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By Electronic Mail

Mr. Brent J. Fields
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: *Equity Market Structure Advisory Committee*; File No. 265-29

Dear Mr. Fields,

I appreciate the opportunity to provide the Securities and Exchange Commission's (SEC) Equity Market Structure Advisory Committee and its Regulation NMS Subcommittee (together, the Committee) suggestions on how to proceed with respect to Regulation NMS.

I have been directly involved in the design and construction of trading and analytical systems for the equity market for over 3 decades, primarily for market makers and most recently as head of quantitative equity products for IHS Markit. I believe that my experience in dealing with U.S. equity market structure over the past couple of decades for different industry participants provides a unique perspective in understanding why much of Regulation NMS is no longer necessary and should be repealed before considering additional complex pilot programs or major "holistic" reviews of regulation. It also bears repeating that the SEC should act to require the collection and publishing of execution quality statistics from the perspective of both routing firms and market centers before enacting pilot programs, as that data would be necessary to evaluating the changes in those programs.

Recommendations:

1. Eliminate the Order Protection Rule (OPR) under Regulation NMS (Rule 611)
2. Eliminate the prohibition on Locking or Crossing Quotations under the Access Rule (Locked Market Ban) under Regulation NMS (Rule 610(d))
3. Simplify the Market Data Revenue Allocation Formula to pay 100% based on the dollar value of executed trades where one side of the trade was a displayed quote (Allocation Amendments to Joint Industry Plans).

Rationale for the Recommendations:

These recommendations are all essentially de-regulatory in nature, particularly the elimination of the OPR and the Locked Market Ban. As such, the key question is if there is still justification for the regulations as opposed to assuming that there is an inherent value in the rules or that the rules may only be addressed as part of a "holistic" review of Regulation NMS in its entirety. Unfortunately, as a brief review of the history shows, the value of these rules is no longer apparent. In addition, while a review of Regulation NMS as a whole is long overdue, there is no compelling reason that such a

review should prevent immediate action on targeted modifications that would improve the markets for its participants at little or no risk.

The SEC's Division of Trading and Markets prepared a very good assessment of the OPR for the Committee in 2015¹ and I'd like to add some color to provide context to the recommendations in this letter. The market structure before Regulation NMS was bifurcated. Nasdaq stocks traded electronically and stocks listed on the New York Stock Exchange (NYSE) traded predominantly on their trading floor. The NYSE maintained over 78% market share of trading in listed stocks² and efforts to compete by electronic markets and regional stock exchanges were repeatedly frustrated. This was not accidental, there were artificial barriers created by the NYSE's manual trading model and rules as discussed below.

Nasdaq, whose system had become fully electronic at the end of the 90s, faced intense competition from alternative trading systems (ATSs). The growth of ATSs accelerated once Nasdaq went fully electronic, fueled, in part, by the development of Smart Order Routers (SORs) that aggregated liquidity for traders across all electronically accessible markets that published quote feeds. There were over a dozen ATSs formed, and, contrary to today's landscape where ATSs are all "dark", in those days, most displayed visible quotes based on their order books. (ATSs that display quotes are called Electronic Communication Networks or ECNs). M&A activity in the ECN space was intense, however, with Nasdaq buying two of its main competitors (Instinet, which had earlier bought Island forming the largest ECN, and Brut, which had earlier merged with Strike, and was purchased mainly for its routing broker). Nasdaq's purchasing spree enhanced fears of a "duopoly" consisting of Nasdaq and NYSE, which, brokers feared, would lead to rising costs. That fear, in turn, led to the formation of both BATS, by a consortium led by Tradebot's CEO David Cummings, and DirectEdge, which was formed when a Knight Securities led consortium bought and re-platformed the Attain ECN. Around the same time, Archipelago bought the Pacific Stock Exchange after having earlier merged with Redibook to form another large ECN. Archipelago was then purchased by the NYSE in a reverse takeover to form NYSE Arca in early 2006, inspired, at least in part, by the passage of Regulation NMS.

The NYSE, before the implementation of Regulation NMS, operated a floor based system which required specialist intervention to execute all trades. It did support some automation, such as handheld devices on the floor and the Designated Order Turnaround (DOT) system, but those systems still needed specialist approval to execute orders, even when matched. This made it difficult for SORs to interact with the NYSE and ECNs at the same time, since the NYSE could take a long time to respond to orders. In such an environment, it was hard to argue that institutions were better served by trading away from the NYSE, as most of the trading took place there. The only official system connecting the floor and competing (regional) exchanges was called ITS (Intermarket Trading System), which was slow and not suited for modern SORs. Regional exchanges complained bitterly that the specialists in NY ignored their quotes, despite ITS, making it difficult for them to satisfy their clients. Meanwhile, ECN attempts to compete with the NYSE were frustrated by rules such as NYSE Rule 390, which prohibited member firms from most off exchange trading and by the fact that there were no fully executable quotes from the NYSE to compare to ECN quotes.

¹ See Memorandum of the SEC Division of Trading and Markets to the SEC Market Structure Advisory Committee dated April 30, 2015 regarding Rule 611 of Regulation NMS, available at: <https://www.sec.gov/spotlight/emsac/memo-rule-611-regulation-nms.pdf>.

² Id at 8, quoting the SEC's Concept Release on Equity Market Structure, 75 FR 3594, 3595 (January 21, 2010).

This environment led to the creation of an unlikely coalition of regional exchanges, ECN owners, electronic trading firms and large broker dealers who appealed to the SEC to promote automation and break the NYSE's virtual monopoly. The resulting compromise was to create the OPR for top-of-book quotes and the Locked Market Ban within Regulation NMS. (There was also a ban on sub-penny quotes and a cap on access fees, but those are subjects for different analysis.) With limited exceptions, the OPR was designed to force the NYSE to make their quotes fully and electronically executable to qualify for order protection. It also forced routing firms to access quotes from away markets before trading against their own book at inferior prices. The Locked Market Ban, meanwhile, was promulgated because of the "duopoly" fear. Regional exchanges, ECNs, and their users, were concerned that the NYSE specialists or large Nasdaq market makers would ignore their quotes and choose to lock them instead of routing to their systems. Since most of the markets involved were "maker/taker", this behavior would be costly to these markets since the trader who posted was paid a rebate, while routing to access liquidity incurred an access fee. This difference averaged over a half cent per share, which was (is) quite meaningful.

Today, however, the market has changed and the valid concerns of last decade are mostly irrelevant. First, no exchange has monopoly power anymore³, and it is extremely unlikely that non-automated exchange systems would attract enough order flow to pose a problem.⁴ Second, rules on best execution require brokers to access all displayed liquidity unless the brokers can document reasons why doing so would harm their client. FINRA has explicitly stated that failing to execute a client order because a broker wanted to control their costs would be judged a violation of best execution.⁵ Some participants believe that these rules also apply to exchange routing, but codifying that would be beneficial. Moreover, enhanced best execution rules requiring greater transparency and meaningful data categories published by all market centers including exchanges would help to maintain investor confidence in the markets, particularly retail investors.

Therefore, there is no reason for market participants to have the same fears it did before Regulation NMS was implemented. Not only is that fear misplaced, but keeping the OPR and the Locked Market Ban directly harms investors by increased complexity, wider spreads, and less innovation. The increased complexity caused by these rules has manifested in many new order types, price sliding mechanisms, and message traffic. New order types included many variations of Intermarket Sweep Orders (ISOs), which were explicitly created by the OPR, while price sliding was created by exchanges to avoid having to cancel orders that violate the rules. While there are many variations, price sliding is an exchange service that re-prices a limit order to avoid locking another market, and then, in certain circumstances, re-prices them again if the other market moves. The result of these orders and services, along with competition to predict when an exchange's price is going to catch up with other exchanges, was that message traffic increased substantially. It is, therefore, reasonable, to expect a decrease in message traffic if the OPR and the Locked Market Ban were repealed.

Banning locked markets directly increased the average spread costs paid by investors. For retail investor, locked markets are a "choice" price as they get to choose whether to buy or sell at the

³ See, e.g., BATS Notional Value and Volume Summary for U.S. Exchanges, available at: https://www.bats.com/us/equities/market_share/.

⁴ See also Division of Trading and Market Memorandum at 15, concluding that while trade through rates have declined since the adoption of the OPR, "...factors other than Rule 611 may also have contributed to the lower trade-through rates."

⁵ See FINRA Regulatory Notice 15-46 "Best Execution" November 2015, at 6 ("[F]irms should not allow access fees charged by particular venues to inappropriately affect their routing decisions, and, in general, a firm's routing decisions should not be unduly influenced by a particular venue's fee or rebate structure."), available at: https://www.finra.org/sites/default/files/notice_doc_file_ref/Notice_Regulatory_15-46.pdf.

same price, and do not pay access fees to exchanges. While locked markets are not truly a "choice" price for institutional investors, due to fees, the net spread is much smaller than the minimum one penny increment.

Lastly, the OPR and Locked Market Ban contribute to suppressing innovation. Block trading venues, auction markets, and various other market models are more difficult to implement due to these rules. While best execution rules would still be operative, meaning that venues that ignore significant liquidity will likely attract scrutiny, eliminating the OPR would facilitate market models that match buyers and sellers within a single system. Under the OPR, such systems must either send orders to all displayed quotes and wait for responses, before printing trades outside of the NBBO, or ignore situations where buyers and sellers don't match up at that price. In addition, everyone's "favorite" market structure bogeyman, the speed-bump, would be less contentious if participants were not required to route to venues that have them.

As for market data, in the period before Regulation NMS was passed, market data was allocated based on the number of individual executions reported by each exchange.⁶ This was flawed for two reasons: First, it encouraged tape "shredding", which was reporting a single trade in many small pieces (As an example, a 5000-share trade might have been reported to the SIP as 50 individual 100 share trades). Second, and more important, the rule did not provide any incentives to post displayed quotes, which meant that it did not promote price discovery. To correct this, the a new formula was implemented that is an overly complex compromise solution.

The resulting rule within Reg NMS and the Allocation Amendments to the Joint Industry Plans was a formula with 50% of the revenue to be allocated based on trades and 50% of the revenue based on quotes, but there are flaws in both implementations. The trades component, to remove incentives for tape shredding, contained two changes. First, the new rule introduced the concept of a "qualified trade" (of \$5000) before a trade would count towards the new revenue allocation. This, they reasoned, would reduce the amount of tape shredding, at least to a size of \$5000 per individual trade. Second, they changed the allocation methodology to give half of the credit based on number of trades and half of the credit to the dollar volume of the trades. Interestingly, the SEC calculated that this would decrease the incentive for tape shredding by 87.5%,⁷ so they were aware that there was still an incentive. In addition, this change did not fix the problem that trades which resulted from matched "dark" quotes counted the same as those that occurred when one side of the trade was a displayed quote.

The quote based calculation in the rule is also flawed, although, to be fair, the flaw is directly related to advances in technology. The rule provides "credit" to quotes of at least 1 second duration, whether or not those quotes were executed.⁸ With today's technology, this rule makes no sense, but in those days, when only the fastest trading systems operated sub-second, and the majority of trading was still done by human traders reacting to quote changes, this was defensible. Today, however, with the majority of quote interactions being driven by SORs or algorithms and with modern trading systems operating at speeds per decision that are sub millisecond, it is hopelessly out of date. In addition, the rule is biased in favor of the exchanges that contribute least to price discovery, since it rewards those exchanges that are least likely to trade at a particular price level

⁶ For an overview of market data revenue allocation, see Cecilia Caglio (Federal Reserve Board of Governors) and Stewart Mayhew (Cornerstone Research), "Equity Trading and the Allocation of Market Data Revenue," July 23, 2012.

⁷ See Regulation NMS Adopting Release, 70 FR 37495, 37565 (June 29, 2005). The Federal Reserve/Cornerstone Report indicates a 75% reduction. See id at 20.

⁸ See Regulation NMS Adopting Release, 70 FR at 37568.

Market participants know which exchanges are most likely to get executed first or last when they decide where to post orders. Those that want to get filled, will judge the order queues and each exchange's fill probability and place their orders accordingly. (Those are the orders that the designers of Regulation NMS wanted to promote.) On the other hand, if gaining market data revenue is the goal, participants might place orders on the exchange least likely to be executed, since those orders are more likely to last the requisite one second.

A far better solution would be to base the allocation on the value of trades in each stock resulting from interaction with a displayed quote. Since the goal of the rule is to provide incentive to display quotes for the purpose of promoting price discovery, this solution makes sense. While this would not have been possible before the 2015 SIP upgrade, it is possible today. (That upgrade required exchanges to provide their own quote and trade time-stamps to the SIP).⁹ The logic would be to compare every reported trade on each exchange to that exchange's pre-existing best bid and offer. Any trade printed at a price that matched that exchange's bid or offer from immediately before the trade would qualify for credit. Since each exchange's time-stamp for trade reporting and quoting should be synchronized, it would be relatively transparent and simple to calculate each exchange's allocation per stock. The nature of how to aggregate all of the symbols to calculate the final revenue shares could be decided separately, either by trade weighting, equal weighting, market cap weighting, or some hybrid weighting scheme. It could, however, be completely transparent if the rules were known in advance.

Conclusion

It is quite unfortunate that, even some critics of Regulation NMS, feel the need to preserve these rules, while a "holistic review" is undertaken. In my opinion, that is wrong. While a holistic review of market structure is warranted, de-regulation by eliminating both the OPR and the Locked Market Ban makes obvious sense. (See the appendix for a Q&A that discusses the three most common objections to this reasoning). Simplifying the market data allocation formula would also improve transparency and help align the incentives of market makers and exchanges. In my opinion, the markets, and the regulatory environment have changed sufficiently to warrant immediate action. A holistic review, if history is a guide, will take many years to complete, and therefore, should not be used as a delaying tactic to maintain the status quo.

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I would like to thank the Commission for the opportunity to submit these comments. If the Commission has any questions or would like additional information, please do not hesitate to contact me.

Respectfully submitted,

David M. Weisberger
President, Exquam LLC

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Cc:

⁹ See SEC's approval of the SIP upgrade, available at: <https://www.sec.gov/rules/sro/nms/2015/34-75505.pdf>

The Honorable Michael S. Piwowar, Acting Chairman
The Honorable Kara M. Stein, Commissioner
Gary Goldsholle, Deputy Director, Division of Trading and Markets
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Appendix: Q&A

Q: Why shouldn't the SEC be concerned that eliminating the OPR will disadvantage retail and institutional posted orders?

A: "Best Execution" obligations are a better method of requiring brokers to access liquidity than Rule 611, as that obligation is not limited to the "top of book" and the OPR forces the broker to route orders that they believe will not be in their client's interest.

The OPR only requires that brokers send ISOs to the displayed quantity at the top of the book of other exchanges, which means that when exchanges or brokers satisfy their Rule 611 obligations, they may not interact with displayed retail and institutional orders as they "walk their book" after sending ISOs. (It is worth noting that, retail orders are often not placed at the top of the book as those investors tend to pick one price level and leave their orders at that level). As a result, it is arguable that when brokers or exchange routers rely on satisfying Rule 611 as their de facto standard, that neither best execution nor order protection/trade through protection is satisfied.

In addition, the OPR forces brokers to route orders to access displayed liquidity in at least two circumstances that are not in their client's interest:

1. The analytics of that broker concluded that the liquidity is not likely to be available when they try to access it.
2. The analytics of that broker concluded that accessing that liquidity is likely to harm their client by creating too much market impact, too much information leakage or from the opportunity cost of being forced to trade with a slow venue.

Q: Aren't locked markets a distortion of true trading interests?

A: No. Locked markets in most situations represent a spread of over half a penny in real terms. The passive orders would receive just under 0.3 cents rebate while an aggressive order would incur a cost of 0.3 cents. More important, however, is the fact that the current "ban" on locked markets doesn't ban them; it creates an incentive for competitive "ship and post" activity. Consider this simple example.

Two orders entered on behalf of institutional clients that receive the gross price plus a commission. The first is a buy of 20,000 with 400 showing (The balance is in reserve) on exchange X. Second is a sell of 20,000 with 400 showing on exchange Y. Instead of an immediate cross of 20,000, here is what happens: 400 gets "shipped" by Y to X and Y posts 400 visibly. X prints 400, routes 400 to Y and posts 400 visibly, Y reciprocates and so on, with the result that it takes fifty routed orders and quote changes to complete the orders

Q: How does the OPR interfere with the provision of block liquidity?

A: The OPR requirement harms capital commitment by creating a "Heads you win, tails I lose" situation for brokers. When clients want the immediacy of capital commitment, they used to be free to negotiate with market makers and agree on a net price either on the phone or via a system, but they no longer can. This is because, the broker must first send ISO orders to all

displayed quotes first and wait for those to be either filled or rejected before completing the client execution. It is also worth noting that many brokers have interpreted the “best execution” requirements as meaning that they should sweep the full book (including any reserve quantity that “refreshes”). In situations where this activity uncovers excess liquidity on the book, brokers have to give that improved price to their client, but, when there is none, they are “allowed” to commit capital under the rule. This asymmetrical return profile means that brokers charge more for providing liquidity to all clients. In addition, Rule 611 forces brokers who are willing to commit capital outside of the spread to immediately show their trading interest to the entire street when they sweep the book to enable the trade. Before this rule, a broker who agreed to buy or sell a large position to a client could delay the trade report, keeping the activity quiet while they worked out of the position. Today, however, all the proprietary trading firms that subscribe to market data feeds can reconstruct precisely what happened when a block trade is executed, including how much of the trade was likely provided as a principal fill. This information leakage adds to the cost of block trading and is particularly important when institutions are seeking liquidity in smaller capitalization stocks that trade less volume.

Q: Why should the SEC be concerned about the high levels of message traffic caused by the OPR and Locked Market Ban? Hasn’t modern technology made this issue unimportant?

A: The consideration is not that extra message traffic is difficult to manage per se, but it is an issue in the aggregate. Consider two points:

1. A significant amount of the message traffic under the OPR and Locked Market Ban derives from prop trading firms sending millions of post only orders (non-ISO) to exchanges in situations where they EXPECT to be rejected. They do so, because in the very small percentage of cases where they are NOT rejected, their order is typically near the top of the exchange’s order book queue on a price time priority basis. Such queue placement, in thick order books often results in profitable trades. Market makers call that activity “spoofing”, but while the regulatory definition of spoofing is illegal, this is not. That is because regulators use that term for placing orders without intent to execute and these orders, if not rejected, are intended to execute. If the OPR was eliminated and locked markets allowed, the exchanges would no longer be required to reject those orders and, therefore, this activity would stop.
2. While it's not difficult for market participants in any individual stock to manage the message traffic, the aggregate volumes are an issue. This is a contributing cause to the significant increase in infrastructure and data costs for trading firms. In addition, it puts a very high burden on derivative product market makers. I was recently told by a prominent options market maker, that they routinely have over 1 MILLION active quotes at any point in time, and they need to manage all of them relative to movements in the underlying stocks. That is obviously harder to do with exponentially higher message traffic.