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Dear Mr Das

**Discussion Paper on Strengthening of the Regulatory Framework for Algorithmic Trading & Co-Location (“Discussion Paper”)**

FIA welcomes the opportunity to respond to the Discussion Paper published by the Securities and Exchange Board of India (“SEBI”) on 5 August 2016.

FIA is the leading global trade organisation for the futures, options and centrally cleared derivatives markets, with offices in London, Singapore and Washington, D.C. FIA’s membership includes clearing firms, exchanges, clearinghouses, trading firms and commodities specialists from more than 48 countries as well as technology vendors, lawyers and other professionals serving the industry. FIA’s mission is to support open, transparent and competitive markets, protect and enhance the integrity of the financial system, and promote high standards of professional conduct. As the principal members of derivatives clearinghouses worldwide, FIA’s member firms play a critical role in the reduction of systemic risk in global financial markets. Further information is available at [www.fia.org](http://www.fia.org).

FIA member firms have taken a leadership role in identifying risks and strengthening safeguards in the futures markets globally including those related to automated trading. Since April 2010, FIA has published a number of papers proposing industry best practices and guidelines<sup>1</sup> and we have submitted comprehensive responses to various regulatory proposals around the world.

FIA fully supports the continued development and growth of India’s markets and promotes fairness, transparency and competitiveness in these markets. We are however concerned that some of the proposals in the SEBI Discussion Paper may not necessarily achieve the stated regulatory objectives.

We believe that automated trading technology has provided many benefits to futures market participants around the world. Benefits include lower trading costs and deeper, more liquid markets. Despite significant benefits, automated trading systems may have the capacity to disrupt markets and impair liquidity if they act inappropriately by design or by error. Although no system of controls can prevent all disruptive events, properly placed controls can help to mitigate some of those events. FIA therefore believes that for any automated trading regulatory framework, risk controls are fundamental. FIA believes electronic trading should be subject to appropriate pre-trade and other risk controls and this should be the focus of any regulatory framework for automated trading. A detailed discussion of pre-trade controls and risk controls are set out in *FIA’s Guide to the Development and Operation of Automated Trading Systems*.<sup>2</sup>

<sup>1</sup> These papers were published by FIA itself, FIA Principal Traders Group, and/or FIA European Principal Traders Association: [Market Access Risk Management Recommendations](#) (Apr. 2010); [Recommendations for Risk Controls for Trading Firms](#) (Nov. 2010); [Order Handling Risk Management Recommendations for Executing Brokers](#) (Mar. 2012); [Software Development and Change Management Recommendations](#) (March 2012); [Drop Copy Recommendations](#) (Sept. 2013); [Guide to the Development and Operation of Automated Trading Systems](#) (Mar. 2015)

<sup>2</sup><https://fia.org/sites/default/files/FIA%20Guide%20to%20the%20Development%20and%20Operation%20of%20Automated%20Trading%20Systems.pdf>

In relation to the matters raised in the Discussion Paper, we set out our detailed responses below.

## 1. Minimum Resting Time for Orders

The Discussion Paper discusses possibly requiring orders to rest on market for a specified period of time for example 500 milliseconds. We note the Discussion Paper identifies that there are no current 'resting time' mechanisms being mandated by any regulator.

We urge SEBI to reconsider any possible introduction of minimum resting times to minimise increased market risk. Requiring participants to expose themselves to the risk of a market move for an artificial length of time would cause liquidity providers to adjust their pricing to accommodate the uncertainty of market moves during that period. Imposing such a requirement would have considerable detrimental impacts on market structure and the natural price discovery process as a result of increasing the cost and risks associated with providing liquidity to the marketplace. This may lead to wider spreads, decreases in market liquidity and increased trading costs for underlying investors.

Furthermore, in crisis periods when markets are most volatile, the negative effects of minimum resting times will be most pronounced. By raising the risks of submitting quotes to the market, such rules will likely result in many liquidity providers withdrawing from the market or substantially reducing their activity, precisely when market risks begin to rise and the end-user's need for liquidity is the greatest.

Some government and regulatory studies and reports have supported the above conclusions including:

- The UK Foresight Project which was sponsored and commissioned by the UK Government Office for Science ("**Foresight**"). The final project report entitled the "***The Future of Computer Trading in Financial Markets***" stated that "[t]he independent academic authors who have submitted studies are unanimously doubtful that minimum resting times would be a step in the right direction..."<sup>3</sup> In its accompanying analysis, Foresight explains the economic costs and benefit of liquidity provision, and demonstrates that artificially forcing a limit order to be in place longer will raise costs for liquidity providers and lead to either increased bid-offer spreads or decreased market depth. Foresight reaches a number of additional important conclusions, including that minimum resting periods are likely to (i) inhibit liquidity provision most during time of high market volatility, when liquidity provision is needed most, (ii) reduce competition among market makers, (iii) drive up transaction costs for end users, and (iv) diminish the efficiency of the price determination process.
- In a recent empirical analysis of quote life in the equity markets conducted by staff from the U.S Securities and Exchange Commission ("**SEC**")<sup>4</sup> SEC staff concluded that the majority of quotes that are cancelled have been in force for more than a half second. The debate around minimum resting periods centres largely on whether quotes can be placed but subsequently cancelled before a market participant can access them. However, SEC staff concluded "*that the vast majority of quotes can be accessed by at least some market participants before they are cancelled*" and that "[t]he data does not show a market that is currently dominated by quotes that are canceled so fast that they cannot be accessed." Against this backdrop, SEC staff went on to state that "[s]lowing the ability of liquidity-providers to cancel their quotes without similarly slowing the ability of liquidity-takers to access those quotes would not necessarily slow the market itself, but could disadvantage those who provide liquidity compared to those who take liquidity." This is very disadvantageous for liquidity providers that we believe will harm market quality to address a problem that may not exist.

We believe that SEBI can work with trading venues and exchanges to oversee market integrity and identify abusive activity through improved surveillance rather than changing market structure based on perceptions of inequality regarding market access.

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<sup>3</sup> See pages 111-112 of the Final Project Report on *The Future of Computer Trading in Financial Markets*, published by the Foresight Programme sponsored by the UK Government Office for Science, available at <http://www.bis.gov.uk/assets/foresight/docs/computer-trading/12-1086-future-of-computer-trading-in-financial-markets-report.pdf>.

<sup>4</sup> See <http://www.sec.gov/marketstructure/research/highlight-2013-05.html>.

## 2. Frequent Batch Auctions

The Discussion Paper proposes the introduction of Frequent Batch Auctions (“**FBA**”) to address ‘latency advantage’. This would involve the trading venue compiling buy and sell orders on the order book for a specified period (eg 100 milliseconds). At the end of such period, the trading venue would match orders received during that period.

We believe there is a high probability that FBA would actually increase the cost of providing liquidity such that the net effect would be wider bid-ask spreads and less liquidity than is provided in current continuous market designs. Increased operational risks and difficulties with implementation may lead to pricing discrepancies across markets and also significantly outweigh any perceived benefits of FBA.

Two primary costs of liquidity provision are **inventory risk** and **adverse selection risk**. It is our view that depending on the design of the FBA, both of these costs would actually increase, requiring liquidity providers to widen bid/ask spreads.

In addition, we need to consider the issues of FBA when applied to multiple trading venues. It could be argued that successful and effective implementation of FBA would require every trading venue (both equities and derivatives exchanges) to align with every other trading venue such that each auction period would end at precisely the same instant. Without this level of precise coordination, idiosyncratic arbitrage opportunities may arise reducing the likelihood that the perceived benefits of FBA would be realised.

The cost of implementing such an effort across multiple exchanges in disparate locations is likely to be prohibitively high, if not impossible, particularly when India-based products are also traded on foreign exchanges without similar matching processes. Such an implementation is complex in theory and would be extremely difficult in practice. Further, synchronized FBA would add another potential source of coordination breakdown and increased systemic risk.

Similar conclusions were reached by Foresight which stated that *“Periodic call auctions would have a severe impact on the business model of market makers and may reduce incentives to supply liquidity. It would also seriously affect hedgers who are trying to maintain positions across equities and derivative markets. The current market structure allows a variety of different trading mechanisms and allows for auction-based trading as well as the continuous limit order book in both lit and dark modes. This proposal would limit choice and require quite a drastic change in the trading landscape. Furthermore, it would require coordination at the global level, which may be difficult to achieve.”*<sup>5</sup>

Moreover, FBAs potentially can be accompanied by increased operational risk and floods of messaging in an attempt to secure queue spots in and out of the auction.

Market structure considerations, including the mechanics of matching trades, are complex. A seemingly small change in market structure can result in significant negative and often unintended consequences and costs. Trading venues are uniquely positioned to evaluate the efficacy of matching systems by analysing the specifics of each market and the requirements of market participants. Prior to implementing a change to market structure such as FBA, we believe it is necessary to conduct a comprehensive and thorough analysis to best understand the consequences.

## 3. Random Speed Bumps or Delays in Order Processing/Matching

It is proposed that a speed bump mechanism be introduced which would result in a randomised order processing delay of a few milliseconds. This is to discourage latency-sensitive trading strategies.

Consistent with our concerns with minimum resting times, random speed bumps or intentional delays could negatively impact market liquidity. In particular, liquidity providers would be unable to update their quotes in real time to accurately reflect new information that impacts markets. Forcing a liquidity provider to leave orders exposed to the market for

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<sup>5</sup> See pages 122-123 of the Final Project Report on The Future of Computer Trading in Financial Markets, published by the Foresight Programme sponsored by the UK Government Office for Science, available at <http://www.bis.gov.uk/assets/foresight/docs/computer-trading/12-1086-future-of-computer-trading-in-financial-markets-report.pdf>

random extended periods outside of their control, increases the risk of providing that liquidity and will lead to wider bid-ask spreads, reduced quantity available in the market and increased execution costs for end users.

Further, non-deterministic behavior like the proposed random delays, introduces unjustified uncertainty and risk to the position hedging process. For example, if liquidity providers' hedge orders are randomly delayed they will be less certain of their ability to manage their risk via timely hedging. In order to account for this increased risk, liquidity providers will need to widen their bid-ask spreads and reduce the size of their orders thus increasing execution costs for end-users.

In order to address certain aspects of these concerns, some have proposed random delays for new orders and order modifications while allowing cancel orders to be processed immediately by the matching engine. This effectively offers all liquidity providers the "last-look" ability—a feature of certain markets that is widely considered to have negative impacts on market structure. Specifically, this would create a dynamic where liquidity providers would be given extra time, relative to the rest of the market, to determine if they still wish to trade at a previously posted bid or offer. As we have seen in other markets, this creates an asymmetry in the market that can lead to increased execution uncertainty for end-users of the market.

Operationally, uncertainty regarding the priority of the orders could potentially lead to market participants attempting to send in orders over multiple connections in the hope of improving execution probability. This would increase the messaging volume at exchanges and increase operational risk.

The Discussion Paper also cites examples of trading venues that have introduced some form of randomised order processing delay. However, we wish to highlight that these venues are primarily operating in the foreign exchange space and involve different products, markets and trading behaviours to exchange-traded derivatives markets.

#### **4. Randomisation of Orders Received during a Period**

It is proposed that a mechanism for randomisation of orders be introduced where the time-priority for new or modified orders received during a pre-defined time period (eg 1-2 seconds) are randomised and a new time priority order is forwarded to the trading venue's order matching engine. This is to discourage latency advantages of co-located market participants.

Our concerns on random speed bumps and frequent batch auctions equally apply to the introduction of randomisation of orders.

#### **5. Maximum order Message-to-Trade Ratio Requirement**

It is proposed that a maximum order-to-trade ratio requirement is introduced to require market participants to execute at least one trade for a set number of order messages sent to a trading venue.

We do not object to message rate limits but believe that trading venues should be in control of setting the maximum permitted ratios of unexecuted orders to transactions. It should also be within the trading venue's purview to adjust the limit with advance notice as factors change over time.

There are a number of different methods that trading venues use in relation to messaging controls. Some trading venues establish controls at their gateways that monitor for and either send warnings or even reject orders when certain rates of messages per second are sustained. These situations may involve messaging that could cause latencies and thus affect other market participants. Such messaging may also be indicative of a potentially malfunctioning automated order entry system. This type of control operates in real time and can prevent messages from entering the system.

Another type of control that most trading venues have adopted is a message quality analysis. This type of analysis typically looks at the order-to-trade ratio, which is the ratio of the number of orders to executed volume. For each product group, the acceptable threshold ratios are set by the trading venue and published. When a participant does not meet the ratio over time, say a two-week period, it can be first warned, and then if not corrected it can be issued a surcharge. The surcharge can then escalate if the participant continues messaging in excess of the ratio. It is important

to note that this type of analysis is not done in real time but rather after a session is complete. These types of messaging programs have proven to be very effective in providing incentives for disciplined messaging from participants.

We understand major exchanges in India have already implemented certain messaging limits and controls. We believe trading venues are in the best position to monitor the activity of all market participants and ensure that message rate limits are set at levels that will safeguard the integrity of the market and the trading platform. The trading venue should be responsible for setting a message rate limit for each product based on many factors including the capacity and performance of its network and matching engine, the matching algorithm, and the unique characteristics of the financial instrument, particularly around its liquidity. Message rate limits should not be dynamic since market participants should always know what the limit is, though it should be within the scope of the trading venue to adjust the limit with advance notice as factors change over time.

## **6. Separate Queues for Colo Orders and non-Colo Orders (2 queues)**

It is proposed that a mechanism be introduced where there will be separate queues and order-validation processes for co-located and non-co-located orders.

We believe that such a mechanism would introduce an unnecessarily level of complexity to the trade matching process as well as exchange systems. We believe that such a mechanism would have little to no effect on market dynamics. We expect the market impact would not be sufficient to warrant the market structure complexity and risks this model could potentially introduce. Two queues may also increase market arbitrage as certain investors may look to take advantage of their order flows across two queues.

Regarding co-location generally, we wish to highlight the following:

- Co-location can actually level the playing field if it is provided on fair and equal terms. In manual markets, the tallest person in the pits likely had a physical advantage, while co-location in a data centre can ensure that all participants are treated equally.
- We recommend that exchanges should be required to provide co-location services on fair and equal terms to all market participants and third-party providers that wish to lease space in an exchange's data centre. Space and fees should be equitable with charges being proportionate to the amount of infrastructure taken as opposed to membership status or other criteria. If space or infrastructure is physically limited, exchanges should have policies in place providing for equitable use and allocation of these resources<sup>6</sup>.
- We believe generally that over 90% of market participants directly or indirectly use co-location in the U.S.
- If co-location is not permitted, there could be a rush to acquire real estate in and around exchange data centres. Ownership of and access to those sites could then potentially yield unequal outcomes.

## **7. Review of Tick-by-Tick Data Feed**

The Discussion Paper proposes that markets make available 'Structured Data' containing relevant information including Top 20/Top 30/Top50 bids/asks, market depth etc to all market participants at a prescribed time interval (or as a real-time feed). The intent is to ensure that all market participants have equal access to relevant market information and provide a level playing field for market participants.

FIA is supportive of greater market transparency as it improves the fairness and integrity of the markets. We also believe that increased market data gives market participants a better understanding of the true state of the market giving them a greater ability to make well informed trading and risk management decisions. However, we urge SEBI to consult with the industry to identify the relevant data fields that should be included in any 'structured data feed' to ensure that data is relevant, accessible and delivered appropriately.

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<sup>6</sup> See pages 20-21 of FIA's [Guide to the Development and Operation of Automated Trading Systems](#).

\* \* \*

Thank you for the opportunity to share our views. We fully support the growth and development of India's markets and SEBI's regulatory objective of ensuring markets are fair, open and transparent. However, we are concerned that some of the proposals in the Discussion Paper may not necessarily achieve these regulatory objectives. Instead the proposals may lead to unintended consequences for India's markets including potentially detrimental impacts to market liquidity, increased risk and increased trading costs for investors which outweigh potential regulatory benefits.

We believe that risk controls are fundamental to preserving safe and orderly markets. Ensuring there are appropriate pre-trade and other risk controls should be the focus of any regulatory framework for automated trading.

We encourage SEBI to undertake further detailed analysis into any proposed market structure changes and potentially implement pilot programs for any proposed measures. If SEBI decides to introduce any pilot programs, we urge SEBI to provide market participants with adequate notice and the necessary technical information so that market participants are able to fully prepare for any proposed changes. We believe that SEBI can also work with trading venues and exchanges to enhance market supervision and identify abusive activity through improved surveillance, rather than changing market structure based on perceptions of inequality regarding market access.

We would appreciate the opportunity to continue to work with SEBI on all areas of automated trading and welcome the opportunity to discuss these issues in further detail with you.

If you have any questions, please contact Phuong Trinh, Vice President of Legal & Policy, Asia Pacific at [ptrinh@fia.org](mailto:ptrinh@fia.org) or +65 6549 7335.

Yours faithfully



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