MEMORANDUM

TO: Equity Market Structure Advisory Committee (EMSAC)

FROM: EMSAC Market Quality Subcommittee

DATE: April 19, 2016

SUBJECT: Market Quality Subcommittee Status Report

Preliminary Recommendations for Rule-Making on Issues of Market Quality

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. The Sub-Committee intends to continue to meet and work on these issues as well as continuing to consult with various market constituencies for their feedback and interest in these issues. 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. At upcoming meetings, we will have 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 24th 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.

To that end, the Sub-Committee is preliminarily 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 halt to the trading of the stock. Instead, we recommend that the trading bands of the stock stuck in limit up or limit down automatically adjust around the limit up or limit down price after a period of time. As an example, if a stock is trading at 100 and falls to 90 and goes limit down - after a period of time (see below), the limit-up/limit down bands automatically adjust around the 90 price, allowing the stock to continue freely trading. Second, we recommend that the period of time - currently 15 seconds - that a stock remains in the limit state condition - be extended to 30 seconds allowing the market adequate time to assess the stock and its limit condition before the bands re-adjust. These changes would - in our opinion - allow stocks to continue to freely trade while still offering protection against runaway stock conditions. The longer time before band re-adjustment would allow market participants adequate time to 'correct' prices and respond if the market felt the stock should trade inside the current bands. It was also the Sub-Committee's belief that the implementation of the change would not create an onerous burden on the exchanges and other market participants.

An observation made by several members of the sub-Committee is that there may be value after multiple LU/LD observations in a name (particularly those all headed in the same direction), to halt a stock. Two suggestions made by Sub-Committee members are: 1) after 3 LU/LD adjustments in the same direction, the stock would be halted and re-opening auction held. The rationale for this modification to the previous recommended change is that after that many events, it is clear that there is either a liquidity pocket in the security or significant market news warranting a halt and re-opening auction. While many Sub-Committee members are sympathetic to this notion, there are others that continue to believe a change to the auction process would require major changes to the current operation of the markets and should be not be considered.

This leads naturally to the second suggestion made by several Sub-Committee members: That in the event of an auction being called, the auction time and process be extended by such time as necessary to achieve a 'minimum volume threshold' (to be defined) to re-open the stock. Several of the buy-side representatives on the Sub-Committee expressed some interest in participating if they "had sufficient time to read the info on the tape and work with their Portfolio Managers to respond" and others suggested that if the auctions were extended natural buying and selling interest would appear to 're-set' the trading price. Several other Sub-Committee members suggested that this could have the negative effect of holding a stock closed for an inordinately long period of time if sufficient trading interest did not appear quickly and that the uncertainty of the re-opening time could unintentionally create liquidity gaps. Further, there were concerns expressed that the longer a stock is held closed for sufficient minimum volume, the more additional pressure could appear on a stock (in either direction) exacerbating the problem as opposed to helping it.

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. As an example, if a stock trades for $100 and trades down to its LD band of $90 and the bands 'reset' (or halt depending on final resolution of the LU/LD issues) and the stock immediately trades back to $100 that the LU band not be triggered at $99, but allow the stock to return to its trading level prior to its 'sell-off' to $90. 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 remain in place. This was done with an acknowledgment that the failure to open stocks in a timely manner does create anomalous cash S+P 500 opening values that could corrupt the process. But overall, it was the Sub-Committee's belief that the process as designed was and is adequate for larger market-safety protections. To that end, one common comment from market participants was a belief that if the market wide circuit breaker had been tripped on August 24th 2015, the chaos in trading would have been much worse.

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 preliminary recommendations to the full Committee and will continue to meet and consider other recommendations or further refining these recommendations.