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MANAGEMENT

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December 21, 2018

Mr. Brent J. Fields, Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

RE: Release No. 34-84599, File No. SR-CboeEDGA-2018-017;
Release No. 34-84661, File No. SR-CboeEDGX-2018-055;
Release No. 34-84652, File No. SR-CboeBYX-2018-024; and
Release No. 34-84653, File No. SR-CboeBZX-2018-083.

Dear Mr. Fields:

Quantitative Investment Management, LLC (“QIM”)¹ appreciates the opportunity to comment on the above referenced CBOE fee changes.² While QIM has opted to outsource its execution algorithms to third party providers, we work closely with the operators of these algorithms to assess execution quality. As part of our efforts, QIM seeks to maintain complete independent records of trading fees and rebates for every single trade execution. QIM considers it essential to understand the net price of each transaction. For example, a \$0.0030 credit or debit can substantially change our view on fill quality and impact future decisions on venue selection. Decisions made based on this fill level analysis can aggregate to have meaningful effects on our clients’ returns.

The CBOE change applied on November 1st, which was announced on the afternoon or evening of October 31st and posted to the Securities and Exchange Commission (the “Commission”) website on November 15th, has been disruptive. If traders hoped to properly account for trading costs in their venue selection the first day this change took place, they were left with less than 20 hours to (i) see the notice, (ii) understand the impact, (iii) manually update routing tables by

¹ QIM is an SEC-Registered Investment Adviser and operates a systematic equity hedge fund on behalf of our clients. We trade equities and ETFs on each NMS exchange and many alternative trading systems via connectivity operated by our broker/dealer counterparties.

² Cboe EDGA Exchange, Inc. *Notice of Filing and Immediate Effectiveness of a Proposed Rule Change Relating to Amend the Exchange’s Fee Schedule Applicable to its Equities Trading Platform*, SEC, Exch. Act Rel. No. 34-84599, Nov. 15, 2018, available at <https://www.sec.gov/rules/sro/cboeedga/2018/34-84599.pdf>

translating the text in a document to one's software, (iv) test that costs would be accurately calculated, and (v) deploy changes to production. It is our assessment that this was not completed industry wide on November 1st. As a result, we believe many market participants were adversely affected (specifically, by the fee change related to passive orders on EDGA). Unfortunately, this announcement is one of many such disruptive changes instituted by exchanges on a regular basis. After reviewing the Healthy Markets letter dated December 10th,³ we feel that it is necessary to add to their voice and state that we expect more from self-regulated exchanges.

QIM has grown increasingly frustrated with the frequency of changes of this nature. They create uncertainty in execution and billing which we believe does not further the promise of fair and orderly markets. Further, these changes create explicit costs and hardship to QIM and its broker/dealers that are tasked with ensuring systems stay up to date.

As a practitioner, we request that the Commission acknowledge the ongoing disruption and uncertainty these fee changes create. As part of this acknowledgement, the Commission should encourage the SRO exchanges to mitigate the costs and risks to the trading community of adapting to these changes.

When the community steps back from the nuance of each fee code and assesses the system as a whole, most would acknowledge that managing exchange fee tables is overly complex, particularly when one works with multiple broker/dealers. For nearly every fee-sensitive participant, each fee change requested by exchanges triggers a review of the change and often a subsequent production change. These efforts must be taken each and every time to ensure that the new fee is properly reflected in one's smart order routing tables. Industry wide, a change such as the CBOE change creates thousands of hours of human review and hundreds of changes to production systems. A few simple changes could improve execution quality and mitigate the risks associated with change management. Furthermore, these changes could reduce the management cost of execution software and post-trade analytical systems. Accordingly, we believe the Commission should require exchanges to:

1. Limit fee changes to quarterly.
2. Require two weeks' public notice for any fee change.
3. Eliminate the retroactive application of fee changes.
4. Remove pricing differences in Tape A, B, C securities.

³ Letter from Tyler Gellasch, Executive Director, Healthy Markets Association to Brent J. Fields, Secretary, Securities and Exchange Commission, dated December 10, 2018 available at <https://www.sec.gov/comments/sr-cboeedga-2018-017/srcboeedga2018017-4742331-176809.pdf>

5. In addition to Exhibit 5, require exchanges to publish fee structures in a machine-readable format with date in which the fee structure takes effect.
6. Require the inclusion of labels for any variable fee liquidity flag, but moving forward, exchanges should work to remove any variable fee tags and make each liquidity flag explicit on trade.
7. Require the history of fee changes to be maintained and available on the exchange website in human and machine readable formats.
8. If the Commission continues to allow exchange volume-based incentive tiers, the tiers and corresponding fees should be applied for the following month, on the first trade date of the month. The cost to trade on any exchange should be expressly deterministic at the time of trade. Investors should not be beholden to a broker's ability to hit a specific tier until the end of the month, they should know in advance.

We believe it is incumbent upon the Commission to bring SRO exchanges, broker/dealers and participants together to develop open source software to process and manage exchange fee complexity. We further believe that instituting the practices recommended above would make our public markets operate in a more fair, orderly, and productive manner. These efficiencies would ultimately be returned to investors as venue selection improves and operational fees decrease. Should you have any questions or request follow up, please contact us at [REDACTED]

[REDACTED] or [REDACTED].

Sincerely,



Jaffray Woodruff
CEO & Chairman

Michael Ledwith
Head of Algorithmic Trading