

*active Nasdaq National Market securities.* Maximum limit order size for Nasdaq SmallCap securities shall be 1,000 shares.

[T] Y. The term "exposure limit" shall mean the number of shares of a NAQcess eligible security specified by a NAQcess market maker that it is willing to have executed for its account by *non-directed* orders entered into NAQcess on either side of the market.

[U] Z. The term "minimum exposure limit" for a security shall mean an exposure limit equal to the maximum market order size for that security.

[V] AA. The term "automated quotation update facility" shall mean the facility in the NAQcess system that allows the system to automatically refresh a market maker's quotation in any security that the market maker designates when the market maker's exposure limit has been exhausted. The facility will update: (1) Either the bid or the offer side of the quote using a quotation interval designated by the market maker, depending upon the side of the market on which the execution has occurred and refresh the market maker's exposure limit; or (2) close the market maker's quote for five minutes, within which time the market maker shall update its quote or be placed in a suspended state for [20] *twenty (20) business days.*<sup>a</sup>

[W] BB. The term "Automated Confirmation Transaction service" ("ACT"), for purposes of the NAQcess rules, shall mean the automated system owned and operated by The Nasdaq Stock Market, Inc. which accommodates trade reporting of transactions executed through NAQcess and submits locked-in trades to clearing.

## II. NAQcess Participant Registration

A. All members participating in NAQcess shall register and be authorized as NAQcess market makers and/or order entry firms. Registration as a NAQcess participant shall be conditioned upon the member's initial and continuing compliance with the following requirements: (1) Membership in a clearing agency registered with the Securities and Exchange Commission which maintains facilities through

which NAQcess compared trades may be settled; or entry into a correspondent clearing arrangement with another member that clears trades through such clearing agency; (2) registration as a market maker (if applicable) in Nasdaq pursuant to Schedule D of the NASD By-Laws and compliance with all applicable rules and operating procedures of the Association and the Securities and Exchange Commission; (3) maintenance of the physical security of the equipment located on the premises of the member to prevent the unauthorized entry of orders or other data into NAQcess or Nasdaq; and (4) acceptance and settlement of each trade [for which it is responsible] that is executed through the facilities of the NAQcess service, or if settlement is to be made through another clearing member, guarantee of the acceptance and settlement of such identified NAQcess trades by the clearing member on the regularly scheduled settlement date.

B. Upon effectiveness of the member's registration to participate in NAQcess, participants may commence activity within NAQcess for entry and/or execution of orders, as applicable, and their obligations as established in this rule will commence.

C. Pursuant to Schedule D to the NASD By-Laws, participation as a NAQcess market maker is required for any Nasdaq market maker registered to make a market in a Nasdaq National Market security. A market maker in a Nasdaq SmallCap security may withdraw from and reenter NAQcess at any time, and without limitations, during the operating hours of the service.

D. Each NAQcess participant shall be under a continuing obligation to inform the Association of noncompliance with any of the registration requirements set forth above.

## III. Operating Hours of NAQcess

The operating hours of NAQcess will be the normal market hours specified for The Nasdaq Stock Market.

## IV. Participating Hours of NAQcess

### A. Market Makers

1. A NAQcess market maker shall commence participation in NAQcess by initially contacting the Market Operation Center to obtain authorization for market making in particular Nasdaq securities and identifying those terminals on which the NAQcess trade information is to be displayed. Thereafter, on-line registration on a security-by-security basis is permissible, consistent with the requirements of Schedule D to the NASD By-Laws.

2. Participation as a NAQcess market maker obligates the firm, upon presentation of a market order or marketable limit order through the service, to execute such order as provided in Section V.A.5. below. NAQcess market makers are not permitted to decline orders directed to the firm pursuant to a directed order arrangement acknowledged by the market maker.

The system will transmit to the market maker on the Nasdaq Workstation screen and printer, if requested, or through a computer interface, as applicable, an execution report generated following each execution.

3. For each NAQcess eligible security in which a market maker is registered, the market maker shall enter into NAQcess [its] *an* exposure limit. For a Nasdaq National Market security, that limit shall be any amount equal to or larger than the minimum exposure limit for the particular security. If no exposure limit is entered for a Nasdaq National Market security, the firm's exposure limit will be either the default size selected by the particular market maker or the minimum exposure limit. "Default size" shall mean an exposure limit *equal to or greater than* the minimum exposure limit that may be selected by a market maker for individual securities or for all securities in which it makes a market.

4. A NAQcess market maker may elect to use the automated quotation update facility in one or more securities in which it is registered. The facility will [update] *refresh* the market maker's quotation automatically by a quotation interval designated by the market maker, once its exposure limit in the security has been exhausted. The facility will [update] *refresh* the market maker's quotation in either the bid or the offer side of the market by the interval designated and will reestablish the market maker's displayed size and either the default *exposure limit* size or the minimum exposure limit; or the facility will close the market [maker] *maker's* quote for five minutes.<sup>b</sup>

5. Matched or crossed file. If a market maker's quotation change matches or crosses a limit order residing in the NAQcess limit order file, the system will automatically provide a notification to the market maker that informs the market maker of its obligation to protect all limit orders residing in the NAQcess file that would be affected by the quotation change. If the market maker enters the matching or crossing

<sup>a</sup> [Commission Note: The NASD has stated that it plans to submit to the Nasdaq Board a proposal to revise NAQcess to create a system alert function that would advise a closed quote market maker after one minute that it should refresh its quotation. Under the expected change, if the market maker does not take any action by the end of three minutes in a closed quote status, the market maker would have a choice between a variety of system-assisted reentry of a quotation in accordance with market maker predetermined parameters or suspension as a market maker in the security for 20 business days. See *supra* note 19 of the Commission's notice.]

<sup>b</sup> [Commission Note: But see *supra* note a of this Appendix.]

quotation change after this notification, limit orders in the file for the particular security will be automatically executed against the matching or crossing market maker, provided however, that if the number of shares in the limit order file that would be matched or crossed is greater than five times the maximum market order size for that particular security, or if the quotation change matches and crosses multiple price levels, the quotation change will be rejected. To effect such quotation change, the market maker first must manually enter a takeout order for the affected orders in the file prior to re-entering its quotation update.

6. The NAqcess market maker may terminate its obligation by keyboard withdrawal from NAqcess at any time. However, the market maker has the specific obligation to monitor its status in NAqcess to assure that a withdrawal has in fact occurred. Except as otherwise permitted by Section 70 of the Uniform Practice Code regarding the Association's authority to declare clearly erroneous transactions void, ("UPC Section 70"), any transaction occurring prior to the effectiveness of the withdrawal may remain the responsibility of the market maker. In the case of a Nasdaq SmallCap security, a market maker whose exposure limit is exhausted will be deemed to have withdrawn from NAqcess and may reenter at any time. In the case of a Nasdaq National Market security, a market maker whose exposure limit is exhausted will have a closed quote in Nasdaq and NAqcess and will be permitted a standard grace period of five minutes within which to take action to restore its exposure limit, if the market maker has not authorized use of the automated quotation update facility. A market maker that fails to renew its exposure limit in a Nasdaq National Market security within the allotted time will be deemed to have withdrawn as a market maker.<sup>c</sup> Except as provided in subsection 7 below, a market maker that withdraws from a Nasdaq National Market security may not re-register in NAqcess as a market maker in that security for twenty (20) business days.

7. Notwithstanding the provisions of subsection 6 above, (i) a market maker that obtains an excused withdrawal pursuant to Part V of Schedule D to the NASD By-Laws prior to withdrawing from NAqcess may reenter NAqcess according to the conditions of its withdrawal; [and] (ii) a market maker that fails to maintain a clearing arrangement with a registered clearing

agency or with a member of such an agency, and is thereby withdrawn from participation in ACT and NAqcess for Nasdaq National Market securities, may reenter NAqcess after a clearing arrangement has been reestablished and the market maker has complied with ACT participant requirements, provided however, that if the Association finds that the ACT market maker's failure to maintain a clearing arrangement is voluntary, the withdrawal of quotations will be considered voluntary and unexcused pursuant to Schedule D and these rules; or (iii) *Nasdaq Market Operations Review Committee may reinstate market makers that voluntarily withdraw or fail to obtain excused withdrawal status pursuant to Schedule D, Part V, Section 8, prior to the expiration of twenty (20) business days in the interest of ensuring market liquidity and the protection of investors.*

8. In the event that a malfunction in the market maker's equipment occurs rendering on-line communications with the NAqcess service inoperable, the NAqcess market maker is obligated to immediately contact the Market Operations Center by telephone to request a closed quote status from NAqcess. [For Nasdaq securities, such] *Such request must be made pursuant to the requirements of Part V, Schedule D to the NASD By-Laws.* If the closed quote status is granted, Market Operations personnel will enter such status notification into NAqcess from a supervisory terminal. Such manual intervention, however, will take a certain period of time for completion and, unless otherwise permitted by the Association pursuant to its authority under UPC Section 70, the NAqcess market maker may continue to be obligated for any transaction executed prior to the effectiveness of its closed quote.

#### B. Order Entry—Agency Orders

1. [Only] *Except as provided in subsection C below, only market and limit agency orders may be entered in NAqcess by the NAqcess order entry firm or the NAqcess market maker* through either its Nasdaq Workstation or computer interface. The system will transmit to the *market maker or order entry firm* on the Nasdaq Workstation screen and printer, if requested, or through a computer interface, as applicable, an execution report generated following each execution. [NAqcess market makers may enter limit agency orders in NAqcess for any NAqcess eligible security, but may not enter agency market orders or marketable limit orders in securities in which they make markets, unless such

orders are self-directed. As a limited exception to the prohibition of the entry of proprietary orders into NAqcess, NAqcess market makers may place marker orders into NAqcess. The benefit of any such marker order execution must be passed immediately to one or more customer limit orders held by the firm placing the marker order. Marker orders may not be placed with respect to customer limit orders held by the firm that exceed the maximum limit order size permitted by these rules.]

2. NAqcess will accept both market and limit agency orders of appropriate size for execution. Agency orders may be directed to a specific NAqcess market maker, self-directed by the NAqcess market maker, or may be non-directed, thereby resulting in execution against the next available NAqcess market maker. If an order is directed to a market maker by an order entry firm from which it has not agreed to accept [direct] *directed* orders, the order will be executed on a non-directed basis.

3. [Only agency] *Agency orders no larger than the maximum market and limit order sizes may be entered by a NAqcess [order entry firm into NAqcess for execution against an NAqcess] market maker or order entry firm into NAqcess for execution against a NAqcess market maker or UTP exchange specialist or against an executable limit order. [Orders] Agency orders in excess of the maximum order sizes may not be divided into smaller parts for purposes of meeting the size requirements for orders entered into NAqcess. All agency orders based on a single investment decision that are entered by a NAqcess market maker or order entry firm for accounts under the control of associated persons or [public] customers, whether acting alone or in concert with other associated persons or [public] customers, shall be deemed to constitute a single order and shall be aggregated for determining compliance with the maximum order size limits. [Orders] Agency orders entered by the NAqcess market maker or order entry firm within any five-minute period in accounts controlled by associated persons or [public] customers, acting alone or in concert with other associated persons or [public] customers, shall be presumed to be based on a single investment decision. An associated person or customer shall be deemed to control an account if the account is [his or her] a personal account [or an account in which he or she has a beneficial interest]; the person exercises discretion over the account; or the person has been granted a power of attorney over the account; [or the account is the account of an immediate*

<sup>c</sup> [Commission Note: But see supra note a of this Appendix.]

family member as that term is defined in the Board of Governors Interpretation on Free-Riding and Withholding, Article III, Section 1 of the NASD Rules of Fair Practice].

4. No order will be considered an agency order from a [public] customer if it is for any account of a person associated with any member firm or any account controlled by such an associated person. [No order will be considered an agency order from a public customer if it is for any account of a member of the "immediate family" (as that term is defined in the NASD Free-Riding and Withholding Interpretation, Article III, Section 1 of the Rules of Fair Practice) of an associated person who has physical access to a terminal capable of entering orders into NAqcess.]

5. No member or person associated with a member shall utilize NAqcess for the execution of agency orders in a SmallCap security in which the member is a Nasdaq market maker but is not a NAqcess market maker in that security.

6. NAqcess will accept the following types of agency orders during normal market hours: (a) day orders; (b) good-till-canceled ("GTC"); and (c) good till date ("GTD").

#### C. Order Entry—Proprietary Orders

1. As an exception to the general prohibition of the entry of proprietary orders into NAqcess, eligible market makers may place proprietary orders for their market making accounts into NAqcess. All such proprietary orders must be entered by an associated person of the eligible market maker who is actively engaged in a market making capacity for Nasdaq securities. Proprietary orders placed by a registered options market maker may be entered through a NAqcess market maker or NAqcess order entry firm.

2. Proprietary orders may be entered only for NAqcess-eligible securities for which the NAqcess market maker or UTP exchange specialist is registered as a market maker or specialist. Registered options market makers may enter such proprietary orders for NAqcess-eligible securities for which they are registered as a market maker or specialist in an option overlying such securities. A member that enters a proprietary order must designate the order with the appropriate designator for surveillance and examination purposes: "P" for a proprietary order entered by a NAqcess market maker; "E" for a proprietary order entered by a UTP exchange specialist; and "D" for a proprietary order entered by a registered options market maker.

3. *Proprietary orders will be subject to the same display and execution requirements and protections as agency orders. Proprietary orders will be entered and displayed anonymously, i.e., no special indicator will be displayed. Proprietary orders entered by eligible market makers may not exceed the maximum market or limit order sizes for NAqcess eligible securities. Proprietary market and marketable limit orders are not subject to the limitations regarding a single investment decision imposed on agency market orders in subsection B.3 above, provided, however, that an eligible market maker may not enter a series of proprietary market and/or marketable limit orders to effect transactions on behalf of a customer order that is in excess of the maximum order sizes. Such orders may not be divided into smaller parts for the purposes of meeting the size requirements for orders entered into NAqcess.*

4. *A member accepting and entering proprietary orders on behalf of a registered options market maker must maintain in its records documentation that clearly indicates that such orders are for principal accounts of persons eligible to enter proprietary orders. A member entering proprietary orders for a person not eligible to enter such orders violates the terms of the NAqcess rules, unless the member can demonstrate that the member did not know or have reason to know that the order was in contravention of NAqcess rules.*

#### V. Execution of NAqcess Orders

A. *General Execution Procedures* [:] Orders in [Nasdaq equity] NAqcess-eligible securities entered into NAqcess may be directed or non-directed. Non-directed market orders and non-directed marketable limit orders will be processed according to the procedures established below. [Non-directed odd-lot orders that are market orders or marketable limit orders will be automatically executed in NAqcess against the next available market maker at the inside market and execution reports will be delivered to the order entry firm and the market maker] NAqcess will accept orders in sizes equal to or greater than the normal unit of trading up to the applicable maximum order sizes. An unexecuted odd-lot portion of a mixed-lot order will be handled according to procedures set forth below.

1. *Entry of Limit Orders* [:] Limit orders may be entered into NAqcess by order entry firms and by eligible market makers up to the maximum limit order size allowed for a particular security. Limit orders priced away from the

Nasdaq inside bid or offer (as the case may be) as well as limit orders [consolidated in the inside market] priced at or within the best dealer bid and offer will be stored in the NAqcess limit order file. Limit orders in securities priced at \$10 or more shall be priced in increments of an eighth or more; limit orders in securities that are priced at under \$10 may be placed in increments of a sixteenth or less depending upon the dealer quotation increments permitted.

#### 2. *Display of NAqcess Limit Orders* [:]

(a) *Consolidated Display of Limit Orders In Inside Market*: If a NAqcess limit order to buy or sell for 100 shares or more is better than the best dealer bid or offer, the limit order to buy or sell will be displayed in the Nasdaq inside market. Such display will contain the limit order price, size (which shall be aggregated if two or more limit orders are at the same best price) and an indicator to note that the inside market consists of a limit order rather than a market maker or UTP exchange quotation. If a NAqcess limit order of 100 shares or more is at the same price as the best dealer bid or offer, the size displayed in the inside market will be an aggregation of any same-priced limit orders and a single dealer quote at the best price.

(b) *Top of the file display*: The Nasdaq Stock Market, Inc. will make available via Nasdaq Workstations and to securities information processors the prices and aggregate size of the best limit order(s) to buy and the best limit order(s) to sell. This top of the file display will be displayed separately from the inside market and will be dynamically updated.

(c) *Full Limit Order File Display*: All Nasdaq market makers in a particular security may request via Nasdaq Workstations a display of all limit orders in such security entered in the NAqcess limit order file. Such displays will be available on a query basis only to a registered market maker in a particular security.

3. *Execution of Limit Orders* [:] A limit order that matches or crosses a limit order on the opposite side of the market will be automatically executed against the matching or crossing order when such orders are at the inside market or better, and have priority over the dealer quotation] *Matching or crossing limit orders on opposite sides of the market priced better than the best dealer bid or offer on Nasdaq upon entry or thereafter will be automatically executed against each other.* The priority rules for limit order interaction shall be that orders that are best in price shall be executed against each other first. If two or more

orders are at the same price on the same side of the market, then the order that was received first in time shall be accorded priority over other orders at the same price. Limit orders that cross each other in price shall be executed at the price of the order that entered the file first. A limit order matches a limit order on the file when: the limit orders are [consolidated in the inside market] *within the best dealer bid and offer* on Nasdaq; are on opposite sides of the market; and are equal in price. A limit order crosses a limit order on the file when: [both limit orders are either consolidated in the inside market or better than the inside market;] *one limit order is within the best dealer bid and offer*; they are on opposite sides of the market from each other; and the subsequent limit order is at a superior price to the existing limit order (i.e., the sell (buy) limit order is priced below (above) a limit order to buy (sell)). Execution of limit orders will occur up to the size of the initial limit order or the subsequent limit order, whichever is smaller, and without the participation of a market maker. The unexecuted balance of a limit order is entered into the NAcqess file for subsequent matching, unless such balance is less than 100 shares, in which case the balance is automatically executed against the next available market maker, if equal to the [inside quotation] *best dealer bid or offer*.

If there is a limit order at the same price as the best dealer [quotation] *bid or offer* (i.e., if a limit order to buy is the same as the best dealer bid, or a limit order to sell is the same as the best dealer offer), the order or quote that has time priority shall be matched against the incoming limit order.

4. *Takeouts of Limit Orders* [:] Any NASD member firm or UTP exchange specialist, acting as principal or as agent on behalf of a customer or a registered options market maker, may enter into NAcqess an order or orders that execute(s) any limit order(s) [consolidated in the inside market or otherwise] displayed in the NAcqess limit order file. Such orders shall be known as "takeout" orders. A takeout order may be for any size up to the aggregate amount of shares displayed in the NAcqess limit order file at a particular price. Takeout orders must be executed against limit orders on the opposite side of the market in order of price and time. A firm entering a takeout order for limit orders at multiple prices may enter a single takeout order at a price either at or above or below the NAcqess limit orders, as the case may be, and each limit order will be executed at each such price. *Unfilled*

*takeout orders have no standing in the system.* Takeout orders do not reduce a firm's exposure limit.

5. *Entry and Execution of Market Orders*[:] (a) Market orders up to the maximum market order size for a NAcqess eligible security may be entered into NAcqess. If at the time a market order is entered into NAcqess there is a limit order on the opposite side of the market that resides in the NAcqess limit order file [and is reflected in] *at a price superior to the best dealer bid or offer*, the incoming market order will be automatically executed against the limit order at the limit order price without the participation of a market maker. If a market order is not fully executed against the limit order file, the balance of such market order will be treated as any other market order as set forth in subparagraph (b) below, provided that if the balance of the market order is odd-lot size, the balance will be automatically executed against the next available market maker at the [inside quotation] *best dealer bid or offer*. If there is a limit order [consolidated in the inside market] at the same price as [a] *the best dealer bid or offer* (i.e., if a limit order to buy is the same as the best dealer bid, or a limit order to sell is the same as the best dealer offer), the order or quote that has time priority shall be matched against the incoming market order.

(b) If there is no limit order residing in NAcqess [that has been consolidated in the inside market] *priced at or within the best dealer bid or offer* on the opposite side of the market from the market order, each market order will be assigned to a market maker at the inside market and will be executed against the next available market maker at the current inside market after a [display] period of [15–]20 seconds. The market maker to which a market order is displayed may decline the market order within the [15–]20 second period if the market maker has contemporaneously executed another transaction and is in the process of updating its quotation pursuant to SEC Rule 11Ac1–1 \_\_\_\_\_. *The quotation update should be entered prior to declining the order.* If a market order or a marketable limit order is declined by a market maker, the order is returned to the system for distribution to the next available market maker. If that market maker is at the same price level as the first market maker who declined the order, the second market maker has [15] 20 seconds to react to the order. If the originally declined order is re-presented to a market maker at a price level different from its original presentation(s), the order is automatically executed at that price

level without any market maker ability to decline.

(c) If the NAcqess limit order file does not have any executable limit orders at the time a directed market order is entered, *the directed market [orders] order will be automatically executed at the inside market price* against the directed order market maker without a [15-second] decline capability. Directed limit order that are not matched by incoming limit or market orders will be automatically executed against the directed order market maker when the inside market is changed to match the directed limit order price. [Directed odd-lot orders (orders of less than 100 shares) that are market orders or marketable limit orders also will be automatically executed against the directed order market maker. Non-directed odd-lot orders that are market orders or marketable limit orders will be automatically executed against the next available market maker at the current inside market. An odd-lot limit order that is not executable at time of entry will be stored and executed against the best dealer bid or offer, as the case may be, when such quotation reaches the limit order price.]

6. *Entry and Execution of A Marketable Limit Order* [:] Marketable limit orders that meet the maximum market order size requirements will be accepted and treated as market orders. Marketable limit orders greater than the maximum market order size will be returned to the order entry firm for handling outside of NAcqess.

7. *NAcqess Opening [Procedures: NAcqess will permit the entry of limit orders and market:] NAcqess will commence the processing of orders at 9:30. The system will not accept orders outside of normal market hours. Limit orders not executed or cancelled during normal market hours ("resident limit orders") may be cancelled at any time that the system is opened for the purpose of entering quotations prior to the opening. If the best opening dealer bid or offer matches or crosses resident limit orders not cancelled prior to the open, then the market maker that quoted through the limit order(s) must execute the full share size of the order(s) at its quoted price. If multiple market makers change their quotations to match or cross the NAcqess file at the open, resident limit orders will be distributed to each market maker at the best dealer bid or offer for immediate execution at their quotation in time sequence. Quote-through executions at the opening do not deplete a market makers's exposure limit. Resident limit orders at market open and limit orders and market orders entered into NAcqess*

at market open will be processed according to normal market processing rules set forth in Section V, above], except that market orders will not be accepted between 4:00 and 6:00 p.m. Orders entered at such times will not be executed but will be stored for matching and execution at the next market opening. NAqcess permits the entry of such orders between 4:01 p.m. to 6:00 p.m. and 8:00 a.m. to 9:28 a.m. (Orders entered from 9:28 to 9:30 will be stored and handled according to normal market procedures after the opening procedures are concluded.)

Matching and execution at the NAqcess opening will occur according to the following procedures:

At 9:28 a.m., NAqcess will stop accepting orders for execution in the NAqcess file for opening purposes. At 9:30 a.m., NAqcess will commence execution procedures for opening orders in NAqcess by first ranking and matching limit orders in NAqcess in sequence of the highest price buy order against the lowest price sell order. When all available limit orders are matched and executed, market orders on a time priority basis will be matched and executed against any remaining limit orders in the NAqcess file within the inside quotation at the limit order price(s). Any remaining market limit orders will be stored in the NAqcess file. Any remaining orders will be subject to normal order execution processes].

#### VI. Clearance and Settlement

All transactions executed in NAqcess shall be transmitted to the National Securities Clearing Corporation to be cleared and settled through a registered clearing agency using a continuous net settlement system.

#### VII. Obligation To Honor System Trades

If a trade reported by a NAqcess participant, or clearing member acting on its behalf, is reported by NAqcess to clearing at the close of any trading day, or shown by the activity reports generated by NAqcess as constituting a side of a NAqcess trade, such NAqcess participant, or clearing member acting on its behalf, shall honor such trade on the scheduled settlement date.

#### VIII. Compliance With Procedures and Rules

Failure of a NAqcess participant or person associated with a NAqcess participant to comply with any of the rules or requirements of NAqcess may be considered conduct inconsistent with high standards of commercial honor and just and equitable principles of trade, in

violation of Article III, Section 1 of the Rules of Fair Practice. No member shall effect a NAqcess transaction for the account of a customer, or for its own account, indirectly or through the offices of a third party, for the purpose of avoiding the application of these rules. Members are precluded from doing indirectly what is directly prohibited by these rules. All entries in NAqcess shall be made in accordance with the procedures and requirements set forth in the NAqcess User Guide. Failure by a NAqcess participant to comply with any of the rules or requirements applicable to NAqcess shall subject such NAqcess participant to censure, fine, suspension or revocation of its registration as a NAqcess market maker and/or order entry firm or any other fitting penalty under the Rules of Fair Practice of the Association.

#### IX. Termination of NAqcess Service

The Association may, upon notice, terminate NAqcess service to a participant in the event that a participant fails to abide by any of the rules or operating procedures of the NAqcess service or the Association, or fails to pay promptly for services rendered.

#### Exhibit B—Interpretations Related to Member Firm Responsibilities Regarding Orders in NAqcess

In its efforts to maximize the protection of investors and to enhance the quality of the marketplace, the NASD and [The] the Nasdaq Stock Market, Inc. have developed a nationwide limit order protection, price improvement, and market order handling facility of The Nasdaq Stock Market. This nationwide facility is herein referred to as "NAqcess".

The NASD Board of Governors is issuing these Interpretations to the Rules of Fair Practice to provide: (1) Customers the right to have their orders entered and protected in NAqcess; and (2) member firm provision of equivalent protection for limit orders held in a member firm's proprietary limit order system. These Interpretations are based upon a member firm's obligation to provide best execution to customer orders under Article III, Section 1 of the Rules of Fair Practice and a member firm's obligations in dealing with customers as principal or agent to buy and sell at fair prices and charge reasonable commissions or service charges under Article III, Section 4 of the Rules of Fair Practice. Accordingly, it shall be deemed a violation of Article III, Section 1 of the Rules of Fair Practice for a member or a person

associated with a member to violate the following provisions:

#### 1. Member Firm Obligation Regarding Investors Directions on Order Handling

NAqcess will provide individual investors with significant opportunities to achieve limit order protection and price improvement. The NASD recognizes that member firms operating as market makers also operate trading systems which offer significant protection and execution opportunities for customer limit orders. Accordingly, nothing herein is intended to limit a member's ability to recommend use of its own or another member firm's proprietary system for handling limit and market orders where equivalent protection is afforded. In light of the significant benefits offered to customers by the NAqcess system, however, members must abide by the directions of its customers who request that the firm enter their *eligible* orders in NAqcess.

Further, nothing in this Interpretation requires a member firm to accept any or all customer limit orders. Member firms accepting limit orders that are placed in NAqcess or otherwise may charge fair and reasonable commissions, commission-equivalents, or service charges for such handling, provided that such commissions, commission-equivalents, or service charges do not violate Article III, Section 4 of the Rules of Fair Practice. In no event, however, shall a member impose any fee or charge that effectively operates as a disincentive to the entry of orders in the nationwide facility and thereby interferes with the investor's ability to choose order handling alternatives.

#### 2. Equivalent Protection for Orders Held Outside of NAqcess

As a further adjunct to a member firm's best execution obligations, the NASD Board of Governors has interpreted Article III, Section 1 of the Rules of Fair Practice to require member firms that do not enter customer limit orders into NAqcess, but hold such protectible orders in their own proprietary system, to provide such orders with price protection at least equivalent in substance to that which the order would have received had the order been entered into NAqcess. For the purposes of this Interpretation, a "protectible limit order" shall mean a limit order that meets the maximum limit-order size criteria as set forth in the Rules of Operation and Procedure for NAqcess at Section [I.S] I(s). For the purposes of this Interpretation, equivalent price protection shall mean:



**A. Print Protection**

If a transaction in a Nasdaq security is reported via the Automated Confirmation Transaction Service ("ACT") at a price inferior to the price of customer limit order(s) that the firm is holding (i.e., if the reported price is a price lower than a buy limit order or higher than a sell limit order being held by the firm), the firm holding the limit order(s) is required on a contemporaneous basis to execute the limit order(s) at the limit price(s) up to the size of the reported transaction.

**B. Matching Limit Orders**

If the firm holds a customer buy (sell) limit order in its proprietary limit order file and that limit order matches a sell (buy) limit order in NAqcess, the firm holding the limit order must either provide its customer with an immediate execution at the limit order price or must immediately direct the order to NAqcess. A limit order held by a firm would match a limit order in NAqcess when the limit order in NAqcess is at the same price or is priced lower than the firm's customer's limit order to buy or higher than the firm's customer limit order to sell ("offsetting limit orders").

**C. Matching Limit Order Interaction Within A Firm's File**

If the firm holds two or more offsetting customer limit orders within its own proprietary file, the firm must execute the offsetting limit orders.

**D. Interaction Between Limit and Market Orders Held Within a Firm's File**

While holding a customer limit order that is priced equal to or better than the best bid or offer in the security disseminated in Nasdaq, if a firm accepts customer market orders for automated execution against the best bid or offer in the security disseminated in Nasdaq, the firm, pursuant to its obligation set forth in the Interpretation to the Rules of Fair Practice, Article III, Section 1, (the so-called "Manning Interpretation"), must first permit the market orders to execute against any applicable limit orders it holds before the firm may execute the market orders for its own account.

**E. Examples of Equivalent Protection**

The NASD Board of Governors has provided the following examples to further explain a member firm's equivalent protection obligation for orders held outside of NAqcess:

**Print Protection** The best dealer bid and offer in Nasdaq [(the) ("the inside price[]")] is 20 bid—20¼ offer. Firm ABCD holds a customer limit order of 1,000 shares to buy at 20½ in its own

proprietary file. Firm MNOP reports a transaction in the subject security via ACT, disseminating a price of 20½ for 500 shares. Contemporaneous with the dissemination of the trade report, firm ABCD is required to provide an execution of its customer limit order for at least 500 shares at 20½.

**Matching Limit Orders** The inside price is 20 bid—20¼ offer. NAqcess is displaying a 1,000 share customer limit order to buy at 20½ for customer X. Firm ABCD thereafter receives from customer Y a 1,000 share limit order to sell at 20½ that the firm ABCD retains for handling outside of NAqcess. Upon receipt of the limit order, firm ABCD must execute customer Y's limit order for 1,000 shares at 20½.

**Matching Limit Order Interaction Within a Firm's File** The inside price is the same as above. Firm ABCD holds a customer limit order to buy 1,000 shares at 20½. Firm ABCD thereafter receives a customer limit order to sell 1,000 shares at 20½. Firm ABCD must match the orders and execute the trade.

**Interaction Between Limit and Market Orders Held Within A Firm's File**

The inside price is the same as above. Firm ABCD holds a customer limit order to buy 1,000 shares at 20½. Firm ABCD thereafter receives a customer market order to sell 1,000 shares. Firm ABCD must match the two orders and execute the trade at 20½. Similarly, if the limit order to buy were priced at 20, the firm would have to execute the market order against the limit order at 20.

**Price Protection for NAqcess Limit Orders Rules of Fair Practice, Article III, Section [XX]**

No member firm shall execute an order as principal or as agent at a price inferior to any limit order(s) viewable in NAqcess to the member firm, provided however, that a member firm executing a transaction that is larger than the limit order(s) viewable in NAqcess at an inferior price must contemporaneously satisfy the limit order(s) viewable in NAqcess. An "inferior price" means an execution price that is lower than a buy limit order or higher than a sell limit order that is viewable in NAqcess. The term "limit orders viewable in NAqcess" shall mean those orders that the member firm is able to view either as consolidated in the Nasdaq inside market or as reflected in the Full Limit Order File Display as the firm is authorized to view under the Rules of Operation and Procedure.

**Exhibit C—Schedule D, Part V****Sec. 1. No Change****Sec. 2. Character of Quotations**

(a) Two-Sided Quotations. For each security in which a member is registered as a market maker, the member shall be willing to buy and sell such security for its own account on a continuous basis and shall enter and maintain two-sided quotations in The Nasdaq Stock Market subject to the procedures for excused withdrawal set forth in Section 8 below. Each member registered as a Nasdaq market maker in Nasdaq National Market equity securities shall display size in its quotations of 1,000, 500, or 200 shares and the following guidelines shall apply to determine the applicable size requirement: (i) A 1,000 share requirement shall apply to Nasdaq National Market securities with an average daily non-block volume of [3,000]6,000 shares or more a day, a bid price of less than or equal to \$100, and three or more market makers; (ii) a 500 share requirement shall apply to Nasdaq National Market securities with an average daily non-block volume of [1,000]2,000 shares or more a day, a bid price of less than or equal to \$150, and two or more market makers and (iii) a 200 share requirement shall apply to Nasdaq National Market securities with an average daily non-block volume of less than [1,000]2,000 shares a day, a bid price of less than or equal to \$250, and that have two or more market makers. Each member registered as a Nasdaq market maker in Nasdaq SmallCap Market equity securities shall display size in its quotations of 500 or 100 shares and the following guidelines shall apply to determine the applicable size requirement: (i) A 500 share requirement shall apply Nasdaq SmallCap Market securities with an average daily non-block volume of 1,000 shares or more a day or a bid price of less than \$10.00 a share; and (ii) a 100 share requirement shall apply to Nasdaq SmallCap Market securities with an average daily non-block volume of less than 1,000 shares a day and a bid price equal to or greater than \$10.00 a share. Share size display requirements in individual securities may be changed depending upon unique circumstances as determined by the Association, and a list of the size requirements for all Nasdaq equity securities shall be published from time to time by the Association.

## Exhibit D—The Introduction of NAqcess into the Nasdaq Stock Market: Intent and Expectation\*

### I. Introduction

The Nasdaq Stock Market proposes NAqcess with the intent of increasing investor access to the market by providing a new mode for investors and dealers to trade among each other. Individual investors and market makers, willing to supply liquidity to the market, will be able to display priced limit orders in a central public file. Orders in the central file will compete directly with other orders and with market maker quotes, and other investors and market makers will have the ability to access orders and quotes electronically. NAqcess is intended to augment, not replace, Nasdaq's dealer market, which Nasdaq and NASD staff (the Staff) believe has been central to the success of the Nasdaq Stock Market.<sup>1</sup>

NAqcess constitutes a major step in the evolution of the Nasdaq market. The principles that guided the design of NAqcess build upon the Nasdaq market's tradition of innovation and include the intent to provide greater market access across participant categories. Application of these principles now and beyond the initiation of NAqcess should simplify market rules and expand the options available to both retail and institutional investors.

\* Prepared by the NASD's Economic Research Staff.

<sup>1</sup> Since 1971, the Nasdaq Stock Market has grown to become the second largest equity market worldwide. Share volume on Nasdaq has increased over 4,000 percent since its inception, while dollar volume has grown over 5,000 percent. In 1995, share volume broke 100 billion shares and dollar volume exceeded \$2.4 billion. Over the last ten years, Nasdaq's share volume has grown over 380 percent compared to 212 percent for the NYSE and Amex combined. Nasdaq's share volume has grown 200 percent over the last five years versus 115 percent for the NYSE and Amex combined. Dollar volume on Nasdaq has grown at an even greater rate: over 900 percent for the last ten years and 430 percent for the last five years, compared to 216 percent and 132 percent for the NYSE and Amex combined. In 1994 Nasdaq share volume exceeded NYSE share volume for the first time; as of March 1996 Nasdaq share volume was 121 percent of NYSE share volume for the year, comprising 54 percent of the volume traded in all U.S. equity markets combined.

All of the effects of introducing NAqcess into the Nasdaq Stock Market cannot be measured with precision. But the Staff believe that the effects of NAqcess will be valuable to investors. The Staff base that belief on (1) the practical experience of other equity markets with limit order files; (2) theory and evidence in the economic literature regarding limit order trading; (3) evidence regarding the use of limit orders in the pre-NAqcess Nasdaq Stock Market; and (4) the results of research conducted by and for the NASD.

Following a brief description of the changes to the Nasdaq Stock Market that will be effected by the introduction of NAqcess, this report presents a discussion of the four bases on which the Staff rely in forming its expectation that NAqcess will benefit investors in Nasdaq stocks.

### II. Description of NAqcess

In the spring of 1996, Nasdaq is primarily a dealer-based, quote-driven market. Much of the liquidity that is available in the market is communicated through dealer quotes and provided through dealer involvement. In general, retail limit order information is not explicitly broadcast to all other market participants. Limit orders placed and executed through alternative systems such as Instinet, however, are important sources of liquidity and reduce the costs associated with market making.

NAqcess is intended to maintain the strength of Nasdaq's dealer market while augmenting the market with a system that allows all customer orders to meet each other directly. The balance between dealer quotes and customer orders under NAqcess can be seen by comparing time and size priority rules. A dealer system thrives in the absence of time priority rules;<sup>2</sup> the viability of

<sup>2</sup> It is the absence of time priority that allows preferencing on Nasdaq, which is likely to enhance a stock's sponsorship and liquidity characteristics. Preferencing can improve competition among market makers by allowing small brokerage firms to achieve the same cost advantages as those experienced by large, vertically-integrated brokerage firms. Since many of the brokers that use preferencing arrangements are discount-commission brokers, customers can benefit from preferencing through reduced commission costs.

an order-based system, on the other hand, is enhanced by time priority rules, because standing orders take precedence over new orders at a given price, increasing the incentive to enter them. In introducing NAqcess, Nasdaq balances these competing objectives by instituting strict price/time priority for unpreferred orders within NAqcess, while allowing time priority (but not price priority) to be suspended for trades that occur on Nasdaq but outside of NAqcess.<sup>3</sup>

Table 1 on the following page details the NAqcess time and size priority rules, by market participant type. These rules are summarized in Sections A and B, following Table 1.

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Empirical research on the topic of preferencing suggests that it may improve market quality. Battalio, et. al. study the short-term effects of the introduction of preferencing programs by the Cincinnati Stock Exchange and the Boston Stock Exchange on market share, displayed spreads, and liquidity. The study finds no adverse market effects as the market share of these two markets increases in conjunction with the introduction of preferencing programs. Marketwide, displayed spreads and liquidity premiums decline with the introduction of preferencing programs, suggesting a possible improvement in market quality. Also, since retail brokers use preferencing and internalization to reduce commissions to customers, investor welfare may be improved as a result. (See Robert Battalio, Jason Greene, and Robert Jennings, "How Do Competing Specialists and Preferencing Dealers Affect Market Quality? An Empirical Analysis," unpublished manuscript, 1995.)

<sup>3</sup> For example, if the market in a stock is 20-20<sup>1</sup>/<sub>4</sub> on the basis of market maker quotes and an investor or a market maker places a buy order for 500 shares at 20<sup>1</sup>/<sub>8</sub>, then the market becomes 20<sup>1</sup>/<sub>8</sub>-20<sup>1</sup>/<sub>4</sub>. A 500 share market sell order placed in NAqcess will execute strictly against the limit buy order at 20<sup>1</sup>/<sub>8</sub> on the basis of its price and time priority, regardless of whether market maker quotes had subsequently joined the buy order at 20<sup>1</sup>/<sub>8</sub>. On the other hand, the same 500 share market order communicated outside of NAqcess, say over the phone, can execute against any market maker at 20<sup>1</sup>/<sub>8</sub> but cannot trade through the limit buy order at a lower price. It is important to note that a firm placing a customer order into NAqcess is still subject to the NASD's Limit Order Protection Rule (Article III, Section 1, Rules of Fair Practice): the firm cannot trade at a price equal or inferior to that of the customer limit order it holds without filling the customer order. So, if the limit order in the example is the market maker's customer order, other firms can buy the stock at 20<sup>1</sup>/<sub>8</sub>, but the firm that placed the order into NAqcess cannot buy at 20<sup>1</sup>/<sub>8</sub> without filling the order.

**Table 1: NAqcess Quote and Order Entry Protocol**  
(Size, for Various Tiers, is in Parentheses)

Market Participant	Direct Entry <sup>a</sup>	Quotes	Takeouts	Proprietary		Agency	
				Limit Orders	Market Orders	Limit Orders	Market Orders
Member Market Maker <sup>b</sup>	Yes	Yes (Min. = Tier Size)	Yes (Any Size)	Yes (9,900/1,000)	Yes (1,000/500/200)	Yes (9,900/1,000)	Yes (1,000/500/200)
Member Non-MM	Yes	No	Yes (Any Size)	No	No	Yes (9,900/1,000)	Yes (1,000/500/200)
UTP Specialist <sup>c</sup>	Yes	Yes	Yes (Any Size)	Yes (9,900/1,000)	Yes (1,000/500/200)	Yes (9,900/1,000)	Yes (1,000/500/200)
Options Market Maker <sup>d</sup>	No	No	Yes (Any Size)	Yes (9,900/1,000)	Yes (1,000/500/200)	N/A	N/A

<sup>a</sup>Where market participant does not have direct entry access, protocol reflects indirect order entry (i.e. through direct entry participant on agency basis).

<sup>b</sup>Only in security for which they are registered as a market maker.

<sup>c</sup>Pending current negotiation. Only in security for which they are registered as a market maker.

<sup>d</sup>Only in security for which they are making a market in the underlying option.

In essence, NAQcess is an order delivery system with features that augment the extant multiple dealer market system with a public limit order file. NAQcess guarantees execution of market orders against posted dealer quotes; it allows customer orders to interact with each other and displays limit orders that are not executed.

#### A. Order Entry

NAQcess provides market participants with a central file that facilitates the ability of investor and dealer orders to compete with market maker quotes in supplying liquidity.<sup>4</sup> This facilitation, via the dissemination of the top of the limit order file of investor and dealer orders, is intended to enhance price improvement opportunities, lowering the price of immediacy and liquidity for the investors and dealers who demand it.<sup>5</sup> That is, in the NAQcess environment, limit orders are expected to execute more frequently and inside market spreads are expected to narrow.

Non-marketable limit orders, which will compete directly with market maker quotes, can be placed into NAQcess by entities that have direct, interactive access to a Nasdaq workstation.<sup>6</sup> While any dealer can enter these orders on an agency basis, only broker-dealers making a market in a stock may enter proprietary orders.<sup>7</sup> Limit orders can be placed for up to 9,900 shares for the top 250 dollar volume Nasdaq National Market stocks and for 1,000 shares for all other Nasdaq stocks, including SmallCap.<sup>8</sup> These limits are consistent with an incremental approach to NAQcess' implementation, affording Nasdaq staff the opportunity to evaluate whether it is appropriate to expand the system.

<sup>4</sup>The following information is presented as an aid in defining the terms, "NASD Member," "Nasdaq Dealer," and "Nasdaq Market Maker." As of March 29, 1996, the NASD had 5,468 members; 531 of them were dealers in the Nasdaq Stock Market; a dealer that makes a market in a particular stock is a registered market maker in that stock. For example, Intel had 46 registered market makers.

<sup>5</sup>Market makers will be allowed to query the entire limit order file. All other market participants will be allowed to see the top of the limit order file.

<sup>6</sup>Direct entry into NAQcess is open to all members and, pending current negotiations, to non-member market makers at regional exchanges. Options market makers and other non-member market makers will not have direct entry capability under NAQcess, nor will non-member buy-side firms, who will have access only through a member firm.

<sup>7</sup>Proprietary orders are orders for a broker-dealer's own account.

<sup>8</sup>For both National Market and SmallCap agency orders, a single order may not be separated into many orders for purposes of NAQcess execution.

#### B. Automated Execution

In the pre-NAQcess Nasdaq Stock Market, firms not making a market in a stock may enter customer orders into the SOES system for automatic execution at the inside quotes against those market makers at the inside or against market makers with which a preferencing agreement exists. These orders are for a maximum size of 1,000, 500, or 200 shares, depending on the stock's SOES tier size. These executions occur automatically, with the market maker being informed of the trade that has just occurred. Following the trade, a market maker may adjust its quotes (1) "manually" with a 20-second opportunity to update its quotes;<sup>9</sup> (2) via Nasdaq's automatic update system, following trading activity equal to the maximum order size for the security at the original quote; or (3) with an internal automatic update system, following trading activity equal to the maximum order size for the security at the original quote. In practice, those market makers who use an automatic update feature frequently set their exposure levels such that several trades are accepted before quotes are adjusted.

In contrast, NAQcess provides for automated executions. Instead of market makers having 20 seconds following an automatic trade to adjust their quotes, they have 20 seconds, upon receipt of the marketable order (a market or marketable limit order), to accept or decline it.<sup>10</sup> A market maker may not decline an order at its quote unless it has just traded and is in the process of updating its quotes.<sup>11</sup> The execution will occur automatically if the market maker takes no action within 20 seconds. This constitutes a change to the "manual" quote update method. In the NAQcess environment, both internal and Nasdaq automated update systems will continue to allow quote adjustments to be made following trading activity of one or more times the maximum order size for the security at the original quote.

If a market maker declines a marketable order, it is delivered (in time precedence) to the next available market

<sup>9</sup>NASD SOES Rules state that a market maker has 15 seconds following an automatic trade to update its quotes, yet an additional 5 second allowance for communications transmission is made. Therefore, a market maker is actually given up to 20 seconds following an automatic trade in the pre-NAQcess environment to update its quotes, depending on messaging time.

<sup>10</sup>Though preferenced marketable orders cannot be declined, they may be accepted during the 20 second review period. Otherwise, they are automatically executed after 20 seconds.

<sup>11</sup>Nasdaq Market Surveillance will police this policy with a process that uses a set of parameters to determine if a trade was legitimately declined.

maker (i.e. not currently reviewing another marketable order) at that price, with the same obligations. If all market makers decline the order at that price, the trade is automatically executed by the first market maker quoting at the next price level with no waiting period.<sup>12</sup>

Because NAQcess limit orders will be integrated with dealer quotes by time priority within price levels, a marketable order may be delivered to a NAQcess limit order, in which case it is automatically executed. If the marketable order is delivered to a limit order of a smaller size, the order is partially executed against the limit order, and a marketable order for the residual size is delivered to the next quote or limit order in time priority.

In the NAQcess environment, market makers will continue to maintain two-sided quotes and Nasdaq market surveillance will ensure that the quotes are firm. Because a market maker has liquidity provision obligations, it will be authorized to enter proprietary market orders (including marketable limit orders) into NAQcess for sizes commensurate with the pre-NAQcess SOES tier sizes.<sup>13</sup> This puts market makers on a par with other users of the automation technology, facilitating liquidity provision. Unlike SOES, NAQcess can be used for agency market orders by any Nasdaq dealer, making a market in a stock or not.

#### C. Other Changes to the Status Quo

Because most of the services provided to investors through SOES and SelectNet are subsumed within and improved upon by NAQcess, these systems will be eliminated upon implementation of NAQcess. As with SOES, participation in NAQcess by market makers will be mandatory for National Market stocks and voluntary for SmallCap stocks.<sup>14</sup> While SOES is used almost exclusively to execute market orders and marketable limit orders, SOES also has a limit order processing facility that stores limit orders priced off the inside market, executing them if they become

<sup>12</sup>If the marketable order was a limit order and the execution price is inferior to the order's price, then the arriving limit order becomes the new inside. For example, if all market makers at 20 bid decline a marketable limit order to sell at 20, revising their bids to 19 7/8, the sell order is no longer marketable and becomes the market at the inside ask; i.e. the market is now 19 7/8 to 20.

<sup>13</sup>Non-member market makers from regional exchanges that permit automated orders access to their quotes will be able to enter limit orders as well as proprietary marketable orders.

<sup>14</sup>Market makers in SmallCap issues may opt out of the order delivery and execution features of NAQcess on a stock-by-stock basis.

marketable. This facility also matches offsetting limit orders and will execute matched orders if no market maker executes either order within five minutes of the match. The limit order processing features of NAqcess are superior to those of SOES.

SelectNet is a system that permits NASD members to direct buy or sell orders in Nasdaq securities to a single market maker (preferenced orders) or broadcast such orders to all market makers in the security. Accordingly, SelectNet provides investors and members with an automated means to facilitate the communication of trading interest among members and to seek price improvement. SelectNet also serves as an alternative mechanism to telephone communication between members, especially in times of market stress. Because limit orders placed in NAqcess will be incorporated in the calculation of the inside market and immediately executable upon the entry of a "takeout" order or offsetting market or limit orders, the price improvement and order communication and execution features of NAqcess are far superior to those of SelectNet. While SelectNet allows the display of unlimited size orders and NAqcess will not, SelectNet orders larger than the NAqcess size limits are rarely executed, so the restriction will have a minimal effect.<sup>15</sup> Moreover, limit orders entered into NAqcess will be accessible to and executable by a broader spectrum of market participants than currently is the case with SelectNet.

Critics of NAqcess have argued that it would be harmful to small investors to replace SOES, an immediate automatic execution system, with NAqcess, an automated execution system. The NASD believes these arguments are invalid for the following reasons. First, though an automated execution system, automatic executions may still occur in NAqcess. In fact, of the four means by which an order can be executed through NAqcess, three of them involve an automatic execution process. Specifically, automatic executions occur when: (1) a market order matches a limit order; (2) a limit order matches a limit order; and (3) a takeout order matches limit orders residing on the NAqcess file. Second, to the extent that NAqcess is functioning as an automated order execution system

(i.e. marketable orders delivered to market makers at the inside market), it has a short-term (20 second) automatic execution default feature. Third, the NAqcess order execution algorithm is wholly consistent with the SEC's firm quote rule, Rule 11Ac1-1: a market maker can decline a marketable order only in cases consistent with the exceptions to Rule 11Ac1-1. Specifically, a market maker will only be allowed to decline a NAqcess order if it received the order while in the process of effecting a transaction and updating its quotation. To ensure that market makers are not declining orders in violation of the firm quote rule, the NASD has developed on-line, real-time surveillance systems.

In essence, through its enhanced limit order execution and display capabilities, NAqcess builds upon the core market order execution features of SOES and limit order facilities of both SOES and SelectNet, to enhance the transparency of Nasdaq and to provide investors with increased opportunities for price improvement and limit order protection.

With the implementation of NAqcess, Nasdaq will add a market-wide print protection policy to its Rules of Fair Practice. A firm holding a NAqcess-eligible limit order outside of NAqcess will be required to protect (execute) the order if an unmodified (e.g. not a .SLD) trade in the stock is reported at an inferior price. NAqcess print protection augments, but does not replace, Manning order protection, which does not allow a firm to trade ahead of an internally-held customer limit order (i.e. trade at a price equal or inferior to that of the customer order). Additionally, Manning will apply to orders placed in NAqcess; the firm placing the order into NAqcess cannot trade at the price level of the order without protecting it.

#### D. NAqcess in Historical Perspective

It is useful to view NAqcess in historical perspective, where it can be seen as a logical step in the evolution of Nasdaq. The precursor to Nasdaq existed as a completely decentralized dealer market for trading non-listed stocks. The inauguration of the computerized system for the dissemination of quotes that constituted the start of Nasdaq in 1971 was a major step towards allowing dealers to interact more closely. Since that time, Nasdaq has used technology to continually improve the dissemination of information and the execution of orders in the Nasdaq market. These improvements have created an ever-increasing degree of centrality to the

marketplace, not in physical space, but in cyberspace.

A major step forward for Nasdaq came in 1982 with the advent of last-sale reporting in certain Nasdaq National Market Securities. This change allowed traders to depend more on the Nasdaq system as their window to the world. Computerized trading started with the Computer Assisted Execution System (CAES), used for the first time in 1983, to execute transactions in Nasdaq National Market issues. In 1984, the implementation of Nasdaq's Small Order Execution System (SOES) represented another step toward facilitating execution of market orders. Subsequent to the market break in 1987, Nasdaq took steps to significantly increase the number of orders executed over the computer, without the need for a telephone. To enhance liquidity and execution capabilities during heavy volume periods, participation in SOES became mandatory for all Nasdaq National Market market makers.

In 1988, the Order Confirmation Transaction (OCT) system was introduced to automatically direct priced orders of any size to specific market makers, where they could then reject or accept the order. This was the first step in facilitating the execution of priced orders on Nasdaq. As an additional step towards the enhancement of limit order execution on Nasdaq, the SOES limit order file was introduced in 1990. The SOES limit order file allowed for the input of priced retail orders and the matching of these orders. This system provided small, retail orders with a facility to get executions within the best bid and best ask prices. SelectNet, a screen-based negotiation and execution service with major enhancements to OCT's broadcast and negotiation features, was introduced in 1990 to replace OCT and also provide for enhanced limit order execution ability.<sup>16</sup>

In 1993, the NASD Board proposed a Rule to the SEC, subsequently approved,

<sup>16</sup> Other improvements to the trading of Nasdaq securities include the following: In 1988, Nasdaq introduced the Advanced Computerized Execution System (ACES) which allowed a participant to automatically direct retail orders to any designated ACES market maker with which it had an established business arrangement. In 1989, Nasdaq introduced Automated Confirmation Transaction (ACT) to automate the trade comparison and clearing process and enhanced OCT by allowing market makers to counter-offer. In 1992, Nasdaq introduced a new Nasdaq Workstation, Workstation II, that allowed Nasdaq traders to use windows, hot buttons, and programmable features to facilitate trading in Nasdaq securities. Also in 1992, SelectNet service hours were expanded to be available from 9:00 a.m. to 5:15 p.m. EST. In 1994, the NASD Board approved the dissemination of SelectNet orders and executions to non-members to increase the transparency of Nasdaq.

<sup>15</sup> For the 13 Thursdays in the first quarter of 1996, there were 52 SelectNet trades of more than 9,900 shares in the top 250 dollar volume stocks, accounting for .003% of all trades for these stocks. For all other Nasdaq stocks, there were 27,646 SelectNet trades of more than 1,000 in this time period, representing 1.513% of all trades for these stocks. Combined, the 27,698 SelectNet trades that could not be achieved via NAqcess constitute .708% of all Nasdaq trades in the period.

giving priority to customer limit orders over the member firm's orders. In 1995, this limit order protection rule was extended to include limit orders sent to a market maker from another member firm. In 1994, the NASD Board proposed to replace SOES with Nasdaq Primary Retail Order View and Execution System (N\*PROVE), which provided enhanced execution capabilities for small, retail limit orders. In 1995, Nasdaq proposed NAqcess, a fully-automated, centralized limit and market order facility.

### III. The Value of NAqcess for Nasdaq

Many commenters to the SEC on the NAqcess proposals expressed concern with the proposal due to what they perceived as the NASD's apparent lack of economic analysis of the effects of the proposals. In fact, the NASD has analyzed these proposals through a review of economic literature, an internal empirical study, and simulation research of a limit order file environment. A summary of these analyses is provided in this section. The key innovation provided by NAqcess is the establishment of a central limit order file. The value of NAqcess therefore depends on the value of such a file. This section of the report first considers NAqcess in the context of other equity markets worldwide. Then, it discusses the current state of Nasdaq in a pre-NAqcess setting, pointing out the limit order functionality that is currently present. Finally, the results of internal and sponsored NASD research regarding the use of limit orders is reported.

#### A. Experiences of Other Equity Markets <sup>17</sup>

Nasdaq's adoption of a central limit order file is consonant with systems in place in equity markets around the

world. Many of the world's largest equity markets rely on the operation of a central limit order file to route and execute orders, including New York, Toronto, Paris, Australia, and Tokyo. Although this is not an exhaustive list, its breadth signals that world exchanges have acknowledged the utility of central limit order files and have incorporated them into their markets.

Every stock and options exchange in the United States operates central limit order files to facilitate trade execution.<sup>18</sup> The New York Stock Exchange's SuperDOT system routes orders in price and time priority to the specialist for execution against other SuperDOT orders, the specialist's inventory, or orders from the exchange floor. An analysis of 1991 SuperDOT orders by Harris and Hasbrouck (1992) shows that SuperDOT orders account for about 50% of total orders, and because SuperDOT orders are smaller than average, about 30% of share volume. Most limit orders are day orders (82%), and limit orders tend to be larger than market orders. Orders that are part of program trades are more likely to be market orders, especially index arbitrage orders, which are virtually always market orders. This finding makes sense given the high priority for execution for index arbitrage trades. The Philadelphia, Pacific, and Boston Stock Exchanges also operate centralized order files with automated execution features.

Internationally, the presence of limit order books is even more pronounced. A handful of those systems is described below.

The Toronto Stock Exchange operates a fully automated execution system called CATS (Computer Assisted Trading System), accounting for about 27 percent of the Exchange's volume. CATS is a central limit order file with a unitary price opening mechanism, operating on price and time priority. Market orders entered into CATS are converted into limit orders at the current price. For example, a market order to sell becomes a limit order at the best bid. CATS handles trading for about half of the stocks listed on the TSE, although the TSE's "Equity Floor Closure" project will create a central limit order file for all listed stocks, thus eliminating all floor trading. Toronto's CATS system has served as a prototype for other exchanges. Paris, Brussels, and Barcelona have adapted the CATS system while Stockholm, Helsinki, and

Tokyo have developed systems resembling CATS.

The Paris Bourse converted from a periodic call market system to a fully computerized central limit order file when it launched the CAC (Cotation Assistée en Continu) system in the mid-1980s. Relevant to Nasdaq's joint order and quote capability with NAqcess, Paris determined that CAC alone could not best meet the needs of all trade types, particularly block orders. Block orders trade on London's SEAQ system, a dealer-based, quote-driven system, rather than through CAC. In response, Paris has instituted procedures allowing for an "upstairs" for block trade negotiations as well as more formal market making for less active stocks. Similarly, Amsterdam responded to diminishing block volume business by adding a negotiation facility to complement its limit order file system.

The London Stock Exchange, a dealer-based market, plans the creation of a central limit order file. It is expected that the order file will be used on a limited basis upon introduction, to evaluate the system's impact incrementally. The dealer market will continue to play an important role in the market, for instance, by meeting the liquidity needs of larger trades.

In 1995, the Deutsche Borse AG (DBAG) announced Project ZEUS, a plan to automate and centralize all German bourse trading. Although the particulars are still in the formation stages, a major component of the project is the creation of an open order book with market maker participation.

One criticism of the NAqcess proposal has been that the mixing of dealer quotes and the limit order file in one display is misleading and disruptive. Another criticism has been that the inclusion of limit orders in the Nasdaq inside quote would give NAqcess an unfair competitive advantage over other execution systems. The New York Stock Exchange specialist, however, has been disseminating a mixed quote for many years with no significant informational difficulties. Also, execution systems, such as Madoff's, have developed and expanded over time to trade NYSE-listed securities even with the eligibility of limit orders being included in the NYSE inside quotes. The dissemination of the top-of-the-file, reflecting limit orders at the best prices, and the consolidated inside market, reflecting orders and quotes at the best prices, will provide investors in the Nasdaq market with more information than is currently available. When one or more NAqcess orders join the dealer quotes to create the consolidated inside market, a market identifier is displayed to alert market

<sup>17</sup> Sources for this section include the following articles:

Domowitz, Ian (1993). "A Taxonomy of Automated Trade Execution Systems," *Journal of International Money and Finance* 12:607-631.

Eisenhammer, John. "OFT Calls For Fresh Curbs on Market-Makers," *The Independent*, 24 April 1996, p. 19.

Harris, Lawrence and Joel Hasbrouck (1992). "Market vs. Limit Orders: The SuperDOT Evidence on Order Submission Strategy," NYSE Working Paper 92-02. Forthcoming in the *Journal of Financial and Quantitative Analysis*.

Hedvall, Kaj (1994). "Essays on the Market Microstructure of the Helsinki Stock Exchange," Ph.D. Dissertation at the Swedish School of Economics and Business Administration, Helsinki.

Stoll, Hans R. (1992). "Principles of Trading Market Structure," *Journal of Financial Services Review* 6:75-107.

Stoll, Hans R. and Roger Huang (1991). "Major World Equity Markets: Current Structure and Prospects for Change London, Toronto, Paris and Tokyo," Working Paper 90-32.

<sup>18</sup> While this description focuses on equities markets, futures and options markets in the United States have also incorporated central limit order files, including the Chicago Board Options Exchange and the Chicago Mercantile Exchange.

participants that these orders are part of the current inside market.<sup>19</sup> The participation of orders in the Nasdaq inside market will give all Nasdaq investors, not just proprietary system users, the chance to get better execution prices.

In sum, many other world markets have recognized the importance of limit orders and have responded by incorporating central order files into their market structures, as Nasdaq plans to do with NAQcess. In fact, most world equity markets are, at their foundation, limit order books, without an explicit role for dealers. In this regard, Nasdaq is something of an exception. It is interesting to note, however, from the experience of Paris and Amsterdam, that the need for a dealer market modality exists even when a strong order book foundation exists. This point suggests the appropriateness of alternative (and competing) market modalities within a single market. With these experiences in mind, NAQcess is intended to strengthen Nasdaq's limit order modality without weakening the dealer market modality.

#### B. Theory and Evidence from the Economic Literature on Limit Order Trading

The economic literature supports the view that limit order trading can be a superior form of trading for some types of investors. This section briefly discusses some examples of this literature as it relates to (1) the rationale for order-driven trading, and (2) the international experience with order driven trading.

##### 1. The Rationale for Order-Driven Trading

The key question motivating the academic limit order trading literature concerns the relative advantages of market and limit orders. The question is addressed in two recent papers written by well-known market microstructure academics: "Limit Order Trading" by Handa and Schwartz<sup>20</sup> and "Market vs. Limit Orders: The SuperDOT Evidence on Order Submission Strategy" by Harris and Hasbrouck,<sup>21</sup> discussed previously.

Handa and Schwartz analyze the fundamental rationale for limit order trading. They point out that when the market price is driven solely by information, placing a limit order is a lose-lose strategy. The opportunity for profitable limit order trading arises when short-term, self-reversing price movements take place in a stock. This type of fluctuation can occur when demanders of liquidity enter market orders that require immediate execution. In this case, limit orders, like market maker quotes, supply liquidity to the market, and can be rewarded for doing so by obtaining favorable trading terms.

Handa and Schwartz use the terms "information traders" and "liquidity traders" to describe the two types of counterparties that placers of limit orders face. The limit order loses when the counterparty is an information trader, but can win when the counterparty is a liquidity trader. Thus, an investor contemplating the placement of a limit order must weigh the probabilities of facing each of these two types of traders. Further, the investor needs to determine the importance of completing his trade. In the extreme case, an investor who absolutely must trade should not use a limit order strategy since there is some probability that the order will not be filled. On the other hand a "patient" investor, one whose current portfolio is already near optimal, and for whom the lack of execution of the order is not a serious concern, may find a limit order strategy to be superior to a market order strategy. Handa and Schwartz envision a natural "ecology" in the marketplace, wherein a paucity of limit orders would result in price movement, which compensates limit order placement and thus induces the placement of limit orders. Limit orders would work towards reducing volatility, up to the point where no new flow of limit orders is induced.

Handa and Schwartz use actual 1988 trade data from the 30 NYSE stocks in the Dow-Jones Industrial Average to compare strategies. They calculate the average purchase price for hypothetical buy limit and market orders. They consider a number of limit order strategies differentiated by the aggressiveness of the strategy. In general, when the limit order is filled, the purchase price is lower than that of a comparable market order. But when it is not filled after some period of time, it must be substituted for a market order at the then prevailing price, the average purchase price of which is usually higher. The authors find that, for buy limit orders placed 2% below the

market, the average purchase price, taking into account what happens when the limit order does not execute, is only 0.2% lower than the price of a comparable market order. For a three-day holding period, a limit order set at 2% below the market earns on average a return of about 0.48% higher than that of a comparable market order, though there is substantial variability (risk) in this return. The strategy of placing the order 2% below the market appears to be optimal relative to the other percentages considered in the study.

In sum, Handa and Schwartz find sufficient short-term liquidity-driven price changes in their data to make limit order trading a potentially superior strategy to market order trading. The more patient the investor, the more likely a limit order strategy is superior.

Harris and Hasbrouck also analyze data from NYSE stocks. Using order data derived from the SuperDOT order-processing system in 1991, they are able to compare the relative performance of limit and market orders that were actually submitted.

For each order, Harris and Hasbrouck compute the "fill" price, which is either the limit order price if the order was filled, or an imputed price if the order was canceled or expired. Comparing the fill price with the appropriate quote (ask for buy orders, bid for sell orders) provides a measure of trading strategy value appropriate for traders who are precommitted to transacting. Limit order performance is compared to market order performance, with limit orders categorized according to aggressiveness of the order price.

Consider stocks with quoted spreads of  $\frac{1}{8}$ . The authors find that limit orders placed at the market quotes placed at the bid for buy orders and at the ask for sell orders tend to do better than market orders. For small orders, such limit orders execute at prices on average of about three cents better per share than market orders. Limit orders placed away from the market tend to do worse than market orders. As the trade size increases, the relative advantage of at-the-quote limit orders diminishes to about one and a half cents. When stocks with quoted spreads of  $\frac{1}{4}$  are considered, the possibility of setting a limit order between the quotes emerges. In fact, this strategy tends to be optimal, providing price improvement of around two cents a share. The authors are careful to note, however, that their measure of performance is not necessarily valid for any given trader. The key imponderable factor is the priority the investor places on execution, and the corresponding action

<sup>19</sup> A "Z" identifier will appear when an inside bid or offer represents NAQcess orders only, and a "Y" identifier will appear when the inside bid or offer represents both NAQcess orders and dealer quotes.

<sup>20</sup> Handa, Puneet and Robert A. Schwartz (1996). "Limit Order Trading," forthcoming in *Journal of Finance*.

<sup>21</sup> Harris, Lawrence and Joel Hasbrouck (1992). "Market vs. Limit Orders: The SuperDOT Evidence on Order Submission Strategy," NYSE Working Paper #92-02. Forthcoming in the *Journal of Financial and Quantitative Analysis*.



taken by the investor when a limit order does not execute.

Together, these two papers provide a basic rationale for limit order. Sufficient liquidity trading seems to occur on the NYSE, creating the short-term price volatility such that a relatively patient investor can be consistently rewarded for supplying liquidity. Application of these results to NAqcess suggests that the creation of a facility that enhances a limit order trading strategy can benefit certain types of investors.

## 2. Performance of Other Markets

Options exchanges combine the elements of competing market makers with a central limit order file, which is of particular interest since this is the model for Nasdaq under NAqcess. Berkman examines the European Options Exchange in Amsterdam.<sup>22</sup> At this exchange, dealers interact with each other in an open outcry manner, typical of options exchanges, as opposed to interacting through a computer network. Berkman seeks to determine the influence of the limit order file on spreads. His results indicate that when the number of transactions executed against limit orders as a percentage of total transactions is high, the spread is low. Berkman views this percentage as an indication of the competition faced by dealers from the limit order file. Applying this result to NAqcess suggests that limit orders create competition even in an environment characterized by competition among market makers.<sup>23</sup>

A number of academic studies analyze the characteristics and performance of equity markets outside the U.S. As mentioned above, the Paris Bourse and the Tokyo Stock Exchange operate fundamentally as centralized limit order files without an explicit role for dealers.

Lehmann and Modest, and Hamao and Hasbrouck study the Tokyo Stock Exchange.<sup>24</sup> Both studies consider the

performance of a market that relies exclusively on limit orders to provide liquidity. By custom, brokers do not engage in proprietary trading on both sides of these markets. The authors perform a variety of analyses which demonstrate the viability of the Tokyo Stock Exchange's order-driven market.

Biais, Hillion, and Spatt study the operation of the Paris Bourse, in particular the flow of orders in response to market developments.<sup>25</sup> They find that when the current bid-ask spread (as determined from the limit order book) is relatively high or the order book thin, investors are more likely to submit limit orders. Conversely, when the spread is tight, investors tend to trade against existing limit orders. "Thus, the investors provide liquidity when it is valuable to the marketplace and consume liquidity when it is plentiful" (pg 1657). The market response to market orders is rapid, reflecting competition in the supply of liquidity. They also find that the flow of order placements tends to be concentrated at or inside the best market quote, again reflecting competition in the supply of liquidity.

These two examples illustrate that limit orders can be the primary or even sole source of liquidity in a market. For some types of trades and some types of stocks, however, dealer markets appear to provide an additional dimension of market quality beyond that found in a pure limit order market.

## C. The Role of Limit Orders in the Pre-NAqcess Nasdaq Stock Market

In contemplating the role of a central limit order file, it is important to recognize that limit orders are currently placed in the Nasdaq market. NAqcess constitutes an enhancement in limit order trading capabilities, not the establishment of limit order trading. The following two sections discuss the submission of limit orders in the current environment as well as the use of two existing limit order facilities.

### 1. Evidence of Implicit (Internal) Limit Order Use on Nasdaq

Although the NASD has never conducted a comprehensive survey of limit order activity in the Nasdaq market, a 1994 review by an NASD-appointed task force demonstrates that

Exchange: A Bird's Eye View," *Journal of Finance* 49: 951-984. Hamao, Yasushi and Joel Hasbrouck (1995). "Securities Trading in the Absence of Dealers: Trades and Quotes on the Tokyo Stock Exchange," *The Review of Financial Studies* 8, 3 (Fall).

<sup>25</sup> Biais, Bruno, Pierre Hillion and Chester Spatt (1995). "An Empirical Analysis of the Limit Order Book and the Order Flow in the Paris Bourse," *The Journal of Finance* 50, 5 (December): 1655-1689.

limit orders account for a significant amount of order flow between broker-dealers. As part of its review of limit order protection rules in 1993, the NASD Board of Governors (the Board) created the Limit Order Task Force (the Task Force) to explore issues related to limit orders sent from one broker-dealer to another for execution. The Task Force included representatives from integrated broker-dealers, wholesale market makers, regional firms, firms with a large institutional clientele, and a Nasdaq issuer.

During roundtable discussions, one member of the Task Force, representing the interests of wholesale firms, stated that of all orders entering the firm's trading systems daily, as many as 40 percent were limit orders for other broker-dealers' customers.<sup>26</sup> Another Task Force member, who represented a full service firm, stated that 20 to 25 percent of its orders were limit orders.

In the summer of 1994, the Task Force's work prompted the NASD to survey market makers to estimate the flow of Nasdaq limit orders from broker-dealer to broker-dealer. The NASD asked market makers for daily percentages of orders received from unaffiliated brokers for execution that were limit orders, exclusive of marketable limit orders. Survey information was requested for five specified days in both January, 1994 and July, 1994. Eight market maker firms, four multi-service and four wholesale, responded to the survey. Limit order flow from other broker-dealers ranged from less than 10 percent to 30 percent for multi-service firms and from 20 percent to 50 percent for wholesale firms. The survey data show that limit orders accounted for a significant amount of member-to-member order flow.

### 2. Evidence of Explicit Limit Order Use on Nasdaq

Two well-known limit order facilities for trading Nasdaq securities are Instinet and SelectNet. Instinet is a proprietary trading system owned by Reuters Holdings PLC. Traders equipped with Instinet terminals or Instinet feeds can place limit orders into the system and anonymously take out existing orders on the file. Instinet executions are sent directly to ACT, Nasdaq's clearing facility. Users of Instinet have traditionally been institutional traders and market makers. Though Instinet is integrated into the Nasdaq system, it competes with other Nasdaq trading

<sup>26</sup> The member of the Task Force did not specify whether the 40 percent included marketable limit orders.

<sup>22</sup> Berkman, Henk (1991). "The Market Spread, Limit Orders and Options," Working Paper, Department of Finance, Erasmus University, Rotterdam.

<sup>23</sup> In the U.S. the Chicago Board Options Exchange (CBOE) also exemplifies a multi-modal market by combining a dealer system, a floor-based system, and a central limit order file. Dealers may engage in proprietary or customer trading while floor officials execute trades on behalf of customers only. The CBOE maintains two limit order books, RAES (Retail Automatic Execution System) the EBook (the Electronic Book), which automatically match options orders. The latter handles orders that arrive prior to the opening and are outside the current market quotes. This information is provided by the Chicago Board Option Exchange's Internet home page—<http://www.cboe.com>.

<sup>24</sup> Lehmann, B.N. and D.M. Modest (1994). "Trading and Liquidity on the Tokyo Stock

modes in the sense that it offers an alternative trading venue. In January 1996, Instinet share volume was about 15% of total Nasdaq volume. This share appears to have been roughly constant during the last three years, indicating that limit orders have been and continue to be an important part of Nasdaq trading activity.<sup>27</sup> Instinet share volume for the top 250 Nasdaq issues accounted for almost 20% of total share volume in these stocks during January, 1996.<sup>28</sup>

As described in section II.C., Nasdaq's SelectNet service, which broadcasts priced orders, will be discontinued when NAqcess is implemented, as NAqcess provides considerable improvements to the SelectNet facility. SelectNet volume has averaged about 4% of total Nasdaq volume over the last three years. In January, 1996, SelectNet accounted for 5% of total share volume in the top 250 Nasdaq issues.<sup>29</sup> SelectNet's use provides further evidence that limit order use is not foreign to the current Nasdaq market.

As noted above, limit order trading, by supplying liquidity to the market, allows investors the opportunity to trade at prices superior to those represented by the prevailing inside bid and offer. During January 1996, Instinet trades occurred inside the spread 65% of the time, and SelectNet trades occurred inside the spread 36% of the time. These figures contrast with the rest of Nasdaq trading (excluding SOES, ACES, SelectNet, and most Instinet trades) which for the same month executed between the quotes about 22% of the time.

#### D. Research Conducted by and Sponsored by the NASD

##### 1. Replication of Handa and Schwartz Study on Nasdaq Stocks

NASD Economic Research staff have conducted a study similar in purpose to the Handa and Schwartz study discussed above. The purpose of the study is to assess the potential profitability of limit order trading in Nasdaq stocks. Like the Handa and Schwartz study, the method was to construct hypothetical limit and market orders for a stock, and compare the relative profitability of the two order

types using actual historical trade price data.

Using internal trade and quote data for each Thursday from January 4 to April 11, 1996, the performance of an array of hypothetical limit orders at various price levels was measured against that of a hypothetical market order.<sup>30</sup> All hypothetical orders were placed at the open, so the hypothetical market buy (sell) order was executed at the opening inside ask (bid).<sup>31</sup> The array of hypothetical limit buy (sell) orders consisted of limit orders at each  $\frac{1}{8}$  interval between the opening ask (bid) and the opening ask (bid) plus (minus) \$2. For example, if the opening bid was \$20, the performance of hypothetical sell limit orders at  $\$20\frac{1}{8}$ ,  $\$20\frac{1}{4}$ ,  $\$20\frac{3}{8}$ , . . . to \$22 would be compared to that of a sell market order executed at the opening bid, \$20. Hypothetical limit order executions occurred if any execution at an inferior price was reported during normal trading hours. For example, a sell limit order of  $\$20\frac{1}{4}$  would be assumed executed if a price greater than  $\$20\frac{1}{4}$  were observed during the day. This approach is conservative in that, given Manning protection and the fact that limit orders with time priority may become the market, some executions at prices equal to the limit order price would yield an execution. If no execution occurs, the limit order converted to a market order which was executed at the prevailing inside market at the time of the last trade in the stock that day.

Each combination of a stock during a given day (stock-day) in the sample was classified by two variables, spread class and price range. A stock-day's spread class is determined by rounding the trade-weighted average spread to the nearest  $\frac{1}{8}$  (though some spread class categories contain multiple  $\frac{1}{8}$ s). Price range classification is made using the opening bid for the stock-day. Stock-days with less than 20 trades were excluded from the analysis. For each of the hypothetical limit orders, the

following measures were calculated: the probability of execution, nominal differential performance versus the hypothetical market order, percentage differential performance versus the hypothetical market order, and the cost of non-execution. For example, a buy order  $\frac{1}{4}$  below the opening ask might have a 90 percent probability of execution. If executed, this order outperforms the market buy order by \$0.25. If not executed, the order is converted to an end-of-day market order. As the limit order was not executed, it is likely the market moved against it, i.e., it rose. Suppose that a stock's price rises throughout the day, never trading at a price inferior to the limit order, and that the closing price exceeds the opening price by \$2. Then an unexecuted limit order, converted to an end-of-day market order, underperforms the original market order by \$2. The limit order investor then weighs the 90 percent probability of saving \$0.25 against a 10 percent probability of losing \$2.00 and forms the expectation that, on average, the limit order will out perform the market order by \$.025.<sup>32</sup>

Table 2 presents results for 2 cross-sections: spread classes  $\frac{1}{8}$  and  $\frac{1}{4}$  both for stock-days in the \$10 to \$20 price range. The first column shows the limit order price increment, with an increment of zero representing a market order. The second column shows probability of execution, which is the likelihood that a limit order will execute at the given increment level. For example, in the  $\frac{1}{8}$  spread class, a limit sell (buy) order placed  $\frac{1}{8}$  above (below) the bid (ask) has a 68.9% chance of execution on an average day. The limit order's value of execution is \$0.125, which represents the savings the investor gains by selling (buying)  $\frac{1}{8}$  above (below) the bid (ask). The probability of non-execution is simply 100% minus the execution probability, which equals 31.3%. The cost of non-execution, found in the fifth column of the table, represents the opportunity cost associated with placing a limit order that is not filled during the day. As stated previously, if the hypothetical limit sell (buy) order is not filled during the day, it is executed at the closing inside bid (ask). The cost of non-execution is computed as the difference between the closing inside bid (ask) and the opening inside bid (ask), conditional on the fact that the order was not filled during the day. On average, this cost is just under \$0.24 for a limit sell (buy)

<sup>27</sup> January 1996 data are from the Nasdaq Market Data Server. Data from this relatively new source provide more detail than was previously available for calculating Instinet volume. Data from the Nasdaq Equity Audit Trail extend back to January 1993, but are incomplete regarding Instinet trading. Incomplete as it is, however, this source indicates no trend in the Instinet share of volume during the last three years.

<sup>28</sup> The 250 stocks with the highest median dollar volume over the first quarter of 1996 were selected.

<sup>29</sup> The 250 stocks are the same as those mentioned in the previous footnote.

<sup>30</sup> The sample is limited to those stock-days (a stock-day is a unique combination of a stock and trading day) having 20 or more trades; thus a stock may not be included in the sample for all trading days over the period. The 20 or more trades criterion necessarily means that trading activity for the sample is higher than for the Nasdaq market as a whole. Daily share volume for stock-days in the sample averages 252,300 shares compared to 106,108 shares for the Nasdaq market over the same time period. Average trade sizes are 1,916 and 1,980 for the sample and the Nasdaq market, respectively.

<sup>31</sup> Note that this approach may bias our results in the limit orders favor, because in theory, the worst price at which a market order can be executed is the inside quote. Many firms offer market orders opportunities for price improvement or match them with orders on an internal file, so market orders can be executed at prices inside the dealer quotes.

<sup>32</sup>  $E(\text{Limit Order Advantage}) = P(\text{Execution}) * \text{Outperformance} - P(\text{Non-Execution}) * \text{Cost of N-E} = (.9 * .25) - (.1 * 2.00) = .025$

order placed  $\frac{1}{8}$  above (below) the bid (ask). The expected dollar value of the limit order, shown in the sixth column, represents the savings of executing the limit order minus the opportunity cost of non-execution, taking the probability of both events into account. It is computed as follows:

(column 6) expected dollar value of limit order = (column 2) probability of execution \* (column 3) value of execution—(column 4) prob. of non-execution \* (column 5) cost of non-execution.

The expected dollar value of the limit order is the overall summary measure of what an investor might gain, on average, from placing a limit order. Finally, the seventh column divides the expected

value of the strategy by the opening price of the stock. The resulting figure is the percentage gain of the strategy, and can be added to the overall investment return from holding the stock. While the discussion has focused on savings for the investors placing limit orders, it should be noted that a savings exists for the investors whose market orders execute against the limit orders. For example, say a limit buy order is placed at  $\$15 \frac{1}{8}$  for 500 shares when the inside market is  $\$15$  to  $\$15 \frac{1}{4}$ . If a market sell order for 500 shares executes against the limit order, both the limit order and the market order realize an execution value of  $\$0.125$ .

Table 2 shows that, on average, for stocks priced between  $\$10$  and  $\$20$  in

the  $\frac{1}{8}$  spread class, the only scenario in which a limit order outperforms a market order executed at the opening bid or ask, is placing a buy (sell) limit order  $\frac{1}{8}$  below (above) the inside ask (bid). Because this cross-section of stock-days are in the  $\frac{1}{8}$  spread class, limit orders outperform market orders even though they have been placed at levels equivalent (on average) to inside dealer quotes (i.e. buy orders at the bid, sell orders at the ask). For a spread class of  $\frac{1}{4}$ , however, the optimum level at which limit orders can be placed is  $\frac{1}{8}$  below (above) the inside ask (bid); as might be expected, limit orders that "split" the dealer spread outperform market orders.

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**Table 2: Performance of Limit Orders Versus Market Orders**  
**Stock-Days\* in Spread Classes 1/8 and 1/4, Price Range \$10 to \$20**

Spread Class = 1/8 (879 Stock-Days)						
Limit Order Increment**	Probability of Execution	Value of Execution	Probability of Non- Execution	Cost of Non Execution	Expected Dollar Value of Limit Order	As Percentage of Price
0	100.0%	\$0.000	0.0%	N/A	\$0.000	0.00%
1/8	68.9%	\$0.125	31.1%	(\$0.239)	\$0.012	0.10%
1/4	38.2%	\$0.250	61.8%	(\$0.170)	(\$0.010)	-0.07%
3/8	24.5%	\$0.375	75.5%	(\$0.136)	(\$0.011)	-0.07%
1/2	16.8%	\$0.500	83.2%	(\$0.110)	(\$0.007)	-0.05%
5/8	11.3%	\$0.625	88.7%	(\$0.084)	(\$0.004)	-0.03%
3/4	8.1%	\$0.750	91.9%	(\$0.068)	(\$0.002)	-0.01%
7/8	5.7%	\$0.875	94.3%	(\$0.053)	\$0.000	0.00%
1	4.2%	\$1.000	95.8%	(\$0.044)	\$0.000	0.00%
Spread Class = 1/4 (2,270 Stock-Days)						
0	100.0%	\$0.000	0.0%	N/A	\$0.000	0.00%
1/8	89.6%	\$0.125	10.4%	(\$0.449)	\$0.066	0.48%
1/4	53.5%	\$0.250	46.5%	(\$0.251)	\$0.017	0.13%
3/8	34.9%	\$0.375	65.1%	(\$0.206)	(\$0.003)	-0.02%
1/2	23.4%	\$0.500	76.6%	(\$0.162)	(\$0.007)	-0.04%
5/8	17.5%	\$0.625	82.5%	(\$0.134)	(\$0.001)	-0.01%
3/4	12.1%	\$0.750	87.9%	(\$0.106)	(\$0.002)	-0.01%
7/8	9.0%	\$0.875	91.0%	(\$0.086)	\$0.000	0.01%
1	6.8%	\$1.000	93.2%	(\$0.071)	\$0.002	0.01%

Notes: \*Stock-days equals number of stocks in a category times number of days in sample (16 Thursdays in 1996). Stock is excluded for a trading day if it had less than 20 trades that day.

\*\*Buy orders placed at the opening ask minus the increment, sell orders at the opening bid plus the increment. Value of zero indicates market order.

Table 3 contains results for the  $\frac{1}{8}$  spread class and the  $\frac{3}{8}$  and  $\frac{1}{2}$  spread classes for stock-days in the \$20 to \$30 price range. Interestingly, no limit orders placed near the market outperform a market order on average for stock-days in the  $\frac{1}{8}$  spread class. For spread classes  $\frac{3}{8}$  and  $\frac{1}{2}$ , a number of price levels at which limit orders outperform market levels exist. Those of note are between the spread for these stock-days, i.e. at  $\frac{1}{8}$ ,  $\frac{1}{4}$ , and  $\frac{3}{8}$  off the inside quotes. A limit order  $\frac{3}{8}$  off the inside market does best; these orders will be either at (for  $\frac{3}{8}$  spread stock-days) or  $\frac{1}{8}$  inside ( $\frac{1}{2}$  spread stock-days) the inside dealer market.

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**Table 3: Performance of Limit Orders Versus Market Orders**  
**Stock Days\* in Spread Classes 1/8, 3/8, and 1/2; Price Range \$20 to \$30**

Spread Class = 1/8 (309 Stock-Days)						
Limit Order Increment**	Probability of Execution	Value of Execution	Probability of Non-Execution	Cost of Non-Execution	Expected Dollar Value of Limit Order	As Percentage of Price
0	100.0%	\$0.000	0.0%	N/A	\$0.000	0.00%
1/8	73.3%	\$0.125	26.7%	(\$0.346)	(\$0.001)	-0.01%
1/4	51.6%	\$0.250	48.4%	(\$0.317)	(\$0.024)	-0.11%
3/8	39.3%	\$0.375	60.7%	(\$0.276)	(\$0.020)	-0.09%
1/2	30.1%	\$0.500	69.9%	(\$0.235)	(\$0.014)	-0.06%
5/8	23.1%	\$0.625	76.9%	(\$0.201)	(\$0.010)	-0.05%
3/4	17.8%	\$0.750	82.2%	(\$0.180)	(\$0.014)	-0.07%
7/8	15.2%	\$0.875	84.8%	(\$0.162)	(\$0.004)	-0.03%
1	12.0%	\$1.000	88.0%	(\$0.142)	(\$0.005)	-0.03%
Spread Class = 3/8 and 1/2 (1,965 Stock-Days)						
0	100.0%	\$0.000	0.0%	N/A	\$0.000	0.00%
1/8	97.6%	\$0.125	2.4%	(\$1.030)	\$0.097	0.40%
1/4	88.5%	\$0.250	11.5%	(\$0.745)	\$0.136	0.55%
3/8	78.9%	\$0.375	21.1%	(\$0.539)	\$0.182	0.74%
1/2	46.9%	\$0.500	53.1%	(\$0.393)	\$0.026	0.11%
5/8	43.4%	\$0.625	56.6%	(\$0.382)	\$0.055	0.22%
3/4	29.2%	\$0.750	70.8%	(\$0.321)	(\$0.008)	-0.03%
7/8	27.4%	\$0.875	72.6%	(\$0.306)	\$0.018	0.07%
1	20.4%	\$1.000	79.6%	(\$0.256)	\$0.000	0.00%

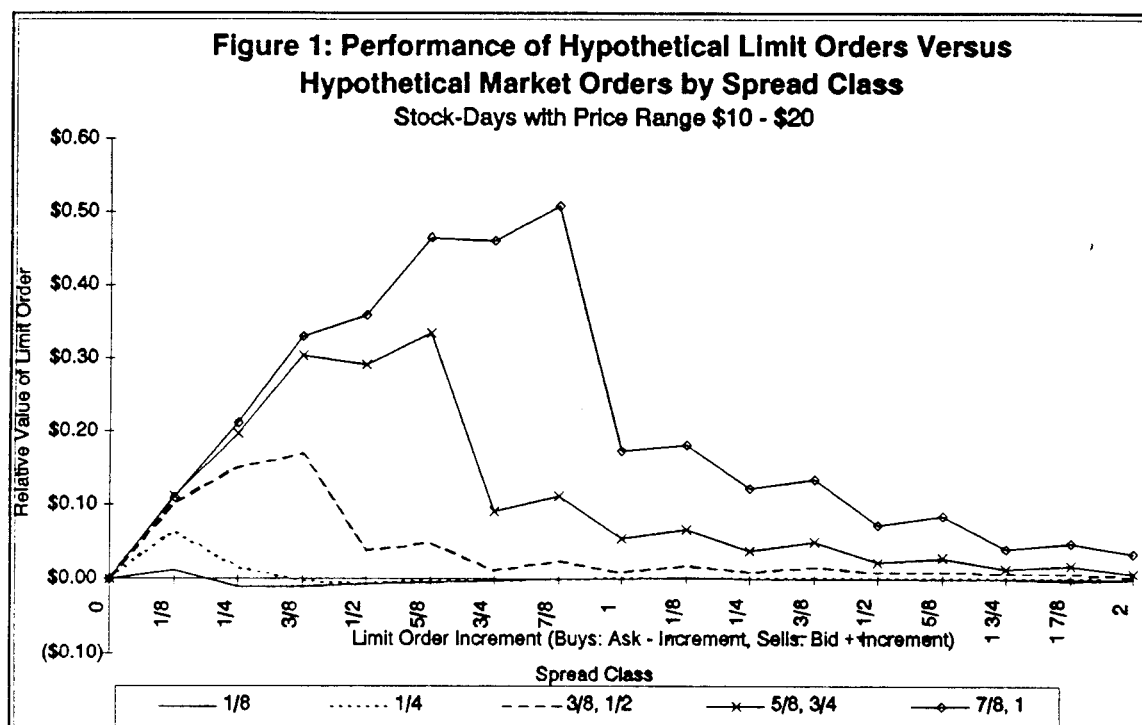
Notes: \*Stock-days equals number of stocks in a category times number of days in sample (16 Thursdays in 1996). Stock is excluded for a trading day if it had less than 20 trades that day.

\*\*Buy orders placed at the opening ask minus the increment, sell orders at the opening bid plus the increment. Value of zero indicates market order.

Figure 1 plots the relative performance of the limit order array for 5 spread classes of stock-days in the \$10 to \$20 price range. The graph shows that for all but the  $\frac{1}{8}$  spread class (where no orders can be placed inside the quotes), the optimum limit order strategy is to place orders at prices  $\frac{1}{8}$  better than the inside dealer market. This analysis shows the when possible, limit orders placed within the inside dealer market can outperform market orders on average.

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This analysis suggests potential benefits for investors from enhanced limit order activity on the Nasdaq Stock Market. Investors who do not require immediate transactions will have an incentive to place limit orders in NAQcess, and may receive superior prices as a result. Since these limit orders augment the supply of liquidity, those investors who demand immediacy through the placement of market orders may pay less for it.

While this study finds that limit order strategies can result in gains for investors, its implications for NAQcess must take several factors into consideration. The study examines performance of hypothetical limit orders in the current, pre-NAQcess trading environment, which does not represent what will exist in the NAQcess environment. It is expected that the introduction of a central limit order file in the Nasdaq Stock Market will alter the dynamics of the market, including the performance of limit orders, although the precise changes cannot be known with certainty. For example, this study measures savings relative to a stock's spread without taking commissions into account. This is a reasonable approach given the current Nasdaq environment. In the NAQcess environment, however, spreads could become less relevant while commissions become more so. Secondly, some trading in the pre-NAQcess environment

does occur inside the spread, meaning that some investors already realize the type of savings identified in the study.

## 2. Preliminary Simulation Analysis

Beginning in 1995, Nasdaq retained Robert A. Schwartz and Bruce W. Weber, both with the Leonard N. Stern School of Business, New York University to develop a model of Nasdaq trading that could be used to simulate next-generation trading on Nasdaq as exemplified by NAQcess. Professors Schwartz and Weber are experts in the field of market microstructure and simulation. Schwartz has written extensively and has many published papers on market microstructure. Weber, prior to his work for Nasdaq, developed a simulation model of London Stock Exchange trading for the London Stock Exchange.

The Schwartz-Weber model is a simplified representation of Nasdaq order placement and execution. Liquidity traders, momentum traders, informed traders, market maker quote setting, and inventory management behavior are mechanically generated by computer algorithms. Live traders representing order entry firms interact with the computer-generated environment.<sup>33</sup> The behavior of the live traders can be analyzed under different market structures. As an initial test of

their simulation model, Schwartz and Weber conducted experiments with live subjects on the usage of limit orders in a Nasdaq limit order facility similar to NAQcess and measured the impact that a limit order facility had on limit order usage, displayed spreads, and dealer profitability.

Three different market structures were used in the experiments.<sup>34</sup> The first market structure allowed live traders, given a predetermined set of buy orders, to use market orders and trade at the quoted prices of market makers. The second market structure allowed live traders, given a predetermined set of buy orders, to use market orders or input limit orders in the limit order facility with dealers uninformed to the information available to them in order flow. The third market structure allowed live traders, given a predetermined set of buy orders, to use market orders or input limit orders in the limit order facility with dealers partially informed by the information available to them in order flow. The uninformed dealers in the second market structure had wider spreads than in the third market structure due to the

<sup>33</sup> Sixteen graduate business school students and eight NASD employees participated the simulation as live traders. No professional traders participated.

<sup>34</sup> A fourth market structure, allowing live participants to act as day traders, was also developed and tested for use in an experimental setting. In this environment, participants could use market orders or input limit orders in the limit order facility. Controlled experiments under this market structure, however, have not been conducted to date.

increased risk of transacting with more informed traders.

The experimental results suggest that the introduction of a limit order facility narrows the displayed spread and increases order placements. Under the uninformed dealer scenario, the displayed spread narrows by about 25 percent. Under the informed dealer scenario, the displayed spread narrows by about 50 percent. The addition of a limit order facility increased limit order placement to about 50 percent of all orders and reduced market order placement to about 50 percent of all orders. Limit orders were executed 45 percent of the time under the uninformed dealer scenario and about 50 percent of the time under the informed dealer scenario. The addition of a limit order facility increased overall orders placed by about 18 percent but decreased overall orders executed by about 5 percent.

The experimental results also suggest that the introduction of a limit order facility is particularly important to investors in stocks when spreads are greater than  $\frac{1}{4}$ . There is some evidence, although not consistent over all categories, that the greater the size of the displayed spread, the greater the use of limit orders. For three out of four categories, a larger percentage of limit orders were placed when displayed spreads were  $\frac{3}{8}$  and  $\frac{1}{2}$  than when displayed spreads were  $\frac{1}{8}$  and  $\frac{1}{4}$ .

The simulation also measured dealer profitability. The results on dealer profitability changes after the introduction of a limit order facility were mixed. The marginal rate of dealer profits in basis points decreased under the uninformed dealer scenario but increased under the informed dealer scenario.

The results are taken from a small sample of 24 experimental subjects. Since subjects had a limited amount of training in the simulated trading environment, better trained subjects may have led to different results. The simulation model makes simplifying assumptions about order flow characteristics, dealer quote setting behavior, and price movements in the Nasdaq market. For instance, the exact structure of NAqcess was not completely determined when the experiments were conducted. Thus, the limit order book structure tested is not identical to the structure ultimately proposed. If any assumptions made by the model are not valid, then the results may not be representative of the impact of NAqcess on the Nasdaq market.

#### IV. Conclusion: NAqcess Should Benefit Investors

NAqcess represents a major development for the Nasdaq Stock Market. Its key feature is a central limit order file with broad access to market participants. Investors will have the opportunity to place limit orders directly into the file, and execute trades against orders in the file in an automated fashion. This central order file will replace the current SelectNet facility. The automated execution system, fully consistent with the firm quote rule, will allow investors to execute market orders without need of explicit market maker interaction. This system will replace the current SOES facility.

Nasdaq staff believe that NAqcess will represent a significant benefit for investors, as enhanced capabilities for a limit order-oriented market modality are created. This determination is amply supported by the global experience of equity trading, by economic theory and evidence, by the current experience within the Nasdaq market, and by research conducted by and for the NASD's Department of Economic Research.

As has been the experience with the Paris Bourse, however, the dealer-oriented market modality has distinct advantages of its own. NAqcess is in no way intended to replace the dealer market. It can be expected that some issues will tend to be traded within NAqcess more than others, and that some types of trades will be more likely to be placed on NAqcess than others. The forces of competition will ultimately determine the usage of the various modalities offered within the Nasdaq Stock Market.

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[Release No. 34-37310; File No. SR-NASD-96-15]

#### **Self-Regulatory Organizations; National Association of Securities Dealers, Inc.; Order Granting Approval to Proposed Rule Change Relating to Schedule A to the By-Laws to Amend the Allowable Exclusions and Deductions from the Definition of Gross Revenue for Member Assessment Purposes**

June 13, 1996.

On April 4, 1996, the National Association of Securities Dealers, Inc. ("NASD" or "Association") submitted to the Securities and Exchange Commission ("SEC" or "Commission"), pursuant to Section 19(b)(1) of the

Securities Exchange Act of 1934 ("Act")<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> a proposed rule change to amend the allowable exclusions and deductions from the definition of gross revenue for member assessment purposes.

The proposed rule change was published for comment in Securities Exchange Act Release No. 37169 (May 6, 1996), 61 FR 21517 (May 10, 1996). No comments were received on the proposal. This order approves the proposed rule change.

#### I. Background

Gross revenue is defined for member assessment purposes under Section 5 of Schedule A of the NASD By-Laws ("Section 5") as total income reported on FOCUS form Part II or IIA, with certain limited exclusions and deductions.<sup>3</sup> Currently, Section 5 provides that revenue derived from interest and dividends<sup>4</sup> may be excluded by a member from gross revenue for assessment purposes.

#### II. Description of Proposal

The Association's proposal amends Section 5 to remove interest and dividends as an allowable exclusion for assessment purposes. The proposal, however, adds a new provision to allow a member to deduct from gross revenue for assessment purposes either: (i) its interest and dividend expenses, but not in excess of related interest and dividend revenue; or, alternatively, (ii) 40% of interest earned by the member on customer securities accounts. The proposal also allows a member to deduct from its gross revenue an additional \$50,000 of net interest and dividend revenue. Lastly, the proposal amends Section 5 to provide alphabetical references to its two primary subsections and to replace all bullets referencing its secondary subsections with numerical references.

The proposed rule will take effect for the 1996 assessment based on revenues generated in calendar year 1995. Based on its data, the NASD estimates that the proposed rule, if it had been adopted for 1995, would have generated assessment revenue of \$3 million based on the budgeted level of assessment revenue of \$39 million for that year. Therefore, the NASD believes that the rule proposal

<sup>1</sup> 15 U.S.C. § 78s(b)(1) (1988).

<sup>2</sup> 17 CFR 240.19b-4 (1994).

<sup>3</sup> Securities Exchange Act Release No. 35074 (Dec. 9, 1994), 59 FR 64827 (Dec. 15, 1994) (order approving File No. SR-NASD-94-58).

<sup>4</sup> The term "interest and dividends" includes interest from a member's customer margin accounts and interest and dividends from a member's trading and investment positions, such as from repurchase and reverse repurchase agreements and stock loan and borrow transactions.