The Pre-Trade Functionality Subcommittee[1]
of the
CFTC Technology Advisory Committee

Recommendations on Pre-Trade Practices for Trading Firms, Clearing Firms and Exchanges involved in Direct Market Access

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Objective: the PFS is charged with recommending pre-trade measures that would preserve market integrity in cases of direct market access.

Introduction

Electronic trading of both equities and derivative instruments has generated many benefits (dramatically lower costs, wider and greater participation in markets, greater transparency to both market participants and regulators, faster market access, and substantially greater liquidity) but may have also created new risks. The purpose of these recommendations is to preserve these benefits, while significantly reducing the possible risks associated with one aspect of electronic trading, direct market access, wherein the trading firm is given direct access to the exchange's matching engine (sometimes passing through the risk screens of an exchange or the clearing firm or of a vendor, and sometimes not).

There are three levels in the electronic trading 'supply chain' where pre-trade risk controls could happen: trading firms (as principal or as agent), clearing firms (as principal or agent), and exchanges. The interests of all three are aligned at the macro level in benefitting from vibrant, active markets that are viewed by end users as having a high level of integrity. There are, however, some tensions at the micro level, in the specific costs and incentives for bearing responsibility and for implementing protections. We believe strongly that all three levels of the supply chain should institute pre-trade risk management measures. We also believe that both macro and micro-level incentives have led many trading firms, clearing brokers and exchanges to already implement many of these protections on a voluntary basis, but to varying degrees.

The PFS has been guided by the following considerations:

- Preserving the dynamism of our industry – Because the industry is still evolving, we must be careful to create rules that protect market integrity without unnecessarily impeding the technological creativity and dynamism of the marketplace
- All hands on deck – As mentioned, there are three key participants in DMA (the trading firms, the clearing firms, and the exchanges) and we feel that to be successful, all three of these participants must be part of the effort to preserve market integrity.

[1] PFS Members: Gary DeWaal (Newedge), Bryan Durkin (CME Group), Michael Gorham, chair, (IIT Stuart School of Business), Chuck Vice (ICE), Chuck Whitman (Infinium).

- Incentives - We must be aware of the incentives of each of the three DMA participants and insist that any solutions proposed are based on a realistic view of these incentives. Specifically,
    - Trading firms are competing with one another to have the smallest time delays (lowest latency) in getting their orders into the exchange's matching engine, and are thus negotiating with brokers to reduce latency. At the same time they are trying to protect their capital from rogue trading, technological deficiencies or other adverse, unintended events.
    - Brokers (clearing FCMs) are competing with one another to attract the business of these high-volume, speed-seeking trading firms, and are thus trying to reduce latency. At the same time, they are trying to protect themselves from loss due to unauthorized trading by their trading firm clients or other adverse, unintended events.
    - Exchanges (Designated Contract Markets, or DCMs, and Foreign Boards of Trade, or FBOTs) are competing with one another to provide low latency execution, and will soon be competing with Swaps Execution Facilities (SEFs), to attract the business of these trading firms.
- Fairness – The risk measures proposed should ensure
    - That one trading firm is not disadvantaged over another, because its clearing firm chose to act more responsibly. We must prevent a race to the bottom.
    - Exchanges are not disadvantaged relative to SEFs (which will soon be competing directly against exchanges), because of differential treatment. We feel strongly that any pre-trade functionality requirements should be applied equally to DCMs, FBOTs (that provide direct access to US persons), and SEFs. Again, we must prevent a race to the bottom.
- Coordination with the SEC – The FCM clearing firms that are also broker-dealers would benefit from the simplicity and consistency of having, to the greatest extent possible, a single regulatory approach to pre-trade risk management across equity and derivatives markets. While the SEC has historically put most of the burden solely on the broker-dealers in the equity markets, trading firms and all market access points, (eg, exchanges or ECNs) in the equity markets should be held to the same or similar pre-trade obligations as those recommended and adopted for derivatives markets. Pre-trade risk controls are particularly important for any exchange or ECN offering direct market access, and these requirements should be extended to SEFs.

Recommended Pre-Trade Risk Management Measures

What follows are our recommendations for trading firms, clearing firms, and exchanges. Each participant must share in the effort to preserve the integrity of our markets in a time of very rapid technological change.

Trading Firms

For trading firms, the FIA PTG white paper on Trading Best Practices is an excellent guide. The challenge at this level of the supply chain is enforcement. Trading software is complex, trading algorithms are sensitive intellectual property, and technology platforms range widely (software, operating systems) as

do infrastructure choices (e.g. network hardware). There are also a large number of trading firms, exponentially more than the downstream levels (clearing and exchanges). The only way to independently enforce any sort of specific regulations on quality assurance (QA) for trading firms would be to have a virtual army of CFTC employed QA professionals who have complete access to all trading firms intellectual property *at all times*. This would be prohibitively costly and virtually impossible to implement. We recommend that trading firms be required to demonstrate to the exchange the existence of reasonable measures in their processes and systems before being approved to trade. In many ways, this represents the status quo as exchanges require certification of market data feed handlers and order routing gateways that connect directly to their systems. They also have the right to review supervisory procedures, including software QA. It would reduce costs and increase transparency if the elements of this process that do not involve exchange specific technology were standardized rather than performed individually at the exchange level. We recommend considering the establishment of a standard process by which firms submit and maintain documentation of their implementations of the following capabilities:

- Pre-Trade quantity limits on individual orders. Orders where the quantity exceeds the specified limit would be caught before being sent to an exchange, and rejected internally (so never sent to the exchange).
- Pre-Trade price collars. Orders where the price is too far away from the current market would be caught, rejected internally, and never sent to the exchange.
- Execution Throttles. If a particular algorithm or group of algorithms receives too many fills over a specified period of time, it will disable that algorithm (or group) and prevent it from placing new orders until there is human intervention to verify that the system is functioning properly.
- Message Throttles. If a particular algorithm or group of algorithms sends too many messages in a specified period of time, it will disable that algorithm (or group) and prevent it (them) from placing new orders until there is human verification that the system is functioning properly.
- Kill Button. As a failsafe, every firm should have the capability to simultaneously cancel all existing orders, and to prevent the entire firm from placing any new orders.

To be clear, the goal would be for trading firms to demonstrate to the exchange these capabilities and to describe their implementations and the internal procedures for maintaining them – not the specific parameters in effect at a given time (these would continue to be subject to review, which is the current practice). All of these (except the Kill Button) could be parameterized at the individual trader/product level, or at higher levels, at the discretion of the individual firm. Specific parameters would not be required to be reported as part of this process, but the internal procedures for setting and changing them would be (e.g. who requests a change, who can approve the request and under what circumstances, etc.), as would the high level design of the protection (whether it sits in individual trading engines, on the order routing gateways, etc.)

Clearing Firms

Clearing firms should be required to institute reasonable measures to confirm that their client trading firms generally implement the pre-trade controls mentioned above. This is a sensitive issue as the trading firms will generally not want clearing firm personnel examining their proprietary code. Therefore, the clearing firms will have to rely on written certification from the trading firm, and from the trading firm's hosting independent software vendor (ISV), that the functionalities are in place and being used with parameters agreed to by the clearing firm. Specifically,

- Whether the pre-trade functionalities are developed by the clearing firm, by the trading firm or by an ISV,
    - The parameters used must be agreed to by the clearing firm and cannot be changed without permission from the clearing firm.
    - The kill button must be accessible to both the trading firm and the clearing firm
- The trading firm must certify in writing to the clearing firm that it is using the functionalities for all trading done through the clearing firm, is using the parameters, or parameter ranges, agreed to by the clearing firm and will not alter the parameters outside of the agreed upon ranges without the permission of the clearing firm. In cases where an ISV is hosting the trading firm's algorithms on its own server, the ISV will also have to certify that the pre-trade functionalities have been integrated into the client's trading system with the parameters agreed to by the clearing firm.

In addition, clearing firms trading on their own behalf should comply with all the requirements listed in the earlier section on trading firms.

Exchanges

The exchanges are the point furthest downstream, so coordination at this level has the greatest leverage to impact the industry as a whole. Some measure of standardization of pre-trade risk controls at the exchange level is the cheapest, most effective and most robust path to addressing the Commission's concern. The challenges center around costs, which would be spread out somewhat across the supply chain, but would be borne largely by the exchanges; and around intellectual property, as many exchanges develop, own and manage their own technology.

Many of the features that we see as robust protections against erroneous or otherwise problematic order flow already exist, in some form, at most trading portals. In some cases, they are only used when a trading firm requests it, which causes substantial incentive problems. For trading firms concerned with minimizing latency, implementing risk checks internally will always be preferable to using the exchange's (where the additional latency is unknown and beyond the firm's control). The risk to the trading firm in electing to use these protections is that they are put at a meaningful latency disadvantage to other firms. This risk is eliminated if the exchange requires *all* firms to use those protections. We recommend that the Commission require each exchange to implement each of the following pre-trade risk controls, and to require all trading firms to use these exchange protections:

- Pre-Trade quantity limits on individual orders. Orders where the quantity exceeds the specified limit would be caught and rejected by the exchange. Currently, most major exchanges have this functionality, with specific limits by product and/or by trading session.
- Intra-day Position Limits. The exchanges should allow clearing firms to set intra-day net long or short position limits for its customers in order to halt potentially errant algorithms. To be clear, the sole purpose of such limits is to enable clearing firms to prevent customers from accumulating positions that exceed levels at which the clearing firm is financially comfortable.
  Pre-Trade price collars. Orders where the price is too far away from the current market would be caught and rejected. Many exchanges have such functions in place, if not active for all products.
- Message Throttles. Parallel to Execution Throttles, the exchange should similarly monitor the incoming messages from an identifiable individual and take action when the rate of messaging is too high.

- Clear Error Trade Policies. While not precisely a pre-trade functionality, it is essential that Exchange Error Trade Policies be clear and consistent. Furthermore, Error Trade Policies should favor trade price adjustment rather than trade cancellation to minimize market disruption due to errors.
- Order cancellation policies. To help clearing firms control risk, exchanges should:
    - Allow clearing firms and their clients to opt for automatic cancellation of orders should the trading firm be disconnected from the exchange network.
    - Provide clearing firms with an order management tool that allows them to view all of their firm's working and filled orders and to cancel working orders.

We feel that if trading firms, clearing firms and exchanges take the steps laid out here the risk of errant algorithms disrupting markets will be significantly reduced. While these recommendations may seem redundant, we strongly believe that an approach of multiple, redundant checks across the supply chain offers the most robust protection to markets. Individual systems will inevitably have problems, but with multiple independent systems performing similar functions, these problems are likely to be caught and addressed before they impact markets.