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Reform of US circuit breakers and ongoing investigation into the flash crash

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Introduction

On May 18, 2010, the US Securities and Exchange Commission (SEC) revealed that it intends to mandate new circuit breakers that temporarily halt trading in the event of a steep decline in not only broad equity market indices but also individual stocks. These stock-by-stock circuit breakers are the first measure unveiled to prevent recurrence of the May 6 "flash crash" and ensuing market volatility. On May 19, US securities exchanges, most notably including the New York Stock Exchange (NYSE) and NASDAQ, and the Financial Industry Regulatory Authority (FINRA), a securities industry self-regulatory body, submitted proposed rule changes to the SEC to prepare for stock-by-stock circuit breakers' introduction.

Meanwhile, US regulatory authorities continued to investigate the causes of the events of May 6. On the 18th, SEC and Commodity Futures Trading Commission (CFTC) staff submitted a report to the Joint CFTC-SEC Advisory Committee on Emerging Regulatory Issues[1]. Establishment of such a joint committee establishment was initially recommended in 2009 to facilitate coordination between the two regulatory agencies, which had previously waged frequent turf wars with each other, but it was not until May 11 that the committee was hastily formed in response to the urgent imperative of identifying the flash crash's causes and devising recurrence prevention measures.

As a follow-up to my previous report[2] on the events of May 6 based mainly on media reports and testimony at a Congressional hearing held on May 11, this report discusses the new stock-by-stock circuit breakers and also delves a bit deeper into the factors behind the flash crash based largely on the joint SEC-CFTC report published on the 18th and other knowledge gained since my previous report.

New stock-by-stock circuit breakers and their significance

The new stock-by-stock circuit breakers will function as follows (per Rule 80C in the case of the NYSE).

> If an S&P 500-constituent stock falls in price by 10% or more on its primary trading market within a five-minute interval between 9:45 a.m. and 3:35 p.m. US Eastern Time, trading in the stock will be halted for five minutes.

The new rule is slated to initially be implemented on a pilot basis through December 10, 2010, pending SEC approval following review of public comments currently being solicited regarding recently announced proposal. During the pilot period, regulatory authorities plan to evaluate the new circuit breakers' effectiveness and make any necessary revisions. The new circuit breakers are then expected to be implemented on a permanent basis.

The stock-by-stock circuit breakers are slated to be implemented through coordination among the SEC, securities exchanges, and FINRA and to apply the entire US equity market. Existing circuit breakers (NYSE Rule 80B) linked to the Dow Jones Industrial Average (DJIA) will remain in effect.

The circuit breakers for individual stocks are similar to Japan's price fluctuation limits in that they will limit individual stocks' price fluctuations within a set range, but the two also differ in several major respects.

First, the circuit breakers will be triggered only in the event of a sharp decline in a stock's price within a short interval. If a stock declines steadily throughout the trading day and its intraday decline exceeds 10%, trading in the stock would not be halted. This reflects that circuit breakers' purpose is to act as a damper in the event of a precipitous price decline due to panic among market participants or a cascade of selling by trading programs. Circuit breakers are thus not directly intended to limit share price movements.

Second, circuit breakers are predicated on the assumption that if they are triggered, trading will resume after a pause. In this respect they differ from Japan's price fluctuation limits, which do not permit a stock to trade beyond its limit-up or limit-down level.

Flash crash and NYSE's LRPs

The need to introduce stock-by-stock circuit breakers was also mentioned in joint SEC-CFTC report issued on May 18 as a regulatory reform worthy of consideration in response to the flash crash. In addition to presenting and analyzing detailed data regarding the factors behind the May 6 flash crash, the SEC-CFTC report contains various interesting information. While much of its content overlaps with my previous report, I want to highlight a few points unmentioned in my previous report.

The first point pertains to the NYSE's liquidity replenishment point (LRP) system, which was suspected of amplifying market volatility on May 6, as I mentioned in my previous report. LRPs help normalize disorderly trading by automatically suspending electronic trading in any individual stock that has declined 1–3% within 30 seconds. For the duration of the electronic trading pause, trading in the stock shifts to the NYSE's floor, where price quotes are presumed to be fair.

The SEC-CFTC report noted a temporary dearth of orders on the NYSE order book during the flash crash, largely as a result of cessation in order flow from electronic market participants without the means to access the NYSE floor once LRPs were triggered. However, it also states that LRPs averted a glut of sell orders and therefore may not have exacerbated price declines, given the fact that 83% of trades that were subsequently canceled[3] due to extreme price declines occurred in non-NYSE stocks.

The SEC-CFTC report calls for further study of the role played by LRPs, but it now appears that the preliminary hypothesis (discussed in my previous report) that LRPs caused mass rerouting of sell orders to non-NYSE trading venues, thereby exacerbating panic, may not necessarily be correct.

Of course, some high-frequency traders did in fact temporarily stop submitting orders to the market (for whatever reason) when stock prices plunged on May 6. Some claim that they did so in anticipation of the exchanges invoking their authority to cancel trades[4]. At a May 20 public hearing of the House Subcommittee on Securities, Insurance, and Investment, SEC Chairwoman Mary Schapiro testified that the SEC would investigate whether these traders' conduct violated the law and whether additional regulation is needed[5].

Stub quotes

Second, the SEC-CFTC report looks at the role played by so-called stub quotes. Stub quotes are extremely low bids and extremely high offers displayed by market makers to limit their risk exposure while technically fulfilling their obligation to ensure market liquidity by continuously maintaining two-sided quotes. Market makers are accused of resorting to stub quotes on May 6.

According to the SEC-CFTC report, on May 6 a large volume of sell orders were executed against extremely low bids between 2:40 and 3:00 p.m., when prices of some stocks crashed. Moreover, most of the sell orders were reportedly short sales. The report also notes that the percentage of stocks subject to trade cancellations was low on the BATS exchange, which does not impose an obligation to refresh quotes amid disorderly market conditions conducive to stub quotes.

These facts suggest that short sale orders were placed in response to extremely low bids displayed by some market makers seeking to avoid trading. The report notes that such short sale orders would be prohibited by a pending new short sale rule (called the alternative uptick rule), which requires short sales to be executed above the national best bid during a sharp price decline[6].

ETFs

Third, the SEC-CFTC report also looks into trading in ETFs that exhibited particularly anomalous price action. ETFs accounted for 227 of the 838 issues in which trades were subsequently canceled. As I noted in my previous report, it is a mystery why ETF prices, which theoretically should track prices of the ETFs' underlying asset holdings, declined to a far greater extent than cash-market stock prices.

Regarding this point, the SEC-CFTC report noted that ETF pricing was rational to some extent. For example, many broad-market ETFs that comprise large-cap or mid-cap stocks experienced steeper price declines than more specialized ETFs (e.g., bond or real estate ETFs). It also stated that in-kind creation and redemption of ETF units by institutional investors on May 6 did not differ significantly from their normal pattern. ETFs' anomalous price action on May 6 remains largely unexplained. Possible explanations include that institutional investors heavily sold ETFs to hedge risk and/or that the existence of stop loss orders amplified ETF price declines. Such hypotheses need to be investigated further.

Another possible contributing factor cited in the SEC-CFTC report is that before 2:40 p.m., two exchanges, the NASDAQ and NASDAQ OMX BX (formerly the Boston Stock Exchange), declared "self-help" against NYSE Arca (formerly the Pacific Stock Exchange), the primary listing exchange for a majority of US ETFs. Exchanges declare self-help when another exchange has repeatedly failed to respond to incoming orders within one second. After doing so, the declaring exchanges cease to route orders to the other exchange. The declaration of self-help may have caused ETF prices to plunge by drastically reducing liquidity at NYSE Arca[7].

Reform proposals

In addition to providing detailed analysis, including about the points discussed above, the SEC-CFTC report also recommends further study of several prospective regulatory responses, including the aforementioned stock-by-stock circuit breakers.

First, the report mentions the possibility of regulating market orders. Stop loss orders placed to execute as market orders if the price falls below a predetermined level were blamed for not only accelerating the market's decline during the flash crash but also leaving the parties that placed the stop-loss orders with large losses once prices subsequently rebounded. Potential reforms that the SEC-CFTC report recommends for further consideration include mandating collars (execution price limits) on market orders, restricting or prohibiting use of market orders, requiring broker-dealers to adequately warn customers of the risks posed by market orders, and otherwise better educating investors about such risks.

Second, to prevent market makers from displaying stub quotes, the report points to a need for reforms such as requiring market makers to display quotes reasonably reflective of prevailing market conditions or, conversely, relaxing market makers' obligation to continuously display two-sided quotes.

Third, the report states that standards for canceling trades should be clarified. After the flash crash, all trades executed at prices 60% or more below the latest price as of 2:40 p.m. were canceled pursuant to a decision by the major exchanges, but these exchanges themselves openly admit that the baseline time of 2:40 and price decline threshold of 60% were in a certain sense determined arbitrarily. The report states that the SEC expects the exchanges and FINRA to set transparent standards for canceling trades.

Fourth, with respect to futures markets, the report recommends that regulators consider stricter regulation of co-location (i.e., location of market participants' order-entry servers in close proximity to exchanges' host computers) in the form of clearly defined qualifications and requirements for access to co-location services. The report also states that technical rules need to be revised to strengthen futures market surveillance by the CFTC.

Conclusion

Much remains unexplained about the May 6 flash crash even after publication of the SEC-CFTC joint report discussed above, which is strictly a preliminary report. Despite mounting emotional criticism of frenetic trading in financial markets in the wake of the global financial crisis, the US authorities are endeavoring to swiftly identify the causes of the flash crash and proceeding with levelheaded analysis and discussion of recurrence prevention measures without rashly making an issue of markets' complex structure or rapid growth in trade executions. Other countries would do well to learn from the US authorities' example.

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Note

1) Preliminary Findings Regarding the Market Events of May 6, 2010, Report of the Staffs of the CFTC and SEC to Joint Advisory Committee on Emerging Regulatory Issues, May 18, 2010.
http://www.sec.gov/sec-cftc-prelimreport.pdf

2) Osaki, Sadakazu, "US equity market hit by 'flash crash'," (2010)

3) Of trades executed between 2:40 and 3:00 p.m. on May 6, those executed at prices 60% of more below the issue's latest price as of 2:40 p.m. were canceled. According to the SEC-CFTC report, 20,761 trades were canceled in 326 of the 7,878 issues that traded between 2:40 and 3:00 p.m. Of these 326 issues, 12 were S&P 500 constituents. The exchange that canceled the most trades was the NASDAQ followed by NYSE Arca.

4) "A Few Minutes of Mayhem" The Economist, May 13th 2010. http://www.economist.com/business-finance/displaystory.cfm?story_id=16113270

5) http://www.sec.gov/news/testimony/2010/ts052010mls.htm

6) The alternative uptick rule is scheduled to take effect from November 10, 2010.

7) BATS and NSX (formerly the Cincinnati Stock Exchange) also declared self-help against NYSE Arca, but they did so after the market's intraday low at 2:47 p.m.

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