



THE NASDAQ STOCK MARKET
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NEW YORK, NY 10006

January 26, 2005

Jonathan G. Katz
Secretary
U.S. Securities and Exchange Commission
450 Fifth St., N.W.
Washington, DC 20549

**Re: Re-Proposed Regulation NMS (File No. S7-10-04);
NYSE Hybrid Proposal (SR-NYSE-2004-05)**

Dear Mr. Katz:

The Securities and Exchange Commission ("SEC" or "Commission") is re-proposing a series of rules that will have a profound impact on how investors are treated in the securities markets in the United States. The Nasdaq Stock Market, Inc. ("Nasdaq") appreciates the opportunity to present its comments on the recently re-proposed Regulation NMS.¹ These proposed rules would impose a uniform trade-through rule on Nasdaq and exchange-listed securities, revise the formulae for allocating market data revenues, impose standards for accessing markets, set access fee rates, restrict locked and crossed markets, and impose the minimum trading increment for securities.

I. Summary of Nasdaq's Position

The proposed rules seek to promote goals that we can all support: investor protection, enhanced competition, and transparency. Because the decisions the Commission will make with this rulemaking are complex and far-reaching, however, the Commission should not proceed unless it has a high degree of confidence that the rulemaking will serve these goals. In particular, the Commission must struggle with the degree to which untested regulatory structures should replace the Commission's traditional reliance upon market forces and best execution principles as the best means of meeting these goals. At a time of well-publicized scandals in the financial services industry, more regulation may seem to be the safe choice.

¹ Securities Exchange Act Release No. 50870 (Dec. 16, 2004), 69 FR 77424 (Dec. 27, 2004) ("Second Regulation NMS Proposing Release").

However, is the government decision maker, no matter how well-intentioned, equipped to make the minute, technical judgments that are now handled by technology and competition in routing and executing millions of trades and billions of shares every day? And what are the costs that will be incurred to create this new vision? Will it truly improve a market that most market participants feel operates well -- except in areas where government regulation is preventing competition? All that can be said with certainty is that the securities industry, with its infinite capacity to mine the intricacies of government regulation for competitive advantage, will create a new set of issues that will require further Commission action.

Simply put, Nasdaq's primary concerns with Regulation NMS, as currently proposed, reflect our belief that market forces and best execution can be relied on to a greater degree to serve public purposes in the securities markets. We believe that applying the trade-through rule to Nasdaq-listed securities is not supported by the facts and will be harmful to investors. We also encourage Commission action to: (1) eliminate the trade-through rule for the trading of New York Stock Exchange ("NYSE") and other exchange-listed securities, thereby creating real competition for these market as well; (2) limit the scope of the government-sponsored cartels that control sharing of tape revenue and stifle competition in market data, and (3) eliminate the opportunities, wherever possible, to "game" the new market data sharing formula.

Trade-Through Rule - Applying the trade-through rule to the trading of Nasdaq-listed securities is harmful to investors. The Nasdaq market is already a quality market and the rule may not achieve the SEC's goal of increasing the use of limit orders. In contrast, the rule will most certainly impose financial and technical costs and deprive millions of investors of the ability to determine on their own what is best for them. Most importantly, the Commission staff's studies relied on to justify a trade-through rule for Nasdaq-listed securities significantly overstate the current extent of trade-throughs in the Nasdaq market.² With respect to the trading of NYSE and other exchange-listed securities, the rule will improve the opportunities for competition among markets, but it also should be viewed as a temporary solution – lasting only until all barriers to competition have been eliminated. In the end, best execution and competition should be the ultimate arbiters of market structure – not a government mandate.

Market Data Rule – Nasdaq supports the Commission's pro-competitive liberalization of the rules governing distribution, consolidation and display of core and non-core market data by self-regulatory organizations ("SROs") and other market participants. The Commission has

² Each of the Commission staff studies also contains flaws in conceptual design, data selection, or execution that undermine its findings. See Exhibit 1.

failed to extend that pro-competitive principle to the government-mandated market data plans, which stifle competition and raise the cost of market data for all investors. If the Commission is content simply to tinker with the Plan Allocation Formula, Nasdaq suggests that it adopt a simpler formula based entirely on proportionate dollar volume or proportionate share volume, and forego its Quoting Share proposal, which makes the formula needlessly complex and more vulnerable to manipulation.

Market Access Rule – Nasdaq supports the Commission's proposals to promote flexible market linkages and discourage locked and crossed markets. If the Commission adopts its trade-through proposal, the Commission's access fee limits will be necessary to guard against excessive fees. However, we believe that the best course would be to carve back existing trade-through rules while monitoring access fees to determine whether a rule-based limit is necessary in an environment of enhanced competition.

Sub-Penny Rule – Nasdaq continues to welcome the Commission's sub-penny quoting proposal and, with one reservation described below, supports the Commission's proposed revisions to the original proposal.

II. Trade-Through Rule

A. *Regulatory Choices*

Since the SEC's founding its operating philosophy, and indeed its statutory mandate, has not been to pick winners and losers in our financial markets but to arm investors with accurate and timely information so they can exercise their own judgment. For example, under the Securities Act of 1933 and the Securities Exchange Act of 1934 (the "Exchange Act"), the SEC does not make any judgments about whether a company issuing stock is a good investment: this decision is left to the investor. The Investment Company Act of 1940 extends this philosophy to mutual fund shares.

Promoting the ability of investors to make informed decisions also has been the Commission's guiding principle when regulating secondary market trading of equity securities. Soon after being given the statutory mandate to foster a national market system, the SEC adopted rules to require the collection and dissemination of quotes and trade reports of certain over-the-counter ("OTC") equity securities. With access to this information investors could now determine whether the prices they were paying were fair. The SEC exposed OTC trading to some sunlight and in effect deputized millions of investors to protect themselves.

This deputizing of investors leverages the SEC's assets and is possible because all brokers are subject to the duty of best execution – brokers must place the interests of their customers ahead of their own and seek the most

advantageous terms reasonably available under the circumstances. This rule provides a flexible framework that allows each investor – big or small – to hold the broker accountable for achieving what that investor believes is the best price for the investor's circumstances. To further empower both the investor and regulator, the SEC recently required brokers and markets to disclose order execution quality statistics and descriptions of how they handle customer orders, again applying the information and disclosure principle. Throughout its years of study and review of secondary market trading, the SEC has not created a bright-line test for determining what constitutes best price or best execution. Instead, it has used this flexible legal concept as the "shotgun behind the door" that keeps brokers and markets vigilant in reviewing and attempting to answer the question of whether they are doing the best they can for their customers.

Competition has also played an important role in ensuring that investors receive quality service and executions. Nowhere is the power of competition more evident than in the trading of Nasdaq-listed securities. In 1994, for example, the vast majority of trading in Nasdaq-listed securities was conducted on Nasdaq systems, which charged \$5 per execution for each trade executed through its SelectNet service – \$2.50 to the party providing the liquidity and \$2.50 to the party accessing the liquidity. Fast forward to 2005 after a series of SEC rules were adopted to promote competition in the Nasdaq market; there are now multiple markets, alternative trading systems, and a variety of innovative, automated execution systems trading Nasdaq securities. As a result, the average per execution cost for Nasdaq-listed securities has plummeted to as low as \$.0006 per share. These dramatic decreases in trading costs in Nasdaq-listed securities, coupled with a phenomenal advancement in technological innovation, are a direct result of competition – competition fostered by the SEC and its policies.³ It is by no means inconsequential that all of these innovations and cost benefits thrived only in the market that was free from the competitive distortions of a trade-through rule.

The combination of informed choice, competition, and regulatory oversight has served investors well since the Commission was first instructed to foster a national market system. However, the re-proposed Regulation NMS makes it clear that the Commission is seriously considering the imposition of a trade-through rule to trading of Nasdaq-listed securities, despite the successes and history discussed above as well as economic studies by Nasdaq and others demonstrating the quality of this market.

³ Competition has also led to innovation and greater responsiveness to investor needs. Examples include Nasdaq's opening and closing crosses, anonymous trading, routing, and the multitude of order types that Nasdaq and other markets provide.

The Commission believes the trade-through rule for Nasdaq-listed securities is necessary to curtail “free-riding,” which the SEC states occurs whenever market participants can use displayed quotes as markers to determine the prices at which they want to trade, but without interacting with the displayed quotes. This, the Commission believes, can discourage the use of limit orders and thus reduce liquidity and widen spreads. While such free-riding may occur on occasion, it is a task of a taller order to quantify the true impact of free-riding.

The Commission relies on two economic studies conducted by its staff to support application of the trade-through rule to Nasdaq-listed securities. Nasdaq respectfully disagrees with the Commission staff studies and their criticism of Nasdaq’s own studies. Because of the importance of these SEC staff studies in justifying major structural changes in the U.S. capital markets, in particular the Nasdaq market, and the theoretical conclusions that are drawn from them, Nasdaq is compelled to respond to these studies in detail. Nasdaq’s full analysis is attached as Exhibit 1 to this letter.⁴ In general, however, the Commission staff studies significantly overstate the current extent of trade-throughs in Nasdaq-listed securities and erroneously conclude that differential fill rates for large marketable limit orders in Nasdaq-listed and NYSE-listed stocks are evidence of a defect in Nasdaq’s market structure. Most shockingly, the Commission staff’s conclusion with respect to fill rates for large marketable limit orders fails to consider a widely used order routing technique of intentionally sending oversized orders at displayed quotes searching (also known as “pinging”) for reserves within the many limit order books trading Nasdaq-listed securities.

In proposing to retain a modified trade-through rule for exchange-listed securities and expanding it to include Nasdaq-listed securities, the Commission will be transforming its role from that of a referee of the national market system – acting when necessary to ensure the protection of investors – to that of the puppeteer of the national market system, controlling nearly all aspects of interaction in the system (e.g., recording response times, judging access standards, and setting access fees). This transformation is an unavoidable corollary to the Commission’s underlying decision on the trade-through rule, because a trade-through rule grants millions of momentary monopolies. A momentary monopoly is created because the rule distorts the competitive balance by, for the most part, requiring investors to interact with whoever is displaying a protected quote. These momentary monopolies are wholly unnecessary for the Nasdaq market and should not be created. With respect to NYSE-listed securities, the lack of competition and innovation in the market for NYSE-listed securities is the direct result of the competitive distortions that a trade-through rule causes. Therefore, a trade-through rule

⁴ See Exhibit 1. *Re-Proposed Regulation NMS; File No. (S7-10-04), Nasdaq Comments on SEC Staff Studies*, Nasdaq Economic Research, The Nasdaq Stock Market, Inc., January 25, 2005.

that differentiates between automated and non-automated quotes is an appropriate temporary solution to ease that market through its transformation.

B. Regulation NMS and the NYSE's Hybrid Market Proposal

Optimally, the Commission would repeal the trade-through rule for listed securities and thereby avoid creating momentary monopolies for these securities as well. With respect to exchange-listed securities, however, the re-proposed Regulation NMS would at least be an improvement over the status quo, because the proposal acknowledges the value of speed and certainty of execution and allows electronic markets to compete at electronic speeds. By forcing the NYSE and other manual markets to automate, Regulation NMS would advance the goals of the national market system by enhancing competition in these markets (albeit not as much as a thorough-going repeal of trade-through). Manual markets will no longer be the weak link in the national market system, slowing down faster markets while humans – some with a distinct time and place advantage on the floor – attempt to execute orders. Unfortunately, instead of maximizing market forces and best execution principles to improve this market, the Commission proposes to use a complex regulatory framework to recreate what competitive forces have already created in trading Nasdaq-listed securities. The “Fast vs. Slow” quote distinction has guided behavior in the Nasdaq market for some time, absent any guidance from the Commission.

In response to the Commission's proposed Regulation NMS, the NYSE has also proposed a substantial change to its own market structure rules. A parallel consideration of the NYSE's hybrid market proposal and Regulation NMS creates some uncertainty as to how these two fundamental market structure proposals will work together, and whether the NYSE's proposal allows even the limited competitive benefits of Regulation NMS in the listed market to be achieved. For example, Nasdaq understands that the exception from the trade-through rule for market re-openings will include re-openings after a market has halted trading due to an order imbalance. As discussed below, this will provide the halted market an advantage over markets that continue to trade. Furthermore, it is unclear what will be considered a re-opening under the NYSE's hybrid market proposal. For example, is trading on the NYSE considered halted each time a liquidity replenishment point is reached or when the specialist gaps the quotes in a security? If so, the NYSE will be able to ignore the quotes of other markets each time it returns from these halted states. Furthermore, if re-openings are limited to an order imbalance, what kind of discretion does a market have to declare an “imbalance.” In addition, is the NYSE free to change its rules concerning what types of orders create an imbalance? Is Nasdaq permitted to propose similar imbalance rules for market makers faced with large order imbalances on their desks? To provide market participants an opportunity to fully review and comment on both the NYSE hybrid proposal and re-proposed Regulation

NMS, the proposals must be considered serially. Because the NYSE proposal is intended as a response to Regulation NMS, if the Commission adopts Regulation NMS, it should require the NYSE to resubmit the hybrid rule filing with a detailed explanation as to how it will operate and comply with the new regulation.

As mentioned above, the interpretation of what constitutes a market re-opening may provide halted markets an unfair competitive advantage. By allowing markets to trade-through other valid quotes during a re-opening after an imbalance or other market-specific non-regulatory halt (“non-regulatory halts”), the Commission creates a significant loophole in its own rule that works singularly to the advantage of manual markets. Once a market has declared a halt, market participants know they can execute orders on the re-opening market without regard to trade-through restrictions. Market participants electing to send orders to the halted market will in effect be electing to opt-out of trade-through protection, to the detriment of those displaying quotes and orders on other markets. This creates a disincentive to posting quotes and sending orders to other markets that continue to trade. Accordingly, if the trade-through proposal is adopted, markets re-opening after non-regulatory halts must be required to provide trade-through protection to the protected quotes of other markets.

C. Comments on the Operation of the Trade-Through Rule

In general, eliminating manual quotes from trade-through protection simplifies implementation of the rule. In addition, the Commission decision to propose a self-help exception improves the rule. The self-help exception recognizes that even automated markets may experience problems that can cause undue delay and harm to market participants attempting to trade with the problem market. The most effective manner of exercising the self-help exception will be to automate the process by having computer algorithms determine, based on pre-defined metrics, when a market is not meeting the requisite response time standards. As the rule is proposed, however, the ability to use the remedy quickly and efficiently may be compromised by the requirement to contact a non-responding market prior to utilizing the exception. Based on experience, a simple phone call may not be sufficient to determine the root cause of the delay – it could be a problem at the receiving market or a problem at the market sending the order. In some cases, it may take hours or longer for markets even to agree that a problem exists. Meanwhile, orders are not being executed in a timely manner.

To resolve the delay in exercising the exception, Nasdaq proposes that the requirement to contact another market should not be a condition precedent, but instead the Commission should require the market electing the self-help exception to contact the slow or non-responsive market immediately after it elects self-help. Such a requirement will allow market participants to elect the remedy quickly and seamlessly, possibly without

human intervention, so as to maximize investor protection. Furthermore, eliminating the pre-election notification requirement will not preclude a market from contacting a slow or non-responsive market prior to electing self-help.

In addition, NASDAQ is concerned that the flickering quote exception is prone to abuse and counter to the spirit of the rule. The flickering quote exception allows trade-throughs in the event that an inferior quote was displayed by a market center in the second before the trade-through, provided the trade would not trade through the "worst" quote during the one-second window. This exception will enable market centers to execute trades internally and route orders using each competing market's worst quote during the one-second window, as these would be the most advantageous quotes to the market attempting to execute the order. NASDAQ acknowledges that race conditions could lead to false-positives; however, these false-positives should be accounted for in the evaluation of a market's trade-through compliance, rather than through an explicit exception.

D. Best Execution Analysis under Regulation NMS

Throughout the discussion over Regulation NMS, Nasdaq has consistently argued that best execution obligations, however modified by the Commission, would be a more appropriate method of governing the execution process than a strict trade-through rule. In proposing not to protect manual quotes under the proposed trade-through rule, the Commission acknowledges the difficulty market participants can encounter when attempting to trade with them and concludes that the harm to other orders outweighs the potential benefits of the trade-through rule. In reaching this conclusion the Commission has determined that on the whole, manual quotes are different from automated quotes and should be treated differently. The Commission's analysis is identical to a broker-dealer's analysis under best execution obligations. The broker must weigh the benefits to its customer when deciding whether or not to attempt to access a slow quote. Despite the identical analysis, the Commission gives only minimal guidance with respect to the impact of Regulation NMS on a broker's best execution obligations. Can an agency broker execute its customer's market order against a "fast" quote while ignoring a "slow" quote consistent with Rule 611 but still be deemed in violation of its best execution obligations? Such guidance is particularly important because manual quotes will continue to be included in the national best bid and offer calculation and Rule 11Ac1-5 statistics, the primary benchmarks for best execution analysis. By placing value in slow quotes for best execution purposes, the Commission would be forcing brokers to interact with slow quotes despite Rule 611's differentiation. Such interaction could create an immediate competitive advantage for a market to offer a slow quote. In fact, depending on the final form of Regulation NMS and any best execution guidance associated with it,

Nasdaq would consider offering a slow quote product in addition to its fast quote product.

III. Market Data Proposal

A primary objective of the national market system is to provide investors with accurate and timely market data with which to make informed investment decisions in a cost-effective manner.⁵ The Commission's paramount mission should be to safeguard the integrity of this "core" market data while striking a balance between competition and regulation to ensure a vibrant, accessible market for additional "non-core" market data. To the extent re-proposed Regulation NMS embodies such an approach, Nasdaq is in full support. Nasdaq welcomes the Commission's attempts to increase investor choice and market competition by proposing to reduce the data that vendors are required to display and the instances in which they must display it ("Display Amendment"), and by liberalizing the current restrictions on independent distribution of data outside of the national market system plans. The added competition will inevitably lower average investors' market data costs.

Nasdaq opposes, however, the proposal to re-engineer the Plan Allocation Formula in its current form. While elements of the proposal are consistent with the Commission's mandate to ensure data integrity, an over-emphasis on re-allocating revenue among SROs would place investors at risk of higher-cost and lower-quality data. In particular, the inclusion of a "Quote Share" component in the formula still leaves ample opportunities for manipulation that could cost investors even more than current practices. Adopting the proposed Quote Share element will motivate market participants to adopt artificial trading practices that distort core market data and increase investor costs by forcing national market system plans and vendors to purchase added distribution capacity.

The Commission must simplify the formula further to neutralize the potential for harmful economic incentives that the Allocation Formula could create. The simplest, fairest and most transparent Plan Allocation Formula would be based solely on share or dollar volume of trading activity, a metric the Commission has already endorsed by incorporating it into the square-root dollar volume Security Income Allocation method. Share volume and dollar volume are simple and transparent to calculate, would not motivate market participants to alter their quoting or trading behavior, and cannot be inexpensively manipulated by market participants to maximize their draw on member revenue sharing programs.

⁵ See, e.g., Exchange Act §11A(a)(1)(C)(iii), (D).

A. Plan Allocation Formula

The distorting effect of the plan allocation formulae was amply demonstrated by the recent switch in listing of the Nasdaq 100 Index Tracking Stock (stock symbol QQQQ) from the American Stock Exchange ("Amex") to the Nasdaq Stock Market and its impact on the trading of QQQQ on the Archipelago Exchange ("Arca").⁶ Overnight, Arca's average trade size in QQQQ rose from 175 shares to 1,057 shares, its total number of trades declined from 172,000 to 25,000, and its proportionate trade share plummeted from 76.7 to 29.6 percent.⁷ These dramatic disparities are wholly attributable to differences in the revenue sharing formulae for Networks B and C, given the former's sole reliance on and equal weighting of reported transactions (no matter how small), and the manner in which the Commission has treated the sharing of revenue derived from those Plans.⁸ The Commission properly recognizes that an allocation formula constructed in this manner works to the detriment of national market system objectives, "contribut[ing] to a variety of distortive trade reporting practices, including wash sales, shredded trades, and SRO print facilities." Nasdaq agrees that the current formulae must be amended to minimize, if not eliminate, the motivations to engage in such practices.

The Commission errs, however, when it moves beyond this task to overhaul the formula to re-distribute market data revenue according to what it perceives to be beneficial SRO activity. In proposing a Quote Share component of the formula, the Commission states its "primary objective

⁶ As an Amex-listed security, the QQQQ was subject to the Consolidated Quote and Consolidated Trade Plans, which allocate plan revenue based upon each market's proportionate share of trades. As a Nasdaq-listed issue, the QQQQ became an eligible security under the Nasdaq UTP Plan, which shares plan revenue based upon an average of proportionate share of trades and the proportionate share of shares traded.

⁷ These patterns extend beyond those two trading days. See Exhibit 2.

⁸ In 2002, the Commission abrogated several market data revenue sharing programs, including programs for both Nasdaq-listed and exchange-listed securities. In its Order of Summary Abrogation, the Commission stated that it believed the abrogated programs "raise serious questions as to whether they are consistent with the Act and with the protection of investors, includ[ing], among other things, the effect of market data rebates on the accuracy of market data and on the regulatory functions of self-regulatory organizations." The Commission later permitted Nasdaq and other SROs to file proposals to reinstitute their market data revenue sharing programs for exchange-listed securities. By contrast, Commission staff has failed to publish for public comment proposals submitted by Nasdaq and other SROs to allow sharing of market data revenue associated with Nasdaq-listed securities.

would be to correct an existing flaw in the current formulas by allocating revenues to those SROs that even now, benefit investors by contributing useful quotations to the consolidated data stream" and that "do not receive any allocation for providing a venue for this beneficial quoting activity."⁹ Nasdaq contends this "flaw" is not of a material nature. The proposed approach introduces significant risk of gaming that perhaps outweighs the incentives of the current formulae in terms of the downstream costs that markets, vendors and investors would bear as a result.

Any attempt by the Commission to use these revenue allocation formulae to promote or reward certain behaviors brings with it inherent risk of unintended negative consequences. A more complex formula tends to increase, rather than eliminate, harmful incentives and the need for enforcement. In fact, as Congress has repeatedly found in using the U.S. Tax Code to promote certain behaviors, added complexity to encourage certain behaviors or discourage others inevitably creates new loopholes and unintended incentives. By using the formula to resolve the Commission's cause *de jour* (unequal allocation of revenues to SROs with quote activity),¹⁰ the Commission will only enmesh itself in a cycle of failed regulation, possibly solving old problems but creating new ones. Moreover, it deviates from what the Commission's focus should be in overseeing how market data revenue is distributed. The Commission itself said it best:

[Any formula] must be capable of producing appropriate results prospectively when market participants will have the opportunity to adjust their behavior in response to the formula. In other words, a value-oriented distribution would need to be resistant to being "gamed" and to avoid awarding markets a share of market information revenues when they have not in fact enhanced the value of the stream of consolidated information.¹¹

With this in mind, the Commission should adopt a simple, transparent, and fair formula and buttress it with aggressively enforced regulations directly

⁹ Second Regulation NMS Proposing Release, 69 FR 77465.

¹⁰ Nasdaq has neither seen nor heard any evidence of the current formulae having a harmful effect on SRO funding or operation due to lack of a quoting share component. The primary beneficiaries would likely be SROs that have a disproportionate ratio of quotations to other measures of market activity (such as dollar volume), including those with non-automated or otherwise inaccessible quotes, which the Commission seeks to remedy or de-emphasize through other aspects of Regulation NMS.

¹¹ *Regulation of Market Information Fees and Revenues*, Exchange Act Release No. 42208 (Dec. 9, 1999), 64 FR 70613, 70633 (Dec. 17, 1999).

targeting harmful trading practices that might emerge.¹² The ultimate goal is to establish a formula that does not drive specific trading behavior, but simply allocates revenue based on natural trading behavior in the marketplace.

It would be a mistake for the Commission to introduce new complexity and new unintended consequences into the allocation formula by factoring quotation activity into the calculation. If the Commission adopts the proposed Quote Share formulation, SROs will become motivated to add quoting behavior to their member revenue sharing programs, and market participants will begin engaging in artificial behavior in both trading and quoting rather than just in trading. Whereas the trade-based formulae led to "print shops" in which no quotes were entered, a quote-based formula will lead to "quote shops" where no trades are executed. Under the proposed allocation formula, a quote shop could be profitable without ever executing a customer trade or setting a new inside.

The Commission's Quote Share proposal would lead to increased quotation activity as market participants chase valuable quotation credits in SRO member revenue sharing programs. For example, the Commission can expect innovative competitors to do some of the following:

- **Flickering Quotes:** displaying quotations just long enough to earn quotation credits but not long enough to risk execution¹³;
- **Security Targeting:** generating quotations in securities where each quotation credit is proportionately more valuable;
- **Market Targeting:** generating quotations on markets with little or no resident liquidity to minimize the risk of order interaction;
- **Shredding Quotes:** generating multiple quotations in a single market, single quotations in multiple markets, or multiple quotations in multiple markets to slow the pace of executions

¹² Nasdaq continues to believe that the Commission has a bigger role to play in regulating the level of market data revenue but it will reserve those comments for its comment letter on the Commission's proposed rulemaking regarding the *Fair Administration and Governance of Self-Regulatory Organizations*. See Securities Exchange Act Release No. 50699 (Nov. 18, 2004), 69 FR 71126 (Dec. 8, 2004).

¹³ Should the Commission determine to include quotation credits in the formula, Nasdaq requests that the Commission clarify the requirements for earning quotation credits. Nasdaq is concerned that market participants will claim quotation credit for sub-second quotations on the basis that such sub-seconds should be rounded to the nearest second. In addition, the Commission should clarify that the controlling time stamp is that of the network processor. Any other outcome could lead to uncertainty and disputes among market participants.

and thereby prolong the period in which quotation credits are earned; and

- **Shifting Quotes:** moving quotations from one market to another to lengthen the chase by potential contra parties and thereby earn additional quotation credits.

In less active issues, market orders arrive infrequently enough that market participants will be able to earn quote credits with little or no risk of execution. Using the proposed formula, about \$1,000,000 per month would be distributed among SROs based on quote credits in the 2,000 least active Nasdaq issues, yet those issues all average less than one trade per minute. Member revenue sharing programs will result in an enormous increase in quote flickering in and out of those issues trying to earn quote credits with little risk of execution.

In more active issues, market participants will earn quote credits by entering and canceling orders at the NBBO in such a way that they remain at the end of the execution list. The high level of liquidity available in Nasdaq's most liquid issues would enable participants to be at the NBBO earning quote credits, but remain low on a venue's execution priority list, with little risk of a trade. SROs will have an incentive to offer market participants new order types to effectuate this behavior.

In both situations, market participants will have the perverse incentive continually to position their quotations at the end of the execution priority list. This competition for quotation credits will create the impression of liquidity at the NBBO, when in fact the participants are undertaking strategies to avoid execution. Nor will sharing revenue based on quotation information increase accessible liquidity. The risks and costs associated with an actual trade often outweigh the benefit of earning a quote credit. The only added depth that might appear will likely be quotations that are carefully calibrated to minimize the probability of an execution.

Increased quotation activity with no increase in trading quality is of dubious value, and carries real costs that will harm investors. As the number of quotations increases, market data costs could rise materially as firms, vendors, SROs and securities information processors are forced to expand network capacity.¹⁴ The increased number and speed of quotations will also confuse investors by creating a false impression of activity. Transparency and price discovery could actually deteriorate as market participants engage in artificial quotation activity to maximize their Quote Share.

¹⁴ See *generally* Letter from Tom Davin, Vice President, Financial Information Services Division, Software & Information Industry Association, to Jonathan G. Katz, Secretary, Commission, dated January 26, 2005, regarding File No. S7-10-04 ("FISD Letter").

Nasdaq believes the costs of a Quote Share component would significantly outweigh its benefits, if such benefits indeed exist at all. It is questionable whether the value of quotations remains unrecognized in a market the Commission is shaping where all quotations are automated, accessible, and protected. In that world, superior quotations would lead to executions and inferior quotation would not. In that case, it would be redundant to grant Quote Share credit for the superior quote and then trade share credit when the quote is executed. Like quotes and trades, once the perverse incentives are removed, good quotes will increase and decrease in lockstep with other metrics of market activity, with a far lesser threat of perverse market behavior or strain on the capacity of the current market-data distribution system.

The simplest, fairest and most transparent Plan Allocation Formula would be based solely on share or dollar volume of trading activity.¹⁵ The Commission has already acknowledged the merit of dollar volume as a metric by incorporating it into the square-root dollar volume Security Income Allocation method. These statistics are simple and transparent to calculate, and would not motivate market participants to alter their quoting or trading behavior. These metrics cannot be inexpensively manipulated by market participants to maximize their draw on member revenue sharing programs. Total dollar volume also represents a simplification of the current formulae, as opposed to the Commission's proposed added complexity which moves into the uncharted territory of quotation activity. Simplification produces fewer unintended consequences.

A share or dollar volume calculation should not be over-engineered through a minimum or maximum qualifying amount. Share or dollar volume as a basis for revenue allocation is superior to trade volume because the latter motivates market participants to shred trades, as demonstrated by the QQQQ example above and noted in the original Proposing Release.¹⁶ Prescribing a maximum or minimum amount to earn credit under the Allocation Formula is no better. As noted by Nasdaq in its initial comment letter, adopting a minimum qualifying trade size motivates market participants to bunch trades in order to match the artificial minimum. Conversely, adopting a maximum qualifying trade size, as the Commission has now proposed, will once again motivate market participants to shred larger trades to match the artificial maximum (*i.e.*, one \$25,000 trade will

¹⁵ As metrics, total dollar volume and total share volume are relatively interchangeable. Total dollar volume is slightly preferable because it is already incorporated into the SIA and therefore must be calculated in any event.

¹⁶ Securities Exchange Act Release No. 49325 (Feb. 26, 2004), 69 FR 11126, 11176 (Mar. 9, 2004).

become five \$5,000 trades and a single \$1 million trade will become 200 smaller trades). Both shredding and bunching distort the public investor's view into the marketplace. Having access to accurate trade size data enables investors to gauge the retail versus institutional activity in the marketplace.

The only way to avoid these shredding and bunching incentives is to credit every dollar of trading volume by adopting the total dollar volume formula as Nasdaq suggests.¹⁷ Once the incentive to maximize trades is eliminated from the formula, the number of trades printed by each market participant will settle at its natural rate, which will vary in lockstep with the number of shares traded. Thus it becomes irrelevant to include both factors in a formula. Share or dollar volumes, neither of which can be cheaply manipulated, fully represent the true trading information emanating from each SRO.

B. Display Amendment

The Commission did not analyze or discuss the impact of the Voluntary Depth of Book trade through proposal on the Allocation Amendment, the Display Amendment, or any other aspect of the market data proposal. Nasdaq would expect before adopting the Depth of Book proposal, the Commission would explain in detail, at minimum, how exclusive SIPs would process and disseminate such data; who would bear the incremental cost of processing and disseminating Depth data and how fees would be set; what would be the display requirements for Depth data; how would national market system plans be amended to accommodate Depth data, among many, many other questions. Clearly, much work needs to be done to understand the full impact of the Depth of Book proposal on market data distribution before the Depth of Book proposal can become a meaningful reality.¹⁸

Assuming the Commission does not adopt the Depth of Book proposal, with certain clarifications Nasdaq enthusiastically supports the Commission's proposals to permit SROs and other market participants to distribute their core and non-core data outside the confines of a national market system plan. This liberalization will facilitate the development of both core and non-core data products and ultimately reduce the cost of data to investors. Incorporating the "fair and reasonable" and "not unreasonably discriminatory" language into the proposed rule and subjecting non-SROs to

¹⁷ The Commission can follow the lead of the free market here. Without government intervention, competitive forces have caused SROs and market centers to shift completely from trade-based pricing to share-based pricing in less than two years.

¹⁸ See FISD Letter, *supra* n. 14.

higher standards of disclosure and fairness will ensure fair competition among SROs and other market centers for the sale of such data.¹⁹

Nasdaq seeks further guidance regarding the Commission's statement that "reproposed Rule 603(a) would require that an SRO or broker-dealer must not transmit data to a vendor or user any sooner than it transmits the data to a Network processor."²⁰ This raises two important concerns. First, this requirement places SROs at a competitive disadvantage to non-SROs because only SROs transmit data to Network Processors. This sharply undermines the competitive benefits the Commission is seeking in liberalizing Rule 603(a). Second, what are the obligations of an SRO with respect to a market data product containing both core and non-core data? And how is the standard of "any sooner" to be adhered to in a competitive environment where SRO technologies and business initiatives outpace the requirements of Network processors? The re-proposing release states that "markets should have considerable leeway in determining whether, or on what terms, they provide additional, non-core data to a Network processor."²¹ To capture the full competitive benefits of the Commission's proposed liberalization, SROs will need the ability to distribute their data in innovative combinations, including mixing core and non-core data, using cutting edge technologies. Holding such mixed products to the slower standard enunciated for core data would, again, place SROs at a competitive disadvantage to non-SROs, would undermine the Commission's objective of increasing competition, and would create needless complexity for market data vendors and consumers.

Finally, Nasdaq supports the Commission's pro-competitive efforts to streamline the definition of "consolidated display" and to limit the requirement to display consolidated data to contexts involving trading decisions. However, Nasdaq encourages the Commission to capture the full range of contexts in which trading decisions might arise. For example, it is not clear that the proposed rule would require the display of consolidated data where a terminal or website has a link to a "pop-up" order window. The failure to capture that and similar situations could create a large loophole in enforcing proposed Rule 603(c).

¹⁹ The Commission is promoting increased competition between SROs and non-SROs that wish to distribute their market data. To ensure fair competition, the Commission should require non-SROs to submit their fee proposals for notice and comment rule-making and permit the public to opine on the fairness, reasonableness and non-discriminatory nature of such fees. It is not clear in the re-proposal whether the Commission intends to do so.

²⁰ Second Regulation NMS Proposing Release, 69 FR 77466.

²¹ *Id.* at 77468.

IV. Market Access

In contrast to the interventionist philosophy that underlies the Commission's trade-through proposal, the Commission's approach to enhancing inter-market linkages is consistent with a tradition of using regulation to promote free and fair competition. Standing alone, the Commission's proposed rule to allow non-members to access SRO trading facilities' quotations through members would ensure that all market participants can seek out liquidity on equal terms and make reasoned choices about the value of a particular quotation, taking account of price, fees, speed and certainty of execution, and opportunities for price improvement. Unfortunately, the proposed trade-through rule would constrain the very freedom of choice that is promoted by the access rule, by defining best execution in terms of price and mandating the market center that a market participant must access. Thus, Nasdaq believes that the best course for the Commission would be to adopt the linkage proposal immediately, while rolling back trade-through restrictions.

If the Commission proceeds with adoption of a rigid trade-through rule, however, the market access proposal is, as the Commission's re-proposing release recognizes, a necessary corollary, since compliance with trade-through restrictions would be impossible without workable access to protected quotations. As Nasdaq noted in its July 2004 comment letter, however, the Commission will have to be vigilant in overseeing SROs and others that are subject to the rule to ensure that the orders of non-members always receive the non-discriminatory treatment that the rule mandates. Moreover, in recognition of the incentives that the proposal creates for all SROs to own registered broker-dealers for the purpose of order routing, Nasdaq reiterates its request that the Commission amplify its views with respect to the regulation of SRO ownership of broker-dealers. Specifically, Nasdaq believes that the Commission should provide additional guidance with respect to the factors that the Commission would use in analyzing whether specific functions performed by a broker-dealer affiliated with an SRO would be deemed facilities of the SRO, and the safeguards that would be required by the Commission if an affiliated broker-dealer acts in several capacities, only some of which are deemed to be facilities of the SRO.

Nasdaq also continues to support the Commission's proposal to enhance the fair access requirement applicable to electronic communications networks ("ECNs") and other alternative trading systems ("ATs") by applying it to all ATs with more than 5% of the volume in a security. With respect to trading centers whose quotations are not accessible through an SRO trading facility, however, Nasdaq continues to believe that the Commission's proposal could be improved. Specifically, Nasdaq believes that trading centers with minimal volume should not be permitted to mandate that market participants establish direct linkages to them. The benefits of

allowing marginal trading centers to display quotations in the NASD's Alternative Display Facility (the "ADF") simply does not justify the costs of direct linkages to them. Accordingly, Nasdaq believes that a trading facility with less than 5% volume should be required to make its quotes accessible through an SRO trading facility. However, we believe that the Commission's proposal to require the NASD carefully to monitor the cost and accessibility of the trading centers that choose to display through the ADF is the next best approach to the problem of fragmented pools of liquidity with minimal market share.

Nasdaq also reiterates its support for the Commission's proposal to require SROs to establish and enforce rules that require members to avoid locking and crossing quotations, that are designed to assure the reconciliation of locked or crossed quotations, and that prohibit members from engaging in a pattern or practice of locking or crossing quotations. The proposal is aimed at promoting the maintenance of fair and orderly markets by ensuring that market participants access available liquidity at prices they find acceptable rather than quoting at those prices in an effort to gain revenue or avoid paying fees. Thus, the proposal uses regulation to promote an efficient price discovery mechanism that may currently be distorted by the spread between access fees and liquidity provider credits. Nasdaq also applauds the Commission's decision to modify the original proposal to allow automated quotations that lock or cross manual quotations while nevertheless applying the restriction to manual quotes that lock or cross automated quotes. Market participants should not be forced to seek out slow, uncertain order executions before being permitted to offer liquidity at prices they find acceptable. Nasdaq continues to believe, however, that a similar exception should also be recognized for locking or crossing the quotes of a market that is experiencing a failure, material delay, or malfunction of its system or equipment. Accordingly, the Commission should include such a "self-help" exception in its rule, or allow SROs to include such an exception in the rules that they propose to implement the restriction on locking and crossing. As discussed above in connection with the trade-through rule, moreover, the Commission needs to clarify the conditions necessary to allow a market participant to conclude that it may avail itself of the self-help remedy. Finally, we reiterate our concern that a lengthy implementation period will be needed for the locked/crossed rules, so that the Commission can work with SROs to develop consistent rules and policies, and so that market participants and SROs can make the changes to systems and procedures needed to the comply with and enforce the new rules.

Like its trade-through proposal, the Commission's proposal on access fees reflects a more interventionist regulatory philosophy. The Commission has traditionally avoided engaging in ratemaking regulation, instead reviewing SRO fees primarily to ensure that they are not unfairly discriminatory. In a sense, however, the Commission's access fee cap goes beyond traditional "reasonableness" fee setting, by imposing an across-the-

board and inflexible limit on execution fees. The possible unintended consequences of government-imposed limits on fees and the inability to alter the limits without further rulemaking should all be weighed carefully by the Commission as it considers adoption of the proposal. Moreover, it is important to distinguish limits imposed by trading centers, such as Nasdaq, upon access fees within their own markets for the purpose of ensuring that they are competitive with other venues, and limits imposed by the government, which may serve to stifle competition.

However, these fee limits would appear to be an inevitable consequence of the Commission's trade-through proposal, which grants monopoly power to trading centers whenever they are displaying the best price in a stock. If the Commission were to adopt its trade-through proposal without imposing fee limits, the cost of order execution would almost certainly increase as markets and market participants take advantage of the market power granted to them. Moreover, the revised proposal addresses some of the problems with the Commission's original fee limit proposal, which made arbitrary distinctions between attributable and non-attributable quotations, between depth-of-book quotations in Nasdaq and on exchanges, and between fees for direct access to ECNs and to comparable SRO facilities. The revised proposal instead gives SROs and other trading centers the power to control execution costs within their own facilities by allocating a maximum permissible \$0.003 charge between the trading center and its participants. As a result, it preserves some scope for trading centers to make competitive decisions with regard to the overall level of charges and the use of those charges either to fund the costs of the trading center or to attract liquidity. In the event that depth-of-book quotations are not defined as "protected quotations," moreover, Nasdaq would expect that the Commission would similarly allow SROs and other trading centers to make competitive decisions with respect to fees to access quotations that are not "protected." In other words, it should be clear that SROs and other trading centers can limit and allocate fees to access quotations that are not covered by the proposal, to ensure that they remain competitive at price levels below the NBBO.

In sum, the Commission's efforts to enhance efficiency by promoting flexible market linkages and discourage locked and crossed markets should be adopted. If the Commission adopts its trade-through proposal, access fee limits become an unavoidable necessity to avoid abuse of the market power conferred by the Commission, and the Commission's proposal is structured as well as it can be to achieve its purpose. However, we believe that the best course for the Commission at this time would be to adopt the linkage and locked/crossed proposals and study the effects of these proposals on enhancing market efficiency and competition to determine whether additional measures, such as fee limits, are truly necessary.

V. Sub-Penny Pricing

Nasdaq continues to welcome the Commission's sub-penny quoting proposal.

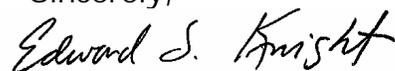
Nasdaq notes that under the revised version of this proposal, the restriction on sub-penny quoting would be based on the price of the actual quote or order, regardless of then-prevailing price of the stock. An order priced at \$1 or above would need to be expressed in whole cents, regardless of the actual share price at the time such an order is placed. Nasdaq believes this to be a very sensible and efficient approach, which has worked well in Nasdaq's BRUT facility. In BRUT, quotes priced at \$1 or above (\$5 or above until a recent change) are only displayed in whole cents.

Nasdaq also notes that the Commission is considering a prohibition against a well-established practice of some market centers of adjusting the prices of disallowed sub-penny quotes (down for bids and up for offers to the nearest penny) for display, execution and routing purposes. Nasdaq is not aware of any empirical evidence to indicate that this practice is somehow problematic, and at the same time we believe that an unnecessary change to such a practice has the potential to create needless confusion and impose additional costs. Nasdaq believes that in the absence of any evidence that a particular practice was, is, or likely would be harmful to investors, Commission interference with such a practice is not warranted. As such, Nasdaq would favor continuing to allow (but, of course, not require) market centers to adjust the pricing of disallowed sub-penny quotations, so long as the unadjusted quotations are not displayed or considered for purposes of ranking.

* * * *

Nasdaq continues to appreciate the Commission's efforts to address a range of difficult market structure issues. We welcome the opportunity to discuss our comments with members of the Commission and its staff, and otherwise to assist the Commission in advancing these efforts. If you have any questions concerning Nasdaq's comments, you can reach me at 202/912-3030.

Sincerely,



Edward S. Knight

Mr. Jonathan Katz

January 26, 2005

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cc: Chairman William H. Donaldson
Commissioner Paul Atkins
Commissioner Cynthia A. Glassman
Commissioner Harvey Goldschmid
Commissioner Roel Campos
Annette Nazareth, Director, Division of Market Regulation
Robert L.D. Colby, Deputy Director, Division of Market Regulation

Re-Proposed Regulation NMS; File No. (S7-10-04)
Nasdaq Comments on SEC Staff Studies



Prepared by

Nasdaq Economic Research

The Nasdaq Stock Market, Inc.

January 25, 2005

Executive Summary

Nasdaq supports the Commission's consideration of empirical evidence before embarking on the market structure reforms contemplated in the re-proposal of Regulation NMS. To assist the Commission's decision, we respectfully submit our analyses of four staff studies that have been placed in Public File No. S7-10-04. In summary:

- The Trade-Through Study¹ fails to acknowledge advances in the Nasdaq-listed trading environment during 2004 that have lowered the trade-through rate in Nasdaq stocks to 1.5%, significantly less than the 2.5% reported for 2003 in the Commission's study. Once large trades and trades during crossed markets are excluded from the sample, the trade-through rate for 2004 drops to 0.8%.
- Contrary to the release, differential fill rates for large marketable limit orders do not indicate a market defect but reflect the prevalence of reserve size in Nasdaq quotes. Large marketable limit orders execute far more shares, at lower cost, in Nasdaq-listed trading than in NYSE-listed trading.
- The Matched Pairs Study² is largely a study of small stocks. Over a quarter of the stocks are not eligible for NYSE listing and only ten percent are from the Nasdaq-100. Even for these small stocks, the study shows that Nasdaq market quality is on parity with the NYSE.
- The S&P Index Study³ addresses market quality in Nasdaq- and NYSE-listed S&P index constituent stocks. The study overstates the effective spreads of Nasdaq stocks using a methodology that favors higher priced NYSE stocks and also uses statistics from an atypical month.
- The Volatility Study⁴ contains results that Nasdaq cannot reproduce. The SEC's short-term volatility estimates are more than three times higher than Nasdaq's estimates, and higher than those in an NYSE study upon which the SEC study is based.

¹ Memorandum from the Office of Economic Analysis, Commission, to File, dated December 15, 2004 (Analysis of Trade-Throughs in Nasdaq and NYSE issues) ("Trade-Through Study").

² Memorandum to File, from Office of Economic Analysis, dated December 15, 2004 (Comparative analysis of execution quality for NYSE and NASDAQ stocks based on a matched sample of stocks) ("Matched Pairs Study").

³ Memorandum to File, from Division of Market Regulation, dated December 15, 2004 (Comparative analysis of Rule 11Ac1-5 statistics by S&P Index) ("S&P Index Study").

⁴ Memorandum to File, from Office of Economic Analysis, dated December 15, 2004 (Analysis of volatility for stocks switching from NASDAQ to NYSE) ("Volatility Study").

I. Introduction

In the release re-proposing Regulation NMS¹, the Securities and Exchange Commission (“SEC” or “Commission”) concludes that although the trading environment for stocks listed both on the Nasdaq Stock Market Inc., (“Nasdaq”) and on the New York Stock Exchange (“NYSE”) has significant strengths, “both markets have weaknesses that could be reduced by strengthened protection against trade-throughs.”² In reaching this conclusion, the Commission refers to one study of trade-throughs³ and three studies of market quality⁴ to provide the necessary supporting data. We support the Commission in seeking compelling empirical evidence of flaws in the current structure of U.S equity markets before embarking on a program of sweeping reform. In order that the Commission’s final decision be based upon as complete and thorough an understanding of the available empirical evidence as possible, we respectfully submit our analyses of the four studies and the issues addressed therein. We suggest that the Commission’s studies significantly overstate the current extent of trade-throughs in Nasdaq securities and incorrectly characterize execution quality of Nasdaq- and NYSE-listed stocks.

The SEC studies either focus directly on the proposed rule or on the relative performance of the markets for Nasdaq- and NYSE-listed securities. The Trade-Through Study addresses a key point of proposed Regulation NMS and will be considered in detail below. For the market quality studies, Nasdaq unequivocally supports the Commission’s efforts to achieve unsurpassed market quality for all investors in U.S. equity markets but we do not accept the argument that any shortcomings in market quality for Nasdaq- or NYSE-listed securities are best addressed by strengthened trade-through restrictions. Nevertheless, Nasdaq has prepared an in-depth analysis of those studies as well.

While each study has its own unique purpose in supporting the proposed rule, each also contains a flaw in conceptual design, data selection, or execution that undermines its findings. In particular, the Trade-Through Study uses out-of-date data from the Fall of 2003, both the Matched-Pairs Study and the S&P Index Study erroneously describe the marketable limit order fill rate of Nasdaq securities as evidence of a market flaw, the Matched-Pairs Study fails to replicate SEC 2001⁵ and omits almost all active Nasdaq securities, the S&P Index Study only partially controls for the effects of stock price on trading spreads thereby misstating the market quality of lower-priced

¹ Securities Exchange Act Release No. 50870 (December 16, 2004), 69 FR 77424 (December 27, 2004).

² 69 FR 77432.

³ Memorandum from the Office of Economic Analysis, Commission, to File, dated December 15, 2004 (Analysis of Trade-Throughs in Nasdaq and NYSE Issues) (“Trade-Through Study”).

⁴ Memorandum to File, from Office of Economic Analysis, dated December 15, 2004 (Comparative analysis of execution quality for NYSE and Nasdaq stocks based on a matched sample of stocks) (“Matched Pairs Study”); Memorandum to File, from Division of Market Regulation, dated December 15, 2004 (Comparative analysis of Rule 11Ac1-5 statistics by S&P Index) (“S&P Index Study”); Memorandum to File, from Office of Economic Analysis, dated December 15, 2004 (Analysis of volatility for stocks switching from Nasdaq to NYSE) (“Volatility Study”).

⁵“Report on the comparison of order execution quality across equity market structures” U.S. Securities and Exchange Commission, 2001, Washington, D.C (“SEC 2001”).

Nasdaq-listed stocks, and finally the results of the Volatility Study cannot be reproduced and may be erroneous. We believe that the results from the more complete analyses presented here firmly establish that investors in NYSE-listed stocks would benefit from extending the competitive environment of Nasdaq trading to NYSE securities and that the converse, creating a monopoly at the inside for Nasdaq securities, would be a step backwards for U.S. capital markets and investors.

II. Trade-Through Study

The Commission's Trade-Through Study is designed with the stated goals of characterizing trade-throughs for Nasdaq and NYSE securities⁶ and determining whether competition has created a 'no-trade-through zone' in Nasdaq securities.⁷ To achieve these goals, the study uses databases prepared by Nasdaq and the NYSE to measure trade-throughs on four Thursdays between September and December 2003.⁸ We address a number of issues in this analysis which collectively indicate that the Commission's Trade-Through Study has significantly underestimated the benefits of competition on creating a 'no-trade-through zone' for Nasdaq securities and overestimated the possible gains from proposed Regulation NMS.

Our primary concern is the choice of 2003 for the sample. At that time, there were five independent major electronic market centers for Nasdaq trading: three ECNs and two SROs. Today there are three: one ECN and two SROs.⁹ Furthermore, the routing linkages maintained by these markets, as well as routing and matching systems of trading firms and third party vendors, were less developed in 2003 than today. All these changes reflect the power of competitive forces. It would seem reasonable, therefore, to use more recent data not only to capture Nasdaq-listed trading as it exists today but also to be used in conjunction with the 2003 results to determine whether market forces are reducing the rate of trade-throughs over time.

The table below shows the trade-through rate, in trades and shares, for 2003 and 2004 using the Trade-Through Study's methodology.¹⁰ As is readily apparent, the 2003 trade-through rate significantly overstates the current 2004 rate (1.5% today vs. 2.5% a

⁶ Trade-Through Study at 1.

⁷ 69 FR 77443.

⁸ The actual dates are September 18, October 16, November 20, and December 18, 2003. All are Thursdays immediately prior to expiration Fridays.

⁹ In 2003 the five electronic major market centers in Nasdaq securities consisted of three major independent ECNs and two SROs; the Island ECN quoting and printing on the National Stock Exchange ("NSX"), Instinet ECN quoting and printing to the NASD's Alternate Display Facility ("ADF"), BRUT ECN quoting on Nasdaq and printing to the Boston Stock Exchange ("BSE"), as well as Nasdaq and ArcaEx. Today, there is one major independent ECN and two SROs; INET ATS resulting from the merger of the Island and Instinet ECNs and quoting and printing to NSX, Nasdaq which acquired the BRUT ECN, and ArcaEx.

¹⁰ We employ the methodologies of the Trade-Through Study, particularly the three-second sample window. Sample dates remain Thursdays before expiration Fridays, September 16, October 14, November 18, and December 16, 2004. We thank the Commission's Office of Economic Analysis for sharing their methodology with us.

year ago). In addition to the decline in the overall trade-through rate, every major electronic market center shows a decline in its individual trade-through rate.¹¹

Nasdaq-Listed Trade-Through Rates by Executing Market Center

Market	% Trades			% Shares		
	Late 2003	Late 2004	Change	Late 2003	Late 2004	Change
Amex	26.4%	40.6%	14.2%	38.1%	56.6%	18.5%
Boston	0.6%	-	-	0.3%	-	-
National	2.0%	1.4%	-0.6%	1.9%	1.3%	-0.6%
NASD ADF	3.0%	0.6%	-2.4%	3.1%	0.2%	-2.9%
Chicago	7.1%	4.8%	-2.3%	18.9%	33.2%	14.3%
Pacific (ArcaEx)	1.6%	1.4%	-0.2%	1.7%	1.3%	-0.4%
Nq-SuperMontage	3.4%	1.8%	-1.6%	2.9%	1.6%	-1.3%
Nq-Internalized	3.2%	1.4%	-1.8%	16.6%	13.0%	-3.6%
Total	2.5%	1.5%	-1.0%	7.8%	5.9%	-1.9%

Competitive forces are not done. Nasdaq, whose Nasdaq Market Center does not currently route orders to market centers outside Nasdaq, acquired the BRUT ECN in September 2004 largely to provide external routing capability to its participants.

The Trade-Through Study indicates that the consideration of trade size is an important methodological issue.¹² The trade-through statistics presented above do not account for trade-throughs that occur when the total trade size is larger than the displayed depth. **When displayed size is taken into account, the Nasdaq-listed trade-through rate for late 2004 declines from 1.5% to 1.0% for trades and from 5.9% to 0.8% for volume.** An important question not addressed in the Trade-Through Study is whether these large trades intentionally avoid interacting with the posted quotes or are part of an execution that ‘swept the street’ or otherwise interacted with the market.

Of the remaining trade-throughs, the Trade-Through Study does not address changes in trade-through rates likely to result from the access provisions of proposed Regulation NMS, whether the sweep provisions differ significantly from routing practices today, and the appropriateness of the databases. As discussed below, each of these issues could be addressed with available data and has a significant bearing on the efficacy of the proposed rule, as well as its costs and benefits.

¹¹ The late 2004 numbers are only the most recent results from an on-going trend. Trade-through rates from the dates March 18, April 15, May 20, and June 17, 2004 fall between the late 2003 rates and those reported for late 2004.

¹² Trade-Through Study at 1, 2.

One of the provisions of the proposed access rules is a prohibition on locking and crossing the National Best Bid and Offer (“NBBO”).¹³ If this proposal is adopted, trade-throughs that result from crossed markets would be significantly reduced if not eliminated. The Trade-Through Study discounts the number of trade-throughs resulting from crossed markets when assessing the need for strengthened trade-through provisions. We disagree with the study’s observation that trade-through rates are not materially affected by executions that occur in crossed markets. We estimate that trade-through rates fall to 2.1% in 2003 and 1.3% percent in late 2004 when trade-throughs occurring during a crossed NBBO are dropped.¹⁴

In addressing the extent to which market centers already practice the equivalent of proposed Regulation NMS sweep orders today, it must be noted that Nasdaq does not currently route to non-participating market centers such as ArcaEx and the INET ATS. We do, however, observe how often these market centers route orders to Nasdaq. This analysis is complicated by the fact that if a Nasdaq-participating ECN is at the inside, INET or ArcaEx may route to that ECN directly rather than through Nasdaq systems. Limitations of the data notwithstanding, ArcaEx and INET are typically among the top three liquidity demanders on the Nasdaq Market Center.

Finally, the databases used (NASTRAQ for Nasdaq trades and TAQ for NYSE trades and both Nasdaq and NYSE quotes) may not be appropriate relative to alternatives such as OATS and other audit trail data.¹⁵ First, NASTRAQ and TAQ represent events as recorded by the Securities Information Processor (“SIP”), not as observed by market centers and traders when deciding whether and where to route incoming orders. Nasdaq maintains internal databases covering routing decisions to participating market centers.¹⁶ Even a small amount of latency can create a measurement problem when using a three-second window to evaluate trade-throughs. An alternative way to measure trade-throughs would be to identify trade-throughs where a market center knowingly traded through based on data available at the time, thereby accounting for network latency. Second, while the databases are believed to be accurate, even small errors in time stamps or other relevant fields may result in mis-measurement of trade-throughs. Because the number of trade-throughs is small, identifying the fraction caused by data errors becomes more important. Finally, for quotes, TAQ does not identify the order submitter(s). Only audit trail data can reveal whether 100-share quotes being traded through represent retail orders.¹⁷

¹³ 69 FR 77447

¹⁴ Our figure represents the fraction of trade-throughs reported to the tape in the same second as the NBBO was crossed. This method differs from that referenced in the Commission’s Trade-Through Study at 5 in that the Trade-Through Study requires the market to be crossed for the entirety of the three second window, which is rare.

¹⁵ Trade-Through Study at 8, 9.

¹⁶ Nasdaq systems are incapable of trading through quotes on our book representing participating market centers. It should be noted that the SEC’s methodology produces ‘false positives’ in situations where trades executed by the Nasdaq Market Center are erroneously identified as being outside the Nasdaq Inside.

¹⁷ 69 FR 77433.

Although our comments to this point have focused on the trade-through rate in Nasdaq-listed securities, we would like to highlight one aspect of trade-through rates for NYSE-listed stocks. Tables 4 and 11 of the Trade-Through Study break out trade-through rates by dollar volume rank. For Nasdaq stocks, the Commission study reports trade-through rates decrease from 2.9% to 2.3% across the top four dollar volume ranks reported in Table 4. In the top row of the table below are the comparable rates for NYSE-listed stocks as calculated in Table 11 of the Trade-Through Study. NYSE trading shows a much greater range of trade-through rates, from 5.4% to 1.2%. We have also included the average time at the National Best Bid and Offer for the NYSE and the average for Nasdaq and ArcaEx combined.¹⁸ The table shows the much higher than average trade-through rate for active NYSE stocks and the very strong correlation between quote competition and trade-throughs in NYSE securities. Apparently, where there are few competing quotes to trade through, NYSE stocks only trade through about 1% of the time. But in the limited set of stocks where active quote competition exists, the best price is much more frequently ignored.

Quote Competition and Trade-Throughs in NYSE-listed Stocks

	Dollar Volume Rank			
	Top 20 Stocks	Stocks 21-100	Stocks 101-500	Stocks 501-1000
Trade-Through Rate (SEC Study Table 11)	5.4%	3.9%	1.8%	1.2%
Nasdaq / ArcaEx Time at Inside Quote	28.1%	25.2%	9.4%	5.7%
NYSE Time at Inside Quote	79.6%	82.9%	92.4%	92.4%

The goals of the Trade-Through Study were to characterize trade-throughs and to explore the effects of competition on the incidence of trade-throughs in Nasdaq-listed securities. Nasdaq believes that competitive forces have significantly lowered trade-through rates in Nasdaq-listed securities. Furthermore, many of the trade-throughs identified in Nasdaq-listed securities occur as the result of crossed markets, are large trades, or occur simultaneously with routed orders. Trade-throughs of these types will either disappear under other provisions of proposed Regulation NMS or will continue to occur much as they do today but in compliance with the proposed rules. Nasdaq also notes that the trade-through rate in NYSE-listed stocks with active quote competition is much higher than for similarly active Nasdaq stocks and much higher than for inactive NYSE stocks with little quote competition. Consequently, Nasdaq argues that competitive forces are achieving the goals envisioned by strengthened trade-through restrictions for Nasdaq securities; and if there is any market structure failure evident from the Trade-Through Study, it is for NYSE trading where competition has not lowered trade-through rates.

¹⁸ For simplicity in calculations, we did not estimate time at the inside for other market centers in NYSE-listed stocks.

III. Limit Order Fill Rates

The goal of the staff studies is to provide empirical evidence of defects in Nasdaq- or NYSE-trading that are best addressed by strengthening trade-through restrictions. In the text of the Regulation NMS re-proposing release, as well as in comments made during the December 15 hearing, the Commission expressed concern about the fill rate of large marketable limit orders in Nasdaq-listed stocks.¹⁹ The SEC goes on to argue that a trade-through rule would create an added incentive to post liquidity-providing limit orders that would allow more shares of larger marketable orders to be filled.²⁰ Nasdaq disagrees with the Commission's conclusion. We do not believe that two isolated statistics, out of the more than 240 statistics in Rule 11Ac1-5 ("11Ac1-5" or "dash-5") reports, provide evidence of a market defect. Nor do we believe that the staff studies identify a lack of liquidity for large orders or establish the value of trade-through restrictions in enhancing liquidity for large orders.

Nasdaq stocks provide a hospitable environment for large marketable limit orders. Compared with the NYSE peer stocks in the Matched Pairs Study, far more shares of marketable limit orders are *executed* for Nasdaq stocks, and done so at prices equal to or better than for NYSE stocks. The fill rates referenced in the release are the result of much greater submission of 11Ac1-5 covered shares for Nasdaq. What presumably matters to submitters of marketable orders is the number of shares *executed* and the *price*, not just the fill rate of a single order.

On the electronic venues trading Nasdaq stocks, it is common for submitters of non-marketable limit orders and quotes to use hidden "reserve" size. This size can be revealed only when the orders are traded against. Traders submit oversized orders priced at the inside quote to take advantage of the possibility of reserve size being available. There is no harm in doing so since none of the electronic markets charge a commission on unexecuted shares, and the presence of a large marketable order is undetectable by other traders. It is our understanding, by contrast, that electronic orders submitted for NYSE stocks over the SuperDot system do not have similar reserve size capability although floor orders may only be partially displayed. If a trader on the NYSE submits an oversized large marketable limit order priced at the opposing inside quote, that submission can be observed by the specialist and floor brokers in the trading crowd.²¹

Another difference between the two markets is the different handling of Immediate-or-Cancel or IOC orders which are included in 11Ac1-5 data as limit orders. In electronic venues, an IOC order can interact only with orders already standing on the electronic book. On the floor, a large IOC order can interact with any interest already on the floor and is not limited to orders on the electronic book. Consequently, a large IOC order sent to a floor grants a free option to those on the floor whereas there is effectively no free option value from an IOC submitted to an electronic book. The lack of a free option, as well as the avoidance of disclosure risk cited in the previous paragraph, makes

¹⁹ 69 FR 77432-77433

²⁰ 69 FR 77433

²¹ Under Direct+ rules in effect during the time of the SEC's study, any order in the 11Ac1-5 large marketable limit order categories could not have been a Direct+ order.

marketable IOC limit orders exceedingly popular in electronic venues where they have effectively supplanted market orders as the order of choice in accessing available liquidity at the current price.

With these points in mind, reconsider the results of the Commission studies. Table 10 of the Matched Pairs Study illustrates a difference in fill rates for large marketable limit orders. For the “Large” market capitalization category, the Matched Pairs Study reports that Nasdaq’s fill rate is 20% versus a rate of 66% for NYSE. A more complete view of marketable limit order executions is shown in the following table, which is similar to Table 3 in the Matched Pairs Study.²² For large marketable limit orders in the “Large” market capitalization group, 1,032 million Nasdaq shares are filled compared with only 332 million NYSE shares, a factor of three difference. In fact, among all size/market capitalization categories, there are many more Nasdaq shares of marketable limit orders filled than NYSE shares.

11Ac1-5 Shares of Marketable Limit Orders for Matched Pairs Sample

(January – June 2004, all Market Centers, millions of shares)

		<i>Large Mkt Cap</i>		<i>Medium Mkt Cap</i>		<i>Small Mkt Cap</i>	
		Nasdaq	NYSE	Nasdaq	NYSE	Nasdaq	NYSE
100-499 Shares	Covered	3,079	1,236	601	349	246	158
	Executed	2,019	792	476	252	194	119
	Executed at MC	1,550	742	350	241	142	115
500-1999 Shares	Covered	5,836	2,319	899	427	381	194
	Executed	3,066	1,584	561	325	233	149
	Executed at MC	2,452	1,451	443	302	182	142
2000-4999 Shares	Covered	3,014	727	567	165	258	99
	Executed	1,449	545	247	121	117	72
	Executed at MC	1,154	530	197	117	94	70
5000-9999 Shares	Covered	4,469	474	687	113	296	70
	Executed	1,033	333	157	75	67	45
	Executed at MC	832	324	125	72	54	43

The above table shows that for Nasdaq stocks, many more covered shares of marketable limit orders are submitted. For the largest order size category and the largest market capitalization group, there are almost 10 times as many shares submitted for the

²² The table uses the same sample months and sample stocks as the Matched Pairs Study. The table adds two data elements, the total number of covered shares, and the shares executed *at the market center*, which excludes shares that are routed away from the market center for execution.

Nasdaq stocks compared with the NYSE peers (4.4 billion compared with 474 million). In terms of (non-routed) executions, Nasdaq-listed exceeds NYSE-listed executions by a factor of about 2.6 (832/324). Thus, the Nasdaq-listed fill rate indeed differs from the NYSE fill rate, but there are substantially more executions. In every order size/market capitalization group cell, Nasdaq-listed executions, adjusting for routing, exceed those of the NYSE peers. Even if one reduces the Nasdaq-listed executed shares, already adjusted for routing, by an additional 30%, as suggested by the Matched Pairs Study, Nasdaq-listed executed volume would still exceed NYSE-listed volume for all data cells except those for the three largest order sizes for the “Small” market capitalization group.

As a technical matter, when comparing total shares executed, it is best to count only those shares executed at the reporting market center. Otherwise, double counting could occur.²³ For example, suppose ArcaEx receives an order for 5,000 shares, executes 4,000 shares, and routes the remainder to INET, which executes the remaining 1,000 shares. In dash-5 data, ArcaEx would report total executed shares of 5,000, and INET would report 1,000 shares. The grand total of executed shares would be 6,000, which is too high unless one uses as the ArcaEx total the 4,000 shares executed at the market center. Note that the difference between executed shares and executed at the market center shares is higher for Nasdaq-listed than for NYSE-listed. On average, the difference is about 20% for Nasdaq and 5% for NYSE. This implies more inter-market center routing on Nasdaq.

The quantity of shares executed is one measure of a market’s performance, another is the price of those executions. The Matched Pairs Study concludes that effective spreads for Nasdaq stocks tend to be lower for larger orders. Specifically, Table 4 shows that for the two largest marketable limit order categories and for all three market capitalization groups, Nasdaq effective spreads are lower than or not statistically different from NYSE spreads, measured either in cents per share or basis points. In sum, rather than demonstrating a market structure defect, Nasdaq trading fills more shares of large marketable limit orders at better prices than the NYSE.

The Commission claims that the fill rate for large marketable limit orders would increase for Nasdaq securities under a trade-through rule. Large marketable limit orders in Nasdaq stocks, however, execute many more shares at more favorable prices than in

²³ Note that the double counting concept just referred to is different than the one used in the Matched Pairs Study. In selecting NYSE peers for its Nasdaq sample, the Matched Pairs Study adjusted downward Nasdaq-listed dollar volume to account for what it termed a “difference in volume reporting between the Nasdaq and the NYSE.” The study does not provide details as to why this adjustment is necessary. One possibility would be that the Nasdaq-listed market has a higher level of dealer intermediation than the NYSE-listed market. Whether true or not, this argument does not apply to dash-5 data, even though the Matched Pairs Study intimates that it does (page 3 of study). Dash-5 shares are shares of orders submitted by investors. How these orders are translated into reported volume is a separate matter. For example, suppose an order for 1000 shares to buy is submitted for a Nasdaq stock to a market maker. The market maker sells the shares and reports volume of 1000 shares. Sometime later, suppose the market maker receives a sell order for 1000 shares. It would buy the shares, and report another 1000 shares of volume for a total of 2000 shares. Dash-5 would report 2000 shares. By contrast, suppose the identical situation had occurred on the NYSE. It is possible that the specialist, holding the first order long enough without an execution, would be able to match it directly with the opposing sell order. Reported NYSE volume would be 1000 but dash-5 volume for the NYSE would be, however, the same 2000 shares as was the case for the Nasdaq market maker.

NYSE trading. The re-proposing release fails to acknowledge that similar order types mean different things and operate in different ways in electronic and floor-based markets. Furthermore, if a defect were found in liquidity for large orders in Nasdaq stocks, the Commission still must establish that a trade-through rule for these stocks is the optimal solution for fixing this supposed market structure defect.

IV. Matched Pairs Study

The Commission's Matched Pairs Study is one of two studies using Rule 11Ac1-5 statistics to compare the execution quality of marketable orders in NYSE- and Nasdaq-listed stocks. As with the S&P Index Study, the goal of the Matched Pairs Study is to evaluate comments regarding execution quality received on the Regulation NMS proposals.²⁴ Of these two studies, the more detailed and sophisticated is the Matched Pairs Study. It uses a "matched pairs" methodology to attempt an "all else equal" comparison in which observed differences in market quality are not driven by stock characteristics unrelated to market structure.

The Commission's Office of Economic Analysis ("OEA") has provided Nasdaq with the sample of matched peers that it used in its study, as well as other information related to the construction of the sample.²⁵ This information has allowed us, to a large extent, to replicate the study. From this information we have determined that the results presented by the Matched Pairs Study are more representative of the experience of smaller stocks. Over one quarter of the Nasdaq sample stocks are not NYSE eligible. Any conclusions on market quality drawn from the Matched Pairs Study should be made with this fact in mind.

The Matched Pairs Study takes an earlier SEC study,²⁶ released in 2001, as its model.²⁷ Its basic design is to draw a sample of Nasdaq stocks, then find an NYSE peer for each based on its similarity to the Nasdaq stock along four dimensions, market capitalization, average dollar volume, price, and (non-market structure related) volatility. Given the set of peer stocks, various aspects of market quality for marketable orders - effective spreads, price impact, execution speed - are compared. Table 1 of the Matched Pairs Study provides detail as to the universe of Nasdaq stocks under consideration. Very low priced or inactive stocks were eliminated, yielding a universe of 1,711 Nasdaq stocks from which a sample was drawn. We estimate that these stocks represent 88% of both the market capitalization and dollar volume of all Nasdaq-listed stocks.

At this stage, one might ask how many of the 1,711 stocks would be eligible for an NYSE listing. Nasdaq, using posted NYSE initial listing guidelines, estimates that at the end of 2003 approximately 1,000 Nasdaq listings could qualify for the NYSE. The

²⁴ S&P Matched Pairs Study at 1 and 69 FR 77432.

²⁵ Nasdaq thanks the Commission's Office of Economic Analysis for their assistance in preparing this analysis of the Matched Pairs Study.

²⁶ "Report on the Comparison of Order Execution Across Equity Market Structures," U. S. Securities and Exchange Commission, January 2001.

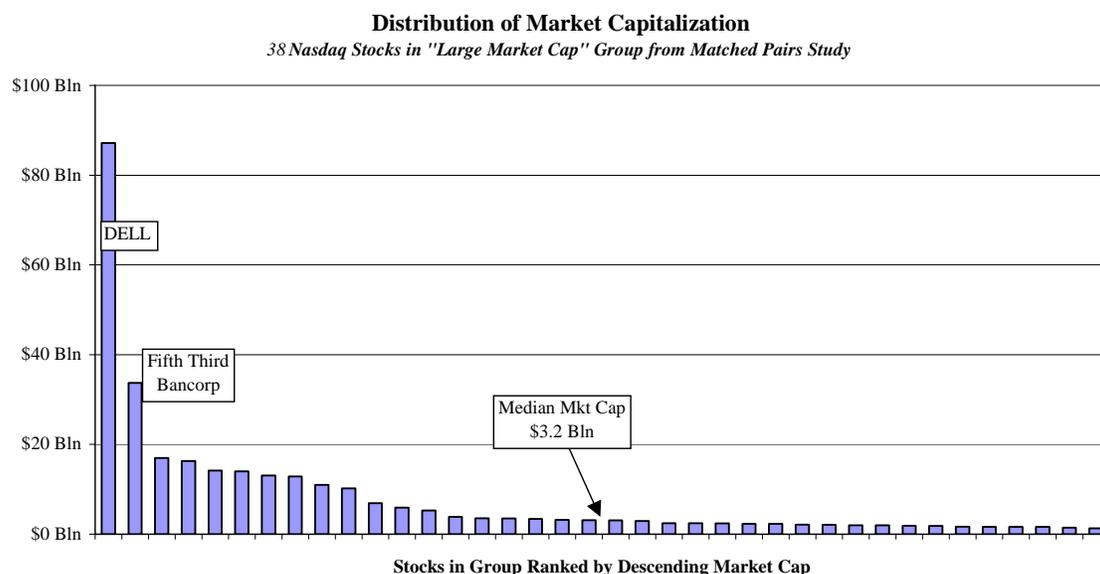
²⁷ Matched Pairs Study at 2.

Matched Pairs Study took no consideration of NYSE listing eligibility when drawing the sample, apparently including some 700 non-NYSE eligible stocks in its sampling universe.

The next step is to order the 1,711 stocks by fourth quarter 2003 dollar volume, and select every 5th stock. Since the distribution of dollar volume on Nasdaq (on NYSE as well) is extremely skewed, the study's sampling procedure yields a similarly skewed sample of stocks—few large stocks and many small stocks. The sample is not representative of investors' trading experience, which is related to trading volume. To correct this sample deficiency, the study adds (again following the SEC 2001 approach) all stocks that were in the top 20 of dollar volume, share volume, or market capitalization. There are 31 unique stocks in the top 20 of the three variables. The impact of the "Top 20" addition is largely undone, however, by a final step in the sampling design—the elimination of stocks for which the quality of the match is poor. In this step (which was not part of the SEC 2001 study) the target sample of 368 is reduced to 133 stocks.

Of the 31 "Top 20" stocks, only 9 make it into the final sample. Evidently, large Nasdaq stocks were unlikely to find a good NYSE match, and therefore are excluded. Missing are such marquee names as Microsoft, Intel, Cisco, Applied Materials, Oracle, and Sun Microsystems. Only 15 Nasdaq-100 companies are in the final sample. Ironically, though large Nasdaq stocks are poorly represented, we estimate that about 30 of the final sample stocks are too small to qualify for an initial NYSE listing.

The study proceeds to stratify the results by categorizing each stock pair into one of three market capitalization groups. The problem with the categorization is that it is essentially done the same way as the sampling. The 113 stock pairs are simply divided into three equal groups of about 38 stocks each. The composition of the groups mirrors the skew of market capitalization. It would seem that at a minimum, the remaining 9 "Top 20" stocks should have formed their own category (as was done in the SEC 2001 study). Instead, they were combined into the "Large" market capitalization category. As a result, the distribution of market capitalization in the "Large" category is extremely skewed, as illustrated in the figure below. Since all the summary statistics provided by the study are simple means, the influence in the averages of a stock like Dell, with 28% of the market cap of the group, is only $1/38$ (= 2.6%).



The median stock in the “Large” category has a market capitalization of \$3.2 billion. For reference, the median market cap for S&P 500 stocks in January 2004 was \$9 billion. The median for the S&P MidCap 400, though, was \$2 billion. Thus, the study’s “Large” category is perhaps better viewed as a sample of middle capitalization stocks. The study’s “Medium” and “Small” categories have median market caps of \$800 million and \$300 million, which are in line with the median of \$620 million for the S&P SmallCap 600.

The Matched Pairs Study compares execution quality across market structures with and without trade-through restrictions. Using six months of 11Ac1-5 data and a methodology designed to produce a sample of small to medium sized stocks with similar characteristics traded on the two markets, the study finds strengths and weaknesses in both markets.²⁸ This sentiment was echoed in the proposing release. Even ignoring the fact that over 25% of the Nasdaq sample stocks are too small to meet NYSE initial listing requirements and that the great majority of Nasdaq’s marquee names are dropped from the sample, the study finds Nasdaq-listed market quality to be roughly in parity with that of NYSE stocks. The only defect claimed to have been identified is the fill rate of large marketable limit orders discussed in Section III. Furthermore, the study provides no evidence that the presence or absence of trade-through restrictions has any effect on the results.

²⁸ 69 FR 77432

V. S&P Index Study

The Commission's S&P Index Study presents an analysis of Rule 11Ac1-5 statistics from January 2004 comparing execution quality of marketable orders between NYSE- and Nasdaq-listed stocks. The goal of the study is to evaluate execution quality in four groups of stocks based upon membership in S&P indexes. A key advantage of using S&P indexes to form the groups is that the categorization is done by an independent third party, Standard and Poor's, and stocks within an index share certain fundamental characteristics. Further, S&P indexes are well known and accepted among the general public.

We would offer the following two comments on the S&P Index Study as it applies to the analysis of effective spread. Our first comment pertains to the S&P Index Study's apparent goal of controlling for differences in stock price.²⁹ Table 1 of the study shows that with the exception of stocks in the S&P 100, stocks within the same index are fairly well matched on average in terms of market capitalization. They are not as well matched with regard to average price, however. The NYSE-listed stocks have, on average, higher price levels.³⁰ The primary innovation of the study, perhaps motivated by the difference in prices, appears to be the presentation of spread results in terms of basis points rather than cents per share. That is, the spread in cents is divided by the share price to convert it to basis point terms. Such a spread measure is often termed "relative spread."

As a mathematical necessity, relative spread comparisons using S&P indexes will therefore look more favorable to the higher-priced NYSE stocks than cents-per-share results. Are dash-5 results more accurately conveyed when presented in basis points? The study seems to imply that if a stock on the NYSE has, for example, a price twice that of a Nasdaq stock it could have a cents-per-share spread twice that of the Nasdaq stock, and still be deemed the same. It turns out, however, that as an empirical matter on both markets, cent-per-share spreads do not increase proportionately with share price. In other words, if stock A has a price of \$20 and stock B a price of \$40, the spread of B will typically have a spread less than twice that of A.

As an illustrative example consider the following two tables. The first is extracted from Table 2 of the Commission's S&P Index Study and presents the relative effective spread of 398 Nasdaq and NYSE-listed securities that compose securities 101-500 in the S&P 500 index as of January 2004. The second table takes the same group of stocks and breaks out the stocks into six price tiers based on the average price of the stock.

²⁹ 69 FR 77432

³⁰ Ibid

SEC Results, Table 2

Small Market Orders, S&P 101-500

<i>Effective Spread (basis points)</i>	
NYSE	NASDAQ
4.9	5.2

Same Data Grouped by Price Tier

Small Market Orders, S&P 101-500

Price Tier	<i>Issues within Tier (%)</i>		<i>Eff. Spread (cents)</i>		<i>Eff. Spread (basis pts)</i>	
	NYSE	NASDAQ	NYSE	NASDAQ	NYSE	NASDAQ
<= \$5	1%	3%	1.0	0.9	23.2	24.7
\$5 - \$10	2%	9%	1.1	0.9	14.3	14.1
\$11 - \$20	14%	9%	1.2	1.2	8.0	8.4
\$21 - \$50	56%	58%	1.8	1.7	5.2	5.0
\$51 - \$70	16%	18%	2.5	2.3	4.2	3.9
> \$70	12%	3%	3.2	4.8	3.9	6.3
All	100% (331 Stocks)	100% (67 Stocks)	2.0	1.6	4.9	5.2

The first point from the larger table is that cent-per-share spreads do not increase proportionately with share price.³¹ Nasdaq stocks priced below \$5 have an average spread of 0.9 cents, whereas Nasdaq stocks priced above \$70 have an average spread of 4.8 cents. The stock prices differ by a factor of more than 14 but the spreads differ by a factor of approximately five. The second point from the table is the compositional difference in average stock price between the two markets. Nasdaq has more low-priced stocks (12% below \$10) and fewer high-priced stocks (3% above \$70) than the NYSE (3% below \$10 and 12% above \$70).³²

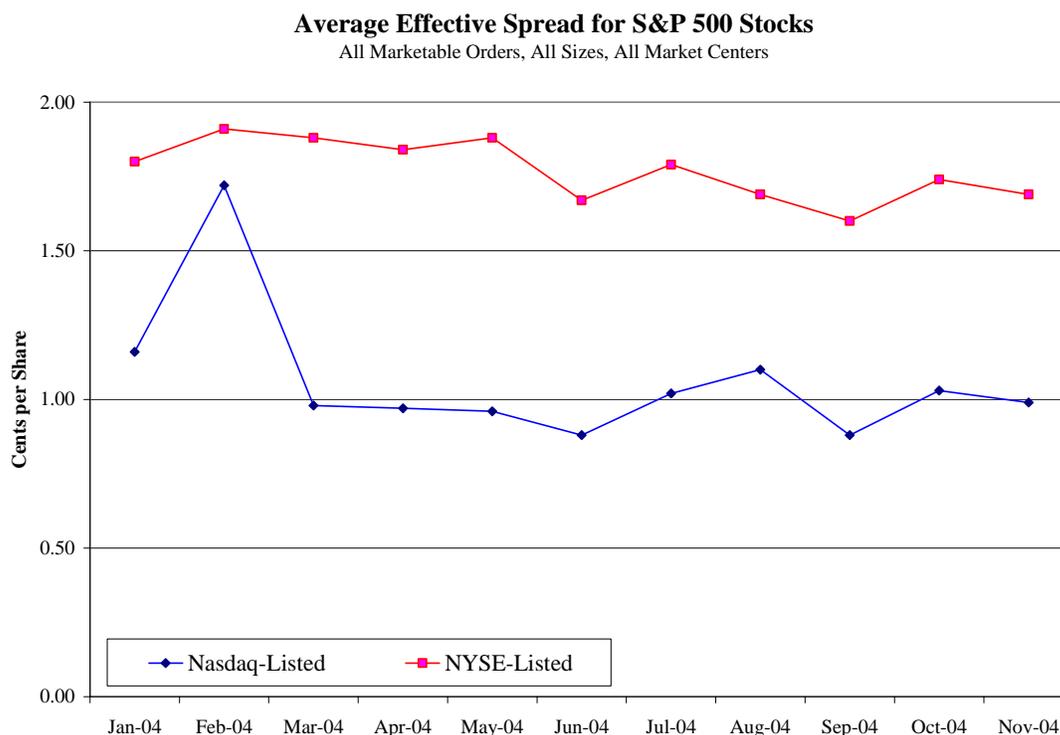
These results imply that while one should take share price into account when comparing spreads, simply dividing the spread by price does not automatically make comparisons any better. A relative spread approach overcorrects for price. Note that this statement is true even if one believes that basis points are the correct metric for

³¹ Technically, one can speak of the “elasticity” of the spread (in cents) with respect to the share price—the percentage change in spread associated with a one percent change in price. Mathematically, the relationship between spread and price may be expressed as $\log(\text{spread}) = a + b \times \log(\text{price})$, where the elasticity is b . Using the same data as was used in the S&P Index Study, we have estimated this elasticity using cross-sectional regression. Estimates are very similar for both Nasdaq and NYSE, averaging around 0.45. To illustrate the meaning of this value, if a stock (on either market) had a price of \$20 and an effective spread of 2 cents, the expected spread of a \$40 stock for the same order type and size would be about 2.7 cents (= 2 cents \times $\exp(0.45 \times \log(40/20))$). The \$20 stock’s relative spread would be 10.0 bp, while that of the \$40 stock would be 6.8 bp.

³² There are also compositional differences within the price tiers but for simplicity these are not broken out.

measuring trading costs. Under such a belief system, one would accept the empirical fact that higher-priced stocks are simply cheaper to trade than lower-priced stocks on both NYSE and Nasdaq. The fully correct way to make comparisons across markets would be to use some statistical technique such as matched pairs that attempts to measure spread differences on an “all else equal” basis.

Our second comment relates to the choice of January 2004 as a sample period. Statistics reported pursuant to Rule 11Ac1-5 vary considerably month to month and care must be taken when drawing statistics from a single month to be sure the sample is representative. The January dash-5 statistics for S&P 500 Nasdaq stocks report the second highest average effective spread for all of 2004 released to date.³³



By using a single month, rather than a longer period such as six months as used in the Matched Pairs Study, the S&P Index Study presents results that may not be representative. For example, consider the following table that contains similar data to Table 2 in the S&P Index Study for November 2004 (the most recent dash-5 report month). The results from the Commission’s S&P Index Study are completely reversed and the dash-5 data now shows Nasdaq spreads 0.7 bp lower than NYSE spreads rather than 0.2 bp higher.

³³ The Market Systems Inc. data for February, the month least favorable to Nasdaq, contains clearly erroneous data from ArcaEx. Nasdaq has not identified the source of the error nor do we know if data from the proceeding month, January, is similarly contaminated.

November 2004 Results

Small Market Orders, S&P 101-500

Effective Spread (basis points)	
NYSE	NASDAQ
4.4	3.7

Overall in November 2004, Nasdaq spreads, following the S&P Index Study methodology of measuring spreads in basis points without controlling for compositional effects as suggested above, are lower in 8 of 8 order size and type categories for S&P 100 stocks and 6 of 8 order size and type categories for S&P 101-500 stocks. Nasdaq reiterates our earlier conclusion that Nasdaq-listed effective spreads for S&P 500 stocks are significantly narrower than effective spreads for NYSE-listed S&P 500 stocks.

VI. Volatility Study

The Commission's Volatility Study is designed with the stated goal of comparing transitory volatility between Nasdaq- and NYSE-listed securities. To achieve this goal, the study follows the methodology of an NYSE study by comparing the short-term volatility of the national best bid and best ask quote midpoint for 91 stocks that switched from Nasdaq to the NYSE between April 2001 and January 2004. Three questions need to be considered in evaluating the study. First, are the stocks representative? Second, are the statistical measures valid? Finally, is the quote data accurately recorded? We believe that the answer to all three questions is 'no' and that the study is flawed.

Comparing markets through the analysis of securities that switch from one market to the other appears to be a reasonable study design, but pitfalls can exist. Stocks that switch are self-selected. They do not constitute a random sample. One might expect those companies dissatisfied with their stock's recent performance on Nasdaq to be more likely to switch. If this recent performance included above average volatility for reasons completely unrelated to market structure, the study is contaminated. Also, corporate action sometimes coincides with the switch, so that stock characteristics are different before and after. The Volatility Study includes at least one such stock that results in significantly overstating Nasdaq's mean 5-minute volatility.³⁴ It is also true that specialists are often involved in courting a Nasdaq issue. Therefore, it is not inconceivable that the specialists may take extra precaution with respect to market quality immediately after the switch - knowing they will be closely watched during this period. This effect may wear off with time. Finally, most switchers during the last few years have been smaller companies and not necessarily representative of the stocks most actively traded.

³⁴ The specific stock in the Volatility Study sample, Cedar Shopping Centers, underwent a 1-6 reverse split and a restructuring coincident with the move. The volatility of this stock declined 99.3% following the move.

The Volatility Study measures volatility with variance, when it should be measured with standard deviation.³⁵ It should be noted that NYSE Chief Economist Paul Bennett used standard deviation as the appropriate measure in his study of stocks that switch markets.³⁶ By using variance, rather than standard deviation, in reporting means and medians, the Commission's study has squared the difference between Nasdaq and NYSE volatility, creating a misrepresentation of relative volatility.³⁷

The most troubling aspect with the Volatility Study is that Nasdaq is not able to replicate the results for Nasdaq trading but we are able to replicate the study's results for NYSE trading.³⁸ While our estimates and those of the Commission's Office of Economic Analysis ("OEA") are within 10% for 40 stocks, OEA's estimates are more than 20% above ours for 40 stocks and more than double ours for 7 stocks.³⁹ It should be noted that variance estimates are highly sensitive to outliers. Differences between Nasdaq's data and the TAQ data provided by the NYSE and used by OEA could be responsible for the discrepancy.⁴⁰ Another potential problem is that the pre-switch data may contain trading in sixteenths for stocks that switched markets close to the time of Nasdaq's decimal conversion whereas all of the post-switch data was in decimals.

The table below presents our results on volatility for five of the return horizons done in the study.⁴¹ To facilitate comparison with the SEC results reproduced in the table, our results are shown as variances. Our results exclude Cedar Shopping Centers, which experienced a significant change in capital structure coincident with the switch.⁴² The calculations differ in that we used Nasdaq data rather than TAQ and excluded data prior to decimalization. Note that for the five-minute horizon, the SEC variance is approximately three times larger than our variance. The 10-minute SEC variance more than twice our variance.

³⁵ Formally, if X is a random variable symmetrically distributed around 0, and $Y = kX$, then Y is unambiguously more volatile than X by a factor of k . The standard deviations of X and Y would differ by this factor, but the variances would differ by a factor of k^2 .

³⁶ See Bennett and Wei, 2003, Market Structure, Fragmentation, and Volatility – Evidence from Recent Listings Switchers, NYSE Working Paper.

³⁷ Volatility Study Table at 2, Figure at 3.

³⁸ We thank the Commission's Office of Economic Analysis for their cooperation in trying to resolve this discrepancy.

³⁹ Email correspondence between OEA staff and Nasdaq Economic Research.

⁴⁰ Since Nasdaq quote data is readily available, Nasdaq questions why the NYSE was used as the source of Nasdaq quote data in both the Volatility and Trade-Through Studies.

⁴¹ The Nasdaq sample is 90 stocks because we exclude Cedar Shopping Centers.

⁴² Had this stock been included, our mean variance for the 5-minute horizon would have been 0.000827 rather than 0.000685.

Comparison of Nasdaq and SEC Results for Nasdaq Volatility

90 Nasdaq-to-NYSE Transfers: April 2001 – January 2004

Time Horizon	Median		Mean	
	Nasdaq	SEC	Nasdaq	SEC
5	0.000559	0.000761	0.000685	0.002063
10	0.000520	0.000692	0.000662	0.001531
15	0.000488	0.000632	0.000645	0.001426
30	0.000456	0.000591	0.000619	0.000995
60	0.000457	0.000588	0.000603	0.001012

In order to provide the Commission with what Nasdaq believes to be accurate estimates of volatility, reservations with the sample construction notwithstanding, the two tables below present Nasdaq estimates of the mean volatility measure appropriately by standard deviation and the mean variance ratio on the two markets around the time of a market switch.

In the first table, we show cross-sectional variation among the volatility results with more active stocks that traded more than 1 million shares per day on Nasdaq showing a much smaller change in volatility than those that traded less than 100,000 shares per day. The average change in standardized 5-minute volatility is from 2.48% to 2.14% or 0.334%. As was noted above, this finding of a change in volatility may be totally unrelated to market structure and the trade-through rule. Other possibilities include natural variation in volatility or the results may reflect cross-subsidization on the part of the NYSE specialist following a switch.

Standard Deviation of Intraday NBBO Midpoint Returns⁴³

90 Nasdaq-to-NYSE Transfers: April 2001- January 2004

Avg. Daily Vol. of Stock	5-minute		10-minute		60-minute	
	Nasdaq	NYSE	Nasdaq	NYSE	Nasdaq	NYSE
< 100K Shares (N=24)	2.33%	1.78%	2.25%	1.77%	2.12%	1.78%
100K – 1 MM Shares (N=55)	2.42%	2.11%	2.37%	2.10%	2.23%	2.10%
> 1MM Shares (N=11)	3.16%	3.04%	3.18%	3.02%	3.15%	2.87%
All Stocks	2.48%	2.14%	2.44%	2.13%	2.31%	2.11%

The second table illustrates changes in transitory volatility as measured by variance ratios using the same technique as in Volatility Study Table 2. It should be

⁴³ Standard deviations have been normalized to reflect daily returns, using the same adjustment as OEA. Specifically, the 5-minute variances are multiplied by (390/5), the 10-minute variances by (390/10), and the 60-minute variances by (390/60), all recognizing the standard trading day has 390 minutes in it.

noted that the level of transitory volatility increases for the more active stocks that switched from Nasdaq to trade on the NYSE.

Average Variance Ratios of Intraday NBBO Midpoint Returns⁴⁴

90 Nasdaq-to-NYSE Transfers: April 2001- January 2004

Avg. Daily Vol. of Stock	5-minute		10-minute	
	Nasdaq	NYSE	Nasdaq	NYSE
< 100K Shares (N=24)	1.29	1.08	1.18	1.04
100K – 1 MM Shares (N=55)	1.20	1.05	1.14	1.03
> 1MM Shares (N=11)	1.04	1.15	1.04	1.13
All Stocks	1.21	1.07	1.14	1.04

The goal of the Volatility Study is to determine the effects of illiquidity and transitory volatility for Nasdaq- and NYSE-listed stocks. The study's analysis consisted of measuring the changes in volatility from the Nasdaq environment to the NYSE environment for stocks that switched from one market to the other. Nasdaq was not able to replicate the study's results for Nasdaq-listed trading in certain stocks but was able to do so for NYSE-listed stocks. For some stocks, the differences between Nasdaq's estimates and those of the Commission staff were considerable, over 100%. Nasdaq suggests that the public interest would best be served if Nasdaq and the Commission staff can come to an agreement on the basic facts outlined in the study before any results from the analysis are used in forming a basis for Commission action.

⁴⁴ Variance ratios, following the methodology of the OEA study, are calculated by dividing the indicated short-horizon return variance by the 60-minute return variance. The figures in the table are averages of variance ratios of the stocks in each category, not the ratio of the average variances. Under perfect market efficiency, the variance ratio should be one.

Comparison of QQQQ Trading - November 30 and December 1

Market Center	Trades		Shares		% Trades		% Shares		Average Trade Size	
	11/30	12/1	11/30	12/1	11/30	12/1	11/30	12/1	11/30	12/1
Amex	10,675	711	19,985,700	2,841,900	4.7%	0.9%	19.6%	2.8%	1,872.2	3,997.0
Arca	172,227	24,170	30,097,700	25,541,930	75.7%	29.6%	29.5%	24.9%	174.8	1,056.8
BSE	1,304	0	2,135,800	0	0.6%	0.0%	2.1%	0.0%	1,637.9	-
Chicago	5,657	1,343	2,992,700	1,731,218	2.5%	1.6%	2.9%	1.7%	529.0	1,289.1
NASD ADF	-	226	0	148,100	0.0%	0.3%	0.0%	0.1%	-	655.3
Nasdaq	5,518	25,388	11,788,400	40,239,816	2.4%	31.1%	11.6%	39.3%	2,136.4	1,585.0
National	29,481	29,829	29,754,600	31,932,051	13.0%	36.5%	29.2%	31.2%	1,009.3	1,070.5
NYSE	2,076	0	3,476,200	0	0.9%	0.0%	3.4%	0.0%	1,674.5	-
Phlx	702	0	1,724,600	0	0.3%	0.0%	1.7%	0.0%	2,456.7	-
Total	227,640	81,667	101,955,700	102,435,015	100.0%	100.0%	100.0%	100.0%		

QQQQ Trading Patterns Pre- and Post-Transfer

	Month of November	% of Total	December 1 - December 13	% of Total
NASDAQ Total Volume	13,394,795	14	35,909,481	35
NASDAQ Total Trades	8,437	4	19,629	24
NASDAQ Average Trade Size	1,588		1,829	
ARCA Volume	30,456,722	32	21,923,438	21
ARCA Trades	150,174	71	20,724	26
ARCA Average Trade Size	203		1,058	
CINN Volume	33,096,780	34	41,782,816	40
CINN Trades	31,115	15	38,154	48
CINN Average Trade Size	1,064		1,095	
Total Average Daily Volume	96,655,639	100	103,574,508	100
Total Average Trades	211,783	100	80,261	100
Total Average Trades without ARCA	61,609		59,537	
Total Average Trade Size	456		1,290	
Total Average Trade Size without ARCA	1,074		1,371	