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**To:** Undisclosed recipients;

**Subject:** Eye on the Market, July 13, 2010

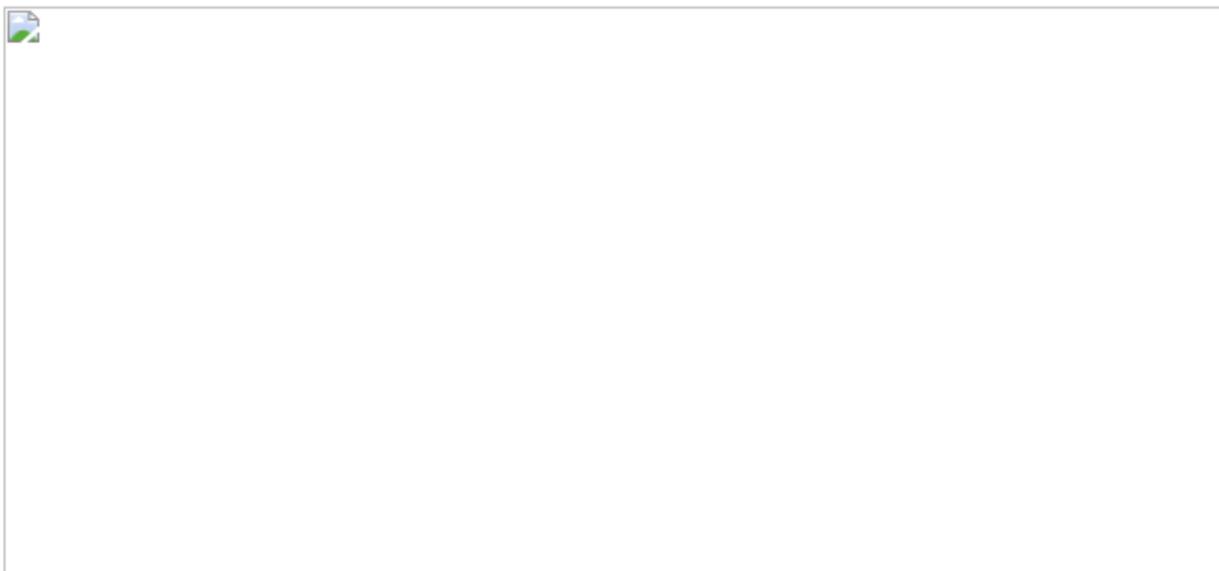
**Date:** Tue, 13 Jul 2010 16:51:20 +0000

**Attachments:** 7-13-10\_-\_EOTM\_-\_5\_best\_things\_about\_the\_flash\_crash.pdf

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All eyes are on European bank stress tests, which will be released on July 23. After their release, our European head strategist Cesar Perez and I will take a look at the results. For European banks, it could serve as an important inflection point; for U.S. banks, the test results marked the bottom. But in the U.S., the tests incorporated loss assumptions that were even more severe than losses realized during the worst stretch of the 1930's Depression, and also came at a time when the global recovery in production was just getting underway. Given the size of the European system, reliance on wholesale funding, slower trend growth and higher levels of corporate and household debt, stress tests will have to be credible to prompt money market and bond funds to start providing capital again. Our focus will be on the rigor of loss and GDP growth assumptions; recently announced decisions to expand the tests to more banks should be seen as a "given".

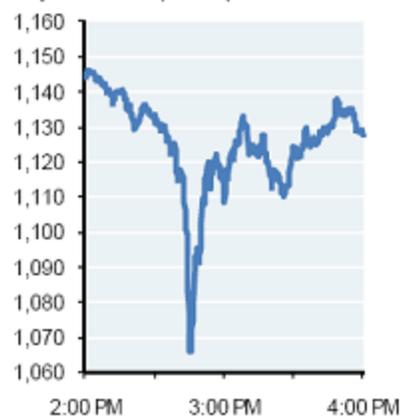


## **The 5 best things about the Flash Crash**

On May 6 2010, major U.S. market indices dropped by over 9%, with a 7% decline within one 15-minute span, temporarily evaporating \$1 trillion in market capitalization, before recovering. The SEC has not yet determined what caused this event. In their examinations, the SEC is dealing with a world that has changed a lot from the traditional floor-based outcry model; the percentage of total volumes executed by floor brokers and specialists fell from 52% in 1999 to 7.5% as of 2007.

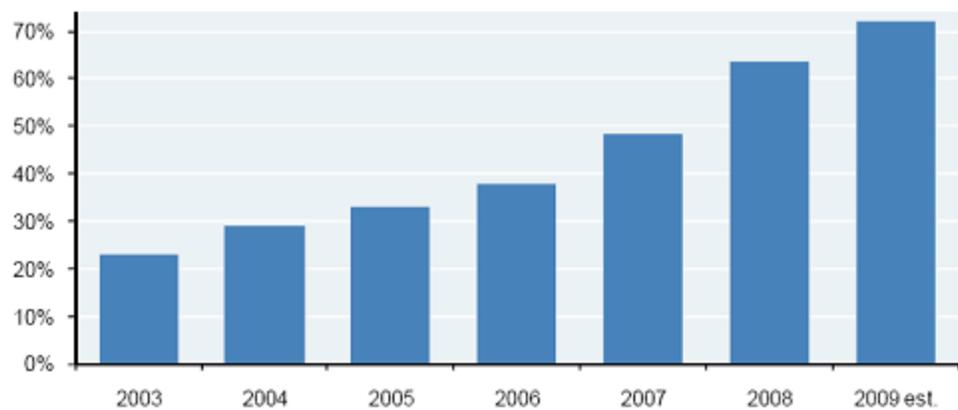
That's why the Flash Crash discussion includes a focus on high-frequency trading. Market research estimates that HFT has grown in the U.S. to 70% of all trades (50%-60% of shares traded). In Japan, HFT is roughly 30% of all trading, and in Europe, 40%. The broad category of HFT includes funds that employ algorithms to arbitrage away market variances (e.g., between exchange traded funds and their component stocks), a benign and helpful function for markets. Other HFTs track the order flow of other participants to both influence and benefit from it, which engenders a lot more debate.

500 Index  
May 6, 2010: 2pm - 4pm



Source: Bloomberg.

HFT firms account for a growing share of all trades  
% of all trading activity



Source: Capital Markets Advisory Partners. AITE Group. Grant Thornton.

**There's a postmodern temptation to define all forms of innovation as progress, but there are big differences between the two.** One example: while some forms of genetic engineering are possible, they may also be very undesirable. The downside to some innovation only becomes apparent over time (overuse of antibiotics which may lead to the survival of more virulent strains of bacteria; species transplanted that cause disastrous side-effects for local populations). Some derivatives activity (e.g., CDO-cubed) ended up being innovations with strongly negative aftershocks. You do not have to be a Luddite to raise questions about undesired consequences of innovation, particularly when financial services are involved. **The debate is not about reversing innovation in electronic trading, but making adjustments along the way.**

**Why do we care about all of this?** As fiduciaries for several hundred billion dollars in client assets, we are very focused on issues that either raise or detract from market confidence, stability, volatility and perceptions of fairness. With that background, here are 5 positive developments that have either resulted, or may result, from the May 6 Flash Crash.

**[1] Stock-specific circuit breakers.** The U.S. has been slow to install circuit breakers on major exchanges, relying instead on "clearly erroneous trade rules" that cancel trades after the fact. In Asia and Europe, circuit-breakers have been around for a while. In Asia, trading is restricted outside of pre-specified daily bands of 5%, 10% and 15% (different by market). In Europe (e.g., Deutsche Bourse), trading is halted for 5 minutes after a 3%-10% move, and then reopened. In the wake of the Flash Crash, 10% circuit breakers are now applied to a few stocks as part of a pilot program (they have already been triggered on Citigroup and the Washington Post Company). **If we are going to exist in a world with automated robots doing the lion's share of daily trading, circuit breakers may be needed to prevent unintended and unmanageable meltdowns.**

Another topic under discussion by the SEC: **prevent HFTs from having "unfiltered, naked access" to the exchanges** by requiring them to live by the same pre-trade risk management controls that clearing members do. Why? As noted by the Chicago Fed, "high-frequency trading has the potential to generate errors and losses at a speed and magnitude far greater than that in a floor or screen-based trading environment".

**[2] More balance to the HFT discussion.** HFT supporters claim they are providers of liquidity to the market, and that HFT makes U.S. markets more efficient than ever. Suggestions to the contrary have been deemed "utterly laughable" by firms defending them (see *Rosenblatt* in sources). However, the Flash Crash highlights the uncertainties around these assertions. While *volumes* have tripled in the last few years, there's a big difference between *volume* and *liquidity* (the ability to transact without moving the price). In an industry barometer survey conducted by the Tabb Group in May of this year, barely half the participants (a) had a high degree of confidence in the US equity market structure; 73% did not believe

the market structure is “orderly”. One of the survey recommendations: **HFTs should be required to register as broker-dealers.**

To be sure, there were weaknesses in the old specialist system as well (b). But specialists were required to maintain a fair and orderly market, and post quotes that were part of the National Best Bid and Offer system; their reputations mattered. **HFTs have no such requirements** (no minimum shares or minimum quote times); one proposal would require quotes to be valid for at least one second. The SEC has broadened the trader reporting system in order to analyze HFT activity more closely.

**[3] Proposals requiring HFTs to act more like the floor specialists they’re replacing.** With the advent of HFTs, cancelled orders have soared. Today’s ratio of 30 cancelled orders for each one executed means that 97% are cancelled. To curb abusive practices, some market participants recommend **applying a fee to HFTs for an excessive number of cancelled orders.** The increase in cancelled orders is one reason we do not agree that increased order depth on S&P 500 stocks at the NBBO is a clear indication of greater liquidity, as some market research alleges. **Quotes pulled within a nano-second of being posted, and which are part of an algorithmic order detection exercise, don’t seem like liquidity in the traditional sense.** Ameritrade’s representative on the recent SEC Roundtable referred to this as “opportunistic liquidity”.

**HFTs driving order cancellations higher**  
Ratio of cancelled to executed orders



Source: NASDAQ ITCH data provided by Knight Capital Group.

**[4] More discussion around HFT “co-location”.** Some HFTs co-locate computer servers inside stock exchanges to minimize the milliseconds (or nanoseconds) required to scan existing orders, and have algorithms act on this information. Co-location services are offered by many exchanges, including NYSE Euronext, Eurex, ICE and the Chicago Mercantile Exchange. As trading execution and IPO listing fees declined, exchanges have tried to make up the difference by selling access to market data. Some exchanges have products which give clients a faster look at quotes, in exchange for a fee. As a result, some HFTs end up with access to information sooner than institutional or retail investors who rely on more standard venues (such as SIP Quotes).

The search for co-location benefits has existed forever (in polite company, “order anticipation strategies”). Broker-dealers in past decades argued that being closer to floor traders on the CBOT was an advantage to their clients. But historical parallels can lose their meaning when the instruments of battle change: one HFT computer can reportedly decode more than 5 million messages per second. **The Flash Crash has increased the debate around whether co-location confers advantages to HFTs, and whether there should be obligations and responsibilities that accompany them.**

[5] **Asset managers learn that “cheapest <math>\lt;>\text{best}</math>”.** After the NYSE moved to decimalization in 2001, bid-offer spreads fell almost in half on S&P 500 stocks (less so for the Russell 2000 stocks, where HFTs are less active). Schwab retail commissions fell from \$35 in 2003 to less than \$10 in 2009. This trend is confirmed by broader research from the American Association of Individual Investors. So if the prism of success is bid-offer costs and commissions on individual trades, the battle has been won.

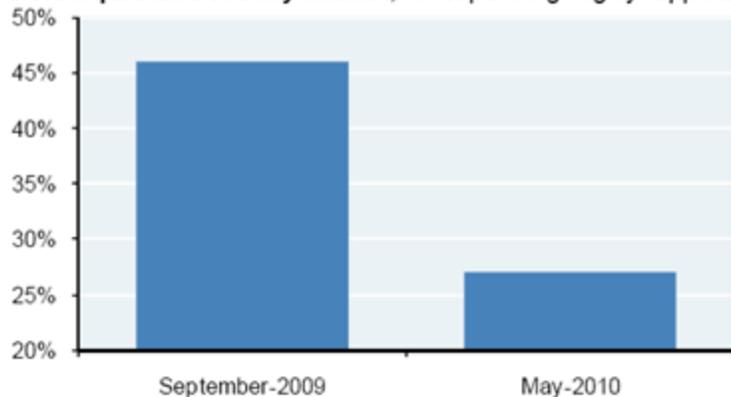
But is that the right prism to define what makes an optimal marketplace? Part of the HFT industry tracks the order flow of larger investors who leave electronic footprints (c). Using algorithms which include spraying the tape with thousands of quotes, the intentions of large investors is ferreted out. This can result in higher trading costs for such investors, and by extension, their clients, who include 401k investors, and pensioners participating in state and corporate plans. Quantitative Services Group computes analyses of HFT impacts on execution costs. **They estimate that HFT tracking algorithms can drive execution costs up 1.5 to 3 times, even when institutional investors parcel trades into smaller orders to avoid detection.**

One last point on the Flash Crash. At a June SEC Roundtable dealing with the crash and market structure, the CEO of Vanguard proposed “depth of book” protection. In plain English: customer orders should get the benefit of the best bids and offers **at multiples prices across exchanges**, rather than just the single best quote on one exchange. With the average trade size having fallen by 70% in the last few years, only protecting the single best bid/offer has become less meaningful. A “depth of book” rule might prompt traders to post more limit orders and reduce volatility, a view shared by the Tabb Group survey respondents.

## Conclusions

Over the last decade, trading automation coincided with substantial improvements for equity investors. Information is available more readily, and transactions costs have come down on individual trades. High frequency trading is here to stay, and parts of the industry contribute to greater efficiencies. But the HFT industry may have gotten ahead of anyone’s ability to understand and monitor its capabilities and consequences. The combination of a singular quest for lower execution costs and advanced technology may have resulted in a more fragmented marketplace in which liquidity is temporal, and in less incentive to display limit orders or contribute capital to market-making. The Flash Crash provides a basis for regulators and market participants to consider these consequences in more detail than they have so far, and make adjustments. As shown below, confidence in the market has been dented by the latest events, and there’s work to be done to restore it.

**Confidence that competition among exchanges supports a more liquid and orderly market, % responding “highly supported”**



Source: TABB Group, “Industry Barometer”, May 2010.

In its request to improve market structure and sort these issues out, the SEC had this to say:

*“Where the interests of long-term investors and short-term professional traders diverge, the Commission repeatedly has emphasized that its duty is to uphold the interests of long-term investors”.*

On that, we agree 100%.

Michael Cembalest

Chief Investment Officer

J.P. Morgan Private Banking

## **Notes**

(a) The TABB survey included buy side investors, broker-dealers, execution venues, liquidity providers, advisory firms, consultants and technology providers. Topics included HFT, co-location, trade-at and depth-of-book rules, stub quotes and large trader reporting rules.

(b) The lowest common denominator argument that specialists didn't do a great job during the 1987 crash simply means that the proposed registration, pre-trade, naked access and minimum quote controls on HFTs are even more important for the marketplace.

(c) The proliferation of so-called “dark pools” such as LiquidNet and Pipeline reflect a desire by institutional investors to avoid detection by HFT algorithms. This may lead to greater market fragmentation.

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SEC Securities and Exchange Commission

CDO Collateralized debt obligation

HFT High frequency trading

NBBO National Best Bid and Best Offer

CBOT Chicago Board of Trade

SIP Securities Information Processor

IPO Initial Public Offering

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