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IOSCO
Attn. Mr. Werner Bijkerk
Calle Oquendo 12
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Dear Mr Bijkerk,

**Re: Your consultation on "Regulatory issues raised by the impact of technological changes on market integrity and efficiency"**

We welcome the opportunity to comment on the consultation report on the impact of technological changes on market integrity and efficiency.

In general we agree with your observations about recent developments. We do note that the technical advancements discussed in the consultation paper are designed to automate or accelerate what has historically been done manually. Therefore, while the existing principles underlying the regulatory framework probably do not need to be amended extensively to provide for technological changes, an analysis of certain issues is warranted. Our main concerns are:

*The development of rules on high frequency trading*

- When developing recommendations it should be taken into account that markets are increasingly global and that increasingly inter-linkages occur between asset classes.
- Generally, the presence of high frequency traders in markets has had a positive impact on liquidity and trading costs.
- "High frequency trading" is hard to define as it is a term that is commonly used for a large spectrum of activities including: index arbitrage, liquidity provision, statistical arbitrage, cross venue arbitrage, retail customers using online broker tools and buy side investors using algorithms.

*The importance of appropriate regulation*

- Regulatory uncertainty impacts trading volumes, to the detriment of prices. In addition to financial stability, any regulatory recommendations should aim to regain customer confidence by focusing on protecting investors, maintaining fair, orderly and efficient markets and facilitating capital formation.
- It is important that regulators stay abreast of technological developments and build and / or maintain sufficient expertise and tools to survey the market appropriately.
- Any recommendations should be proportional to the objectives they are trying to achieve and be subject to a thorough cost benefit analysis for all market participants.

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*Risk controls and trading safeguards*

- Trading safeguards such as circuit breakers, limit up / limit down collars and market maker requirements are important, but the design needs to be analysed thoroughly to assess the impact on market participants including liquidity providers.
- Consistency across markets is essential for investor confidence. In this context we emphasise the importance of more harmonised risk controls at the exchange level as well as a more consistent approach by exchanges to erroneous order handling rules and excessive price movements. Execution venues should not “compete” on risk controls.

Please find our answers to your specific questions in the annex.

We trust the comments in this response are helpful. Please let us know if we can provide any more detail about these issues.

Yours sincerely,

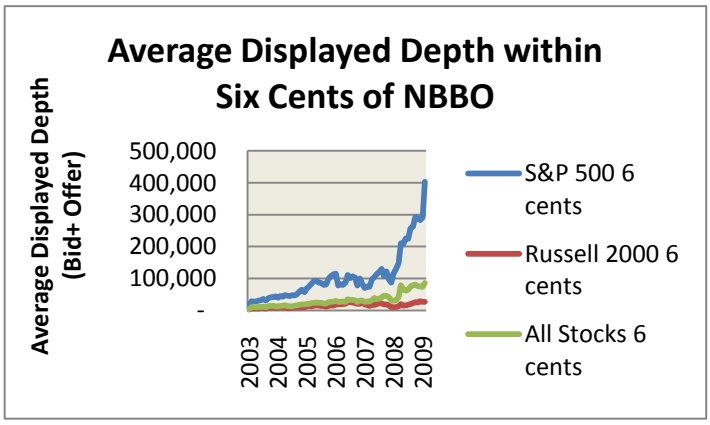
Andrew Procter
Global Head of Government & Regulatory Affairs

**Annex – Questions**

**1. 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?**

*Impact of technological developments*

Recent technological developments, most notably the growth of algorithmic trading and high frequency trading, have had a positive impact on markets, especially with regard to price discovery and liquidity. For equities, this is illustrated, for example, in the graph below.




Our observations do not differ materially by asset class.

As with equities markets, in listed derivative markets the most obvious difference technology has made is speed. The speed with which orders are placed and computed has resulted in risk management having to take place in real time. It has also led to the development of low latency market aggregation and smart order routers. Further, new trading technologies have had an impact on market infrastructure, which can be seen in the increase in straight through processing and, as volumes increase with easier access to markets, more settlements of trades. All of this has led to the development of faster and more sophisticated matching engines at the “back-end” of the trade cycle.

*Our willingness to trade*

The technological improvements have not affected our willingness to participate in markets. However, technological advances have given us the opportunity to use alternative venues, which provide additional sources of liquidity and reduce information leakage. Technological developments have also led to new opportunities for product development. DB has, for example, developed algorithms that clients can use to compete in the new and faster HFT markets without having to develop independent infrastructure or co-location services and without incurring development costs.

**2. 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?**

**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?**

A trader who can enter orders into a public trading venue directly – i.e. without a third party imposing pre-trade checks – should require authorisation. Relevant authorisation criteria would relate to systems and controls, market integrity, business conduct regulation and fitness and propriety of management. On the condition that firm risk controls are required to be in place, we do not believe they should have to adhere to the full prudential standards expected of, for example, investment firms.

We believe that a customer who has access to the market through DEA should not be subject to authorisation. The firm providing DEA has a responsibility to ensure that the customer has sufficient systems and controls in place and that it operates within the confines of regulations and the general interest of market integrity. Requiring DEA customers to obtain an authorisation would saddle them with a large expense which would not be proportionate to their actual activities on the markets and the risks that these activities pose. This creates the risk of liquidity providers leaving the market.

Finally, it is sometimes suggested that high frequency traders should be authorised as such. We would not agree. Traders should be authorised for the type of activities they undertake on the markets, not for the *way* they undertake it. Additionally, we do not feel that a clear definition of high frequency trading could be formulated as activities of those entities commonly seen as high frequency traders diverge greatly.

**3. 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?**

After the "flash crash" in the US, the immediate causes were remedied. Competition between exchanges to attract high frequency business resulted in an absence of prudent risk controls. This led to erroneous order handling, inappropriate controls around stop loss orders and stub quotes (allowing market makers to buy at $0.01 or sell at $999,999.999 if they did not want to or could not provide liquidity). As a result of the remedial measures that were taken in the US, we believe that there is a much stronger regulatory framework around algorithmic trading / HFT.

We note that risk controls for algorithms and / or HFT do not have to differ materially from controls for "traditional" trading strategies. As we mentioned under Q1, new technologies do not alter the basics of buying and selling or the associated risks. What has changed is the need for "real time" risk controls due to the speed at which the trading takes place.

Examples of controls employed by firms for algorithms and HFT are:

- Mass order cancel
- Single order cancel
- Modify / remove restrictions from the restricted list
- Modify daily consideration limits
- Modify maximum order cap limits
- Stop trading

In addition to those we list under Q4, examples of controls trading venues should have in place are:

- Restricted list validations
- Daily limit validation
- Total daily limit
- Per order limit
- Price tolerance check
- Maximum order cap limit

In general, we feel there is scope for introducing more consistency in the way trading venues and investment firms approach and implement risk controls in order to avoid regulatory arbitrage between venues. Exchanges and other trading platforms are crucial in establishing these controls and making sure that they continue to work.

Additionally, we would welcome guidelines for risk controls for firms. While a certain level of prescription in these guidelines would contribute to consistency and a common understanding in the markets of minimum expectations of regulators, any guidelines must allow firms to develop risk controls that best fit their specific organisation, clients, services and – consequently – their individual risk assessments.

Any regulatory requirement should be flexible enough to address emerging risks or specific algorithms, but –importantly - should not form a barrier for new developments.

**4. 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 / co-ordinated across venues (including between interrelated instruments such as a derivative and its underlying)?**

*Limit-up / limit-down systems*

We support the mandating of circuit breakers and limit-up / limit-down systems. By creating a system where trades may occur within a band and where this band may be adjusted in case of "real" price moves, it is ensured that in thin markets small trades are not stopped from being executed. This would render more crude measures such as suspending all trading in a stock unnecessary.

The mechanism should meet the following requirements:

- It should take into account cross product / cross market hedging.
- The time priority of blocked orders should be maintained.
- It should not be possible to cancel trades once executed as this would create uncertainty on the markets.

The design of circuit breakers and / or limit-up / limit-down systems, needs to take into account the inherent conflicts of interests in systems that permit certain exchange members to gain more market share. Any system should guarantee a level playing field for all market participants.

For a more detailed description of our approach to limit up / limit down systems please see our letter on this subject to the SEC (dd. 23 June 2011). Link: http://www.sec.gov/comments/4-631/4631-12.pdf

*Risk controls*

In general, controls should be harmonised across venues. This is clear, for example, from the dynamics on 6 May 2010 around the Liquidity Replenishment Point– which was only in place on the New York Stock Exchange and NASDAQ and which caused trades to flood away from these exchanges to other venues thus becoming a major catalyst of the decline in prices. This is well described in the CFTC-SEC report into the Flash Crash.

In addition to, or as part of, more harmonisation of risk controls, exchanges in general should be much more transparent about the risk controls that they have in place and the objectives of these controls. Non-transparency leads to uncertainty for firms and investors. Due in part to a lack of transparency, at this time we are not confident that exchanges are taking account of the full range of risks associated with trading.

Another reason for the present lack of harmonisation of risk controls are differences in the approaches between exchanges and regulators. For example, the SEC has implemented prescriptive risk management requirements in its Rule 15c3-5 "designed to prevent the entry of orders that exceed appropriate pre-set credit or capital thresholds", while the FSA adheres to the more general principle of exchanges having to take "reasonable care to organise and control its affairs responsibly and effectively, with adequate risk management systems." Although general statements of principle have the benefit of flexibility, a certain degree of prescription could enhance harmonisation and clarity for firms. As an example of a more prescriptive requirement, exchanges could reject buy orders that are placed more than a prescribed number of ticks (or percentage) higher than the offered price or fair value. Likewise, a sell order could be rejected when it is lower than a prescribed number of ticks (or percentage) from the bid price or fair value.

Finally, availability of data is an integral part of risk controls both at exchange and at firm level. Trade data provided by exchanges generally needs to be adjusted by firms in order for it to be useful for monitoring purposes. We would recommend that all exchanges make trade data freely available as part of their service to members.

**5. 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?**

**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.**

In our view, general guidelines should underlie market making in order to retain robustness of markets. Market making is an area on which function venues compete and seek to differentiate themselves. The suggestion that market makers should be required to play a certain role that is prescribed by regulatory requirements seems inappropriate. After all, if a market maker cannot or does not want to take on certain risks, it should not be forced by regulation to do so.

Exchanges should, therefore, be able to determine criteria based on general – harmonised - principles, most notably the existence of sufficient and consistent controls. It should be possible for them to offer appropriate benefits to market makers in order to offset the risks they will take on in the role of market maker. In this context, trading venues should bear the cost of operating and supervising the markets.

We agree that the use of stub quotes should be prohibited.

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

Regulators should provide regulator updates to the market on their primary risk concerns. They should also identify areas in which firms have an information advantage and can, therefore, provide complimentary surveillance capacity.

Consistency of data and data formats would also be an important gain in improving surveillance capabilities. This could be obtained, for example, by the adoption of a legal entity identifier (LEI). Harmonisation of symbology is also important.

Additionally, more cross border and cross asset class co-operation between regulators and – as a result - more consistency in their approaches, would allow firms and venues to adopt more consistent controls and techniques as well, thus optimising surveillance capabilities.

Finally, we note that regulators will only be able to maintain appropriate surveillance capabilities with sufficient funds to invest in expertise and automated systems.

**7. 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?**

Any innovation on the issuing or trading side increases complexity for the post-trading phase, which may increase costs or risk until the market has found a harmonised way of dealing with new requirements (for example, processing variable interest coupons is more complex than distributing interest calculated on fixed interest coupons). It would be counterproductive to take measures that prevent such innovation as this would enforce a dated post trading environment designed at a certain moment in time, based on "old" IT and operational standards, both of which constantly evolve. Robust stress testing of new requirements is needed (see our response to question 13).

Settlement failures can be caused by a multitude of factors, which can be technical or operational (for example, wrongly formatted instructions or failure to input or send in time certain information to trigger processing). The industry is working to automate processes to prevent such operational errors but they cannot be eliminated, especially as many investors communicate with their banks through different communication channels (which are not fully electronic).

A fail can also be caused by a lack of cash or securities (assuming a delivery-versus-payment environment). Trades typically involve a multitude of participants which need to be reflected in the settlement chain. For example, an investor may ask a broker to acquire shares at an electronic trading system using a CCP. The broker will then receive the securities in its settlement account and needs to create another settlement instruction to deliver the shares to the investor's custodian. These back-to-back transactions could cause fails if the purchase of the

securities is not delivered in time, thus preventing the onward delivery. Given the high number of transactions it can be difficult to identify the precise cause of failure.

We agree that the objective of any regulatory approach should be to minimise settlement failures. However, the cost of addressing the entire settlement process increases exponentially as the percentage of settlement decreases. Those markets which de-facto prevent settlement failures (e.g. through mandatory lending, or forced settlement) today are typically the most expensive and complex and therefore inaccessible for remote access by cross-border investors. Hence, any effort should focus on standardised market practice whereby settlement discipline needs to be proportional in terms of costs and benefits. It should be transparent so that market participants can clearly anticipate costs. Also, certain flexibility in the settlement period should be provided to allow multi jurisdictional businesses to operate more efficiently.

Finally, improving the safety of settlement should start well before the settlement process. Both the regulatory community and the industry should continue efforts to work towards standardised communication standards and harmonised securities processing to prevent human error.

**8. 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.**

Yes. Investment firms that simultaneously conduct client-serving and proprietary trading activities must have strict and effective Chinese walls between the teams engaged in these activities, including physical segregation and strict restrictions on any information flows across the wall. Areas such as Prime Brokerage, which provide client portfolio management and trade services, maintain strict confidentiality of client positions, maintaining separation on many levels from the execution trading side of the firm.

Where investment firms are shareholders in a venue on which it trades, there is a clear distinction between the roles as shareholder and liquidity provider. As shareholders, investment firms support the success of the trading venue by providing input and guidance on the optimal structure of trading protocols and product offering, and / or committing to contributing prices and liquidity. However, their access to prices and liquidity will be on a level playing field with other participants as they interact with the venue as a trading partner.

From a governance perspective, staff of member firms who serve as board directors of the company which operates the venue, have a fiduciary responsibility to act in the best interests of the trading venue. Investment firms must manage their representation on competing platforms to avoid individuals becoming conflicted.

User-owned market infrastructure companies have been important drivers of market innovation, providing an independent and neutral venue to deliver benefits such as increased automation and efficiency of trade processes, electronic trading of new products and systemic risk reduction through mechanisms such as clearing. The support of the users is key to ensuring the success of these innovations, as the users provide both insight into the optimal design of the services and protocols, and customer flow to support the service once live.

Furthermore, mutually owned organisations are not unique to financial market infrastructure, and have in many instances been very successful at delivering attractive and competitive service to their users/owners and a wider set of customers.

**9. 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?**

We agree with your statement that HFT and market manipulation should be kept as two distinct concepts and should not be automatically equated.

Market abuse and manipulation rules generally apply to specific instruments and conduct, not to methods of trading. To the extent that computer generated orders relate to these specific instruments and activities, existing rules on market manipulation and market abuse suffice and are (or should be) an intrinsic part of existing risk controls. To the extent that they are not (eg. commodity derivatives in the EU), the scope of the rules should be amended (as is being done in the review of MAD in the EU).

We do not support proposals for deeming or other evidentiary provisions which reverse the onus of proof in cases of alleged market manipulation through HFT.

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

We agree with your description of potential risks and the need of regulators to stay abreast of technological developments. In this regard strong risk controls, most specifically at trading venue level are crucial. Every market participant should be subject to pre-trade checks, which can be tested by regulators. New algorithms should be part of New Product Approval (NPA) processes which assess a firm's capacity to support the process and the potential interaction between the algorithm and the exchange trading rules.

**11. 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?**

Excessive cancel and correct activity on the markets increases market data capacity constraints on data feeds. Therefore, we would agree with the introduction of a way to manage this as far as it concerns truly excessive levels of cancellation volumes. One possibility for reducing the amount of market data generated by unfilled orders could be a gradually increasing fee that makes fill ratios beyond a specific level less and less economically attractive. A condition for this, however, would be less market data fragmentation, specifically in Europe. Also, increased fees should not be a reason for exchanges and other related parties not to invest in data capacity.

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

We agree. There is a limited supply of co location facilities available and therefore there is a risk that providers of those facilities charge unreasonably large fees or artificially restrict the number of positions available.

**13. 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?**

Where market participants request this, market operators should provide a testing environment. This environment should mirror the real market.

In addition, we note that if regulatory changes are introduced, a standard industry test should take place – in co-operation with operators, vendor market data providers and firms - in order to test impact.

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

We note with concern that regulators increasingly favour lit over dark liquidity, in the interest of market integrity. This is clear from principle 3 of IOSCO's Principles for Dark Liquidity, as well as from the rules on dark liquidity that were recently proposed in Canada – partly based on principle 3 -, which state that visible orders must be given priority over dark orders.

Regulatory frameworks should not force liquidity on to lit venues, as there are fundamental reasons why investors want to trade their large orders in a dark pool. As is well documented elsewhere, investors wanting to transact institutional sizes will not want to make these trades visible to the market neither as blocks nor as a series of smaller trades created by an algorithm.