MEMORANDUM

TO: Equity Market Structure Advisory Committee (EMSAC)

FROM: EMSAC Market Quality Subcommittee

DATE: July 25, 2016

SUBJECT: Recommendations for Rulemaking on Issues of Market Quality

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As the full Committee is aware, the Market Quality Sub-Committee was tasked with examining some of the effects of August 24th and recommending, if needed, changes for various market quality and safety features. The Sub-Committee is pleased to present our first preliminary set of recommendations to the full Committee. So far we have spoken to representatives of the Chicago Board Options Exchange (CBOE), the International Stock Exchange (ISE), Exchange Traded Products Issuers (ETPS), BATS, Heathy Markets, Weild & Co and several market-making firms. We have also met with representatives from several retail focused firms, additional ETF market participants and S&P/Dow Jones. As has been previously noted, the Sub-Committee members themselves represent a diverse cross-section of market participants ranging from agency broker-dealers, market-making firms (some of whom deal extensively with retail order flow), large buy-side organizations as well as well-known market observers and commentators. Our recommendations reflect the view of the vast majority of the participants in these conversations. Where there has been dissent from a majority view or an alternative presented we have tried to ensure that view has been represented.

The first three main issues we have recommendations are on the National Market System Plan to Address Extraordinary Volatility (hereafter described as Limit Up/Limit Down or LU/LD), Market Wide Circuit Breakers and the Market Opening. Further topics on the Sub-Committee's agenda to address are Market-Making standards, rights, and obligations in equity markets, the plan submitted by NYSE and NASDAQ to address concerns around events effecting the Closing Auction of listed stocks, and Capital Formation impacts of Markets Structure, including but not limited to thoughts around the tick size pilot.

Limit Up/Limit Down

The Sub-Committee has looked carefully at the action of the Limit Up/Limit Down mechanism not only in the context of the events of August 24^{th} 2015, but also with respect to its general operation since implemented. We are cognizant that the primary goal of Limit Up/Limit down has been to prevent runaway stocks, which may trade at prices not-reflective of true market interest, and thereby reduce panic or unwarranted buying and/or selling. As the Committee is aware, today's current LU/LD operation bands each stock price on an ongoing basis. When the stock moves suddenly in either direction (e.g., 10%), it goes either limit up or limit down and only trades that would execute at or inside the band are allowed. If the stock remains quoted in the limit state condition, the stock is then halted by the primary listing exchange and a re-opening auction process begins. At the end of the auction and re-opening process the stock begins to freely trade again.

Based on trading on August 24th and more generally in the markets, two things seem apparent. First, the primary function of the bands works – meaning runaway stocks and panic selling or buying is mitigated by the bands and the LU/LD operation. Second, the re-opening process does not function well. It is characterized by a dearth of market participation and does not have the centralizing liquidity function of similar auctions around opening and closing by primary listing venues. While theoretically the re-opening auction should reset the trading range of a stock halted in the LU/LD process to its new 'fair' trading range, the actual operation of the function simply halts the stock until free trading finds the new fair trading range or the stock triggers another limit state (which occurred at very high levels on August 24th 2015, but is often a daily occurrence in the markets today).

The Sub-Committee examined whether there were mechanisms or functions that could fix the auction process so that it would more successfully re-price securities to its new fair range. Following much discussion and examination, the Sub-Committee believes that such fixes could represent an onerous burden on the industry and significant time and effort to develop a centralizing auction process with full market participation to determine new re-opening prices. Additionally, the Sub-Committee noted a bias towards keeping markets open as opposed to closing them periodically.

It is our further understanding that Exchanges (collectively) have engaged in a process that would improve the current operation of the LU/LD mechanism. Specifically, we understand that the proposed changes from the Exchanges would standardize the halt and re-opening processes among themselves; would extend the auction in various ways to ensure adequate liquidity to re-open the stock; and, would display or otherwise make available imbalance information to the market at large to stimulate participation in the re-opening auction. We applaud these steps as making things better for the markets and market participants. However, it remains our belief that the auction is unlikely to be 'cured' by these changes and as welcome as these develops are, we believe further changes are warranted.

To that end, the Sub-Committee is recommending that the LU/LD protocol be altered in two ways to help solve some of these structural issues. First, we recommend that when a stock is 'stuck' in limit up or limit down that there be no traditional halt to the trading of the stock. Instead, similar to how the futures market behaves, we recommend that the stock would trigger a two minute monitoring period (essentially a limit state). Trading would continue within the limit price, however if the limit condition remains after 2 minutes, the stock would move to a "pre-open state". During the pre-open state no matching of orders would be allowed, but orders may be entered, modified, and canceled. At the end of the two minute pre-open state, the market will re-open. The next applicable price limit will apply when trading re-opens. These changes would - in our opinion - allow stocks to continue to freely trade while still offering protection against runaway stock conditions. The longer time of the limit state would allow market participants adequate time to 'correct' prices and respond if the market felt the stock should trade inside the current bands. It should be noted that there was some dissension on this last point and that some of the sub-committee members felt a shorter pause would be appropriate.

Two other recommendations were made by the Sub-Committee in regard to the operation of the LU/LD plans. First, the Clearly Erroneous rules at each exchange conform to the LU/LD bands.

In other words, any trade that takes place within the band would stand and not be broken and trades outside the LU/LD bands would be eligible for the consideration of the Clearly Erroneous rules.

Second, the LU/LD bands include the concept of mean reversion, that is that a stock be allowed to trade back to its original price without triggering bands on the way back up. As an example, if a stock trades for $100 and trades down to its LD band of $80 (double wide in the first 15 minutes) the bands 'reset" so that the stock is able to trade back to $100 without hitting LU states on the way back up. Under current conditions, exacerbated by the bands narrowing after the first 15 mins, the LU band would be triggered at $88, and then again at $96. In particular, this should mitigate a large number of LU/LD conditions where stocks trigger multiple conditions around the same price, but in varying around that price. These effects were clearly driving some of the halts on August 24th.

Market Wide Circuit Breakers

As to market-wide circuit breakers, after much discussion and the consideration of using the value of the S+P 500 futures product as opposed to the cash value of the S+P 500 Index, the Sub-Committee determined that - overall - the current market-wide circuit breaker construct should be reconsidered and potentially widened. In making this recommendation the Sub-Committee considered that had stocks opened in a timely fashion, or had the S&P Index been calculated using the new methodology that has been adopted, the market wide circuit breaker would have been triggered. The Sub-Committee was almost universal in its belief that had the market wide circuit breaker been triggered it would have contributed to market chaos and selling pressure, thereby exacerbated the situation. The Sub-Committee also considered evidence in international markets that having a circuit breaker often acts as a magnet rather than a cushion. There is some evidence from China that when markets began to approach the 7% band, selling pressure intensified as market participants tried to get their trades in before the market was closed. As such the Sub-Committee feels that a wider band around the 10% range is warranted. In addition, we should consider the use of the S+P futures data for the circuit breaker as price discovery of the S+P futures is much more relevant when many component stocks have not yet opened.

Market Opening

Finally, without opining on any Exchange's business model nor any specific methodology of opening stocks, the Sub-Committee strongly recommends that the Exchanges and Commission adopt policies and procedures that ensure all stocks open as close to 9:30 as feasibly and technically possible. We believe that this will prevent corrupt opening values for the index calculations necessary for market-wide circuit breakers and for ETFs that rely on those opening prices. Additionally, it would allow for the smoother operation of the Limit Up/Limit Down process regardless of any recommended changes.

The Market Quality Sub-Committee of the EMSAC is pleased to present this first set of recommendations to the full Committee and will continue to meet and consider other recommendations or further refining these recommendations.

The Market Quality Sub-Committee did meet to discuss the topic of quality of markets for small to mid-size companies. Upon hearing from many market participants, including representatives from the OTC BB, the TMX Venture Exchange and small-cap money managers, we have concluded that there are no obvious solutions to the small cap liquidity problem in the current market. In fact, most of the outside participants focused instead on the high barriers of small cap companies to go public and manage their business like other public companies and expressed little to no concern about creating or generating thoughts on changes to market structure to facilitate small cap liquidity. To that end, the Sub-Committee agreed to suspend further discussion of this topic.