328

CBOE
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July 1, 2004

Jonathan G. Katz
Secretary
Securities and Exchange Commission
450 Fifth Street, N.W.
Washington, D.C. 20549-0609

Re: File No. S7-10-04

Dear Mr. Katz:

The Chicago Board Options Exchange, Inc. ("CBOE" or "Exchange") is pleased to provide comments on proposed Regulation NMS.[1] The proposed regulation would add proposals in four areas in order to modernize the regulatory structure of the U.S. equity markets: a uniform trade through rule, a uniform market access rule, a prohibition against displaying quotes in increments finer than a penny, and amendments to the rules and joint industry plans for displaying market data. Although Regulation NMS would apply only to equities and not to options, CBOE has a strong interest in the outcome of the rulemaking. CBOE's option market makers are among the largest users of the equity markets for their hedging activities and thus have both a vital stake in and an important perspective on the resolution of equity market structure issues. In addition, many of the market structure issues raised in the Regulation NMS Proposing Release are similar to options market structure issues and we expect that the resolution of the issues in the context of proposed Regulation NMS will heavily affect the Commission's thinking on how to proceed with options market structure issues.

CBOE's primary recommendations on proposed Regulation NMS are as follows:

* We support a trade through rule for listed stocks and an extension to Nasdaq securities, but with the application of the rule limited to "automated" quotes;

* The SEC should refrain from adopting an "opt-out" exception to the trade through rule and instead first gain experience with a trade through rule limited to automated quotes and fair access provisions requiring immediate access to those quotes;

* Any cap on access market maker and ECN access fees should not inlude SRO transaction fees, which already are highly regulated;

* We agree with the SEC's ban on subpenny quoting in stocks but urge the SEC to apply the same type of sub-increment ban in options by reversing its decision to permit the BOX to use a sub-increment auction;

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[1] Securities Exchange Act Release No. 49325 (February 26, 2004) ("Proposing Release"). The Commission subsequently published a supplemental request for comment on proposed Regulation NMS. See Securities Exchange Act Release No. 49749 (May 20, 2004) ("Supplemental Release").

* We agree with the Commission that the current model of a single consolidator of market data is superior to any suggested alternative;

* We support replacing the current formula of allocating market revenue data among exchanges based on trades to one based on dollar value of trading and quote value. The SEC's proposed allocation formula, however, is so complex as to be unworkable and would introduce distortions and gaming of the revenue allocation formula that are as bad or worse than those that currently exist;

* We propose a more workable allocation approach whereby revenue would be allocated based on a trading volume element and a quoting share element, with a greater share allocated to trading volume;

* We question the proposal to establish nonvoting advisory committees for each market data network because they will add significant costs and inefficiencies to the operation and administration of those networks.

* We support allowing exchanges to make available their own proprietary market data outside of consolidated market data networks.

We discuss these recommendations and other issues engendered by Regulation NMS in greater detail below.

Trade-Through Proposal

Rule 611 of proposed Regulation NMS would essentially require each order execution facility ("OEF") – including each exchange, the NASD, ATSs, exchange specialists and market makers – to establish, maintain, and enforce policies and procedures reasonably designed to prevent the execution of a trade-through in its market in accordance with the provisions of Rule 611.[2] The SEC's proposal would maintain the trade-through rule in listed markets and would extend it to Nasdaq securities. The trade-through rule would apply to any orders for the account of a broker-dealer or a customer, as well as any orders that an OEF executes internally within its market, whether or not that market posts its best bid and offer in the consolidated quote system. The rule would not apply, however, to bids or offers that are not disseminated pursuant to an effective NMS Plan (*i.e.*, it would apply only to the top of book).

Generally, CBOE supports the maintenance of a trade-through rule for listed stocks and the extension of the rule to Nasdaq securities. Intermarket trade-through protection is an important component of a national market system. It fosters fair competition among markets and helps prevent fragmentation of the price discovery system. It provides protection for customer limit orders and incentives for liquidity providers to quote competitively. We have difficulty envisioning a national market system in which there would be no impediments to a market trading through the better priced quote of another market. Moreover, given the evolution of Nasdaq into a marketplace of competing market centers akin to the structure for trading listed

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[2] Although the proposal contemplates numerous similar trade-through rules for each OEF, we will refer to them collectively as the trade-through rule.

securities, and the great similarities in Nasdaq NMS securities to listed securities, we see no reason why the Nasdaq marketplace should not be subject to a trade through rule. Thus, we support Regulation NMS in this regard.

The SEC has proposed two important exceptions to its trade-through rule. First, an "automated" market would be able to trade through the quotes of a "manual" market by a permissible *de minimis* amount, which ranges from one cent to five cents depending on the share price of the security involved. (Conversely, non-automated markets would not be able to trade through the price of any market and automated markets could not trade through the price of any other automated market.) Second, on a transaction-by-transaction basis, persons would be able to choose to opt-out of the trade-through protections (*i.e.*, they would be able to trade through the quotes of automated markets). While we generally support the automated market exception, we believe that it should not be fashioned in a manner to force all markets to become completely automated markets. Moreover, we have concerns that the opt-out exception could lead to that result.

Automated Market/Quote Exception

We agree with the Commission that for trade-through purposes a distinction should be made between automated and manual markets. Broker-dealer order routing and handling technology has evolved to the extent that market participants expect immediate access to "top of book" quotes. At the same time, traditional floor-based trading offers a form of price discovery and liquidity that market participants still want to access in a variety of circumstances. The appeal of Regulation NMS is that it would enable traditional exchanges to move to a hybrid model of trading, with automated access to the top of their book, while still maintaining a floor auction where price improvement or greater depth can be sought. Thus, it comports entirely with the impetus behind the trade through rule to propose, as the SEC has done, to limit trade-through protection to the best quotes of automated markets. This would maximize investor choice while preserving intermarket protection for immediately accessible quotes.

CBOE's experience in developing and implementing its hybrid trading system may be illuminating as an example of the flexibility and benefits that Regulation NMS should provide. Up until several years ago, CBOE primarily employed a floor-based auction system that was supplemented by RAES, our automatic execution system for small-sized customer orders. The advent of new and robust technology, the expansion of full-scale multiple trading, and the introduction of a new competing exchange that was fully electronic changed the competitive landscape of the options markets and caused CBOE to redesign the structure of our exchange. For example, CBOE was the first floor-based exchange to disseminate dynamic quotes with size. More recently, CBOE introduced its Hybrid Trading System which combines features of the open outcry market with an electronic, competing dealer model. The hybrid platform enables market makers and designated primary market makers ("DPMs") to submit their individual quotes and floor brokers to submit customer orders to an electronic system. The best bid or offer among these quotes or orders and the bid's or offer's size is disseminated publicly as CBOE's consolidated quote and is accessible electronically. The introduction of the hybrid system greatly expanded the amount of intra-market competition on the Exchange and led to a dramatic

narrowing of quoted and effective spreads.[3] This has all occurred in an environment in which options exchanges are precluded from trading through the better displayed quotes of away markets and in which an intermarket linkage provides immediate access to the automatic execution systems of all exchanges.

CBOE is now in the process of obtaining regulatory approval for an "enhanced hybrid" system. The enhanced hybrid would create competing, remote electronic DPMs and competing, remote market makers who would stream quotes into the Exchange's hybrid system. In-crowd market makers would be able to stream quotes to the enhanced hybrid system as well. We have had tremendous response from firms desiring to be electronic DPMs or remote market makers, including firms that have never acted as market makers on our floor.

Under the advanced hybrid system, CBOE would continue to maintain floor market makers for firms seeking the liquidity and dynamics associated with a physical trading crowd. The premise of CBOE's hybrid structure is simple: for those market participants who desire immediacy of execution against displayed quotes with size, the hybrid trading system provides an electronic means to access the best quotes of competing market makers on the Exchange. For those participants who have certain orders, such as complex or large orders, that could benefit from being "worked" manually, the Exchange's floor-based trading crowd would be available. In this manner, CBOE is able to provide the best of both types of trading systems through a unified platform. A market participant may obtain immediate access to CBOE's best quote either through the hybrid system or on the floor, while a competing exchange can access CBOE's best quote through the intermarket linkage.

Although we are proud of our creation of a hybrid system, we still see a great value in offering traditional trading floor liquidity. Part of the genius of our securities markets is the ability to offer true liquidity on a trading floor. Hence, while we agree with the SEC's approach toward distinguishing between automated and manual markets for purposes of the trade-through rule, we urge the Commission to refrain from forcing markets into a completely electronic model. In this regard, we agree with the suggestion in the SEC's Supplemental Release on Regulation NMS that the trade-through rule application should be based on automated **quotes**, not automated **markets**. This would enable a market to offer different types of liquidity, a portion of which would be accorded trade-through protection because it represents automated quotes and another portion that is not accorded such protection because it represents manual handling. Of course, a market could still choose to offer solely automated quotes or manual quotes.

Under the original Regulation NMS proposal, an automated market would be an Order Execution Facility ("OEF") that provides for an "immediate automated response" to all incoming orders for up to the full size of its best bid and offer disseminated pursuant to an effective

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[3] For example, since hybrid trading began only 12 months ago, CBOE has reduced its average quote width in half while tripling its average size quoted. In addition, our quoted markets are on the NBBO 80% of the time while the other floor-based exchanges are on the NBBO only one third of the time. About 83% of the orders in options on the hybrid system are executed electronically while 17% are still sent to the trading floor.

national market system plan, without any restrictions on executions. The phrase "immediate automated response," however, is not defined in either the Proposing Release or the Supplemental Release. The Commission has sought comment on, among other things, whether it should set a standard for minimum response times in defining the term "immediate." The Commission also has asked whether, for a quote to be considered "automated," an immediate automated response would need to include immediately sending a report back to the market center that submitted the order, either reporting an execution or cancellation.

With respect to these matters, the standard for designation as an automated quote should be simple to understand and enforce: an automated quote is one that can react to an incoming order through execution or rejection (if the quote is no longer available) and send back a response, all without manual handling or intervention. The SEC should **not** set performance standards on how quickly a quote must react to an incoming order or use other measurements to classify a quote as automated. We would have serious concerns with government-mandated standards for quote responsiveness. Such standards could have unforeseen effects that could stifle competition. If the standards are set too low, they could act as a lowest common denominator and disincentivize technological advancement. If set too aggressively, they could force all markets to become wholly electronic in order to develop the systems necessary to conform to hyperfast response standards.

Opt-Out Exception

We have concerns about the potential consequences of the opt-out exception to the trade-through proposal. Under this exception, customers (and broker-dealers trading proprietarily) could choose to opt out of the trade-through rule by providing informed consent to the execution of their orders, on an order-by-order basis, in one market without regard to the possibility of obtaining a better price in another market. In other words, a customer or broker-dealer can choose to trade through the quotes of all markets, including automated quotes. Broker-dealers also would have to make "back-end" disclosure, as soon as possible but no later than one month after trade execution, to the opted-out customer of the national best bid or offer that otherwise would have been available at the time the customer's order was executed at the trade-through price.[4]

An opt-out exception could seriously undermine the effectiveness of the trade-through rule by enabling immediately-accessible limit orders of customers or market maker quotes to be bypassed in favor of executions at worse prices. Moreover, the required consent for the opt-out is being obtained from the wrong party – the person causing the trade-through rather than the person whose order is being traded through. This provision likely will enable customers who act as professional traders and broker-dealer proprietary desks whose trading model is predicated on rapid-fire trading or direct-access arrangements to be free of the trade-through restrictions imposed on the vast majority of market participants. While the potential consequences of a "fast trader" exception to the trade-through rule is hard to predict, a real possibility exists that such an

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[4] Such disclosure could be made to a customer in the trade confirmation, monthly account statement, or supplemental form of disclosure.

exception could undermine the willingness of customers to submit limit orders and act as a disincentive for aggressive quoting by market makers.

Rather than proceed down such a path with potentially deleterious consequences, we strongly suggest that the Commission adopt Regulation NMS without an opt-out provision, at least initially. Once the Commission gains experience with a trade-through rule with protection limited to automated quotes and fair access provisions requiring immediate access to those quotes, it will be in a much better position to evaluate whether an opt-out is needed. Indeed, it is likely that an environment with immediate access to the NBBO and the ability to trade through manual quotes removes any need for an opt-out. Certainly Regulation NMS, even without an opt-out exception to the trade-through rule, is a substantial modification to the current market structure rules that brings the trade through standards into conformity with today's markets. The Commission should be wary of adopting an exception to the trade-through rule that could end up undermining the goals the Commission is trying to achieve through Regulation NMS.

We recognize that certain situations may arise in which a special handling order may be difficult to effect without an opt-out right. This may be particularly true for a large block trade that is being worked on the floor of an exchange. Current ITS rules require that an exchange executing a block trade at a price inferior to the prices of away markets send a commitment to trade at the better prices of the away markets. We have questions as to how this would or could work in a Regulation NMS environment. The Commission should provide additional guidance as to how block trades could be handled if Regulation NMS ultimately is adopted.

Access Fees

Over the past several years, the SEC has been struggling with the issue of ECN access fees. While it has maintained a position of enabling ECNs, but not market makers, to charge access fees, it has limited the amount of the fee to about a penny per share. Regulation NMS would address this situation by enabling all quoting market participants and quoting market centers to charge access fees for executions at their quotes, but capping the fees that each individual market participant can charge to .01 cents per share, with a total cap of .02 cents per share in any transaction.

While we do not have a specific comment on the resolution of the access fee question as it pertains to ECNs, we are troubled by the apparent extension of the cap to exchange transaction fees. As noted in the Supplemental Release, the definition of a "quoting market center" would encompass an SRO order execution facility that made its best quotes available pursuant to the Quote Rule. Under this definition, the fee limitation would cover access to an exchange's best quotes, which appears to include exchange transaction fees for executions effected at its best quotes.[5]

CBOE is very troubled by the proposal to include exchange transaction fees within the ambit of access fee limitations. An exchange transaction fee is very different from an access fee charged by an ATS or a market maker. Exchange transaction fees must be submitted to the SEC

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5 *See, e.g.*, footnote 39 of the Supplemental Release. The access fee cap would not extend to quotations included in a market's depth of book.

pursuant to Section 19(b) of the Exchange Act. Although usually they are submitted for immediate effectiveness pursuant to Section 19(b)(3)(A) of the Exchange Act, the SEC must publish the filing for public comment and it has the authority to abrogate the filing within 60 days of receipt. Under Section 6(b)(4) of the Exchange Act, an exchange's transaction fees must be reasonable and be part of an equitable allocation of dues, fees, and charges among an exchange's members, issuers, and persons using its facilities. Thus, exchange transaction fees are subject to SEC scrutiny (along with an exchange's whole financial situation) and public comment. In contrast, ATSs (which are essentially unregistered exchanges) have no such SEC scrutiny of their access fees nor ability for the public to comment thereon. Thus, unlike exchange transaction fees, ATS fees are not subject to any restraint on their fairness or reasonableness.[6]

The dilemma of ATS access fees thus has no appropriate application with respect to exchange transaction fees. The imposition of a cap on transaction fees for any quoting market participant is simply the institution of SEC price restraints on already-regulated exchange fees. Whatever the merits of SEC ratemaking with respect to access fees by ATSs or market makers, there is no viable rationale for government-imposed caps on fees such as exchange transaction fees that already are highly regulated. Although our market makers might benefit financially from the extremely low cap on exchange transaction fees that would be imposed on their hedging transactions in NMS stocks by Regulation NMS, the possible precedent is so troubling that we urge the Commission to exclude exchange transaction fees filed with the Commission pursuant to Section 19 of the Exchange Act from any such cap. It is not hyperbole to say that a cap on transaction fees is a giant step toward turning our markets into a government-run utility.

Subpenny Quoting

The Proposing Release notes that the markets' experience with subpenny quoting indicates that the practice, if allowed to persist, would harm investors and the markets. The Commission suggests that subpenny quoting could lead to widespread "stepping ahead" of customer orders by market professionals, an impairment of transparency through flickering quotes, and a decrease of inside market depth. As a result, the Commission proposes to prohibit market participants from prioritizing, accepting, or displaying an order in increments finer than a penny.

CBOE strongly agrees with the SEC's proposal on subpenny quoting. Subpenny quoting has the potential to fragment the entire national market system, undermine the fairness and integrity of the markets' trading markets by facilitating the stepping ahead of customer orders, and completely discard the notion of price priority. Participants at the SEC's hearings on Regulation NMS were all in accord on the necessity for the SEC's proposal on subpenny quoting.

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[6] To the extent that the SEC's proposed fee cap is driven by an incidence of high ATS access fees, which are used to fund rebates or credits that incentivize limit orders (and can lead to market distortions), the SEC should address this practice directly.

The issue of subpenny quoting in the equity markets highlights a serious problem in the options markets. In the equity markets, in which a standard quoting increment is one cent, subpenny quoting really represents sub-increment quoting. In contrast, the options exchanges use a standard increment of five or ten cents, depending upon the price of the option. Recently, the SEC approved the use of sub-increment quoting in the options markets in a very limited context when it approved the Boston Options Exchange ("BOX") proposal for a Price Improvement Period ("PIP"). In the PIP, a member can enter a quote at a penny ahead of the national best bid or offer, visible only to a limited group of market makers for a three second period. During the virtually instantaneous PIP, market makers can improve on the PIP price by a penny or more and the original order entry firm can match or improve any better price. It is clear that the PIP is designed to enable firms to internalize customer orders by pricing them at a substandard increment for a very brief exposure period.

We and others expressed great concern to the SEC about the potential harm to customers and fair competition that would result from enabling the BOX to employ substandard increments in the PIP. Our fears were based on the same trepidations the SEC has with substandard quoting in the equities markets. Indeed, in the Proposing Release, the Commission notes that it is "concerned that non-uniform display of subpenny quotes is creating hidden markets whereby more sophisticated traders can view and access better prices than those available to the general public." That is precisely the environment in which the PIP operates. The worries about stepping ahead of customer orders by substandard increments through subpennies in the equity markets is the exact modus operandi of the PIP through the use of substandard options increments. Moreover, the SEC has denied CBOE's request to trade in nickels those options using a ten cent standard increment, evidencing the anticompetitive effects of allowing some but not all markets to use substandard increments.

Now that the SEC has proposed to prohibit the accepting, ranking, and displaying of sub-increment orders in the equity markets, it should act consistently and apply the same prohibitions in the options markets. We urge the SEC to revisit its approval of the PIP and take the necessary steps to reverse its acceptance of sub-increment trading in the PIP. [7]

Market Data Proposal

Introduction

We will now turn to the "Market Data Proposal" described in Part VI of the Proposing Release and referred to in Part IV of the Supplemental Release. Here, too, our comments are made from our perspective as an equities market that is a participant in two of the three joint industry plans applicable to NMS stocks (Network A and Network B). However, since we are also a significant participant in the comparable joint industry plan for options administered by the Options Price Reporting Authority ("OPRA"), our comments also reflect the probability that any changes to the manner in which consolidated equities market data is provided may some day also apply to options market data. Although our comments do not directly address options

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[7] In this regard, we note that the ISE has submitted a rule filing to the SEC proposing to establish a penny price improvement functionality similar to the PIP.

market data, we believe the approach to market data that we suggest for the equities markets would also be appropriate for the options markets with only minor modifications to reflect certain inherent differences between the two products.

We commend the Commission for focusing on the important issues that are raised by the current scheme for the dissemination of securities market data, and we concur with many of the Commission's conclusions as expressed in its Market Data Proposal. Specifically, we agree with the Commission's finding that consolidated market information to investors has been an "essential element" in the success of our nation's securities markets, and that the current model for providing current and reliable consolidated market information through centralized national market system facilities has for the most part well served the interests of investors both large and small. We also agree with the Commission's reasoning in rejecting various alternatives to the current model that have been proposed by commenters from time to time.

We are also in accord with the Commission's view that the greatest problem presented by the current model concerns the economic underpinnings of that model. We do not believe the problem is with the level of fees charged by the Networks for access to consolidated data, even though as the Commission and other commenters have pointed out, the aggregate revenues collected by the Networks far exceed the direct costs of operating the Networks. We believe it is entirely consistent with the purpose and intent of Section 11A of the Exchange Act for a significant share of market data revenue to be distributed to the exchanges to be applied to a portion of the costs they incur in operating and regulating their markets, since these costs directly relate to the validity of the market data disseminated by the Networks. This includes not only the exchanges' costs in collecting, verifying and transmitting data to the Networks' central processors, but also regulatory costs incurred by the exchanges, all of which contribute to the reliability and usefulness of the market data that is disseminated.

We do, however, share the Commission's concern with those aspects of the Network's that pertain to the way in which market data revenue is allocated among the exchanges. We agree that the current system for allocation market data revenue based on each exchange's proportionate share of trading volume measured by the relative number of trades completed on each exchange is illogical, and has resulted in distortions and attempts to game the system that should not be allowed to continue.

Having said that, we disagree with the way in which the Commission proposes to revise the method for allocation market data revenue. As we will explain below, we find the Commission's proposal to be so complex as to be unworkable. We also believe that in the name of eliminating some of the distortions and inequities of the current method of revenue allocation, the Commission's approach would inject entirely new distortions, with the result that the revised method would be no better, and in many ways would be worse, that the system it is intended to replace. Beyond having concerns with the proposed allocation formula itself, we are also troubled by the possibility that this or any other formula that makes major changes in the way market data revenues are allocated could have negative unanticipated consequences. Although this by itself is not a reason to avoid changing those aspects of the current method of allocation that are thought to be problematic, it does suggest that before adopting any revised allocation formula, it should be tested on the basis of historical data to reduce the likelihood of

unanticipated results. If the Commission is not already planning on such testing of whatever allocation formula if might ultimately adopt, we would urge it to do so.

In the remainder of this part of our letter, we will first explain why we believe the Commission's proposed method of allocating market data revenue is seriously flawed. We will next suggest several modifications to the Commission's proposal that we believe would cure these flaws while still eliminating the problems presented by the current allocation methodology. Finally, we will comment briefly on a few other market data issues raised by the Commission's proposal.

Allocation of Market Data Revenue

1. *General.* Currently, market data revenue is allocated among exchanges based solely on each exchange's proportionate share of trading volume in all NMS securities in a given Network as measured by the number of completed trades that took place on each exchange. In proposed Regulation NMS, the Commission proposes to replace this method of allocation by a three part formula that would apply on a security-by-security basis. Under the proposed formula, 50% of the revenue identified to a given security (subject to adjustment) would be allocated on the basis of an exchange's proportionate share of trading volume in that security as measured by its proportionate share of the dollar value of trading volume and its proportionate share of "qualified trades" in each security. The other two parts of the formula would allocate the remaining 50% of total revenue (also subject to adjustment) based on the degree to which an exchange's quotations equal or improve the NBBO in each security.

We agree with the Commission's proposal to allocate a significant share of market data revenue based on relative trading volume, and we also agree that for this purpose trading volume should be the notional amount of trading expressed as a dollar amount, rather than the number of individual trades as is done today. The current system of counting the number of trades in each market has led to such dubious practices as "tape shredding", in which, for example, one large trade for 10,000 shares may be reported as ten trades for 1,000 shares or even as 100 trades for 100 shares. By artificially inflating the number of trades represented by what is in reality a single execution of one large order, a market (or worse, a member of a market to which a share of the market data realized on account of that execution will be rebated) is able artificially to increase the share of market data allocated to it under the current formula. Changing the basis for allocating market data to the notional dollar value of trading done on each exchange eliminates the incentive to "tape shred", since the notional value is unaffected by the number of trades into which an executed order may be divided.

We also agree that some portion of market data revenue should be allocated based on the extent to which an exchange provides value to investors by offering the best bids and offers in the securities it trades. However, we suggest that the mere dissemination of an ostensibly better quote, regardless of its accessibility, should be given little if any weight in the allocation of market data revenue. As will be seen in our proposed modification to the Commission's proposal we present below, we believe a better way to allocate market data revenue that takes into account the accessibility of an exchange's quotes (including those quotes that may not be on an auto-ex system but may still be accessible) is to reduce, somewhat, the share of market data revenue that is allocated on the basis of quotes, which in turn would increase the share that is

allocated on the basis of completed trades. We submit that if an exchange is regularly at the NBBO and if its quotes are in fact accessible, that exchange is likely to realize a greater share of actual trading, and thus is likely to be rewarded for its better quoting not only by the share of revenue allocated to it on account of its better quotes but also by the allocation of revenue on account of its higher relative trading volume.

2. *Security-by Security Revenue Allocation.* Our concerns with the specific allocation formula that the Commission is proposing begins with the Commission's proposal to allocate revenue among securities on the basis of the square root of the dollar volume of trading in each security rather than on the basis of the straight dollar volume of such trading. This is explained as intending to moderate the extent to which a relatively few extremely active stocks may account for a disproportionate share of total trading volume. However, we believe an unintended effect of the Commission's proposal would be to create the opposite problem, by giving an exchange an incentive to introduce trading in a large number of products even if it has no reasonable expectation that these products may ever account for any significant share of trading activity, simply to capture a greater share of market data revenue. In other words, an unintended effect of a formula that allocates market data revenue among securities based on the square root of trading volume may be to subsidize an exchange that introduces a large number of unsuccessful products.

For example, the most actively traded security on Network B is the exchange-traded fund known as QQQ. In 2003, that security alone accounted for approximately 16.3 million trades. By contrast, CBOE traded a particular security of a type known as an ELK that accounted for only 145 trades in 2003. If, for purposes of illustration, we were to assume that the only securities traded in the year were QQQ and 20 ELKs each of which accounted for 145 trades, QQQ would have accounted for approximately 99.98% of the dollar value of trading, and the 20 ELKs would have accounted for the other 0.02%. On the basis of the relative amount of absolute dollar value of trading, QQQ would have been allocated approximately $99.98 million of the $100 million of Tape B revenue distributed in 2003, and the 20 ELKs would have been allocated $20,000. On the other hand, if Network B revenue were allocated based on the square root of the dollar volume of trading in each security as the Commission proposes, QQQ would have been allocated approximately $94.38 million, and the 20 ELKs would have been allocated $5.62 million. In other words, basing the allocation on the square root of trading volume rather than on absolute trading volume would result in a $5.6 million swing to the 20 unsuccessful products. We question the appropriateness of this degree of subsidization of unsuccessful products, especially since it is likely to lead to a proliferation of new products without regard to whether there is any real need or demand for such products in the marketplace.

3. *Allocation Based on Relative Trading Volume.* We will now turn to that part of the Commission's proposed allocation formula that allocates a 50% share of market data revenue (subject to adjustment) in respect of each security among exchanges based on each exchange's relative share of the dollar volume of trading in that security. Here, we observe that having changed the basis of allocation from the relative number of trades to the relative notional value of trading expressed in dollars in order to eliminate tape shredding and other types of manipulation that have taken place under the current system, the Commission's proposal would reintroduce new types of gaming into the system by requiring that to be included in an exchange's share of trading in a security, a trade must be "qualified" by representing a dollar

volume of $5,000 or higher. The reasons given for imposing this requirement are, first, that trades of less than $5,000 do not have significant price discovery value, and second, that this will reduce the potential for tape shredding. We disagree that trades of less than $5,000 have no price discovery value whatsoever, which is implied by excluding them entirely from the revenue allocation formula. On the other hand, it is evident that the effect of imposing a $5,000 qualification requirement in the manner proposed will be to provide an incentive for exchanges to engage in new types of tape shredding that will be just as pernicious as the current type.

An example will illustrate this. Let us assume that the total market data revenue allocated to stock XYZ over the course of a year is $10,000. Assume further that Exchange A and Exchange B are the only two exchanges that trade Stock XYZ and report quotes and trades to Network A. Assume that the dollar volume of all trading in Stock XYZ over the course of a year is $100 million on each Exchange, with 50% of Exchange A's trading volume represented by 20,000 small orders of $2,500 each, and the other 50% of Exchange A's volume represented by 5,000 trades of $10,000 each. Finally, assume 100% of Exchange B's trading volume is represented by 10,000 trades of $50,000 each. Under the proposed formula, the total number of "qualified trades" on both Exchanges is 15,000, of which 33-1/3% were on Exchange A and 66-2/3% were on Exchange B. Thus Exchange A's Trade Rating would be 0.4166 (calculated as the average of 50% and 33-1/3%), and Exchange B's Trade Rating would be 0.5833 (calculated as the average of 50% and 66-2/3%).

If, however, Exchange A were to "shred" its 5,000 trades at $10,000 each into 10,000 trades at $5,000 each, its Trade Rating would increase to 0.5000, and Exchange B's trade rating would be reduced to this same amount. Then if Exchange B were to "shred" its 10,000 trades at $50,000 each into 100,000 trades at $5,000 each (assuming Exchange A was also shredding its trades as described in the preceding sentence), Exchange A's Trade Rating would be 0.2955, and Exchange B's Trade Rating would be 0.7045. We find it remarkable that the Commission would propose a method of allocation that would foster exactly the same type of gaming the system that it is trying to eliminate. The only way we see to eliminate tape shredding and similar devices to game the system is to make the allocation of that portion of market data revenue that depends on relative trading volume be determined on the basis of the dollar value of all trades, regardless of size. This is reflected in our suggested modification of the Commission's proposal described below.

Our final comment on the portion of the revenue allocation proposed to be based on trading volume concerns the cap of $2 per qualified transaction that could reduce the share of total revenue allocated on this basis to less than 50%, with the difference being added to the share of total revenue proposed to be allocated on the basis of what it referred to as the "value" of an exchange's quotes. Here, too, the effect would be to reintroduce still another incentive to shred trades or otherwise to game the system, justified only by what we view as an effort to "fine-tune" the allocation formula beyond the point where the benefits to be gained outweigh the costs. In the absence of the $2 cap per qualified transaction, as we have observed, the allocation of revenue based on each exchange's share of trading volume cannot be gamed by shredding trades or otherwise. This alone would represent such an enormous improvement over the current system that we would stop right there, at least in respect of the allocation of revenue based on trading volume. By including the $2 cap per qualified trade as the Commission proposes, much of the advantage of moving to a dollar value measure of trading volume would be lost. In the

same manner as we explained above in connection with the proposal to base an exchange's Trade Rating on the number of an exchange's trades involving $5,000 or more, here, too, an exchange would have an incentive to shred individual large trades into multiple smaller trades as a way to capture more revenue based on the dollar value of its total trades.

If we could agree with the asserted reason for incorporating a cap on this portion of the allocation of market data revenue (namely, that in the case of inactively traded securities, in the absence of a cap an exchange that accounts for a small number of trades—albeit a significant percentage of all of the trades in that security—would be unduly rewarded), we might be willing to consider some adjustment to an allocation based solely on the relative dollar value of trading volume. Even then we would not want to adopt a solution that reintroduced the very type of gaming the system that we were attempting to eliminate. But we do not agree that there is any significant issue of undue reward as a result of allocating revenue in less active securities based solely on trading volume. Less active securities will represent a smaller share of total revenue in the first place on account of the initial step of allocating total revenue among individual securities based on the dollar value of their trades, This, alone, should be enough to eliminate any substantial concern over the way in which the smaller amount of revenue represented by the least active securities is allocated. And, if revenue is allocated among securities based on the absolute relative dollar value of trading as we propose rather than on the square root of such value as the Commission proposes, the share of revenue represented by the least active securities will be even smaller.

Further, to the extent the cap would reduce the amount of revenue allocated on the basis of trading volume, it is proposed to shift the difference to the share of revenue allocated on the basis of quotation value. This is justified as better rewarding those markets that consistently display valuable quotes. In a simple world, perhaps this would be the case. However, in the real world, it is not always true that the market displaying the best quote is deserving of the greatest reward, since there are factors other than price alone (for example, the degree to which a quote is accessible) that may make one exchange's quotes more valuable than another's. And, while it is true that the elimination of the $2 per trade cap may leave a greater share of revenue to be allocated on the basis of relative trading volume, that is not inconsistent with rewarding exchanges whose quotes are the most valuable on the not unreasonable assumption that an exchange offering better-priced and more accessible quote will have more trades than an exchange whose quotes reflect inferior prices or are inaccessible or both.

For all of these reasons we disagree with the proposed $2 per trade cap. Removing this cap from the formula will simplify the overall approach to revenue allocation and will avoid reintroducing tape shredding and other types of gaming. At the same time, removing this cap will not introduce any significant inequities in the way in which exchanges are rewarded for quoting in a manner that best serves the public interest.

4. *Allocation Based on the Perceived Relative Value of Quotations* Turning to the next two elements of the Commission's proposed allocation formula based on the perceived value of matching or improving the NBBO, these consist of a "Quoting Share" based on the amount of time a given exchange is at the NBBO, and an "NBBO Improvement Share" based on the number of occasions when a given exchange improves the NBBO. Each of these elements attempts to reward an exchange based on the value of its quotes without regard to its share of

trading volume. We agree that it is appropriate to make some allocation of market data revenue on this basis, but we disagree with the Commission's proposed way to accomplish this. We find the Commission's approach to be based on a flawed analysis of how the value of a quote may be measured, and so complicated as to be unworkable.

We begin our analysis by observing that the first element – the Quoting Share – measures the period of time during which an exchange remains at the NBBO in a given security, whereas the second element – the NBBO Improvement Share—measures both the period of time during which a quote that established a new NBBO remains at the NBBO as well as the number of occasions when an exchange establishes a new NBBO. The Quoting Share element of the allocation formula awards Quote Credits to an exchange based upon the number of shares it is quoting when it is at the NBBO, the dollar value of the quote, and the length of time it remains at the NBBO. The complexity of this element of the allocation formula is demonstrated in the Commission's own example of how it would work. In the example, which involves an NBBO consisting of a $20 bid for 200 shares of a single stock over a three second time period, 12,000 Quote Credits are generated. Extending this calculation for all of the stocks included in the allocation and all of the seconds in a year will yield astronomical numbers of Quote Credits that can be expressed only in exponential terms.

The complexity of this approach is compounded by providing an automatic cutoff for manual quotes, the effect of which would be to cause an exchange to cease earning Quote Credits based on changed quotes at another exchange if the first exchange, while nominally still at the NBBO, was not "fully accessible through automatic execution." Although the accessibility of quotations is certainly relevant to their value, there are better ways to assure that disseminated quotes are accessible (such as by enforcing SEC and Exchange firm quote rules) than to add the further complexity of an automatic cutoff for manual quotes to an allocation formula that is already excessively complex. While computers may exist that are capable of doing calculations involving numbers of this magnitude and taking into account which quotes are subject to automatic execution as well as the other complexities of the formula, these are not the sort of calculations that ordinary persons are able to confirm on desk-top calculators. There is, in our view, no reason why as relatively simple a matter as the allocation of market data revenue needs to be determined pursuant to a formula that is so lacking in transparency as a result of its complexity that only a super-computer can handle the calculations, resulting in allocations that as a practical matter cannot be confirmed by the exchanges to which market data revenue is allocated.

Beyond its sheer complexity, in our view the Quoting Share element of the formula fails to provide a valid measure of the value of an exchange's quotes because it does not take into account the law of diminishing returns as it applies to quotes of increased size at the NBBO. Using the Commission's example of an NBBO bid of $20 with a size of 200 shares over a three second period generating 12,000 Quote Credits, if the same quote were for 400 shares the number of Quote Credits would be 24,000, if the quote were for 4,000 shares the number of Quote Credits would be 240,000, and if the quote were for 40,000 shares the number of Quote Credits would be 2,400,000. While it may be the case that a bid for 400 shares is twice as valuable as a bid for 200 shares, depending upon the trading characteristics of the stock there comes a point where an increase in the size of a quote does not proportionately increase the value of the quote. In other words, the extent to which the greater size of a quote provides greater

value necessarily depends in large part on the extent to which there is a demand to trade at the larger size, but this factor is totally ignored in the proposed formula. The failure of the Quote Sharing formula to take this into account not only undercuts its validity, but it makes the formula vulnerable to manipulation as one or more exchanges, in order to realize more Quote Credits, may be tempted to show quote sizes that are so large as to be beyond the point where greater size adds value.

In the Supplemental Release, the Commission asks whether it would represent an improvement in the original proposal if only quotes that are accessible through an automatic execution facility were considered in allocating market data revenue. The Commission points out that by making this change to the allocation formula any concern over the accessibility of quotes used as a basis for the allocation of market data revenue would be eliminated, and the allocation formula would be simplified by eliminating any need to include an automatic cutoff for manual quotes. We have already expressed our view that the automatic cutoff for manual quotes is unduly complicated. On this basis, and because we view non-autoex quotes as a rapidly diminishing category of quotations in increasingly automated markets, we agree that the allocation of market data revenue based on quotations should be limited to autoex quotes only, and that the automatic cutoff for non-autoex quotes should be eliminated from the formula.

More generally, we agree that it may be appropriate to allocate to an exchange a greater share of market data revenue as a reward for being at the NBBO more of the time as compared with other exchanges. Without attempting to define precisely how this may be done in a manner that avoids the pitfalls of the proposed formula, we can suggest a few ways in which the proposed formula may be improved. First, instead of attempting to relate the number of Quote Credits to the size of a quote down to the last share, we think it would be simpler and more appropriate to rank quote sizes by reference to size tiers, so that the number of Quote Credits would increase as a quote moved to a higher tier, up to a top tier after which increases in size would not result in a greater number of Quote Credits. In addition, we suggest that to be meaningful as a measure of the value of a quote, the size parameters of these tiers should relate to the trading characteristics of the stock, such that the higher quote size tiers would apply only to those stocks that trade in higher volume.

For example, a more actively traded stock might have, say, six quote size tiers at 100 – 200 shares, 300 – 500 shares, 600 – 1,000 shares, 1,100 – 5,000 shares, 6,000 – 10,000 shares, and 11,000 shares and above. The dollar value of a quote could be multiplied by a factor depending on the tier (such a 1.0 for quotes in the first tier, 2.5 for quotes in the second tier, etc.), which could then be multiplied by the duration of the quote. A less actively traded stock might have only four tiers, at, say, 100 – 200 shares, 300 – 500 shares, 600 – 1,000 shares, and 1,100 shares and up. This would reduce the size of the absolute number of Quote Credits and would relate the relative value of the size of a quote to the trading characteristics of the stock. It would also reflect that as the size of a quote increases its value does not continue to increase proportionately, *ad infinitum*.

Finally, we recommend eliminating the NBBO Improvement Share in its entirety. This element of the allocation formula is even more complicated and less valid as a measure of the value of a quote than the Quoting Share element, and we do not believe it can be revised to cure its deficiencies. The complexity of this element may be beyond the capacity of any but the most

sophisticated super-computer systems, since the formula requires monitoring, second-by-second, not only the size, dollar value and period of time when an NBBO-improving quote continues to be at the NBBO, but also the relationship between every NBBO-improving quote and the price and time of every transaction report transmitted to the Network processor after the NBBO-improving quote was initially made and for so long as it continues to be at the NBBO. Even if a computer system could be developed to do all of this (which causes us to ask who would pay for such a system), the output of the system would be so lacking in transparency that no one could explain it or verify its correctness.

In addition, here, too, one must consider the accessibility of a quote that improves the NBBO in deciding whether the market displaying the quote should be rewarded with a greater share of market data revenue. Of course, a quote that is not accessible is of no value whatsoever regardless of its price or size or duration. But even if the issue is resolved by considering only automatically accessible quotes that improve the NBBO for purposes of the NBBO Improvement Share, this would not eliminate the other complexities that in our view make the NBBO Improvement Share unworkable.

The elimination of the NBBO Improvement Share from the allocation formula does not mean that exchanges will no longer have any incentive to improve the NBBO. If an exchange does improve the NBBO, it will by definition be at the NBBO and thus will be rewarded pursuant to the Quoting Share element of the allocation formula. Also, all things being equal, an exchange that improves the NBBO more of the time should see a greater share of trading migrate to its market, which means it should also receive a greater allocation a market data revenue pursuant to the trading volume element of the allocation.

5. *Suggestions to Improve the Allocation Formula*. We have given some consideration to how the proposed allocation formula might be revised in order to eliminate our objections to the formula as described above. Although we have not developed all of the details of an alternative approach, we have come up with the elements of a revised formula that we commend to the Commission for its consideration. Under our suggested approach there would be two elements to the formula for allocating market data revenue: a trading volume element and a quoting share element. The division of total market data revenue between these two elements should, in our view, call for a greater share of revenue to be allocated on the basis of trading volume because, for reasons noted above, an allocation based on trading volume inherently reflects to a considerable extent the value of an exchange's quotes. And, unlike quotes whose value depends not only on price and size but also upon hard to measure subjective factors such as whether the quotes are accessible, trading volume reflects no more and no less than the reality of how trading takes place in competing markets. This, in turn, necessarily says something about the relative value of those markets to the persons who use them, including the value of their market data.

With this in mind, we suggest something like a 75% - 25% division of market data revenue between the allocation based on trading volume and the allocation based on the value of quotes. Whatever division is reflected in the rule as finally adopted, we believe the Commission should monitor its operation on an ongoing basis to determine whether adjustments are needed.

The Commission proposes to establish a nonvoting "advisory committee" for each Network, made up of one representative from each of a retail broker-dealer, an institutional broker-dealer, an ATS, a data vendor and an investor, as well as one representative appointed by each participant exchange who is not affiliated with any exchange. For CTA, which has nine participant exchanges, the effect would be to add at least fourteen persons to those in attendance at meetings of its operating committee. The stated rationale for creating such advisory committees is to allow the views of interested parties to be heard on Network matters prior to any decision being made by the operating committee. We question whether this problem is a real one, given the current inclusion of broker-dealer and public representatives on the boards of directors of the exchanges that are Network participants, and given that most significant decisions of Network operating committees are required to be published for public comment and approved by the Commission before becoming effective. Even if additional input from some categories of persons is thought desirable, we question whether increasing the number of persons who attend meetings of Network operation committees to this extent would be an effective and efficient way to accomplish this.

Independent Distribution of Market Data by Exchanges

The Commission proposes to relax existing restrictive and in some cases outmoded regulations to make it easier for exchanges to distribute independently their own market data outside of the consolidated Network distribution. CBOE strongly supports this proposal. This will allow a free market to determine the value of particular types of securities market information based on the demand for the information, which in our view is far better than to attempt to control the format and cost of market data by regulatory fiat. We point out that, with the Commission's approval, OPRA has already eliminated many of these same kinds of restrictions from its own Plan, so that OPRA's participant exchanges may now distribute their own market data outside of OPRA to persons who have access to the consolidated NBBO and last sale service provided by OPRA.

Conclusion

CBOE is generally supportive of much of the approach behind proposed Regulation NMS, but believes that modifications are needed to ensure that the proposal accomplishes its objectives without unduly altering market structure. We continue to support the maintenance of a trade through rule and believe our hybrid trading system demonstrates the feasibility of an automated quote limitation to the trade through rule. Nevertheless, we suggest that the Commission refrain from aspects of the proposals that could force all markets into a completely automated model. Similarly, due to the possible negative consequences of the opt-out, the Commission should refrain from adopting this exception until it has gained sufficient experience with the new trade through rule to determine the need for the exception. We commend the Commission for reexamining the market data revenue formulas but have explained how the proposed formulas are overly complex and susceptible to the same harmful practices that led the Commission to reexamine the formula in the first place. Our proposed formula should be easier to implement and maintain and be less prone to abusive practices designed to enhance a market's share of revenue.

If you have any questions on the points raised in this letter, please contact the Exchange's General Counsel, Joanne Moffic-Silver, at (312) 786-7462.

Sincerely,

William J. Brodsky
Chairman and Chief Executive Officer

cc: The Honorable William H. Donaldson
The Honorable Paul S. Atkins
The Honorable Roel Campos
The Honorable Cynthia Glassman
The Honorable Harvey J. Goldschmid
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