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Securities and Exchange Commission
100 F St. NW
Washington, DC 20549-9303
Rule-comments@sec.gov

Files: SR-BATS-2011-038, SR-BYX-2011-025,
SR-C2-2011-024, SR-CBOE-2011-087, SR-CHX-2011-30,
SR-EDGA-2011-31, SR-EDGX-2011-30, SR-ISE-2011-61
SR-BX-2011-068, SR-Phlx-2011-129, SR-NASDAQ-2011-131
SR-NSX-2011-11
SR-NYSE-2011-48, SR-NYSEAmex-2011-73, SR-NYSEArca-2011-68
SR-FINRA-2011-054

Dear Securities and Exchange Commission:

Here are my comments regarding the proposed modifications to the market-wide circuit breakers:

Background

From October 13, 1987 through October 19, 1987, the Dow Jones Industrial Average lost nearly 1/3 of its value, including a drop of 22% on October 19 alone. [2] During the crash of October 19, severe systems

[1] I am also on the boards of directors of the EDGA and EDGX stock exchanges. My comments are strictly my own and don't necessarily represent those of Georgetown University, EDGX, EDGA, or anyone else for that matter.

failures plagued the market. The level of order flow overwhelmed the capacity of the market to handle the orders, leading to long delays in the execution of orders. For example, the printers that printed the order tickets on the NYSE could not handle the volume. Stale prices affected the prices of indices such as the S&P500, resulting in apparently large deviations between the stocks and the futures.

Subsequent to the crash, market-wide circuit breakers were imposed that call for various trading halts. If the market, as measured by the Dow Jones Industrial Average, drops by approximately 10% or more before 2:30 pm, trading is to be halted for one hour. If the market drops by 20%, there is another halt, and 30% would halt the market for the rest of the day.

In the May 6, 2010 "Flash Crash", the market was again overwhelmed by a tsunami of order activity. A large sell order in the e-mini S&P 500 futures contract led to a rapid decline in the futures price, which was quickly transmitted to the equities markets. The high volume of message traffic caused substantial delays in some data feeds. Many liquidity providers pulled out of the market, citing "data integrity" concerns. The lack of liquidity resulted in many trades occurring at absurd prices, which required the cancellation of over 20,000 clearly erroneous trades.

Subsequent to the Flash Crash, single stock circuit-breakers were instituted that call for short trading pauses when stocks move a large amount in a short period of time. The Joint CFTC-SEC Advisory Committee on Emerging Regulatory Issues recommended:[3]

> *The Commissions evaluate the present system-wide circuit breakers and consider:*
>
> *i. reducing, at least, the initial trading halt to a period of time as short as ten minutes*
> *ii. allowing the halt to be triggered as late as 3:30 pm and*
> *iii. using the S&P 500 Index as the triggering mechanism*

The current proposal makes the following changes:

1) Use the S&P500 instead of the Dow Jones Industrial Average as the index to be used for triggering the halt.
2) Calculate the reference price daily based on the closing value of the S&P 500
3) Use 7%, 13%, and 20% market decline percentages instead of 10%, 20%, and 30% for triggering the halts.
4) Reduce the halt times from one hour to 15 minutes, and
5) Operate the halts from 9:30 until 3:30 pm.

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[2] See *Report Of The Presidential Task Force On Market Mechanisms*, Superintendent of Documents, U.S. Government Printing Office, Washington, DC. 20402 , 1988

[3] http://www.sec.gov/spotlight/sec-cftcjointcommittee/021811-report.pdf

My comments:

In general, these are minor improvements to the existing rules. We should, however, resist the temptation to declare "Mission Accomplished" and ignore the opportunity to rethink our circuit breakers while the memory of the Flash Crash is still fresh in our minds. First, let's consider when trading should be halted.

Trading should be halted when the market mechanism is not working.

The primary job of an exchange is to match buyer and seller and discover the price. Price discovery occurs through the interaction of the buy and sell orders placed by investors. Investors depend upon a rich information infrastructure to disseminate the information needed to make informed trading decisions. The exchanges disseminate quote information regarding available liquidity as well as trade information regarding recent trades. Data vendors carry this information to investors. News media convey both company specific information as well as general information regarding the state of the economy. Analysts and other commentators digest this information into forms that others can assimilate.

There are large costs to halting trading, and it should only be done in extreme circumstances when the market mechanism is not working properly. A sudden and unanticipated halt, especially a lengthy one, can leave many market participants with excessive and costly risk exposures and unhedged positions. Indeed, depending on the circumstances surrounding the halt, the halt itself may cause fear and more panic. For example, if the Flash Crash had triggered a lengthy halt, the news media could potentially have attributed the crash to fundamentally bad news, triggering more panic selling when the market re-opened.

There are two primary types of situations in which the market mechanism can fail. The first is when an information event occurs and investors have not had time to receive the information. For this reason our markets routinely and rightly halt trading when news is pending.

The second is when there is a technical problem with the market mechanism. As our markets depend on high quality information, any disruptions in the flow of information threaten to wreak chaos in the market. One of the contributing factors to the Flash Crash cited in the various postmortems was that liquidity providers stopped trading due to concerns about "data integrity." Looking at the data feeds for the day, it is easy to see why. Under normal conditions, the prices from the different market centers are closely synchronized.

Here is a sample of data for Accenture (ACN) on May 6, 2010 just before the Flash Crash. The prices on the various trading venues are clearly integrated:

Time	Trade Size	Price	Trading Venue
2:30:01 PM	100	41.52	T
2:30:03 PM	200	41.51	N

2:30:06 PM	200	41.5115	D
2:30:12 PM	100	41.52	N
2:30:12 PM	100	41.52	N
2:30:12 PM	100	41.52	N
2:30:15 PM	100	41.52	N
2:30:19 PM	200	41.52	B
2:30:19 PM	100	41.52	B
2:30:19 PM	100	41.52	D
2:30:19 PM	100	41.52	D
2:30:20 PM	100	41.52	P
2:30:20 PM	100	41.52	N
2:30:20 PM	100	41.52	I
2:30:20 PM	100	41.52	C
2:30:20 PM	100	41.52	D

Note that as events began to unfold the prices on the different venues became disconnected. Instead of a price difference of at most a penny between markets, price gaps of several cents began to appear in the data:

Time	Trade Size	Price	Trading Venue
2:43:01 PM	700	40.75	T
2:43:01 PM	300	40.75	T
2:43:01 PM	1000	40.83	D
2:43:01 PM	100	40.76	D
2:43:01 PM	203	40.75	T
2:43:01 PM	100	40.75	T
2:43:02 PM	203	40.752	D
2:43:03 PM	100	40.83	D
2:43:03 PM	300	40.75	T
2:43:03 PM	100	40.83	D
2:43:03 PM	603	40.75	T
2:43:03 PM	700	40.75	T
2:43:03 PM	700	40.75	T
2:43:04 PM	100	40.83	D
2:43:04 PM	100	40.83	D
2:43:04 PM	100	40.75	T
2:43:04 PM	600	40.75	T
2:43:04 PM	600	40.75	T
2:43:05 PM	100	40.74	Z
2:43:05 PM	106	40.72	P
2:43:05 PM	200	40.72	I
2:43:05 PM	100	40.73	B
2:43:05 PM	100	40.75	N
2:43:05 PM	200	40.74	N
2:43:05 PM	100	40.72	N

The trading environment became even more disconnected, with differences of several pennies between reported trades on different venues:

Time	Trade Size	Price	Trading Venue
2:47:23 PM	400	38.02	D
2:47:23 PM	100	38	P
2:47:23 PM	100	38	T
2:47:24 PM	100	38.15	D
2:47:24 PM	100	38.66	I
2:47:25 PM	100	38.66	I
2:47:25 PM	100	38.67	P
2:47:25 PM	100	38.67	P
2:47:25 PM	100	38.66	I
2:47:25 PM	100	38.66	I
2:47:25 PM	100	40.22	D
2:47:25 PM	100	40.22	D
2:47:25 PM	100	39.06	P
2:47:28 PM	300	38.02	D
2:47:29 PM	100	40.2	D
2:47:34 PM	310	39.12	P
2:47:34 PM	123	39.11	T
2:47:34 PM	100	39.12	P

And then Armageddon led to the infamous prints at one penny:

2:47:52 PM	200	23.88	D
2:47:52 PM	182	27	D
2:47:52 PM	100	3.34	T
2:47:53 PM	100	3.24	T
2:47:53 PM	100	3.14	T
2:47:53 PM	100	1.79	T
2:47:53 PM	100	3.24	T
2:47:53 PM	100	3.04	T
2:47:53 PM	100	2.94	T
2:47:53 PM	100	2.84	T
2:47:53 PM	100	2.74	T
2:47:53 PM	100	2.64	T
2:47:53 PM	100	2.54	T
2:47:53 PM	100	2.44	T
2:47:53 PM	100	0.34	T
2:47:53 PM	100	2.34	T
2:47:53 PM	100	2.24	T
2:47:53 PM	100	2.14	T
2:47:53 PM	100	2.04	T
2:47:53 PM	100	1.94	T

2:47:54 PM	100	1.84	T
2:47:54 PM	100	0.01	T
2:47:54 PM	100	0.01	W
2:47:54 PM	100	1.74	T
2:47:54 PM	100	0.01	W
2:47:54 PM	100	1.54	T
2:47:54 PM	100	1.44	T
2:47:54 PM	100	1.34	T
2:47:54 PM	100	1.24	T
2:47:54 PM	100	0.01	W

The implication is clear. When there are data integrity issues, participants that normally stabilize the market will rationally stop trading, destabilizing the market. One way to prevent problems is to pause the market when the data feeds get scrambled:

Halts should also be triggered when there are data feed disruptions.

It is clear that whenever a major part of the market is not working, such as because of a major system outage, that it is better to pause the market than to create clearly erroneous trades that have to be busted later. Putting in trading pauses when the data feeds are overloaded is an important circuit-breaker that will help prevent data problems from destabilizing the market. The SIPs should be required to call a trading pause whenever delays exceed a certain threshold or when there are serious discrepancies in the data submitted by the major trading platforms. Pausing trading when there are data feed disruptions will help to prevent clearly erroneous trades that need to be busted later.

Let me emphasize this point: If there are problems with the market data feeds, it is better to pause the market sooner rather than later. We should not wait for prices to become unstable before declaring a trading halt.

The market should NOT be halted by the opening auction.

Our market opening procedures provide a fair and orderly auction that does a good job of digesting the information that has accumulated since the previous close. The small amount of professional trading that occurs in the pre-opening period provides battle-tested prices, assisting the market in finding the right price in the opening auction. Sometimes major events occur that lead to a significant drop on the opening. It would not make sense to shut down the market immediately upon the open in such a case.

Consider, for example, the re-opening of the market after the September 11, 2001 terrorist attacks. The DJIA opened that morning down 7.13% from the previous close on September 10.[4] Should we have shut

[4] Yahoo! Finance reports the previous day's close for the opening price for the S&P500 for that time period, so I am using the DJIA for which data on the open was available.

the market down immediately after the open on September 17, 2001? No! It makes no sense to shut the market down for an auction immediately after reopening it. For this reason, the reference price used should be based on the morning open, not the previous close. The S&P 500 index is widely observed, and market participants can quickly calculate the trigger levels based on the opening price. This is far simpler than the rolling time windows now used for the single-stock circuit breakers.

Shorter halts are a good idea.

A trading halt of one hour following a major market movement may have made sense back in 1987. The mechanical nature of trading meant that it would have taken quite some time to catch up on the volume of trades, manually check the orders that were received, and then re-open the market. In today's automated and better connected world, such a long-time period is not needed to repair whatever defect in the market mechanism led to the need for a halt. I support the proposal to shorten the halts from one hour to fifteen minutes.

Speed is more important than level.

The 7/13/20% thresholds are crude approximations for the existence of a fundamental problem in the market mechanism. The rationale is that such price changes in themselves are information events and investors need to be given time to consider this information. If so, then it is only when the drop occurs rapidly that there needs to be a halt. If the drop occurs in a gradual and orderly way throughout the day, then there is no need for a halt even if some arbitrary trigger level is reached. For this reason, the trigger should be based on the speed of the drop, much like the single-stock circuit breakers.

7% is too small for a market-wide trigger

However, the Committee did **not** recommend changing the size of the halt triggers. Indeed, the Committee merely stated that changes in the size should be considered, and did not say whether the trigger percentages should be smaller or larger:

> "While the Committee makes no recommendation on this point, we believe that consideration should also be given to whether the 10%, 20%, and 30% percentage triggers should be re-considered."

There is no real economic analysis in the rule filings of the costs and benefits of shrinking the trigger percentage for the first halt from 10% to 7%. If this rule had been in effect, we may have had trading halts on the following days:

May 6, 2010 (The Flash Crash)
December 1, 2008
November 20, 2008

October 22, 2008
October 15, 2008
October 10, 2008
October 6, 2008
September 29, 2008
September 17, 2001 (the re-opening post 9/11)

With the benefit of 20/20 hindsight, would we have wanted to halt trading in the markets on those days? Clearly the market broke during the Flash Crash, and a market-wide trading halt of some type would have made sense, absent any other shock absorbers in the system. However, if a similar firestorm hit the market today, the single-stock trading pauses would be triggered for most of the stocks in the index. During the pauses, the rebound would have started, so we would not have hit the 7% trigger level and there would be no market-wide trading halt.

On the other hand, we would have hit the market-wide halts several times during the turbulent period in the fall of 2008 if the trigger price were 7%. The market volatility was reflecting the great uncertainty over the financial crisis then erupting. Although investors were unhappy about the prices, there was general agreement that the equity market structure worked reasonably well during that time period, especially compared with the complete freeze-up in the mortgage backed securities markets. I don't recall any serious discussion stating that we should have had trading halts at that time. For example, the SEC's Concept Release on Equity Market Structure issued in January 2010 raised several issues about equity market structure, but did not even mention trading halts or pauses.[5]

There is no need to close for the rest of the day.

Even in an extreme event, it is not clear that the market is served by closing for the rest of the day. Indeed, such a close could be extremely harmful and do much unnecessary damage. For example, suppose that a news report comes out that illegal aliens from outer space have landed and started naked shorting the market with their zombie brides. The market drops 30% and is halted for the day. It turns out, however, that the news is fake. Nevertheless, traders' positions are all marked to market at the unnaturally low prices prevailing when the market was closed for the day, leading to margin calls and overnight funding problems. Mutual fund transactions are executed at clearly erroneous prices. Unless there is some reason to believe that the market mechanism is broken, there should be a normal closing process so that mutual fund prices are properly determined.

If a halt occurs before the close, then extend the time of the close.

The current proposal does not call for halts in the last half hour. The time near the close is sometimes a time of high volatility, and our market needs protection then just as it does at any other time. For this

[5] http://www.sec.gov/rules/concept/2010/34-61358.pdf

reason, if there is a major disruption to the market mechanism just before the close, then trading should be paused. However, the market should be re-opened in order to permit an orderly closing process. This would permit market participants to clean up their positions before the overnight period. It would also discover fair prices that mutual funds use to price their shares, and brokerage firms use to calculate margin positions. If there is no orderly close, mutual funds will be mispriced and brokerage firm margin calculation will be inaccurate. Such an extended close needs to be tested very carefully, however, to make sure that all of the systems at the various exchanges brokerage firms, and data vendors can handle it. Many computers may be programmed Y2K like to always treat 4PM as the end of day.

Retain flexibility to let humans call a halt.

It is not possible to determine all of the reasons in advance why it would be appropriate to halt the market. For this reason, there should be flexibility for human judgment to call a trading halt in an emergency situation or when otherwise necessary to maintain a fair and orderly market. For example, suppose that the President has a heart attack, as happened to President Eisenhower. It might be appropriate to halt the market in order for the market to digest the information. Or there might be a partial network outage affecting so many market participants that it might be appropriate to pause the market.

For this reason, the SRO rules should also permit a trading pause at the request of the SEC, FINRA, the Fed, or the Treasury Department. Likewise, the SROs themselves should be able to call a halt if they feel in their collective judgment that a trading pause is necessary to maintain a fair and orderly market.

Who pulls the trigger? The rule filings are unclear.

The rule filings are also unclear as to the process by which the trading pauses will be instituted. Will one entity (such as one of the SIPs, or FINRA) pull the trigger and send out a message, or will each SRO be responsible for monitoring the S&P500 index and halting trading at the appropriate time?

And finally,

This should be done with one SEC rule, not sixteen separate SRO rule filings!

The process used to institute market-wide circuit breakers exemplifies how bleeped up our regulatory system is. Having sixteen separate rule filings is absurd. With all of the Dodd-Frankenstein work that the Commission has, it is an extreme waste of scarce taxpayer resources to have such waste and duplication, not to mention a useless compliance tax on all of the SROs that have to file all this paperwork. Market-wide rules should be instituted through a single SEC rule filing. The individual SRO rules should merely say something like "Trading is halted when a trading halt is declared under SEC Rule HALT."

Section 3(f) of the Securities and Exchange Act of 1934 explicitly requires:

> Whenever pursuant to this title the Commission is engaged in rulemaking, or in the review of a rule of a self-regulatory organization, and is required to consider or determine whether an action is necessary or appropriate in the public interest, the Commission shall also consider, in addition to the protection of investors, whether the action will promote efficiency, competition, and capital formation.

This method of forcing sixteen SROs to file sixteen piles of paperwork to institute a single unified market-wide rule, requiring sixteen of everything is clearly inefficient.

The SEC appears to be bypassing the Administrative Procedures Act by forcing all SROs to have basically the same rule. This leaves market-wide rules like this open to legal challenges later on the grounds that they are not really SRO rules, but really SEC rules that were not properly adopted. Fortunately, I don't think anyone has an economic incentive to challenge this one in court. The SEC should resist the temptation to do future market-wide rules in this manner and do proper rulemaking at the SEC, not the SRO, level.

If you have any questions, feel free to email me at angelj@georgetown.edu or call me at (202) 687-3765.

Respectfully submitted,

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