To: Mr. Werner Bijkerk, IOSCO Secretariat
From: Robert Rosenfeld, CFTC Office of International Affairs
Subject: Consultation on *Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency*

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The following responses to the IOSCO Consultation on *Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency* are submitted by the Office of International Affairs (OIA) of the Commodity Futures Trading Commission CFTC), and reflect the contributions of other relevant operating divisions. The staff responses have not, however, been reviewed or affirmatively approved by the CFTC and accordingly, do not constitute a formal policy position of the CFTC. These responses should be described as staff responses in any collation.

Q1 What impact have the technological developments in the markets in recent years had on your own trading? Has it encouraged, discouraged or had no impact on your willingness to participate on the lit markets, and how does this differ between asset classes and/or instruments?

There have been a few major developments in financial markets in recent years that warrant discussion. The first of which is the migration of trading from stock exchange floors and the pits of the futures markets to electronic trading platforms. It is widely believed that electronic trading has allowed a broader set of parties to participate in financial markets and therefore fostered increased competition. It has been observed that transactions costs have decreased relative to the days of floor trading.

After the implementation of electronic trading platforms came the advent and popularization of algorithmic trading and high frequency trading. Algorithmic trading and high frequency have automated much of the trading that takes place in financial markets. Research has shown that these traders has a predominately beneficial impact on markets, providing liquidity and conducting cross market arbitrage to enforce price relationships.

However, both algorithmic and high frequency traders have contributed to periods of heightened price volatility, namely the Flash Crash of May 6th, 2010. According to the CFTC-SEC Joint Report Regarding the Market Events of May 6th, http://www.cftc.gov/ucm/groups/public/@otherif/documents/ifdocs/staff-findings050610.pdf , the Flash Crash was triggered by large selling program executed by a trading algorithm that submitted orders based primarily on trading volume in the market. Furthermore, the volatility observed on May 6th may have been exacerbated by the activities of certain high frequency

traders. This event, along with the recent financial crisis was believed to reduce investor confidence.

Another relevant development is the increased use of dark pools. These venues allow traders with large orders to cross one another away from exchanges without pre trade transparency. As mentioned in the IOSCO report, this concept is nothing new has the "upstairs market" served a similar function during the days of floor trading; however, the increased use of dark pools may serve as evidence of the unwillingness of certain traders to participate in the lit markets.

Q2 What are your views on the suggestion that proprietary trading firms (including HFT firms) that are not currently subject to registration/authorisation by a regulator should be required to obtain such a registration/authorisation? Are there specific regulatory requirements you believe such firms should face?

No response. This is an area that remains under consideration.

To what extent do your answers differ if the proprietary trading firm accesses the market as the customer of an intermediary firm through DEA (i.e. under that intermediary's trading rules/codes) rather than as a direct member of the market itself?

The proposed discontinuation of "naked access" was a strong start when considering Intermediated DEA. In this case, the burden should be on both the intermediary to ensure proper risk management and the soundness of their clients' strategies as well as the client to test their own strategies.

Q3 What recommendations, if any, would you propose to strengthen the regulatory requirements around pre- and post-trade risk controls? In particular, what measures, if any, do you think regulators should introduce that relate specifically to the use of and risks posed by algorithmic trading and/or HFT?

As the speed of trading has increased dramatically in recent years, liquidity can evaporate and prices can now move drastically before human traders can even comprehend what happened. As evidenced by the market events of May 6th, 2010, cascades of market and stop loss orders can execute within milliseconds moving prices significantly. It has become apparent that the current structure of financial markets calls for both pre-trade and post-trade controls. CME group applies pre-trade controls in their markets including the CME Stop Logic Functionality in their E-mini S&P 500 futures contract. While we acknowledge the utility of these controls, further monitoring of the use of these controls is appropriate to ensure that they are configured optimally.

Regarding post-trade controls, financial markets have become increasingly interconnected and system-wide trading halts/circuit breakers across both equity and equity derivatives markets should be seriously considered.

Q4 To what extent do you believe the use of trading control mechanisms such as circuit breakers and limit-up/limit-down systems by trading venues should be mandated? If you believe they should be mandated, should venue operators be permitted to design their own controls or should they be harmonised/coordinated across venues (including between interrelated instruments such as a derivative and its underlying)?

suggests that trading control mechanisms should be mandated in order to ensure the integrity of financial markets and bolster investor confidence. In certain markets, venue operators could be permitted to design their own controls. However, in systemically important markets such as equity, equity derivatives, and equity ETFs markets, trading control mechanisms should be harmonized. The Flash Crash of May 6th again serves as an example of how volatility in one market could be transferred to other markets within a matter of seconds, even milliseconds.

CFTC proposed rule 38.255 requires that a registered futures exchange have effective risk controls to reduce the potential risk of market disruptions and ensure orderly market conditions. Such controls would include market restrictions that pause or halt trading in market conditions prescribed by the futures exchange. If a contract is linked to, or a substitute form other contracts on the futures exchange or on other trading venues, such risk controls must, to the extent practicable, be coordinated with any similar controls placed on these other contracts. See 75 FR at 80584. See proposed rules at:
http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2010-31458a.pdf

Q5 To what extent do you believe market maker schemes offered by trading venues should be subject to mandatory minimum criteria? Should the criteria be determined by the trading venue alone? To what extent do you agree with the suggestion that the use of stub quotes should be prohibited?

Regulators and trading venues should coordinate efforts in order to appropriately regulate market makers. Stub quotes were a clear contributor to the volatility observed in the equity markets on the day of the Flash Crash allowing trades in individual equities to be transacted at prices as low as penny or as high as $100,000. Some staff believe that the distance from prevailing market prices that they are allowed be submitted at should be greatly reduced.

The more serious question regarding market making is how to provide incentives to market makers so that they can provide liquidity during periods of market stress. On May 6th, many of these traders withdrew from markets and liquidity disappeared, further exacerbating the Flash Crash. Several proposals have been made and implemented by exchanges including make/take rebates and peak load pricing**.**

Q6 Do you have suggestions for improvements to regulators' surveillance capabilities with respect to the markets and modern trading techniques? Please elaborate.

In general:
There is a need to adapt to a constantly evolving financial marketplace and to have adequate funding to invest in technological infrastructure. The CFTC has proposed revised rules and

amended guidance, which would apply to the designation and operation of futures markets. Many of the proposed enhancements reflect changes that respond to technological developments, such as the need for real-time monitoring and risk-controls for trading. Although the rules are proposed and therefore subject to modification, the proposals illustrate responses to technological change. See proposed rules at:
http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2010-31458a.pdf

With respect to co-location:
To the extent that regulators can monitor co-location, the CFTC is currently working on establishing rules and regulations to ensure that Designated Contract Markets ("DCMs") and Exempt Commercial Markets ("ECMs") that list Significant Price Discovery Contracts ("SPDCs") offer co-location services on an equal access basis. *See* Co-Location/Proximity Hosting Services Proposed Rulemaking, 75 FR 33198 (June 11, 2010).
http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2010-13613a.pdf

The proposed regulations also would require that fees for such co-location services are equitable, uniform and non-discriminatory. The proposed regulations would additionally require that DCMs and ECMs with SPDCs ("exchanges") that offer co-location services have or be able to obtain all necessary information about any third-party service providers to meet the exchanges' self-regulatory obligations and would ensure that information about latency within a co-location system is transparent and available to market participants.

The purpose of establishing rules, such as those explained above, is to assist the Commission in overseeing the co-location aspect of modern trading. Additionally, providing transparency and fair access to such co-location services will help address some of the issues raised in the report such as distortion of competition and reduced fairness and integrity.

Who should bear the cost of investing in such capabilities and the cost of operating and supervising the markets in order to ensure fairness among market participants? Please elaborate.

Both regulators and trading venues have incentives to be able to effectively operate and supervise markets in order to ensure fairness among market participants and market integrity. As exchanges have demutualized and become for-profit entities, they have an incentive to ensure market integrity and fairness in order to attract a broader set of participants and increased trading activity at their venues. Supervisory capabilities are very important to regulators in order to carry out their mission to ensure the integrity and fairness of financial markets. Accordingly, both trading venues and the regulators should both bear the costs of operating and supervising financial markets.

Q7 What do you perceive as the major causes of settlement indiscipline and settlement failures? What steps, if any, do you believe regulators should take to address these causes?

No response.

Q8 Have the appropriate steps been taken to limit or manage conflicts of interest that arise where an investment firm simultaneously conducts client-serving activities and proprietary trading or a trading participant is also a shareholder in a venue on which it trades? If you believe conflicts management is inadequate, please explain how this manifests itself and any recommendation you have for how conflicts management could be improved.

Historically, there have been a controls implemented by regulators to address client serving/proprietary trading. As a result, firms utilize "Chinese Walls" to prevent flows of information that would result in conflicts of interest. Of course, these regulations are violated by firms in practice. However, in the cases that they are identified, regulators deal firmly with the violators.

There hasn't been as much clarity regarding conflicts of interest involving trading participants that are shareholders of a trading venue they trade on.

Q9 Do you think existing laws and rules on market abuse and disorderly trading cover computer generated orders and are relevant in today's market environment?

With the advent of algorithmic trading, stakeholders have raised concerns about trading practices such as "spoofing", "quote stuffing", and "momentum ignition" possibly employed by these traders. As a result, the CFTC, has been working on rulemaking for anti-disruptive trading practices as mandated by the Dodd-Frank Act. See proposed interpretative guidance on anti-disruptive practices at:
http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2011-6398a.pdf

In addition, CFTC staff is conducting research in order to review these concerns.

The CFTC has also promulgated a new anti-fraud and anti-manipulation rule, modeled on the Securities and Exchange Commission Rule 10b-5. The CFTC rule broadly prohibits manipulative and deceptive devices and contrivances, employed intentionally or recklessly, regardless of whether the conduct in question was intended to create an artificial price.
See final rule at http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2011-17549a.pdf

Q10 Are there any strategies employed by HFT firms that raise particular concerns? If so, how would you recommend that regulators address them?

As previously mentioned, the possibility of these strategies employing disruptive trading strategies such as "quote stuffing", "spoofing", and "momentum ignition" are of concern as they could potentially dislocated financial markets. Furthermore while much the extant academic research regarding HFT firms has shown that their presence has been beneficial to markets, the CFTC-SEC joint report on the events of May 6 showed that high frequency traders exacerbated the volatility observed on that day.

Q11 Should charges or fees be imposed on messages, cancellations or high order-to-trade ratios? If so, how should the fees or charges be determined and on what basis?

Staff believes that trading venues should consider discouraging excessive cancellation activity. However, staff has not ascertained which approach would be optimal. Fees being imposed on messages, cancellations, and high order-to-trade ratios are all alternatives to address this issues. However, the specific configuration of these fees schedule should be assessed on a market by market basis in order to fit the underlying market structure.

Q12 Should market operators be required to make their co-location services available on a fair and non-discriminatory basis?

Yes. The Commission has proposed regulations that would require designated contract markets (DCMs) and exempt commercial markets (ECMs) with significant price discovery contracts (SPDCs) that offer co-location services to offer such services on an equal access basis and for any fees for such services to be charged on an equitable, uniform and non-discriminatory basis. See Question 6.

Q13 Should market operators be required to provide testing environments to enable participants in stress test their algorithms? If so, what kind of minimum requirements are reasonable?

Although not required, some trading venues have provided trading firms with development environments to test their strategies. These have proven to be beneficial for both trading venues and trading firms. Trading firms have useful resources to test their strategies and the trading venues have peace of mind that firms are testing their strategies with realistic market conditions. While development environments provided by market operators would be helpful the burden of adequate testing and safeguarding, the burden should also be with the firms to ensure proper testing and development. This is a very important issue as automated trading strategies have indeed malfunctioned, causing market disruptions in the past. These occurrences may have been prevent with more robust testing by the firms operating the strategies.

Q14 To what extent do you have other comments related to the risks to market integrity and efficiency raised by the issues in this report?

No other comments.