HUDSON RIVER TRADING LLC

April 14, 2016

Brent J. Fields
Secretary
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, D.C. 20549

Re: Notice of Proposed Commission Interpretation Regarding Automated Quotations Under Regulation NMS (Release No. 34-77407; File No. S7-03-16)

Dear Mr. Fields:

Hudson River Trading LLC ("Hudson River Trading") appreciates the opportunity to comment on the Proposed Commission Interpretation Regarding Automated Quotations Under Regulation NMS. Hudson River Trading is a global, multi-asset class quantitative trading firm that develops automated trading strategies that provide liquidity and facilitate price discovery on exchanges and alternative trading systems.

The Securities and Exchange Commission (the "Commission") requests comments on whether to interpret "immediate" when determining whether a trading center maintains an "automated quotation" for purposes of Rule 611 of Regulation NMS to include response time delays at trading centers that are *de minimis*, whether intentional or not. The Commission further states that it preliminarily believes that delays of less than one millisecond may be *de minimis*. Hudson River Trading believes that it is impractical to consider intentional and unintentional delays in a similar manner. Intentional delays, such as the delay proposed by IEX, serve to selectively exempt certain order types or aspects of a market from the intentional delay that others are subjected to. Unintentional delays, on the other hand, are generally geographic or technical. In both of these cases, all aspects of the market are subject to the same delays.

In the adopting release of Regulation NMS, the Commission declined to set a maximum response time for a quotation to be considered an automated quotation. Rather, the Commission determined to avoid "specifying a specific time standard that may become obsolete as systems improve over time," and stated that "the standard should be 'immediate' i.e., a trading center's systems should provide the fastest response possible without any programmed delay."

Hudson River Trading agrees with the Commission's decision as it relates to automated quotations from the adopting release. This interpretation provides flexibility for geographic distance delays as well as unintentional technical delays. As Hudson River Trading previously suggested, market centers employing an intentional delay should allow market participants to

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bypass the delay when attempting to access "protected quotations" under Regulation NMS.[1] To the extent that those market centers do not choose to do so, they can operate as manual exchanges without protected quotations under Rules 610 and 611 of Regulation NMS.

Responses to the Commission's Questions

1. *Would delays of less than a millisecond in quotation response times impair a market participant's ability to access a quote or impair efficient compliance with Rule 611?*

Delays of less than a millisecond in quotation response times, as well as delays in quotation dissemination, will impair a market participant's ability to access a quote. The more delayed quotations and access to quotations are, the less accurate a market participant's view of the market will be. Delayed market data and delayed access to quotes result in "stale quotes" – quotes that are no longer available, but appear in the market data feed due to the delay. These stale quotes prevent market participants from updating prices to narrow the spread when a protected quote is delayed, as the locked and crossed market provision of Rule 610 prohibits entering orders that might lock a protected quote. Similarly, stale quotes lead to inefficient order routing as firms route orders to quotes that are less likely to be executed due to the delay. This inefficient order routing leads to firms executing orders at inferior prices.

The Commission has published statistics associated with quote durations on its market structure website.[2] These statistics demonstrate that in the fourth quarter of 2015, over 13% of displayed orders in large stocks are canceled within one millisecond. Since the sender of an order knows it is outstanding immediately upon sending, it may determine to cancel the order at any point after sending it. However, market participants that may want to trade with the order must be informed of the order on a market data feed and respond to it. To the extent that a market with similar order cancelation patterns implemented a one millisecond delay, over 13% of quotes in large stocks would not be available for execution when a firm receives the order on a market data feed and responds to it. In addition, the Commission's data show that over 9% of displayed orders in large stocks are executed within one millisecond. Given that over 20% of orders are either executed or canceled during the first millisecond they were displayed, it seems likely that a one millisecond delay would have a material impact on a participant's ability to access the quotations. Similarly, these stale quotes are likely to block market participants from sending orders aimed at narrowing the spread, thus impeding price discovery.

2. *In the current market, should the Commission interpret "immediate" as including a* de minimis *delay of less than one millisecond? Should the Commission consider other lengths? If so, what should they be?*

One millisecond is not *de minimis* in any context except from the perspective of a human trader. From the perspective of exchanges, one millisecond is over 10 times longer than the response time of most exchanges today. From the perspective of geographical distance, one millisecond is approximately three times the time via fiber between the furthest New Jersey datacenters and

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[1] *See* Letter to Brent J. Fields, Secretary, SEC, from Adam Nunes, Head of Business Development, Hudson River Trading LLC (January 7, 2015).

[2] *See* www.sec.gov/marketstructure/datavis/quotelife_stocks_lg.html#.VwvsexMrLdc

approximately 1/8th the time to Chicago via fiber from the New Jersey datacenters. Further, as described in response to question 1, over 20% of orders are canceled or executed during the first millisecond after being displayed. None of these times are *de minimis* in the context of the speed at which modern markets operate. These statistics support the Commission's decision to not specify a specific time standard when adopting Regulation NMS. The Commission should not specify a one millisecond time standard now, as it is already obsolete.

The Commission does not specify what it means by a one millisecond delay to a quotation. For example, in IEX's case, does it consider both the outbound delay and inbound delay as included in the one millisecond? Both the outbound delay to quotations and any inbound delay impact a market participants' ability to access quotations. It is also unclear how the Commission or market participants would establish that a delay was greater than one millisecond. For example, would geographical distance be considered sufficient to establish an unintentional delay of greater than one millisecond? Similarly, would a market center with no intentional delay that regularly takes more than one millisecond to respond to incoming orders due to slow technology lose automated quotation status? Does the Commission consider exchange policies that require equal cable lengths for colocation users as a delay? Would exchanges be evaluated based on the fastest means of connecting or the slowest means of connecting? Does the Commission consider different means of access as delays? What process would a market participant go through in order to make that determination? Could some market participants consider a quote automated while others consider it manual and, as such, not protected under Regulations NMS? Does the Commission intend to interpret the term "simultaneously" within the context of "intermarket sweep orders"[3] to include a *de minimis* delay of one millisecond to allow market participants similar flexibility with respect to intermarket sweep order routing as it relates to order protection and locking and crossing quotes?

Hudson River Trading believes that the Commission should maintain its current interpretation of automated quotation, which does not provide for intentional delays in access to quotations.

3. *Should the Commission be concerned about market manipulation? If so, specifically, what should the Commission focus on?*

It is incumbent on the Commission in potentially interpreting an intentional one millisecond delay as *de minimis*, as well as on any exchange that seeks to implement such an intentional delay, to contemplate and address the potential for abuse. In IEX's case, one commenter suggested that a firm could engage in a form of "spoofing" by entering an order, waiting for less than 700 microseconds, and canceling the order without the risk of another market participant seeing the order and responding to it. However, that order may provide a false or misleading appearance that could cause other market participants to make trading decisions.[4] To the extent that an exchange's market model creates or increases the likelihood of such an abuse, it is important that the exchange demonstrates the capability to adequately address and police the regulatory risk its model creates.

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[3] *See* Rule 600(b)(30).
[4] *See* Letter to Brent J. Fields, Secretary, SEC, from John Comerford, Executive Managing Director, Global Head of Trading Research, Instinet Holdings Incorporated (March 2, 2016).

4. *Should the Commission consider an alternative interpretation? If so, what should it be?*

Hudson River Trading respectfully suggests that instead of narrowly addressing an interpretation of "immediate" as including a delay of one millisecond in the context of an automated quotation that happens to be an issue with a novel exchange application, the Commission should more broadly review Rules 610 and 611 of Regulation NMS. Together, Rules 610 and 611 have substantially limited the ability of market centers and other market participants to innovate. We are encouraged that the Equity Market Structure Advisory Committee is endeavoring to provide recommendations on these topics.

Conclusion

Hudson River Trading believes the Commission should maintain its existing standard of "immediate" in order for a quotation to qualify as an automated quotation under Regulation NMS. As the Commission's quote duration data demonstrate, a significant portion of orders are either canceled or executed within one millisecond. Interpreting intentional delays of one millisecond or less as *de minimis* would be a material change as it could affect access to over 20% of protected quotes on delayed markets.

While Hudson River Trading commends the Commission on promoting innovation, we respectfully suggest that some innovative models should be afforded exchange status, but not be provided with automated quotation status.[5] Such an approach would allow innovative models to meaningfully participate in the market without the potentially negative consequences associated with their features that are not fully consistent with Regulation NMS. In the case of market centers that seek to implement intentional delays, to the extent that it otherwise satisfies the requirements of an exchange, it could be granted exchange status, but not automated quotation status. To the extent that the market center can demonstrate that its intentional delay does not impair market participants' access to its quotations, it could petition the Commission for automated quotation status. Further, as IEX has demonstrated in their revised routing methodology, firms can alter their features to conform to current rules while still achieving their innovative objectives. To that end, Hudson River Trading has previously suggested an approach that would allow IEX to provide immediate access to its quote while protecting its pegged orders from trading immediately prior to price changes.[6]

Please do not hesitate to contact me if you have any questions or would like to discuss this letter.

Sincerely,

/s/ Adam Nunes

Adam Nunes
Head of Business Development

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[5] The Canadian Securities Administrators recently approved rules to no longer protect markets that implement intentional delays under their Order Protection Rule. See "CSA Notice of Approval, Amendments to National Instrument 23-101 Trading Rules and Companion Policy 23-101CP to National Instrument 23-101 Trading Rules."

[6] *See* Letter to Brent J. Fields, Secretary, SEC, from Adam Nunes, Head of Business Development, Hudson River Trading LLC (January 7, 2015).