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Opening Statement of Dennis Dick, CFA -- Capital Markets Policy Council, CFA Institute
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Good Morning. My name is Dennis Dick, and I am a member of the Capital Markets Policy Council[1] at CFA Institute[2]. I am also a proprietary trader and equity market structure analyst at Bright Trading, LLC[3].

I appreciate the opportunity to speak before you today regarding a number of customer issues, including the use of market and stop orders during times of market stress, the potential conflicts and issues created by payment-for-order-flow arrangements, and Rules 605 and 606 reporting.

Risks of Using Stop and Market Orders

August 24th was an extraordinary event marked by large increases in trading volume, drastic reductions in liquidity, and significant price dislocations. The stocks of hundreds of major companies, including widely held names such as General Electric, J.P. Morgan, and Johnson & Johnson, fell more than 10% in a matter of minutes. The lower bands of the limit up-limit down (LULD) circuit breaker mechanism were quickly reached on many individual securities, leading to hundreds of individual volatility pauses in stocks and ETFs. These temporary halts led to market confusion and significant reductions in ETF liquidity, as market participants could not accurately calculate the value of their underlying holdings.

Any trader or investor who held their positions through those opening few minutes, was not severely impacted because the market rebounded significantly from those opening lows. However, this rebound could not help those investors who had used stop or market orders to protect themselves from further losses during the severe opening decline. That is because these stop orders may have been triggered and executed at prices significantly lower than previously quoted prices, and may have been a contributing factor to further declines in individual stocks overall.

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[1] *The Capital Markets Policy Council (CMPC) works with the Capital Markets Policy Group staff at CFA Institute by providing guidance on financial market regulatory and policy issues, all from the perspective of what is best for markets, investors, and clients. The CMPC also assists staff with perspectives on research and advocacy positions developed in response to critical issues in the capital markets.*

[2] *CFA Institute is a global, not-for-profit professional association of more than 135,000 investment analysts, advisers, portfolio managers, and other investment professionals in 145 countries, of more than 129,000 hold the Chartered Financial Analyst® (CFA®) designation. CFA Institute membership includes 147 member societies in 73 countries and territories.*

[3] *Bright Trading, LLC has been registered in the US as a broker dealer with the Securities and Exchange Commission since 1992 and is also a member of the Chicago Stock Exchange.*

The question is, how do we better protect individual investors during times of market stress? Furthermore, should we limit the use of stop or market orders during periods of market instability?

The intention of the stop order is to limit losses, and many individual investors incorrectly assume that the price they specify in their stop order will be the same price at which they will likely be executed. Better educating investors about the functioning of stop orders, especially during periods of market instability, would be a good start.

However, restricting or limiting the use of stop or market orders could lead to a number of issues. Many individual investors do not have the ability to monitor the markets on a regular basis. By requiring these investors to include a limit price on their stop orders, the investor runs the risk that his stop order may not be executed at all (in the event where the limit price cannot be obtained). While this is advantageous to the investor if the stock price recovers, it could be detrimental to the investor if the stock price continues lower, leaving the investor with more serious losses than if a limit price in the stop order had not been specified.

A better approach might be to require brokers to use automated warning systems during times of market stress. For example, when investors place stop or market orders with their brokers during periods of market instability, an automated warning screen could advise them to use caution when placing stop or market orders due to excessive market volatility and potentially reduced liquidity.

Communicating with investors about potential reductions in liquidity and excessive volatility would be a step in the right direction.

But circuit breakers and warning systems for stop or market orders are mere band aids for potentially larger underlying market structural issues, including significant reductions in liquidity during periods of market stress.

Payment-for-Order-Flow Arrangements

One issue that CFA Institute has raised in the past is the rising levels of off-exchange trading and the effects it can have on displayed market liquidity.[4]

Payment-for-order-flow arrangements, where OTC market makers purchase order flow from retail brokerage firms, and directly trade against those orders, can have the potential to disadvantage and discourage displayed liquidity providers.

[4] *See CFA Institute report, Dark Pools, Internalization, and Equity Market Quality - http://www.cfapubs.org/doi/pdf/10.2469/ccb.v2012.n5.1*

Consider the following hypothetical example (please refer to Exhibit 1):

Exhibit 1:
Sequence of trades that appear on the consolidated tape for stock XYZ:

Time	Last	Shares	Exchange
10:20:25	25.0501	100	FINRA TRF
10:22:35	25.05	100	FINRA TRF
10:27:32	25.1005	300	FINRA TRF
10:32:59	25.0001	100	FINRA TRF
10:41:32	25.1999	100	FINRA TRF

Here is the hypothetical sequence of events from the trades in Exhibit 1:

At time, 10:17:20, stock XYZ has an NBBO of $25.00 x $25.20.

At 10:18:25, a retail trader places a limit order to buy 100 shares of stock XYZ at $25.05. Its broker routes this order to ARCA where it represents the entire new NBB, and the new NBBO is now $25.05 x $25.20.

At 10:20:25, a trader from a retail brokerage places an order to sell 100 shares at $25.05. The retail brokerage has a payment-for-order-flow arrangement with an OTC market maker, and it routes the order to the OTC market maker for execution. The OTC market maker executes the order for its own account at $25.0501, providing $.0001 price improvement to the marketable sell order. The original limit order trader is left unfilled. The trade is reported to the FINRA Trade Reporting Facility (TRF).

At 10:22:35, another trader from a retail brokerage sends a market order to sell 100 shares of stock XYZ. The broker routes the order to its OTC market maker, and the OTC market maker matches the displayed bid, executing the trade at $25.05 for its own account. There is no price improvement on this trade. The trade is reported to the FINRA TRF. Again, the limit order trader is left unfilled.

At 10:22:40, the original limit order trader becomes more aggressive and raises their bid for 100 shares to $25.10 which is posted on ARCA. The new NBBO is now $25.10 x $25.20.

At 10:27:32, a retail trader from a different brokerage sends a market order to sell 300 shares of stock XYZ. The retail brokerage routes the sell order to its OTC market maker and the order is executed at $25.1005, providing $.0005 price improvement to the 300 share market order. The trade is reported to the FINRA TRF. Again, the original limit order trader sitting on ARCA at $25.10 is left unfilled.

At 10:28:00, the original limit order trader tries a different tactic. It cancels its order at $25.10, and places a hidden order to buy 100 shares on ARCA at $25.05. The new NBBO is now $25.00 x $25.20 (as the $25.05 limit buy order is hidden and not part of the displayed NBBO).

At 10:32:59, a retail trader sends a market order to sell 100 shares of stock XYZ and again the retail brokerage routes that order to its OTC market maker for execution. The OTC market maker transacts directly against the order at the price of $25.0001, giving $.0001 price improvement over the NBB. But the hidden order at $25.05 is left unfilled.

At 10:41:32, frustrated by the lack of execution, the original limit order trader cancels their hidden order and sends a market order to buy 100 shares of stock XYZ. Their broker also has a payment-for-order-flow relationship and the order is routed to an OTC market maker. The OTC market maker executes the buy order at $25.1999, providing $.0001 price improvement over the displayed NBO.

In summary, the limit order trader missed an execution on four separate occasions as the marketable order flow, which could have interacted with the trader's posted limit order, was routed away from the public exchange.

There are a number of concerning issues that this hypothetical example raises.

1) Nominal Price Improvement

The entire above sequence of trades would appear as a net benefit to customers when disclosed in their respective “605” reports. Price improvement over the NBBO is achieved on four separate occasions, $.0001 on the first trade, $.0005 on the third trade, $.0001 on the fourth trade; and $.0001 on the final trade.

But does this nominal sub-penny price improvement to the marketable order flow justify taking an execution away from a displayed liquidity provider?

2) Unquantifiable Costs from Missed Trading Opportunity

The limit order trader in the above example missed an execution on four separate occasions. Had they chosen not to pay the spread, and if the stock price moved higher, the trader may have never been filled on its limit order. In this case, the losses from missed trading opportunities would be unquantifiable. In our example, however, the trader's costs are quantifiable as the trader paid up to the ask price of $25.20. But it would have been better off by $.1499 had its original limit order at $25.05 been executed. Despite the trader being economically worse off, the 605 report would show price improvement of $.0001 (the executed price of $25.1999 over NBO), appearing as a net benefit to the customer.

3) Missed Opportunity for Significant Price Improvement

The marketable order flow routed to and executed against by the OTC market maker has no opportunity to interact with the hidden liquidity on the public exchange. In our hypothetical example, the fourth trade in which the trader sends a marketable order to sell 100 shares (and is executed at the price of $25.0001) received a total price improvement of $.0001. But the trader missed the opportunity to interact with the hidden limit order which was priced at $25.05. This amount of price improvement over the displayed NBBO would have been $.0500. Again the 605

report would show a net benefit ($.0001 price improvement) to the trader, when in reality the trader would have been better to have its marketable order routed to the public exchange. With hidden exchange volume accounting for 9.1% of total volume in the third quarter of 2015[5], many marketable orders could be missing out on the chance to receive significant price improvement if those orders were routed to the public exchange.

4) Reduced Competition

The OTC market maker, benefiting from the payment-for-order-flow arrangement, did not have to display any liquidity but was able to reap the rewards of receiving the execution. The payment-for-order-flow arrangement reduced its need to compete aggressively in the displayed market for queue priority by eliminating the competition to transact against the order flow it had purchased. This affords the OTC market maker the ability to free ride off the public quotation.

5) Increased Toxicity of Order Flow on Public Exchanges

As an increasing amount of retail order flow — which is typically more uninformed than professional and institutional order flow — is routed away from the public exchanges, the toxicity of the order flow on the public exchange tends to rise. This could potentially increase adverse selection risk for quoting market makers. Sviatoslav Rosov, PhD, CFA, of CFA Institute, authored a paper last year titled, "Liquidity in Equity Markets", which examines adverse selection issues on lit markets.[6] Specifically, the issue considered is whether OTC market makers predict when the quote is about to roll and route their own orders to lit venues where they trade in the direction of expected price changes.[7] The study found evidence of OTC market makers offering price improvement and capturing the spread during stable quote periods before executing against lit orders when they could predict the quote was about to roll.[8]

6) Discouragement of Displayed Liquidity Providers

If toxicity levels continue to rise, market makers could potentially feel like they are setting the price and taking on the adverse selection risk, but not reaping the rewards of receiving the execution. This could reduce their incentive to quote aggressively.

In 2012, CFA Institute examined the relationship between undisplayed trading and equity market quality and found that increases in internalization, dark pool, and off-exchange trading activity are initially found to be associated with lower bid-offer spreads and higher market depth.[9]

One possible explanation is that initially competition for order flow among on- and off-exchange venues causes more aggressive quoting in the limit order book.[10]

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[5] *See Q3 - 2015 Tabb Equity Digest - http://tabbforum.com/researches/us-equity-market-structure-q3-2015-tabb-equity-digest*
[6] *See CFA Institute report, Liquidity in Equity Markets - http://www.cfapubs.org/doi/pdf/10.2469/ccb.v2015.n7.1*
[7] *See id.*
[8] *See id.*
[9] *See CFA Institute report, Dark Pools, Internalization, and Equity Market Quality - http://www.cfapubs.org/doi/pdf/10.2469/ccb.v2012.n5.1*

However, the report continued, “the gains from dark trading are not indefinite. The results from this study suggest that if a majority of trading in a given stock takes place in undisplayed venues, spreads will likely increase and market quality will deteriorate. If the majority of order flow is filled away from pre-trade transparent markets, investors could withdraw quotes because of the reduced likelihood of those orders being filled. As investors become disincentivized from displaying orders, bid–offer spreads are likely to widen. Therefore, competition should be maintained to encourage aggressive quoting in displayed order books and a predominance of dark trading should be avoided."[11]

Policy Considerations

1) **Meaningful price improvement.**

To better protect displayed liquidity providers and encourage more aggressive quote competition, OTC market makers should provide meaningful price improvement over the displayed NBBO when internalizing and transacting against marketable retail order flow. Meaningful price improvement is defined as at least half of the minimum price variation (MPV) of the individual security.

2) **Improvements to 605 and 606 reporting.**

Due to the complexity and enormous amount of data contained in the 605 monthly reports, many retail traders rely on summary statistics from their brokers when analyzing execution quality. These statistics often focus on retail price improvement metrics, which do not tell the entire story. Opportunity costs from missed trading opportunities would be very difficult to assess, but more nonmarketable limit order metrics, such as length of time a nonmarketable limit order rests on the top of the book before execution, could help with this assessment. Combining 605 and 606 reports to better assess the execution quality a broker’s order flow receives on a venue-by-venue basis, would be helpful for individual investors. It could also help the retail investor to answer the question about whether their broker is routing orders to where they can maximize price improvement and execution speed, or to where they get paid the most?[12]

3) **Reduce access fees.**

If regulatory action is taken to direct more marketable retail order flow to the displayed public market, costs to retail brokers could increase substantially as they would be paying access fees more often. Retail brokers would have to absorb these extra fees, pass the access fees on to their customers, or potentially raise brokerage commissions to offset the increase in fees.

Therefore, any regulatory actions to increase the amount of marketable order flow routed to the public exchanges should coincide with a reduction in the access fee cap.

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[10] *See id. page 58.*
[11] *See id.*
[12] See Battalio paper - Can Brokers Have it All? On the Relation between Make-Take Fees and Limit Order Execution Quality - https://www3.nd.edu/~scorwin/documents/BattalioCorwinJennings_20150331_final.pdf

I thank you for the opportunity to speak with you today, and look forward to any questions you may have in the upcoming discussion.

Payment For Order Flow

Equity Market Structure Advisory Committee Meeting
February 2, 2016

Presented to you by:
Dennis Dick, CFA

Member, Capital Markets Policy Council, CFA Institute
Proprietary Trader, Equity Market Structure Analyst, Bright Trading LLC

Scenario Analysis: PFOF

Consider the following hypothetical example:

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Concerns with PFOF

- Nominal Price Improvement
- Unquantifiable Costs from Missed Trading Opportunity
- Missed Opportunity for Significant Price Improvement
- Reduced Competition
- Increased Toxicity of Exchange Order Flow
- Discouragement of Displayed Liquidity Providers

Policy Considerations

- Meaningful Price Improvement
- Improvements to 605 & 606 reporting
- Reduction in Access Fee Cap