October 18, 2012

Elizabeth M. Murphy
Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

Re: Technology and Trading: Promoting Stability in Today's Markets (File No. 4-652)

Dear Ms. Murphy:

Hudson River Trading LLC ("Hudson River Trading") appreciates the opportunity to comment on practices that market participants can use to help ensure market integrity and stability, manage their risk, and reduce the occurrence of and mitigate the potential damage from trading errors. 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 ("ATSs"). Our comments are based on our extensive experience developing and deploying automated trading, compliance, and risk management systems globally over more than ten years.

All market participants share a common interest in ensuring and contributing to market integrity and stability. In our highly automated markets, small software errors can be very damaging. Responsible market participation involves deploying practices aimed at reducing and mitigating this risk. Appropriate risk management and testing requires market participants to tailor appropriate controls and policies to their business model and trading strategies. To that end, we caution against a one-size-fits-all approach as it may fail to capture risks associated with some strategies.

Based on the discussion at the roundtable and other comments filed, we would like to provide our comments on: pre-trade controls designed specifically for the trading strategy or activity, post-trade monitoring to capture behavior that cannot be captured through pre-trade controls, the role of kill switches, and effective testing procedures.

Pre-trade Controls

SEC Rule 15c3-5 ("the Market Access Rule") imposes risk and compliance obligations on broker-dealers with direct market access. While the Market Access Rule imposes minimal requirements that are designed to apply broadly to all broker-dealers, responsible market participation and risk management requires firms to design controls and monitoring specific to their business model and trading strategies. These controls should be designed to ensure that the firm's trading activity is in line with its expectations.

These controls could be applied at a granular level such as symbol, trader, customer, or algorithm, depending on the nature of a firm's business. Some potential controls are: number of open orders, orders per second, position limits, loss limits, price integrity limits and capital limits.

While most regulations pertain to a market participant's executed trades, we believe firms should consider the risk associated with unexecuted, open orders. For example, instead of having only limits on capital or positions, firms could also impose pre-trade controls on their potential capital or potential position if all open orders on one side of the market or the other were executed.

Post-trade Monitoring

As many commenters have noted, it is critical to effective risk management for broker-dealers and clearing firms to have an accurate notion of their positions and risk at all times. Most market centers provide real-time drop copies. We encourage market participants to use drop copies to reconcile the firm's notion of trading activity with the market centers' through independent systems. We believe that drop copies should be widely available and free or inexpensive to encourage their use.

Kill Switches

There has been a great deal of discussion of kill switches as a means to improve market integrity. However, it is important to recognize the limitations of exchange provided kill switches. Any single exchange has a partial view of a firm's trading activity and risk position. Any exchange provided kill switch needs to account for the fact that a firm may enter a position on one exchange and close it on another exchange leaving the firm flat, but showing exposure on each exchange. Similarly, a firm may have offsetting positions on another equities, options, futures or foreign exchange or over-the-counter. It is important to note that the sum of a firm's notional exposure limit across all trading venues would likely exceed the firm's capital by large amounts. For example, the sum of a firm's notional exposure could be several billion dollars, while its net capital haircut could be in the tens of millions of dollars. Exchange provided kill switches must also account for the fact that market conditions are dynamic and therefore order arrival rates and the exchanges' view of risk may change abruptly. Furthermore, it is important to recognize the potentially destabilizing impact of false positives on individual firms and market integrity. That being said, we encourage exchanges and market participants to develop additional controls and safeguards at the exchange as we believe that multiple layers of risk checks can provide additional safeguards. We believe any such controls should be simple and easy for market participants to replicate and that exchange personnel, rather than automated systems, make decisions to terminate access to avoid issues with a false positive or a large number of false positives due to the exchange's technology.

Given the number of competing exchanges, ATSs and firms' off-exchange trading activity, only broker-dealers and clearing firms (to the extent they use real-time drop

copies) are in a position to aggregate all of a firm's trading activity and accurately assess the firm's risk position. We believe it is important for exchanges to offer tools that facilitate broker-dealers and clearing firms in managing risk. For example, many exchanges currently provide a "cancel-on-disconnect" feature that cancels open orders when a firm's connection to the exchange is terminated. We encourage the development of similar features that will assist broker-dealers and clearing firms in managing risk.

Testing

While testing cannot be relied upon to catch all potential problems, sound unit and regression testing is critical to trading software development. We believe a firm's internal testing can by enhanced by making exchange provided test facilities widely available and free to use. Similarly, uniform test symbols would allow firms to perform additional testing in the production environment. Uniform production test symbols allow firms to perform testing that takes into account the complex interactions across markets and better mimics actual trading scenarios. Similarly, controlled symbol-by-symbol software roll-outs by exchanges could limit the risk associated with new functionality. It is extremely difficult to recreate in testing activity that closely resembles the live market activity. Many potential issues are revealed not in isolated testing, but in production trading when edge conditions are presented.

Hudson River Trading appreciates the opportunity to submit these comments and is available to meet and discuss them with the Commission and its staff in order to respond to any questions.

Sincerely,

/s/ Adam Nunes
President, HRT Financial LLC