I share the belief of clients who think that the emphasis upon the initiation of HF trading should be matched by more investigation into excessive shorting into the Knight purchases that may have suppressed the price of the securities instead of raising them as would normally happen in massive purchases.We have seen nothing written about short selling activity in connection with either Knight or HF trading in general.

Short selling has increased exponentially as indicated by the fact that in 2007 a study showed that short-sales represent 24 percent of NYSE share volume and we believe it has increased significantly with HF trading.

http://www.ssrn.com/abstract=761724

As reported, Knight Capital's computer system was running a program that caused a high frequency trading error on August 1, 2012 creating an end of day loss for Knight of $440 million. The financial press has reported the Knight program was a huge buy/sell effort for the first 45 minutes of trading. The second-by-second trade reporting does not support this conclusion. We believe that publicly available data show that during that period, from just the reported markets short sale data, approximately 60% of the above shares came from short sales. In these 45 minutes, how were the short sellers able to obtain locates for shares to borrow and deliver for settlement in these securities? Does the current reporting system identify massive short selling in high frequency trading systems in general? We believe the lack of transparency on failed trades goes far beyond the Knight glitch and that it is a major potential danger to the U.S. financial system.Contrary to popular belief not all fails are processed by NSCC and therefore not all fails are transparent. DTC has acknowledged this by setting up a voluntary program for such fails.While there is a prevailing belief that abusive short sales have been cured we believe that especially in the case of ETF'S and HF trading that statement cannot be made because so many of their fails are unreported.We question how locates are found under these circumstances. How, in a nanosecond environment , could locates be obtained for millions of shares of an illiquid security? It is improbable that these were bona fide short sales with reasonable grounds to believe that shares could be delivered for settlement. In his

recent book about Senator Kaufman's efforts to warn about both HFT and abusive short selling,the author Jeff Connaughton notes at p.157;"A high frequency trade has no time to get its ticket stamped before jumping on its high speed train".

http://economix.blogs.nytimes.com/2012/08/23/why-does-wall-street-always-win/

We believe the lack of reporting of failed trades goes far beyond the Knight glitch and that it is a major potential danger to the U.S. financial system. We suggest that the Commission consider this a top priority and require that all trades, settlements and fails both domestic and international for U.S. stocks be reported to DTCC.Attached as exhibit A is a more detailed analysis provided by clients.

With respect to **HF trading in general,** in a recent article the Chicago Fed staff has addressed numerous ways intermediaries should be tasked with preventing such mishaps in the future.
https://www.chicagofed.org/webpages/publications/chicago_fed_letter/index.cfm

The Wall Street Journal reports on the efforts of European regulators to do the same.
http://online.wsj.com/article/SB10000872396390444813104578018292059338944.html?mod=ITP_moneyandinvesting_0

Its clear that the intermediaries profiting from these trades bear a responsibility to insure their soundness and should not be excused in the name of liquidity.These red flags are no different then those often cited in small firm failure to supervise charges.Errant algorithms are no different then a failure to review a rogue trader.See Jim Mctague in Barrons

http://online.barrons.com/article/SB50001424053111904239304577573162788310008.html#

Some of the comment letters seem to suggest that this is not a regulatory problem but one for the engineers and technologists sounding like an effort at prudential regulation, as we knew it before the sub-prime crisis.But the technology infrastructure is as much a regulatory concern as is the firms'capital and risk procedures.Someone has to take responsibility for major defaults in systems and while one size never fits all problems,nor should technology be excused from aggressive oversight and enforcement.The commission arguably should not regulate the speed of trading but it certainly should hold the speedsters responsible when they cause disruption.

This Roundtable should recommend that the staff investigate and put in place policies similar to those recommended by the Chicago Fed and European regulators and insure that all fails are reported and made transparent.Both ends of HF trading must be studied,the initiation of the trades and their settlement or lack thereof.

EXHIBIT A

More investigation is required in order for the Commission and the Roundtable to make informed judgments and recommendations regarding the events of August 1, 2012, the trading by Knight, Knight's counterparties and high frequency computerized trading in general. In particular, we believe that deliberate shorting into the purchases may have suppressed the price of the securities instead of causing prices to rise as would be expected in a normal supply and demand marketplace.

Background

As reported, Knight's computer system was running a high frequency trading program that caused a trading error on August 1, 2012 creating an end of day loss for Knight of $440 million. The financial press has reported the Knight program was executing a huge buy/sell effort for the first 45 minutes of trading. However, the second-by-second trade reporting does not show this amount of loss to Knight, if they were simply buying and selling rapid fire trades.

Data was examined for 131 of the 140 companies1[1] reported to be traded by Knight on August 1st. The maximum spreads between buys/sells in the 131 securities show a potential loss to Knight during the first 46 minutes of trading (allowing an additional minute for trades to get through the system) of $41 million, assuming Knight was involved in every trade. When the additional 9 securities are considered (including the 6 securities that triggered circuit breakers), Knight's loss in a straight buy/sell trading pattern would not exceed $50 million.

To lose almost 10 times this amount suggests that the buy/sell flurry of trading story posed by the press is inaccurate and another explanation for Knight's massive losses must exist.

Financial Press Reports about the Events

We are not aware of any written reports by the SEC about short selling activity in connection with Knight, its counterparties or high frequency trading in general. The media2[2] has reported a number of stories about the trading debacle on August 1, 2012. Such as:

- Knight's computer malfunction caused them to accumulate an equity securities position worth $7 billion in the first 45 minutes of trading on August 1, 2012.

1[1] Of the 140 securities, ARC, CO, EJ, KWK, UTGRT and WZE were excluded due to cancelled trades, and BRK B, O PRE and RBS PRF were excluded because certain data was not available.

2[2] Wall Street Journal, *Knight Held $7 Billion of Stocks Due to Glitch*, Jenny Strasburg and Telios Demos, Updated August 13, 2012 http://online.wsj.com/article/SB10000872396390444900304577577580222134916.html

- The $7 billion portfolio was positions accumulated from the 140 stocks identified in the NYSE Trader Update from August 1, 2012.

- Knight was able to sell securities and reduce its positions to approximately $4.6 billion throughout the day down to a mark-to-market loss of $440 million.

- Goldman Sachs purchased the portfolio of securities from Knight at a 5% haircut.

The reports by the financial press of the buy/sell programming loss by Knight appear to be highly inaccurate. It is important for the Commission and the Roundtable to discuss accurate information. Which of the above statements in the press are true?

Knight's End of Day Remaining Portfolio

Presumably the positions Knight unwound during the remainder of the trading day were liquid securities (for example: General Electric, Ford Motor Co., Coca Cola, Dow Chemical Co.) and its portfolio remaining at the end of the day consisted of a significant number of illiquid securities that Knight could not readily sell.

Massive Sales of Illiquid Securities

Many of the stocks Knight's computerized platform traded were illiquid securities, i.e. stocks that traded volumes on August 1st far exceeding their normal trading volumes. For example; a) Lithia Motors (LAD) traded 6.2 million shares during Knight's 46-minute flurry of trades, but its previous 3 month average daily volume was only 358 thousand shares. This was 17.3 times the average daily volume, b) Wells Fargo Advantage Income Opportunity Fund (EAD) traded 4.1 million shares with a 3 month average daily volume of 266 thousand shares or 15.2 times its average daily volume, and c) Spansion Inc (CODE), which traded 3.9 million shares with an average daily volume of 366 thousand or 10.7 times its 3 month average daily volume ***in 46 minutes***.

This raises several questions. Where did the shares to purchase come from? On August 1st, from just the reported markets short sale data, approximately 60% of the above shares came from short sales. In these 46 minutes, how were the short sellers able to obtain locates for millions of shares to borrow and deliver for settlement in these securities? It seems improbable these were bona fide short sales with reasonable grounds to believe that shares could be delivered for settlement.

The number of trades for these three securities during this period were; LAD: 59,085, EAD: 32,698 and CODE: 32,895 transactions. There were no significant number of fails reported at the NSCC for these securities, indicating virtually every trade had, in the normal course of business, a full settlement of shares.

For just these three illiquid securities, there were 14.1 million shares traded during the 46-minute period in nearly 125 thousand transactions, while their collective average daily volume was just 990 thousand shares.

A review of 10 illiquid stocks traded by Knight on August 1st, showed 42.4 million shares traded in 352 thousand transactions in this 46-minute period, with a collective average daily volume of 6.7 million shares. This is 6.4 times the average daily trading volume for only 10 securities that Knight traded. Shares became available trade-by-trade, nanosecond-by-nanosecond, to be sold or short sold/borrowed in this large number of transactions matching Knight's trading and were fully deliverable for settlement. The normal selling of these shares would have required an extremely quick process to obtain real shares to sell and to locate shares to borrow in order to complete regular settlement of the short sales.

August 1, 2012 Transactional Activity

According to data provided by Reuters, during the first 45 minutes of trading for the 140 companies in total, nearly 787 million shares were traded in 4.97 million transactions or **108 thousand transactions per minute**. There were 1,802 trades per second where shares had to be available to sell or to locate and borrow for short sales.

Of the 4.97 million trades, 4.4 million or 89% were 100-share block transactions. For each share traded, there was a seller. The Commission and its Roundtable needs to concentrate on who the sellers were that kept up with the speed of the electronic trading generated by Knight.

Computer to Computer Trading

Was this a runaway computer program trading against another runaway system short selling to Knight? Or, was this a runaway system from Knight that a counterparty(ies) took advantage of? Furthermore a question remains as to whether deliberately taking advantage of a counterparty's computer error is consistent with just and equitable trades, if this is what occurred?

To put the trading on August 1st into perspective, during the first 45 minutes of trading for the prior three trading days in the 140 stocks the number of trades, averaged 481 thousand. The number of trades and trade volume on August 1st indicates the trade execution could not have been done by human input, but were instead computers selling into Knight's explosive trading.

In the 131 stocks examined, the dollar value traded **per minute was $341 million** during the 46-minute period. In comparison, Knight's total net capital was less than $300 million as of June 30, 2012.

Does the current reporting system identify massive short selling in high frequency trading systems in general?

Artificial Prices

The data on 131 companies of the 140 reported to be traded by Knight, show 75 securities or 57% declined in price during the 46-minute period, even though Knight was aggressively acquiring shares of these companies that reportedly amounted to $7 billion. The value of these securities should have increased in price based on the heightened demand produced by Knight's computer program, if the trading was in a normal supply and demand market without the supply generated from short sales.

It appears that deliberate shorting caused an artificial price in the marketplace of many securities traded on August 1, 2012 whereby NYSE/SEC circuit breakers were not triggered for the protection of investors, other broker dealers and ultimately Knight. Were prices altered from large scale computer short selling, matching Knight's purchases?

In a recent press release on September 25, 2012, Daniel M. Hawke, Chief of the SEC Enforcement Division's Market Abuse Unit, stated:3[3]

> "The fairness principle that underlies the foundation of our markets demands that prices of securities accurately reflect a genuine supply of and demand for those securities. The SEC will not tolerate any abusive practice that is designed to distort these natural forces."

The fact that these prices appear to have been altered deserves further investigation to provide accurate information to the Commission and the Roundtable about the events of August 1st and how computerized trading systems may operate in the financial markets.

Lack of Circuit Breaker Protection

In many illiquid securities listed in the NYSE Trader Update of August 1, 2012, trade volumes on August 1st exceeded their average daily trading volumes with very high levels of short selling, but circuit breakers were triggered on only six securities that Knight was trading. Therefore, it appears that the short selling suppressed the price of the securities, holding the values of the stocks down creating an artificial price without triggering circuit breakers for the protection of investors, brokers and the integrity of the marketplace.

Circuit breakers are currently based on the price of the security. However, if the circuit breakers could also be triggered by volume or dollar value movements, Knight most likely, would have triggered circuit breakers in virtually all of the illiquid stocks it ended up with in its portfolio. This would have minimized the severe damage that occurred to Knight.

3[3] SEC Charges N.Y.-Based Brokerage Firm with Layering, September 25, 2012
http://sec.gov/news/press/2012/2012-197.htm

The Commission and its Roundtable should consider additional circuit breakers in order to not only protect public investors, but also protect broker-dealers that could be exposed to runaway computerized risks, which could cause great damage to their businesses.

Fails in Settlement at the NSCC Appear Illogical

The SEC has stated in the past that, "Assuming everything else constant, as the magnitude of trading (settlements) increases one would expect that the magnitude of fails to deliver would also increase."[4][4]

This observation by the SEC should be especially true in illiquid stocks that are being heavily sold short. However, with the excessive trade volumes in these illiquid stocks, there was **no subsequent increase in fails at the NSCC**. Is there somewhere the shares would have been reported as fails other than at the NSCC?

Were shares not delivered because the short sales were netting out a book-entry transaction off set by the Knight purchases and subsequent portfolio sale to Goldman? Did the transaction between Goldman and Knight cancel Knight's requirement to deliver the shares to Goldman? This book-entry netting effect scenario, in essence, would imply that trades were executed in the market without clearance and settlement activity.

All of this data together implies that the events of August 1st have not been fully explained to public investors and fails to deliver at the NSCC are, at best, misleading.

Other Information Required for Informed Decisions

Computerized high frequency trading has significant systemic risks as shown by the near fatal bankruptcy of Knight Capital. The Roundtable needs adequate information as to what occurred on August 1st in order to have any reasonable expectations of coming to logical recommendations to better the capital markets and protect them from computerized systemic risks.

There have been several years of calls for reform of market transparency and high frequency computerized trading, including from Dodd-Frank legislation, Senators Grassley, Levin and Kaufman, and various international financial regulators. We believe that this type of market reform has been impeded by a lack of data analysis, undermining the regulatory process.

Without the answers to the questions posed herein, it is difficult for regulators to explain and compose effective measures to deal with long-term systemic risks to the U.S. markets and its economy. This lack of transparency in the markets and misunderstanding of the data provided to regulators should be a top priority for the Commission and its

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4[4] SEC Office of Economic Analysis Memorandum, To: File, From: Office of Economic Analysis, November 26, 2008, 'Impact of Recent SHO Rule Changes on Fails to Deliver' www.sec.gov/comments/s7-30-08/s73008-37.pdf

Roundtable before any decisions and recommendations are made using incomplete information about the future of high frequency computerized trading in the U.S. markets.

It is clear from the second-by-second trading data that what has been reported in the media as a runaway system buying and selling securities could not possibly have caused Knight to lose $440 million. The Roundtable will be ill-equipped and the public and their comments will be ill-served by discussing these matters without adequate information available for analysis. We believe that the Roundtable needs at least answers to the questions posed above and the following issues before it undertakes its evaluation of these most serious matters.

1. Who were the significant participants in short sales to Knight during the first 45 minutes of trading on August 1st?

2. What happened to the short sales after Knight was rescued?

3. In the buy/sell scenario published by the media it is important to know, if Knight was buying and selling, how did it lose this amount of money in the process? If Knight sold shares it was purchasing, did Knight sell shares to itself creating the large loss from its purchases of transactions from another party?

4. Were the majority of the short sales in the first 45-minute period bona fide short sales with reasonable grounds to believe that shares could be delivered for settlement?

5. As reported, did the NYSE discover Knight's runaway trading error within minutes of the opening bell? The Commission and its Roundtable should consider what additional efforts could have taken place to protect investors, brokers and the integrity of the marketplace from this economically dangerous event.

6. During negotiations for an emergency tri-party loan from Royal Bank of Canada to Knight to capitalize the firm, the media reported that J.P. Morgan (as the third party) refused "to accept thousands of Knight-owned securities" as collateral for the loan.5[5] Did this illiquid portfolio include illiquid stocks that Knight purchased on the morning of August 1st and was attempting to use as collateral?

The press indicates that there were approximately 4,000 securities rejected by J.P. Morgan, which is a number far exceeding the 140 securities that Knight traded on August 1st for its massive loss of $440 million. If this is the true number of securities presented to J.P. Morgan, it indicates that Knight had a very large number of illiquid securities in its portfolio prior to August 1st. Were these illiquid

5[5] Wall Street Journal, *J.P. Morgan Rankled by Risk*, Julie Steinberg, Jenny Strasburg and Dan Fitzpatrick, Updated August 30, 2012, http://online.wsj.com/article/SB10000872396390443618604577621561683343518.html

securities previously counted as assets in the net capital calculations for Knight? If these securities, that J.P. Morgan rejected, were included in Knight's net capital calculations, was the amount of assets properly reported and Knight's capital risks fully disclosed to the Commission?

Conclusion

There are too many questions and data gaps to fully assess the August 1st events. We recommend more investigation into Knight's trading practices, its counterparties on August 1st and high frequency trading in order for the Commission and the Roundtable to make informed judgments and recommendations.

While there is a prevailing belief that abusive short sales have been cured based on the levels of fails at the NSCC; that statement appears to be false due to misleading reporting of the fails.6[6]

Therefore, the Commission's and the Roundtable's investigation and discussion should consider not only the events on August 1st, but also improvements in fails, short selling and reporting practices for the industry. These reporting improvements should stress systemic risk symptom indicators to facilitate prompt targeting of problems rather than post-crash forensic examinations.

We believe the lack of reporting of failed trades goes far beyond the Knight glitch and that it is a major potential danger to the U.S. financial system.

6[6] Data supporting these conclusions is available upon request.