



Reform of Securities-Market Structure: The SEC Rejects Competition

By Peter J. Wallison

Previous issues of Financial Services Outlook have addressed the deficiencies of Regulation NMS, a proposal to reform the structure of U.S. stock markets, and the consistent failure of the Securities and Exchange Commission—in Regulation NMS as well as many of its other recent initiatives—to provide or consult empirical data in support of its conclusions. This issue addresses the central question of securities-market structure that the SEC has thus far avoided: whether to permit the electronic order-matching markets known as ECNs (for “electronic communication networks”) to compete with the New York Stock Exchange or instead to maintain the regulatory restrictions that ultimately protect the NYSE from this and other competition.

The purpose of regulating securities trading is to enable investors to get the best possible prices and services. In most other areas of our economy, this goal is achieved through competition, which increases efficiency, reduces costs, and promotes innovation. In securities trading, however, SEC regulation restricts or prevents competition, especially competition for the NYSE from the ECNs. Because of the success of competition elsewhere in the economy—and particularly in the Nasdaq securities market—the SEC has the burden of proving that restrictive regulation is necessary or appropriate in the trading of NYSE-listed securities. In Regulation NMS, the SEC has not attempted to meet this burden and has ignored much recent academic work that shows the benefits to investors of competition by ECNs in the Nasdaq market. Eliminating restrictive regulation, and allowing ECNs to compete with the NYSE, will result in far more benefits for investors than the SEC will produce by implementing Regulation NMS.

The salient fact about the structure of the U.S. securities markets today is that there are two entirely separate structures—a centralized, human-mediated market, of which the New York Stock Exchange (NYSE) is the most prominent example,¹ and a decentralized, competitive, electronic market known as the Nasdaq Stock Market, which encompasses a dealer market and a number of computerized order-matching facilities known as electronic communications networks, or ECNs. Each market trades its own set of listed securities in its own unique way. Because of regulations approved by the Securities and Exchange Commission—particularly the so-called trade-through rule to be discussed below—the two markets are not able

to compete with one another by trading the same securities, making it impossible to determine which of these structures best serves investors' needs.

However, the success of competition within the Nasdaq market, and serious academic work recording that success, clearly indicates that investors would benefit if the so-called trade-through rule were eliminated and if NYSE-listed securities could be traded on the ECNs and in the Nasdaq market generally. Despite this evidence, the SEC continues to cling to regulatory interventions that protect the NYSE from competition and deny its benefits to investors.

Although the interests of investors should be the principal focus of the SEC, we should not lose sight of the fact that an efficiently functioning securities market is essential to the proper allocation

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of capital in the U.S. economy. There are studies, for example, showing that the additional costs of inefficient trading systems directly and adversely affect the cost of capital, and this in turn affects its allocation.² For these reasons, the SEC's prospective adoption of Regulation NMS assumes greater importance than the ordinary SEC action. The last major restructuring of the securities markets occurred more than a quarter century ago. The one now in prospect is likely to be with us, and to affect the growth of our economy, just as long.

In late February 2004, the commission published Regulation NMS, a long awaited market-structure reform proposal. The draft regulation would

- modify the application of the trade-through rule to the trading of both NYSE-listed securities and Nasdaq securities;
- impose a ceiling on the market access fees used by ECNs;
- prohibit sub-penny bids and offers; and
- change the method for the sharing of revenue from the sale of market data.

Although all of these proposals have significance for various aspects of securities-market structure, the proposed changes in the trade-through rule—which would modify its applicability in certain circumstances, but extend its reach to the Nasdaq market—have raised the most serious questions about market structure reform, and hence these changes will be the principal focus of this paper.

Which Market Type Is Better for Investors?

Each of the existing market structures has its strong proponents. Supporters of the centralized NYSE structure argue that concentrating most trading in a single market increases liquidity and reduces bid-ask spreads, thus providing investors with the best prices available. Correspondingly, NYSE proponents contend, anything that breaks up or fragments this central trading venue by permitting or encouraging competition would tend to widen bid-ask spreads and hinder efficient price discovery.

The advantages of a centralized market for trading NYSE-listed securities are not the only benefits that the NYSE structure is said to provide. The NYSE is also a human-mediated market, in which a single firm—known as a “specialist”—acts as market maker for each

listed security and is charged with maintaining an orderly market in that security by purchasing shares when there is an imbalance of sellers and selling shares when there is an imbalance of buyers. This specialist system is different from the “multiple market maker plus ECN” structure that characterizes the Nasdaq market. Those who favor the specialist system argue that it increases liquidity in the market—especially at times of market stress—and thus prevents unnecessary share price volatility and the losses that can result.

Finally, the NYSE argues that its centralized, human-mediated market is best for small investors and traders, who may place relatively small limit orders (orders specifying a price limit for a purchase or sale) or market orders (orders to purchase or sell at the market price, whatever it happens to be when the order reaches the floor). The high liquidity of a centralized market, and the presence of a specialist willing to provide additional liquidity as necessary, provides greater assurances for investors that their limit orders will be executed and that they will receive a fair price when their market orders arrive for execution.

However, many institutional investors—mutual funds, pension funds, and other large traders—have complaints about trading in the centralized, human-mediated NYSE market. Among their concerns is the widely held view that their trading interest—either buying or selling—has a greater “market impact” when they trade on the NYSE than when they trade on the ECNs. What they mean by greater market impact is that, when the existence of their large orders to buy or sell becomes known, it causes prices to move away—rising when they are buying or falling when they are selling. This occurs because others come in to profit from trading ahead of a large order or in some cases simply to free ride by taking a piece of what the institutional trader had intended to buy. For this reason, many institutional investors believe they have greater difficulty completing a large trade at a satisfactory average price on the NYSE than on the ECNs.

In a 2003 survey by Greenwich Associates for Instinet (an ECN), presented at an AEI conference in October 2003, the institutional investors who participated in the survey reported that ECNs were three times more likely to deliver low market impact than an exchange and twice as likely as a negotiated broker-to-broker trade that does not take place on the NYSE floor.³

There are several reasons why this might be true. ECNs offer three services that are not generally available

on human-mediated markets such as the NYSE— anonymity, confidentiality, and speed. Anonymity is important to institutional traders, particularly because they tend to be better informed than others. Accordingly, when it becomes known that they are trading, their counterparties will increase bid-ask spreads, fearing that the institutional trader may have information that the counterparties lack. Confidentiality has similar benefits, especially if institutional investors are able to trade without revealing their trading interest to a broker. Many ECNs permit institutional investors to trade directly with one another, without the intercession of a broker. This not only reduces trading costs, but assures that their trading interest is not disclosed to others who will be able to trade ahead of them, or free ride. Finally, in the fast-moving markets of today, the ability to trade quickly is highly prized, and ECNs offer the opportunity to trade in milliseconds.

Although use of the term “institutional investors” suggests large enterprises, and seems to oppose their interests in trading success to those of small investors and traders, most institutional investors are mutual funds and pension funds, which are managing the investments of large numbers of small investors. When institutional investors can trade efficiently and at less cost, this is a benefit for the millions of small investors whose interests in stock prices and trading costs are affected indirectly through their investments in mutual funds and retirement accounts.

Competition’s Role in Discovering the Best Market Structure

Thus, the market structure that would best serve investors is a complex issue and can be effectively addressed only by resolving the many different interests that investors have when they trade in securities. In the normal case, we rely on competition to resolve issues of this kind. In a famous lecture, F. A. Hayek referred to competition as a “discovery procedure,”⁴ and that indeed is what it is. When competition operates, as Hayek noted, it is “highly conducive to the achievement of many different individual purposes not known as a whole to any single person, or relatively small group of persons.”

In other words, consumers—and in this case investors—have so many different purposes that it is impossible for any single person or group to combine them all into a single structure that satisfies most of the

participants most of the time. Attempting to resolve the issue through regulation, as Hayek suggests, is doomed to failure, since no person or group can know and account for all the different interests that converge on a single market. Competition, however, achieves this by elevating to dominance the service or system that, overall, serves all participants most effectively.

A recent well-known example is the competition between computer operating systems. In that competition, at least temporarily, Microsoft’s Windows system has prevailed over Macintosh as the dominant operating system for computers. The Mac system, however, continues in use because it serves some specialized interests that are willing to pay the inconvenience and other costs associated with using a nonstandard computer operating system. This is a classic market-based solution to the problem of determining which of two services best serves the needs of consumers. If this complex choice had been made by a regulator, it would have been made without the most complete knowledge available concerning the interests of computer users. Why should the same approach not be used to determine which market structure best serves investors? After all, if the NYSE structure is indeed superior to the Nasdaq structure, it need not fear competition; it will ultimately win out.

This is not to say that regulation is in every context inferior to competition in achieving the best services for consumers or investors. Regulation, for example, is valuable where there is a market failure—where, for whatever reason, competition will not produce the best services for those who participate in the market. But unless some market failure can be shown, it would appear far better to rely on competition to determine what is best for investors than to expect that the SEC can make this judgment and bring it about by regulation.

However, as discussed below, the SEC has made no attempt to show a market failure. Instead, it seems to assume that there is a continued need for the trade-through rule, even if in modified form. This would be good policy if the SEC could show that the elimination of the rule—permitting competition between the ECNs and the NYSE—would somehow be harmful to the interests of investors. The commission has not even attempted to make this case. Indeed, in framing Regulation NMS, it has ignored a great deal of recent academic work that shows the opposite—that competition from the electronic markets has improved services and reduced costs for investors in Nasdaq stocks.

The Trade-Through Rule and Competition

Although it does not directly prohibit Nasdaq market makers or ECNs from trading NYSE-listed securities, the trade-through rule makes it very difficult to trade NYSE securities through the electronic order-matching of the ECNs. The rule is applicable to trading in securities listed on registered stock exchanges such as the NYSE,⁵ but not to securities traded in Nasdaq, which is technically and historically a dealer market and not an exchange. Indeed, the fact that the trade-through rule was not applicable to trading in Nasdaq securities is what made it possible for the ECNs to establish a foothold in the Nasdaq market and, ultimately, to demonstrate their effectiveness as efficient alternative trading venues for Nasdaq-listed securities.

The trade-through rule requires that any order to buy or sell a security listed on a registered securities exchange must be sent via the Intermarket Trading System (ITS) to the market in which the best price is posted. In securities market parlance, if a trade is executed at a price inferior to a posted price in the same market, it is said that someone “traded through”—i.e., ignored—the better posted price. Hence, the rule that was supposed to prevent this is called the trade-through rule. On its face, the objective of the rule seems unexceptionable. Why should orders not go to the market where the best price is posted and interact with that price? Indeed, all brokers have an obligation under common law agency rules as well as SEC rules to effect “best execution” for their customer’s orders. Occasionally, the trade-through rule is justified as another way of assuring investors of best execution of their orders. However, just as the enforcement of “best execution” standards becomes difficult in the case of the many interests different investors exhibit,⁶ there is no easy or objective standard for determining—in each individual case, given the variant purposes of each investor—what is the “best” posted price available in the market. The following discussion illustrates this point.

In requiring that orders be sent to a market where the best price is posted, the trade-through rule does not take account of either the speed at which an order can be executed or the number of shares involved. This can mean that the best posted price is not the one on the NYSE that an investor *might* be able to access if his order were ultimately sent there, but an inferior price for a larger number of shares that the investor can access *instantaneously* on an ECN. For example, if a purchaser wants to buy 10,000

shares of Company A (a NYSE-listed security), which are offered for sale on an ECN at \$30, the trade-through rule requires that the order be sent first to the NYSE (or to any other registered exchange where the security is traded), if a better-priced offer to sell is posted there. Accordingly, if we assume that 1,500 shares of Company A are posted for sale on the NYSE at \$29.90, the rule requires that the purchaser’s order be sent first to the NYSE to clear the \$29.90 offer before it can be executed on the ECN at \$30.

ITS is an antiquated wire system, and when the trade finally reaches the floor of the NYSE, it must be acted on by a specialist. Between the time the order was placed, and the time the specialist acts upon it—which can be as long as thirty seconds—the market may have moved away from \$30. The offer on the ECN to sell 10,000 shares at \$30 may now have become an offer to sell at \$31. Moreover, before the order reaches the NYSE, the 1,500 shares originally offered at \$29.90 may have been purchased by another investor, or by the specialist, and is no longer available. By the time this is communicated back to the original purchaser, the opportunity to acquire 10,000 shares at \$30 may be gone; the purchaser now has to pay \$31 for 10,000 shares of Company A. In this set of facts, even though the trade-through rule requires that orders be sent to the market in which the “best price” is posted, for this *particular* investor the best price was clearly the 10,000 shares he could have acquired immediately on an ECN at \$30, *not* the 1,500 shares he might have been able to acquire on the NYSE, thirty seconds later, for \$29.90.

This example shows that as long as the trade-through rule exists, it will be difficult for investors to trade NYSE-listed securities on ECNs. The delays in effecting transactions on the NYSE will inevitably vitiate the speed and cost savings offered by trading on the ECNs, and for this reason ECNs cannot offer effective competition for the NYSE as they successfully competed in the past with Nasdaq market makers for trading in Nasdaq-listed securities.

In contrast, in the absence of a trade-through rule applicable to Nasdaq-listed securities, the speed, anonymity, confidentiality, and low cost of the ECNs enabled them to compete effectively with Nasdaq market makers for the trading interest of investors, particularly institutional investors. It soon became apparent that if Nasdaq did not become an electronic market, where brokers, dealers, and market makers could trade with one another and for customers virtually instantaneously, they would not survive competition from the ECNs.

Accordingly, in 2002, Nasdaq was given permission to establish an electronic interface called SuperMontage, which permits Nasdaq market makers to post their prices for purchases and shares in an electronic environment similar to that of an ECN. Transactions can be effected in milliseconds and with many of the advantages of anonymity and confidentiality offered by the ECNs. Nevertheless, even today, Nasdaq market makers account for less than 20 percent of the trading in Nasdaq-listed securities. The remainder is traded on the ECNs.

Objections to Competition

Despite the success of the ECNs in the Nasdaq market, the SEC has not been willing to allow the ECNs to compete with NYSE specialists in trading NYSE-listed securities. The limited modifications it has proposed in the trade-through rule are ample testimony to this. As noted above, however, the commission's position would be justified where there was a demonstrated market failure—where it was clear that consumers, in this case investors, would not be served as well by competition as they would in a market protected by regulation.

There are three principal areas where the supporters of the NYSE have argued that a competitive electronic market such as the decentralized Nasdaq market would be inferior to a centralized human-mediated market such as the NYSE in serving the needs of investors: assuring the best prices, as reflected in low bid-ask spreads; promoting efficient price discovery; and reducing market volatility. In these cases, they contend, permitting the ECNs or Nasdaq market makers generally to compete with the NYSE will impair the quality of the centralized NYSE market. Implicitly, they are arguing that competition in these cases would result in market failure. However, recent experience and academic studies have demonstrated that none of these concerns should be considered seriously as obstacles to competition for the NYSE in the trading of NYSE-listed securities.

Bid-ask spreads and market fragmentation. Perhaps the principal theoretical argument against allowing competition for the NYSE is the claim that this will create a “fragmented” market, where orders to buy and sell will go to secondary markets and not have an opportunity to interact with one another in the primary market. In theory, the reduced liquidity in the primary market would mean that bid-ask spreads will be wider there, and thus that prices for investors will be higher for buyers and

lower for sellers. Several academic studies have looked at whether a decentralized market, with a number of competing trading venues, would have this result. The Nasdaq market, before the rise of the ECNs in the late 1990s was a centralized market. Although it featured a large number of market makers—as distinguished from the lone specialists on the NYSE—all trading in Nasdaq stocks took place in the Nasdaq market, where in theory market makers competed for investor trading interest by offering better prices.

The ECNs changed this structure significantly. As entirely separate alternative trading venues, the ECNs represent exactly the kind of secondary market that has the potential to fragment the primary Nasdaq market, reduce liquidity, and cause spreads in the primary market to widen. Orders that once flowed into Nasdaq could now be processed through computer matching on the ECNs and simply reported to Nasdaq as required by SEC regulations. Although in theory this would create an inefficient fragmented market, that is not in fact what happened.

In a 2002 paper, Roger D. Huang of Notre Dame University compared the quality of quotes on ECNs with those of Nasdaq market makers. Quote quality, in Huang's terms, encompasses such things as timely submission, information about fundamental values rather than temporary order imbalances, and price leadership. Huang reported: “An analysis of the most active Nasdaq stocks shows that ECNs not only post informative quotes, but also, compared to Nasdaq market makers, ECNs post quotes rapidly and are more often at the inside. Additionally, ECN quoted spreads are smaller than dealer quoted spreads. The evidence suggests that the proliferation of trading venues, such as ECNs, may promote quote quality rather than fragmenting markets.”⁷ In other words, despite the fact that Nasdaq securities were now being traded in a number of competitive trading venues, the quotes posted in those market centers—at least with respect to the most active Nasdaq stocks—were inside the spreads quoted by Nasdaq market makers and reflected prices that led the market rather than following it.

Other studies have come to the same conclusion. For example, in an October 2004 paper, Jason Fink, Kristin Fink, and James P. Weston conclude that “ECNs compete directly with traditional Nasdaq dealers and are associated with lower average quoted, effective, and relative spreads over dealers. We also find that ECNs improve the average quoted depth at the inside (prior to decimalization). Further, increased competition from these low-cost competitors, *ceteris paribus*, may have

forced some traditional dealers out of the market for market making.”⁸ Similar results were reported in other academic analyses.⁹ There is no reason to believe that the capacity of ECNs to improve prices on Nasdaq would be any less effective with respect to NYSE-listed shares if they were permitted to compete with NYSE specialists.

Moreover, competition in the Nasdaq market has caused the establishment of communication links between ECNs so that orders that cannot be executed on the ECN where they were initially placed are forwarded to another ECN where execution can occur. This policy, first developed by ArcaEx, one of the ECNs and now a registered exchange, has since been adopted by virtually all other ECNs. In effect, this means that the ECNs themselves have re-created what is essentially a virtual centralized market, putting largely to rest arguments to the effect that their activities will result in market fragmentation. Of course, because it operates in milliseconds, this virtual market has none of the deficiencies associated with waiting for execution of an order in a human-mediated exchange.

Price discovery. No concept in securities trading is more elusive than price discovery—the process by which the market finds the price at which buyers and sellers will meet and trade. In his 2002 paper, Huang defines price discovery as “price leadership . . . which is accomplished by timely submission of informative quotes. An informative quote reflects an asset’s unobservable full-information value or fundamental value,” which is distinguished from a price that is simply the result of temporary order imbalances or other transitory effects of a market.¹⁰ Thus, price discovery is promoted by quotes that lead the market up or down, enabling it to find the price for a security that buyers and sellers can agree upon. Huang’s study shows that the quote quality of ECNs is a major contributor to price discovery on Nasdaq—that ECN quotes tend to lead the market rather than follow it.

Supporters of the NYSE argue that it is on that market alone that the prices of NYSE-listed securities are most efficiently discovered, and that the few other places where the trading of NYSE securities occurs are simply free riding on the NYSE. A corollary is that if other trading venues are allowed to trade NYSE-listed shares, price discovery on the NYSE will suffer—spreads will widen and stock prices will become more volatile. Huang’s study of the performance of ECNs trading Nasdaq securities would cast some doubt on this conclusion, but since there is—and can be—little data on ECN trading of

NYSE-listed shares, no one has been able to do a similar study that compares the performance of ECNs in price discovery with the performance of NYSE specialists.

Nevertheless, there is one recent example in which ECNs, trading a NYSE-listed security for a little over an hour before the NYSE opened, established a price that not only became the opening price on the NYSE but remained the price at which the stock traded throughout the day. This is powerful evidence that ECNs can produce efficient and effective price discovery.

As reported in *BusinessWeek* (October 18, 2004), the pharmaceutical giant Merck announced the withdrawal of the highly profitable drug Vioxx at 8:15 a.m. on September 30. The announcement came as a complete surprise to the market, fundamentally changed the value of the company, and created what *BusinessWeek* called an “avalanche of orders.” Despite this pressure, the NYSE market for Merck on September 30 was so orderly that John Thain, the chairman of the NYSE, congratulated the NYSE specialist on his work in managing the trading that day. “The specialist was able to find a price that was fair for both the buyers and sellers,” Thain noted, “which was what led to the market being fair and orderly.” But where the specialist found that price, at 9:30 a.m. when the NYSE opened, is significant.

Trading in Merck before the September 30 NYSE opening began on the ECNs at 8:00 a.m. at a price of \$45.85—above the preceding day’s close of \$45.07. Only 100 shares moved between 8:00 and 8:15, when the company’s announcement hit the market. At that point, investors and traders had to recalculate the value of Merck without Vioxx, and the process of price discovery began. Ultimately, the company lost \$27 billion in market value in the seventy-five minutes between 8:15 and the opening of the NYSE at 9:30, but the price fell gradually over the period. At 8:15, 48,800 shares traded at \$41.15, and for seventy-five minutes thereafter 10 million shares traded on the ECNs, as prices gradually declined to \$33.35 at 9:25, never losing more than \$1 in value over any five-minute period. The stock then opened on the NYSE at \$32.99, and during the rest of the day 144 million more shares traded between a low of \$32.99 and a high of \$33.47, finally closing at \$33—\$0.35 less than the final price established by the ECNs in seventy-five minutes of trading, without specialists, between 8:15 and 9:30 a.m. This is very strong evidence that competition from the ECNs would not reduce the ability of the NYSE to discover prices, but rather—as Roger Huang found in the case of Nasdaq—enhance it.

Volatility. Closely related to the question of price discovery is the issue of volatility. Supporters of the NYSE argue that the specialist who buys and sells a particular stock on the floor of the NYSE mitigates the costly and disturbing tendency of markets to lurch up or down on significant news. In theory, the specialist is obligated to counter imbalances in orders, buying when the market generally is selling and selling when the market generally in buying. This activity is thought to dampen volatility by increasing the market's liquidity and thus to prevent unnecessary losses to investors.

However, in two studies commissioned by AEI, Professor Kenneth Lehn and two colleagues at the University of Pittsburgh found that the NYSE's specialist system is not as effective as the decentralized Nasdaq structure for dampening the price volatility of matched pairs of securities on each exchange that are of high capitalization and widely traded. Securities of this kind account for 70 percent of the trading on the NYSE. For these stocks, bid-asked spreads—an indication of volatility—widened less on Nasdaq than they did on the NYSE. On the other hand, the study found that the NYSE seems to perform better than Nasdaq in dampening price volatility for stocks of medium and small capitalization. For these stocks, bid-asked spreads widened less on the NYSE. Significantly, within the Nasdaq market itself, the studies showed that ECNs performed better in dampening volatility for high capitalization stocks than Nasdaq market makers and were primarily responsible for the better performance of Nasdaq relative to the NYSE for these stocks.¹¹

In their study, Professor Lehn and his colleagues paired 388 NYSE stocks with the same number of Nasdaq stocks traded on two days during 2001 and 2003. Paired matching was necessary because, as noted above, the NYSE and Nasdaq are—with a very small number of exceptions—completely separate markets, trading an entirely different group of stocks. One of the major contributions of the Lehn study was the care with which pairs of stocks were matched, so that the overall efficiency of the different markets could be assessed for similar stocks on the same day. The match excluded all financial firms, utilities, American depositary receipts, all firms with prices less than five dollars, and all NYSE firms with market values less than \$300 million. The matched stocks were then divided into three groups or “terciles” according to market capitalization.

The authors then selected two days of market stress during 2001 and 2003—that is, two days on which the markets were surprised by economic news, causing a rapid rise or fall in securities prices. The market stress days chosen during

2003 were January 2, when the Dow Jones Industrial Average made its largest positive move that year in forty-five minutes of trading, and May 1, when it made its largest negative move in a similar forty-five-minute period. In both cases, the market was surprised by reports from the Institute of Supply Management on movements in its index of manufacturing business conditions. The dates chosen for 2001 were January 3, when the market had its largest positive response following a surprise 50-basis-point cut in interest rates by the Federal Reserve Board, and March 22, when the market had a large negative response to negative Conference Board data on the economy. The performance of both markets was then evaluated for the stress periods and calm periods on each of the four days chosen.

The data collected by the Lehn group is significant for policy analysis. It showed that for stocks in the largest capitalization tercile, in both calm and stress periods on those four days, both quoted and effective¹² bid-ask spreads were lower on Nasdaq than on the NYSE, and in the Nasdaq market itself bid-ask spreads were lower on ECNs than they were at traditional market makers. On the other hand, during periods of stress for stocks in the two lower terciles, spreads were lower on the NYSE than they were in the Nasdaq market during both stress and calm periods. This result is in accord with other academic studies. However, in periods of stress for *all* terciles the spreads at ECNs widened less than on Nasdaq, and thus appeared to account for the relatively good performance of Nasdaq when compared to the NYSE on the top tercile and to improve the performance of Nasdaq for the two lower terciles, even though for these lower terciles Nasdaq's performance was not as good as that of the NYSE during periods of stress.

This result suggests that where there is already a high degree of liquidity in a stock there is no diminution in the quality of the market—including the process of price discovery and the suppression of volatility—when the stock is traded in a supposedly “fragmented” and competitive electronic market such as that for Nasdaq stocks. On the other hand, stocks with less liquidity may benefit from being listed on a centralized market such as the NYSE.

Conclusions

The implications of the preceding discussion are profound. Among other things, it shows that concerns that competition for the NYSE will result in market fragmentation, inefficient price discovery, and excessive volatility are misplaced, and thus that much of the reasoning behind retaining the trade-through rule in any form may lack empirical

support. In Regulation NMS, the SEC proposed various adjustments to the rule that will have effects on trading that are still unclear and will not be clarified until the final rule is adopted and begins to influence trading. Nevertheless, it is clear at this point that the SEC wants to retain the trade-through rule in some form and to extend it to trading in Nasdaq securities. Despite the fact that Regulation NMS was intended to be a comprehensive proposal for market structure reform—the first in many years and following a revolution in the structure of the Nasdaq market—the SEC made no apparent effort to demonstrate why the trade-through rule should exist at all.

Studies of the competitive Nasdaq market show that competition from ECNs improves prices and services to investors—at least for the large capitalization stocks that account for most of the trading on Nasdaq and the NYSE—without adversely affecting the quality of the market or the prices to which investors have access. There are also indications in the Lehn group studies that the NYSE may provide a better venue for the medium and small capitalization stocks, and thus that the NYSE will continue to function and offer value for investors in trading these stocks even in the case of full competition with ECNs. The important point, however, is that competition between the NYSE and Nasdaq markets—where each is able to trade securities listed on the other, and in particular where ECNs will be able to trade NYSE securities—would determine which type of market is best for investors.

In this light, before the SEC acts precipitously to adopt Regulation NMS, it should consider the many benefits that would flow to investors from eliminating the trade-through rule and thus promoting competition in the nation's securities markets.

Notes

1. There is one other stock exchange worthy of note—the American Stock Exchange, or Amex—on which the shares of companies are also listed. The shares of Amex-listed companies generally trade only on the Amex, and not on the NYSE or over the counter. For purposes of this paper, the NYSE and the Amex are identical; both are registered securities exchanges, using the human-mediated “specialist” system, and thus are governed by the same regulations, particularly the so-called trade-through rule. For ease of reference, I will use the NYSE as the example of a registered exchange, but for the most part all such references will also include the Amex.

2. Ian Domowitz and Benn Steil, “Securities Trading” in Benn Steil, David Victor, and Richard Nelson, editors,

Technological Innovation and Economic Performance (Princeton, N.J.: Princeton University Press, 2002).

3. Greenwich Associates, *Instinet Proprietary Trade Execution Study: Research Results* (October 9, 2003), 8.

4. F. A. Hayek, “Competition As a Discovery Procedure,” in *New Studies in Philosophy, Politics, Economics, and the History of Ideas* (London and Henley: Routledge & Kegan Paul, 1982), 179.

5. As a technical matter, it is possible for NYSE-listed shares to be traded on ECNs or by Nasdaq market makers without complying with the trade-through rule, and this accounts in large part for the limited amount of trading in NYSE-listed securities that occurs off the NYSE. The rule is only applicable to a security listed on a registered national securities exchange that is offered for sale or purchase through listing in the Consolidated Quotation System (CQS) that is part of the Intermarket Trading System. That listing, in effect, advertises the trading interest of the investor to all subscribers to the CQS, and thus increases the chances of an execution. If the transaction is *not* advertised through means of the CQS, it may be traded without compliance with the trade-through rule, but obviously the chances of a favorable transaction are diminished because the investor's trading interest is not as widely known.

6. See, e.g., Jonathan R. Macey and Maureen O'Hara, “Market Structure and Investor Needs,” May 2003, presented at an AEI conference on May 7, 2003 (http://www.aei.org/docLib/20030508_MaceyO%27Harapaper.DOC).

7. Roger D. Huang, “The Quality of ECN and Nasdaq Market Maker Quotes,” *Journal of Finance* 57, No. 3 (June 2002): 1,288.

8. Jason Fink, Kristin Fink, and James P. Weston, “Competition on the Nasdaq and the Growth of Electronic Communication Networks,” October 2004, 22 (unpublished).

9. See, e.g., Michael J. Barclay, Terrence Hendershott, and Timothy D. McCormick, “Competition among Trading Venues: Information on Electronic Communications Networks,” *Journal of Finance* 58, No. 6 (December 2003).

10. Huang, “The Quality of ECN and Nasdaq Market Maker Quotes,” 1,285.

11. Kenneth Lehn, Sukesh Patro, and Kuldeep Shastri, “Information Shocks and Stock Market Liquidity: A Comparison of the New York Stock Exchange and Nasdaq,” papers presented at AEI conferences on June 10 (http://www.aei.org/docLib/20040610_LehnPatroShastri.pdf) and October 13, 2004 (http://www.aei.org/docLib/20041013_LehnPatroShastri.pdf).

12. “Effective spreads” are twice the difference between the midpoint of the quoted bid-asked spread and the price at which the trade actually took place.