Bloomberg
TRADEBOOK LLC
Member of FINRA/SIPC/NFA

November 4, 2014

Via email: rule-comments@sec.gov

U.S. Securities and Exchange Commission
100 F Street NE
Washington, DC 20549-1090
Attention: Mr. Brent J. Fields, Secretary

Re: The NASDAQ Stock Market LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change Relating to the Algo Test Facility; File No. SR-NASDAQ-2014-097

Dear Mr. Fields:

Bloomberg Tradebook LLC ("Tradebook")[1] appreciates the opportunity to comment on the above-captioned notice ("Notice"),[2] under which The NASDAQ Stock Market ("Exchange") proposes to offer a new testing environment, The NASDAQ OMX Algo Test Facility ("Algo Test Facility").

Tradebook is supportive of the Notice. Efforts to provide the industry with utilities to test algorithms in order to protect the integrity of the markets should be encouraged. However, Tradebook also strongly believes that an algorithm testing facility is just one facet of improving the national market system. For example, the NASDAQ Test Facilities operate in an environment separate from the production environment. Connections and software still need to be moved into production. Arguably, one of the contributing factors to the trading error by Knight Capital Group was the move of algorithms from pre-production to the production environment.

It has been Tradebook's long-standing position that the establishment of a full set of production testing infrastructure is critical in reducing operational risk in the national market system. Tradebook has had numerous discussions with buy-side clients that express widespread support for this view. In fact, on June 19, 2013,

---

1 Bloomberg Tradebook LLC is a registered broker-dealer, operates an Alternative Trading System (ATS) registered with the SEC, is a member of FINRA, Inc., and is a wholly-owned subsidiary of Bloomberg L.P.

2 The NASDAQ Stock Market LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change Relating to the Algo Test Facility ("Notice"), Release No. 34-73315 (October 7, 2014); File No. SR-NASDAQ-2014-097; 79 Fed. Reg. 61672 (October 14, 2014).

Tradebook took the Commission's proposal on Regulation Systems Compliance and Integrity[3] as an opportunity to elevate this important issue and submitted a comment letter dedicated solely to development of such infrastructure and mechanisms that would aid industry-wide testing.[4] The Tradebook Reg SCI Comment Letter is attached hereto in an appendix, and contains an in-depth analysis of Tradebook's views on this topic.

In our view, test tickers that operate in the production environment are the only way to reliably simulate exactly what will happen in the production environment with a live order. It is a way to reduce the risk of software moves from pre-production to production. Tradebook believes that it is essential that all of the exchanges support production test tickers. For example, the Exchange has supported the ZVZZT and ZXZZT test tickers for NASDAQ-listed stocks since the formation of SuperMontage in 2002. The New York Stock Exchange has supported an entirely different unrelated set of test tickers since the formation of the Hybrid system following Regulation NMS. Unfortunately, these test tickers are not supported by the industry at large and are not universally supported end-to-end: from order entry to allocation and clearance. This is one of the reasons why Tradebook continues to believe that the best way to implement a testing infrastructure is for the Commission to set forth a set of principles for production testing for the entirety of the national market system and then let industry participants come up with a solution. In the meantime, Tradebook would like to again express its support for the Algo Test Facility as a positive move to advance testing.

* * *

We appreciate the opportunity to provide Tradebook's views to the Commission on this important issue. If you have any questions or you would like to discuss this matter further, please do not hesitate to contact us.

---

3 See Regulation Systems Compliance and Integrity, Securities Exchange Act Release No. 69077 (March 8, 2013), 78 FR 18084 (March 25, 2013).

4 Letter from Raymond M. Tierney III, President and Chief Executive Officer, and Gary Stone, Chief Strategy Officer, Bloomberg Tradebook LLC, to Elizabeth M. Murphy, Secretary, U.S. Securities and Exchange Commission, dated June 19, 2013 ("Tradebook Reg SCI Comment Letter"). Tradebook has concerns about many of the concepts proposed by Reg SCI, but decided it was best to focus the comment letter on this important issue.

Respectfully submitted,

Raymond M. Tierney III
President and Chief Executive Officer
Bloomberg Tradebook LLC

Gary Stone
Chief Strategy Officer
Bloomberg Tradebook LLC

APPENDIX

Bloomberg
TRADEBOOK LLC
Member of FINRA/SIPC/NFA

June 19, 2013

Via email: rule-comments@sec.gov

U.S. Securities and Exchange Commission
100 F Street N.E.
Washington, DC 20549-1090
Attention: Ms. Elizabeth M. Murphy, Secretary

Re: File No. S7-01-13; Regulation Systems Compliance and Integrity

Ladies and Gentlemen:

Bloomberg Tradebook LLC ("Bloomberg Tradebook")[i] appreciates the opportunity to provide the Securities and Exchange Commission ("Commission") with feedback on the proposed Regulation Systems Compliance and Integrity ("Reg SCI"). We would like to thank you for granting the public an extension to review and comment on this very thoughtful proposal.

Reg SCI seeks to codify, clarify, and enhance the voluntary Automation Review Policy ("ARP") program. As the Commission noted in the Reg SCI proposal, "The goal of an ARP inspection is to evaluate whether an ARP entity's controls over its information technology resources in each domain are consistent with ARP and industry guidelines." The Commission is proposing Reg SCI because the Commission believes that it would decrease operational risk in the national market system by codifying and clarifying standards of careful design, development, testing, maintenance, and surveillance of systems integral to their operations.

Without commenting on the merits of any other aspects of Reg SCI, at this time we very much appreciate and would like to take the opportunity to comment on the "testing" aspect of the proposed regulation, specifically Question 67.

> "Should the Commission require SCI entities to have, and make available to their members or participants, certain infrastructure or mechanisms that would aid industry-wide testing or direct testing with an SCI entity, such as test facilities or test symbols? Why or why not? If so, please specify what types of infrastructures or mechanisms should be required."

From our perspective as a registered broker-dealer that operates an ATS and offers execution algorithms to qualified institutional investors and other broker-dealers, the answer is unequivocally yes. After having numerous discussions on this specific issue with a number of our buy-side clients, we believe that they share our strongly held view that the establishment of a full set of production testing infrastructure is critical in reducing operational risk in the national market system. In describing the production environment, we mean the entirety of the national market system where live equity trading occurs from order generation and execution through to settlement. Finally, we also believe that the Commission should extend this concept, of creating and maintaining a production testing infrastructure, to the new market structure currently being developed under the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Implicit in Question 67 is the Commission's accurate identification of a dramatic weakness in the structure of the national market system, namely that there is currently no integrated end-to-end testing infrastructure for Regulation SCI entities (exchanges / ATSs, broker-dealers, allocation vendors, settlement systems, custodians) in the equity markets.

Both buy-side and sell-side participants cannot test end-to-end connectivity, execution, allocation, settlement and clearing unless they use live orders in the production environment. As a result of the absence of a testing infrastructure, market participants are forced to use live orders to test connectivity, FIX messaging, allocation, and straight-through processing systems. This practice not only increases, but also creates, the very type of operational risk in the national market system that the Commission is concerned about. The practice of testing system infrastructure in a live production environment should not be permitted in markets populated by retail investors.

Notably, many brokers operate "beta" environments in order to test whether FIX connectivity and message passing have been configured correctly. However, these "beta" environments are currently piece-meal, by which we mean that they only allow for testing between the buy side's OMS/EMS, the broker and a limited number of execution venues. They do not represent a comprehensive end-to-end test of the linkages in the national market system from OMS-to-EMS-to-broker-to- execution -to-venue-to- allocation, and finally through to settlement.

Additionally, the beta testing environments are limited because they are not truly reflective of the production environment. In our experience, problems typically occur when moving connectivity from the beta to the production environment. This not only applies to integrated electronic systems, but it also occurs when a client adds a new executing broker relationship. Currently, the only way to test integration from order generation to allocation and then through to final settlement, is in the production environment. Again, this creates, rather than decreases, operational risk in the live national market system where retail investors execute orders.

On the sell-side, because of the lack of end-to-end testing infrastructure, a broker that is changing a clearing relationship or delivery information is forced to do a "hard flip" into production (and then hope for the best). Having just recently changed clearing arrangements, we think that if a full set of production tests could have been completed with buy-side and sell-side participants the risk in this process would have been substantially less. This problem can be addressed through Reg SCI.

There is a solution. In our view, test tickers that operate in the production environment are the only way to reliably simulate exactly what will happen in the production environment with a live order. Currently, NASDAQ OMX provides in their production environment two live test tickers, ZXZZT and ZVZZT. Our recollection is that these tickers were originally set up to aid in market-wide systems testing when the then-Nasdaq Stock Market was migrating from the SuperSoes to the SuperMontage platforms in 2002. They have continued to support these tickers ever since.

Today, all the members of the NASDAQ OMX exchange family (NSDQ, NQBX and NQPX) support these tickers. However, only three of the remaining six exchanges (BATS, BYXX and ARCX) have voluntarily connected to NASDAQ to support these tickers. NYSE Euronext operates a separate set of test tickers (YAATEST and YY2TEST), which to our knowledge are not supported on other exchanges. None of the downstream Regulation SCI entities, such as the allocation vendors or operators of the settlement or custodial services, provide support for any of the execution test tickers.

We believe that the best way to implement a testing infrastructure is for the Commission to set forth a set of principles for production testing for the entirety of the national market system and then to let the industry come up with a solution. In fact, the not-for-profit industry standards group FIXProtocol Ltd (FPL) has created a committee—The FPL Risk Mitigation Symbology Working group—whose objective is to provide the financial community with no-risk test symbology for the production validation of complex trading and portfolio management systems. Under Reg SCI, the Commission should support this initiative by mandating the creation of test tickers and by requiring that they be universally supported by all Regulation SCI entities inhabiting the national market system.

The Commission working with, perhaps, the FPL and other industry participants, should be able to work through issues such as test ticker liquidity, capacity, and stress. For example, the NASDAQ OMX set of test tickers suffer from liquidity issues because there is no mandatory liquidity provision that would require market makers to participate in the testing process. In our view, Reg SCI should require all Regulation SCI entities to universally agree upon and support three types of test tickers. With the Commission's guidance, the industry should be able to determine the feasibly of assigning test tickers a profile—for example, that a test ticker should act like a specific class of stock, such as large-cap, mid-cap or small-cap stocks. Adopting this profile will allow market maker algorithms to make markets in the test ticker. Furthermore, with the Commission's assistance, the industry should be able to explore mandating that designated market makers, and even market making algorithms that are co-located at the exchanges, support the test tickers. In our view, requiring market makers to support this requirement would serve to act as a (small) contribution to the maintenance of a stable and more robust equity market structure for all investors.

We strongly urge the Commission to mandate that **all** Regulation SCI entities set forth in the Commission release support these tickers as "zero funded" obligations in the production environment. This is necessary to allow market participants to complete full end-to-end testing. The sell-side would be able to test with NSCC, and both the sell-side and buy-side would be able to test with the post-trade processing allocation utility Omgeo, DTCC, and their custodians.

Additionally, the Commission should look into applying these principles to other asset classes. In equities, although there is significant fragmentation with liquidity, all executions are centrally cleared at one clearinghouse (i.e., the DTCC). This is not the case with the derivatives markets being regulated under the Dodd-Frank Wall Street Reform and Consumer Protection Act. Under Title VII, clearing will be highly fragmented. Pre-trade buy-side and sell-side investors will select a Futures Commission Merchant (FCM) under the CFTC as well as the clearing entity under the SEC prior to orders being submitted to a Swap Execution Facility. A full set of test tickers will be needed to ensure that order entry, connectivity, and clearing are functioning properly.

We believe that through Reg SCI and the CFTC-SEC Joint Advisory Committee, the Commission can take a leadership role in cross-asset risk mitigation and champion the necessity of test tickers across all trading platforms.

We appreciate the opportunity to offer Bloomberg Tradebook's views to the Commission on these important issues. We hope our comments prove useful to the Commission and its staff in their ongoing deliberations regarding market structure. If the Commission or any members of the staff wish to discuss these matters with us, please let us know.

Respectfully submitted,

Raymond M. Tierney III
President and Chief Executive Officer
Bloomberg Tradebook LLC

Gary Stone
Chief Strategy Officer
Bloomberg Tradebook LLC

[1] Bloomberg Tradebook LLC is a registered broker-dealer, operates an ATS registered with the SEC, is a member of FINRA, Inc., and is a wholly-owned subsidiary of Bloomberg L.P.