

31 August 2016
Mr. Susanta Kumar Das
Deputy General Manager
Market Regulation Department – Division of Policy
Securities and Exchange Board of India

VIA Email: mrddop@sebi.gov.in

Dear Mr. Das,

Comments on SEBI's discussion paper on Algorithmic Trading and Co-location

Executive Summary

The Asia Securities Industry & Financial Markets Association (ASIFMA) is the leading capital markets association in Asia with over 90 member firms comprising a diverse range of leading financial institutions from both the buy and sell side, including banks, asset managers (whose combined AUM amounts to approximately US\$23.786 trillion), law firms and market infrastructure service providers. ASIFMA also has an active India-based Forum, which is a cross-industry group of both international and domestic financial institutions with subgroups focusing on operations, custody, compliance and sales/trading.

ASIFMA and its members fully appreciate the vital importance of developing regulation that improves the functioning of Indian equity markets. ASIFMA's mission is to promote the development of Asia's capital markets, which includes goals such as promoting increased efficiency, liquidity and transparency. Ultimately the successful further development of Asia's capital markets will reduce the cost of capital and increase rates of economic growth, benefiting Asia's populations.

In that spirit ASIFMA – on behalf of both its buy- and sell-side members – is pleased to submit the following comments on the recently issued discussion paper on “Strengthening of the Regulatory framework for Algorithmic Trading and Co-location.” What follows is a consensus industry view.

The continued development of the Indian equity market is a matter of considerable importance to the ASIFMA membership, many of whom are among the world's most active intermediaries for equity markets around the world, on the one hand, and asset managers, investing in assets for institutional and retail investors in markets around the world, on the other. Both care deeply about market fairness, costs and efficiency, as these create the backdrop for the conduct of their businesses and influence investment results for their clients.. More importantly, market efficiency impacts the cost of capital and hence the prospects for continued vibrant economic growth in the Indian economy.

As an initial premise, we would posit here the general view that the goal of effective regulation is to limit, to the extent feasible, abusive behaviour on the part of market participants. Any measures to achieve this goal should, to the extent possible, do so without constraining legitimate market practices. Where a regulatory response might constrain legitimate market practices in order to address the potential for market abuse, the effectiveness of such measures should be weighed against the costs to the market in

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terms of potential reduction in liquidity and market quality before such measures are finalized and implemented.

ASIFMA also believes it is crucial to recognize the degree to which the evolution of market structure and the accumulated benefits of technology have been enormously beneficial for investors, including retail investors. We strongly believe that we should collectively endeavour to retain the desirable features of modern market structure and make changes only in ways where the benefits clearly outweigh the costs and risks. The risk of proceeding with changes whose impacts are uncertain could damage these benefits and possibly introduce risks that did not previously exist. Such an outcome would be a loss for Indian investors and capital raisers which may potentially hamper the continued development of the Indian equity market, and indeed, the Indian economy.

Impact of Regulatory Measures

Our approach in assessing the proposal is from the standpoint of its potential impact on market quality. The most pervasive calculation impacting bid-ask spreads is the calculation of risk and uncertainty (a view widely confirmed by academic economists¹). Any market conditions or regulatory measures that raise risks lead to wider bid-ask spreads and hence higher trading costs, all else equal. Any market conditions or measures that lower risks have the opposite effect.

Investors' higher perceived risk creates the "demand" for compensatory higher expected returns, implying a reduction in asset prices. The impact of risk on asset values thus in principle affects virtually all market participants.²

Proposals

Minimum Resting Time for Orders (MRTO)

The required investment on the part of industry—exchanges, members, investors, vendors—to adapt systems for minimum resting time orders would be considerable. Its impact is also uncertain. The practical challenges to reprogram systems to manage synchronization of the trading lifecycle would be numerous. Specifically, timing cancellations or amendments to conform to minimum resting times, as well as of management of rejections and cancellation requests from clients that arrive during the resting period would require continuous calculation and re-calculation, adding extreme complexity to trading systems. We note that the U.K. government sponsored a comprehensive study of computerized trading in 2012, known as the "Foresight Project". It commented that the consensus of academic studies was that benefits of minimum resting orders were doubtful.³

¹ Many academic studies have documented this. See, for one example, "Determinants of Bid and Ask Quotes and Implications for the Cost of Trading" 2007 University of Chicago by Michael Yuanjie Zhang, Jeffery R. Russell and Ruey S. Tsay.

² The principle that risk and required return are positively correlated is one of the most fundamental principles of financial economics. Mathematically, it is expressed, for example, in the Capital Asset Pricing Model.

³ *The Future of Computer Trading in Financial Markets*, Government Office for Science, October 2012 ("Foresight Project"). Available at <https://www.gov.uk/government/publications/future-of-computer-trading-in-financial-markets-an-international-perspective>.

Because investors' ability to cancel orders when the market is moving quickly would be constrained, volatility would likely increase, as would the risk of sudden price moves (or "flash crashes"). This increase in risk would have the effect of widening bid-ask spreads and reducing liquidity, which could reduce stock values.

For liquidity providers, there is a direct link between quotation and order amendment capabilities. Introducing a minimum resting time may discourage liquidity providers from tightening their quotes in the market in order to reduce their risk of having stale quotes. This could lead to the unintended consequence of increasing spreads and trading costs for all market participants.

In our view it is questionable whether MRTTO would reduce or eliminate manipulation and is quite possible that it would not achieve the desired effect. It may even create opportunities for new algos to take advantage of stale orders when the market is shifting. In short, we think MRTTO is not advisable as it would bring uncertain benefits at the cost of considerable infrastructure investment, increased risk and reduced market quality.

Frequent Batch Auctions (FBA)

At present, the Taiwan Stock Exchange (TWSE) conducts batch auctions every five seconds. Its experience demonstrates that Frequent Batch Auctions are feasible. Moreover, auction mechanisms have been widely employed in a wide range of markets throughout history in different countries; and as noted in the SEBI paper, India uses a call auction mechanism for illiquid stocks at the NSE, BSE, and MSEI. Most exchanges today use auctions for both market opens and closes.

However, it is also true that the TWSE is the only major stock market in the world that uses frequent batch auctions throughout the trading day. Moreover, the TWSE has been steadily reducing the intervals between auctions. In July 2013 the TWSE shortened the interval between auctions from 20 seconds to 15; in February 2014 the interval was reduced again to 10 seconds; and in December 2014 it was further reduced to 5 seconds, where it remains at present. TWSE has also stated that its intention is to move to a continuous, order-driven market with a central limit order book, i.e., the model employed at virtually every other exchange today.

One reason for the TWSE's intention to transition to a continuous market format is the problem of interactions between the cash equity exchange and corresponding derivatives and futures markets. In particular, Taiwan's equity warrant market trades continuously. An FBA market for equities necessarily would create arbitrage opportunities with underlying equity options (or warrants) as well as futures, especially if there are futures on individual stocks as is the case in India. While arbitrage generally is benign, even essential for fair and efficient markets, arbitrage between an FBA market and underlying derivatives would be driven to some degree by the time lag between the two markets and arguably produce minimal efficiency gains. If FBA were adopted for cash equity markets, it may be advisable to synchronize the auctions with derivatives markets across multiple cash and derivatives exchanges and markets. This would pose considerable system and design challenges.

Moreover, the impact of FBA on liquidity is ambiguous according to academic literature, with some public studies concluding that frequent batch auctions may hurt liquidity.⁴ The Foresight Project, referred to above, stated that periodic call auctions “may reduce incentives to supply liquidity [and] would also seriously affect hedgers....”⁵ An FBA mechanism could also hamper the execution of crosses for block trades, and in the absence of dedicated intraday block crossing board this an important mechanisms for executing large orders while containing impact costs. Thus, the potential advantages of FBA should be weighed against a possible reduction in liquidity and compromised ability to manage risk.

If the goal of FBA is to limit HFT, one should also consider whether it would achieve this. Anecdotal evidence suggests that FBAs would not disincentivise HFT.⁶ Trading decisions, whether based on prices of auction outcomes conducted every 20-30 milliseconds or even every 5 seconds, could not be made by retail investors but would require algorithmic programs. It is thus not clear which market participants would be the beneficiaries of an FBA format.

In our view, the investment in system infrastructure for FBA would also be significant for brokers and would take considerable time to accomplish.

We would urge that FBA be carefully studied prior to making any decision, including further study to determine why it is not in more common use across global markets. The experience of Taiwan, and their intentions to transition to continuous trading format, should be thoroughly considered to ensure that evidence and implications of their extensive experience are taken into account.

In short, frequent batch auctions instead of continuous trading is the option we consider on balance inadvisable. Infrastructure costs would be high, the synchronisation and compatibility challenges across Indian cash and equity markets would be considerable, and the benefits uncertain at best.

Random Speed Bumps or delays in order processing/matching (RSB)

There is limited evidence proving the effectiveness of random speed bumps. At present, there is no concrete example we are aware that shows an improvement in market quality. Worryingly, the introduction of random speed bumps contradicts the principles underpinning fair and orderly markets and would impede best execution, which requires brokers to secure the best price for a trade in the shortest time in the context of time and price priority—earlier orders at a given price are executed first.

System costs for market participants to adapt to RSB would be considerable. Moreover, our professional experience suggests random speed bumps would increase hedging costs of liquidity providers, which would likely increase spreads and trading costs for all market participants. Larry Tabb, founder and CEO of the TABB Group, a respected capital markets research and consulting firm, has stated in a study he authored that adoption of platforms with speedbumps in the U.S. would mean “spreads [will] widen, market structure complexity will increase, retail investors will be hurt, large buy-side firms will pay more, sophisticated trading firms will profit, and the quality of the US equity markets will deteriorate”.⁷

⁴ “Discrete or continuous trading? HFT competition and liquidity on batch auction markets” (2016) New York University by Marlene D. Haas and Marius A. Zoican..

⁵ Foresight Project, p. 122-123.

⁶ To our knowledge, the TWSE does not make public the proportion of HFT trades in total volume.

⁷ *The IEX Exchange: 8 Consequences for Investors*, Larry Tabb, Focus Note, June 20, 2016.

The discussion paper refers to TSXA and ParFX, which apply randomized speed bumps, and other venues (Thomson Reuters Spot Matching and IEX) that intend to do so. Ultimately, the future experiences of such other venues will be valuable for assessing the impact and utility of RSB. ASIFMA believes that random speed bumps would be inadvisable without further careful study of the experience of venues that have adopted it.

In this regard, we suggest that an experimental approach, where RSB is adopted in a limited manner over a narrow set of instruments, would be the prudent course. We note, for example, that IEX is just one trading venue in the U.S. among many. It is too early to say whether their speedbump model will generate benefits to participants, or for that matter, what alternative structures for the RSB model might be superior.

Randomization of orders received during a period (say 1-2 seconds) (RODP)

Our comment on randomization of orders is basically the same as for random speed bumps. Concerns would again focus on increased system costs, lowered liquidity and higher execution costs. As before, we suggest collecting information on the efficacy of RODP at other venues. Taking an experimental, pilot-project approach would seem a sensible way to assess market participants' responses to this or other models.

Maximum order message-to-trade ratio requirements (MOMR)

We believe that proper surveillance of message-to-trade ratios with commensurate follow-up actions by the regulator could be a positive market deterrent which could assist in limiting spoofing while reducing the possibility of quote stuffing. At present, we would recommend a wider review of current rules and regulations on this topic and would urge SEBI to consider alternatives to a hard cap.

If implemented as suggested, the MOMR will require significant infrastructure changes given that the limits need to build in at a client level (not at a broker level). For instance, if an agency broker's Client A were to cause a breach in maximum message-to-trade levels and the cap were imposed then the broker's fiduciary duty of performance to their other clients would be compromised.

We also propose that any order-to-trade ratios be based on the functions performed by market participants. For example, it would be important for market makers to be granted higher ratios than liquidity takers. In addition, we recommend that amendments within a 1% range of the current market price not count towards the ratio.

Separate queues for colo orders and non-colo orders (2 queues)

There are to our knowledge no Global exchanges that have experience using a 2-queues approach. As a result, the infrastructure investment requirements for the industry and exchanges would be considerable. Complexity would increase along with risk.

In our view, a 2-queues approach would increase risks to the market for unproven benefits. The unintended consequences would likely include the risk of software glitches, flash crashes and other negative market impacts. The increased risk to market makers would also likely reduce their willingness or ability to provide liquidity.

Depending on how it would be implemented, 2 queues may also increase market arbitrage as investors and brokers trade across the queues or enter orders in both queues to increase the chances of being filled. For this reason, we believe 2 queues may lead to more orders relative to trades, not less, the opposite effect of what SEBI aims to achieve. In short, we advise against a 2-queues approach as the risks and costs are considerable and the benefits speculative.

Review of Tick-by-Tick data feed (TTD)

In our view, the principle of promoting transparency argues against limiting access to tick-by-tick data. The improvement in market quality over recent decades is not just a result of more and faster technology *per se*, but of the much greater and cheaper availability of information. Tick-by-tick data is used not just by HFT firms but by brokers who need to understand the distribution of trades and orders over time in order to help to minimise market impact, and hence costs of orders for customers. Economic theory and experience both argue for more information about markets and products, not less.

The SEBI paper suggests (5.7(f)) the possibility of providing structured data of only the Top 20/30/ Top 50 bids/asks, market depth, etc. to all market participants at a prescribed time interval (or as a real-time feed). Providing the top 20/30/50 would probably be acceptable to most market participants, though again, we are not sure what the benefit would be of limiting the information made available. We also advise against delaying the release of TTD, as those least disadvantaged by such a delay would be those with the fastest systems to react to the delayed data.

In short, while limiting TTD to top 20/30/50 (etc.) levels would likely be benign, we are doubtful that limiting access to TTD would produce benefits, and are concerned, on the other hand, that such limitations could represent a step toward less market transparency, potentially increasing execution costs and harming liquidity.

One alternative is that the regulator could ask the exchanges to provide tick-by-tick data at no cost to all participants. Those who wish to make use of such data could then do so.

In Conclusion

ASIFMA believes that the optimal way to address abusive market practices is to identify such practices and create targeted regulations to control and stop them. With regard to HFT, neither colocation nor low-latency are in themselves abusive. As discussed, low-latency strategies of many market participants have contributed to large reductions in transaction costs in financial markets, while benefits have accrued to investors, issuers, and the economy as a whole. In this regard we refer to the Annex, which provides further supporting data and market experience on these points. In addition, we support the use of risk management protocols such as pre-trade checks, dynamic and static price limits and the like, to mitigate the impacts of trading errors and trading risks.

ASIFMA and its members are concerned that the proposed major changes to Indian market structure will adversely impact market quality and increase costs for all participants. The proposals as drafted would impose significant costs on market participants in the form of infrastructure investments, software development, staff training, and revision of legal and compliance systems that will take significant time to implement. Of greater significance, we believe that they could unintentionally increase system risk due to added complexity while adversely affecting market participants' ability to manage market risk.

An experimental approach may be a prudent way to proceed. We think an initial surveillance phase to analyse and quantify current market conditions and activities in Indian equity markets in the context of any proposed solution contemplated by SEBI would be advisable. The implications and potential impacts of the solution could then be more thoroughly evaluated. Thereafter a pilot project could be launched to further evaluate the real-world impact of the solution and the responses of investors and other market participants and infrastructures. (Although we would caution against multiple pilots at the same time.) This would allow careful assessment of the full range of impacts of the solution on market participants and market quality.

We would also urge that any adopted solutions be announced with sufficient notice and with all necessary technical information so that all market participants have sufficient time to make the necessary amendments to their infrastructures.

Thank you for this opportunity to comment on your discussion paper. ASIFMA and its members would like to see India's capital markets continue to develop and thrive, to benefit investors, issuers and the economy as a whole. We look forward to supporting your continued work towards these goals and would welcome the opportunity to discuss our input in further detail in a meeting.

Sincerely,



Mark Austen
Chief Executive Officer
Asia Securities Industry & Financial Markets Association

Annex

Impact of Automation/Algorithmic Trading

In your discussion paper you note that “The available academic literature indicate that algorithmic trading has contributed in improving market quality by facilitating rapid assimilation of information into market prices, tightening of spreads, improvement of liquidity, etc. However the academic literature also indicates that algorithmic trading may have accentuated the issues of adverse selection costs for non-algorithmic traders and increased probability of ‘flash crashes’ vis-à-vis the situation in the pre-algo/pre-colocation era.”

The first point in particular is important as ASIFMA believes it is crucial to recognize the degree to which the evolution of market structure has benefitted investors. We further believe strongly that we should collectively endeavour to retain the desirable features of modern market structure and make changes only in ways where the benefits clearly outweigh the costs and risks. The risk of proceeding with changes whose impacts are uncertain could damage these benefits and possibly introduce risks that did not previously exist. Such an outcome would be a loss for Indian investors and capital raisers which may potentially hamper the continued development of the Indian equity market.

Benefits to Investors

As indicated in the discussion paper, it is universally understood that transaction costs have declined substantially in recent years. We concur with SEBI’s comment in 2.6 of the discussion paper that “algo trading has contributed in improving market quality,” and would add several more observations from leading market participants. Two years ago the CEO of TD Ameritrade, one of the world’s largest retail brokers, stated that “the retail investor is better off today than they’ve ever been in history. Their transaction costs are down probably 80% in the last ten years.”⁸

The then Chief Investment Officer of Vanguard group, the largest retail passive fund manager, wrote in a 2010 letter to the U.S. Securities and Exchange Commission that, using very conservative estimates, declines in transactions costs would result in 32% higher end values for a typical retail fund investor over a 30-year investment horizon as a result of lower transactions costs alone.⁹

Blackrock, the world’s largest manager of passive ETFs and the largest money manager in the world overall, has said the following about HFT specifically:

High frequency traders provide a vital service to all market participants... HFT helps to create efficient markets by facilitating price formation, lowering the cost of trading and improving the linkage between markets. All of this, in turn, aids in achieving optimal investment performance for end investors.¹⁰

⁸ “Milken: Retail investor better off than ever – TD Ameritrade,” Reuters April 29 2014”.

⁹ Gus Sauter, (then) Managing Director and Chief Investment Officer, The Vanguard Group, the Securities and Exchange Commission, dated April 21, 2010.

¹⁰ Blackrock ViewPoint, Equity Market Trading in Europe, June 2011.

We cite the above comments because they underscore what in our view is a critical fact about modern market structure: end investors in general, and retail investors in particular, have benefitted enormously from the speed and efficiency of modern markets and the activities of its market players.

It is also important to bear in mind that for most investors, speed of execution is essentially immaterial. That is, whether an order is executed milliseconds—or seconds—sooner or later has no impact on expected investment returns. What does impact retail investors and intermediaries investing on their behalf are bid-ask spreads and other transactions costs. These have declined dramatically, as the quotes above document. By contrast to end investors, market makers and arbitrageurs, whose liquidity provision has contributed so substantially to the improvement in market quality over the years, do care greatly about speed of execution. A market maker who is slow in updating quotes is likely to buy or sell at stale prices and incur losses. Clearly, no market maker can stay in business for long under such circumstances. For this reason, they invest in systems to minimise latency. Similarly, arbitrageurs must be able to execute quickly in order to capture the arbitrage opportunity. Arbitrageurs are recognized as critical not only to liquidity provision but also price consistency among and between markets, and are also important contributors to market quality. Co-location is a worthwhile and indeed necessary investment for both market makers and arbitrageurs.

Major Market Moves and Flash Crashes

We do not believe the evidence suggests that algorithmic trading, HFT, or automation has on balance exacerbated “flash crash” incidents or major market moves relative to the past¹¹.

Exchanges and market participants have taken lessons from previous incidents of extreme market volatility by installing safeguards such as better pre-trade checks, dynamic and static price limits and the like. We fully support a risk-management approach to mitigation of trading errors and trading risks. There has been adaptation to technological developments in financial market infrastructures, including algorithmic systems, just as there have been such adaptations to technological change in other industries throughout history. On balance, it seems clear that the benefits of technology outweigh the risks and costs in financial markets as in other spheres of the economy and society.

Co-location and Fairness

Section 4, issue under consideration of the SEBI discussion paper, cites the IOSCO Final Report which recommended that “regulators should require that trading venue operators provide fair, transparent, and non-discriminatory access to their markets and to associated products and services.” We whole-heartedly agree with the IOSCO statement.

Parenthetically, we would note here that prohibiting colocation would result in less transparency and fairness. If colocation were prohibited, those seeking reduced latency would presumably still seek to obtain facilities nearer the exchange matching engine. However, any such steps would be invisible to

¹¹ Most of the major market moves occurred prior to 2000, when algorithmic trading started coming into more widespread use. More recently, the book *Flash Boys*, by Michael Lewis made allegations about HFT that received considerable publicity. The book’s errors of fact and logic have been documented in various places, such as “Flash Boys: Not so Fast, an Insider’s Perspective on High-Frequency Trading”, by Peter Kovac (Directissima Press Dec. 2014).

market participants since such arrangements would be private. Making co-located facilities accessible on equal terms to anyone who deems the investment worthwhile would meet the diverse needs of market participants and be fair and transparent to all.