Speech

Enhancing Our Equity Market Structure

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It is great to be here with you in New York to speak about our equity market structure and how we can enhance it.

While I know your views on particular issues may differ, you all certainly appreciate that investors and public companies benefit greatly from robust and resilient equity markets.

During my first year as Chair, not surprisingly, I have heard a wide range of perspectives on equity market structure, reflecting its inherent complexity, the relationships among many core issues, as well as the different business models of market participants. To frame the SEC's review of these issues, I set out last fall certain fundamentals for addressing market structure policy. One of those is the importance of data and empirically based decision-making. At that time, we launched an interactive public website devoted to market structure data and analysis drawn from a range of sources. The website has grown to include work by SEC staff on important market structure topics, including the nature of trading in dark venues, market fragmentation, and high-frequency trading.

Through this initiative and others, we have taken important steps to further strengthen the investing environment. And today, as we move forward in the next phase of our efforts to enhance our market structure, I am recommending additional measures to further promote market stability and fairness, enhance market transparency and disclosures, and build more effective markets for smaller companies. I am also recommending to the Commission the creation of a new Market Structure Advisory Committee of experts to review specific initiatives and rule proposals. Your input also remains essential to help us ensure that our markets continue to operate openly, fairly, and efficiently to benefit investors and promote capital formation.

I. Taking Principled Action

Let me start with the core principles that are grounding our review of equity market structure and guiding further actions.

First, we must evaluate all issues through the prism of the best interest of investors and the facilitation of capital formation for public companies. The secondary markets exist for investors and public companies, and their interests must be paramount.

Second, we must account for the varying nature of companies and products, with a particular sensitivity to the needs of smaller companies. One market structure does not fit all.

Third, our review of market structure must be comprehensive. We must test our assumptions about long-standing rules and market practices. Past decisions must be reevaluated in light of current conditions, and market-based solutions to issues should be explored. Barriers to such solutions must be reviewed, and removed where appropriate.

II. Market Structure Today

Equity markets are, of course, now dominated by computer algorithms, which generate orders at a volume and speed that have transformed the nature of trading. Importantly, these algorithms are used not only by high-frequency traders, but also by or on behalf of investors.

Empirical evidence shows that investors are doing better in today's algorithmic marketplace than they did in the old manual markets.

- For institutional investors, the costs of executing large orders, measured in terms of price, were more than 10 percent lower in 2013 than in 2006.[1] This is true even though fundamental volatility — which in general is positively correlated with such costs — was slightly higher in 2013 than it was in 2006.[2]
- The level of intraday volatility also has returned to low levels after spiking during the financial crisis. Intraday volatility of the S&P 500 Index was nearly the same in 2013 as it was in 2006 — for both average and maximum volatility.[3]
- The spreads between bid and ask prices for the broader market also are as narrow as they have ever been.[4] These narrower spreads are particularly important for retail investors because they reflect the cost of trading immediately at the best prices, which is generally the objective of retail investors.

All of these market quality metrics show that the current market structure is not fundamentally broken, let alone rigged. To the contrary, the equity markets are strong and generally continue to serve well the interests of both retail and institutional investors. The largely positive data on broad market quality does not mean, however, that the current market structure is without issues.

- Some potential additional benefits for investors from improved technology may have been diverted by excessive intermediation, and broad market quality would perhaps be even better if different rules were in place.
- And not all segments of the equity markets have equally shared the benefits from the positive market trends, and that disparity may have increased in recent years. For example, key costs for institutional investors in small-cap stocks appear to have remained relatively high since the financial crisis, in contrast to the large declines in such costs for the broader market.
- As a general matter, many market structure rules and industry practices were developed with manual markets in mind. They cannot be expected to optimally address all of today's market practices.

III. Enhancing Market Structure Today and Tomorrow

Addressing the issues of our current market structure demands a continuous and comprehensive review that integrates targeted enhancements with an expansive consideration of broader changes. But we must not ignore the largely positive evidence of market quality. That reality demands careful study and deliberate action when considering fundamental changes. As we evaluate the merits of broader changes, we will also continue to assess and address specific elements of today's market structure that work against the interests of investors and public companies.

Let me now outline the initiatives we are advancing across five broad sets of issues: market instability, high frequency trading, fragmentation, broker conflicts, and the quality of markets for smaller companies.

Preventing Market Instability

First, as I have said from the day I took office, one of the most serious concerns about today's equity markets is the risk of instability and disruption. Technology can and has greatly increased the efficiency of our markets, but it can also allow severe problems to develop very quickly — just consider some of the systems events of the last few years at exchanges and brokers.

The SEC and the securities industry have already undertaken a series of responsive initiatives. "Limit up-limit down," for example, is now fully implemented and moderating price volatility in individual securities.[5] Market-wide circuit breakers are in place to address volatility across the equities, options, and futures markets.[6]

And the SEC has taken additional steps to require market participants to address their technology risks. We adopted — and are vigorously enforcing — the Market Access Rule, which requires brokers to implement better risk controls.[7] And last March, the Commission proposed Regulation SCI to put in place stricter requirements relating to the technology used by exchanges, large alternative trading systems, clearing agencies, and securities information processors -- the SIPs.[8] The staff is now completing a recommendation for final rules.

We also have closely focused on certain market infrastructure systems that are “single points of failure” that can halt or severely disrupt trading when a problem occurs. Last fall, I met with the leaders of the equities and options exchanges to address strengthening these systems. Among other measures, the exchanges have responded with technology audits of the SIPs and a series of specific enhancements to improve SIP robustness and resilience. In addition, the exchanges have developed more robust SIP backup capabilities, and they expect to implement a new “hot-warm” backup, with a ten-minute recovery standard, by the end of this month.

We have made considerable progress in addressing the risk of market instability, and I look forward to the completion of these ongoing efforts in the coming months. But there is more to be done, and there is never room for complacency.

Addressing High Frequency Trading and Promoting Fairness

Recently, a lot of lively debate has centered on high frequency trading, speed, and fairness. These have been important issues for some time. Algorithmic traders, which include high frequency trading firms and a large percentage of institutional trading, likely represent well over a majority of trading volume.[9]

These traders use a variety of low-latency tools, including co-located servers in trading data facilities and direct data feeds from trading venues rather than the slower consolidated data feeds of the SIPs.[10] Much of the recent public focus has been on high frequency trading firms, but it is important to remember that many brokers use the same tools on behalf of their customers.

The SEC should not roll back the technology clock or prohibit algorithmic trading, but we are assessing the extent to which specific elements of the computer-driven trading environment may be working against investors rather than for them.

An area of particular focus is the use of aggressive, destabilizing trading strategies in vulnerable market conditions, when they could most seriously exacerbate price volatility.[11] While the volatility moderators already put in place impose outside limits on price moves,[12] even moves within those limits can be damaging. Instability arising during a broad market event may simultaneously affect hundreds or thousands of stocks, triggering many trading pauses and reopenings over a short period of time.

To address this risk, I have directed the staff to develop a recommendation to the Commission for an anti-disruptive trading rule. Such a rule will need to be carefully tailored to apply to active proprietary traders in short time periods when liquidity is most vulnerable and the risk of price disruption caused by aggressive short-term trading strategies is highest.

We also are focused on using our core regulatory tools of registration and firm oversight. I have asked the SEC staff to prepare two recommendations for the Commission: the first, a rule to clarify the status of unregistered active proprietary traders to subject them to our rules as dealers; and second, a rule eliminating an exception from FINRA membership requirements for dealers that trade in off-exchange venues. Dealer registration and FINRA membership should significantly strengthen regulatory oversight over active proprietary trading firms and the strategies they use.

I have further instructed the staff to prepare recommendations for the Commission to improve firms’ risk management of trading algorithms and to enhance regulatory oversight over their use. Given the overwhelming dominance of trading algorithms, it is time that our regulatory regime is updated to take better account of the risks when they are poorly designed or operated.

Another important concern raised by algorithmic trading is fairness for investors. Do low-latency tools, even though they are available to investors through brokers, tend to advantage certain types of proprietary trading strategies that may detract from the interests of investors? Some of the research suggests this may be the case.[13] And a related fairness concern is the latency difference between the direct data feeds and the consolidated feeds.

As initial steps to address these issues, we will continue to focus the efforts of the exchanges and FINRA in minimizing consolidated data latency. The exchanges and FINRA have an obligation to provide data to the SIPs in a way that is not unreasonably discriminatory. They are not allowed to transmit data to direct customers any sooner than they transmit data to the SIP, and the technology used for transmitting data to the SIP must be on a par with what is used for transmitting data to direct feeds.

I am also asking the exchanges and FINRA to consider including a time stamp in the consolidated data feeds that indicates when a trading venue, for example, processed the display of an order or execution of a trade. With this information, users of the consolidated feeds would be able to better monitor the latency of those feeds and assess whether such feeds meet their trading and other requirements.

And I am asking the exchanges to develop proposed rule changes to disclose how — and for what purpose — they are using data feeds. For example, which data feeds are used to execute and route orders? And which feeds are used to comply with regulatory requirements, such as trade-through rules? Brokers and investors could use the enhanced transparency to better assess the quality of an exchange's execution and routing services.

Each of these measures target specific elements of today's technology-driven market that may work against, or at least not optimally for, the interests of investors and companies. We also are evaluating whether the evidence supports broader measures that would further advance those interests without creating unintended adverse consequences.

We must consider, for example, whether the increasingly expensive search for speed has passed the point of diminishing returns. I am personally wary of prescriptive regulation that attempts to identify an optimal trading speed, but I am receptive to more flexible, competitive solutions that could be adopted by trading venues. These could include frequent batch auctions or other mechanisms designed to minimize speed advantages. They could also include affirmative or negative trading obligations for high-frequency trading firms that employ the fastest, most sophisticated trading tools.

Such obligations would be analogous to the ones that historically applied to the proprietary traders with time and place advantages on manual trading floors.

A key question is whether trading venues have sufficient opportunity and flexibility to innovate successfully with initiatives that seek to deemphasize speed as a key to trading success in order to further serve the interests of investors.[14] If not, we must reconsider the SEC rules and market practices that stand in the way.

Enhancing Market Transparency and Examining Trading Venue Regulation

Another market structure concern is fragmentation. Order flow in exchange-listed equities is divided among many trading venues — 11 exchanges, more than 40 alternative trading systems, and more than 250 broker-dealers.[15] The competition for order flow among these venues is intense, and it benefits investors by encouraging services that meet particular trading needs and by keeping trading fees low. Having multiple trading venues also can help avoid trading disruptions if one venue has an isolated problem — order flow often can be immediately shifted to other venues.

This proliferation of venues, however, also raises issues. One is their interconnectedness — the potential for one or more systems to malfunction and disrupt other systems, or to interact with other systems in unexpected ways. Another is the increase in the percentage of order flow that is handled and executed by dark trading venues.[16] The percentage of trading volume executed in dark venues increased from approximately 25 percent in 2009 to approximately 35 percent today.[17]

Dark trading venues generally reference the quoted prices displayed by the lit exchanges and do not publicly display quotes or otherwise provide pre-trade transparency of the prices at which they will execute orders. And the consensus of the research is that the current extent of dark trading can sometimes detract from market quality, including the informational efficiency of prices.[18]

Dark venues lack transparency in other important respects. Although the trades of dark venues are reported in real time, the identity of participants in the dark venue is not disclosed to the public. And dark venues generally only provide limited information about how they operate. ATSs, for example, file a form with the SEC on some aspects of their operations, but the forms are not publicly available under current rules.

Transparency has long been a hallmark of the U.S. securities markets, and I am concerned by the lack of it in these dark venues. Transparency is one of the primary tools used by investors to protect their own interests, yet investors know very little about many trading venues that handle their orders.

Just this week, FINRA began disseminating aggregate information on trading volume of ATSs.[19] This is a useful first step, but ATSs represent less than half of dark venue volume. To remedy this gap, I fully support FINRA in considering an expansion of its trading volume disclosure regime to off-exchange market makers and other broker-dealers.

I also have asked the SEC staff to prepare a recommendation to the Commission to expand the information about ATS operations submitted to us and to make the information available to the public. As you have seen in the recent media, some operators of dark venues began offering greater transparency to their operations this week, but a broader effort is needed.

While this expanded information will be an important tool for investors, we must continue to examine whether dark trading volume is approaching a level that risks seriously undermining the quality of price discovery provided by lit venues.

We also are continuing to consider whether more fundamental changes are needed to bring our regulatory structure in line with the significant market changes of the last decade. Importantly, we will be considering whether the SEC's own rules, such as the trade-through rule of Regulation NMS, have contributed to excessive fragmentation across all types of venues.

We also will be considering whether the current regulatory model for exchanges and other trading venues makes sense for today's markets.

The SEC last comprehensively considered trading venues in the 1990s, which led to the adoption of Regulation ATS. The 1990s approach draws a sharp distinction between exchanges and other trading venues, a distinction that has been blurred considerably over the last 20 years. A core focus of our comprehensive review will be whether and how the SEC's regulatory approach for trading venues should be changed to reflect significantly changed conditions.

Mitigating Broker Conflicts

A fourth area of concern is broker conflicts and how they are exacerbated or mitigated by different trading venues. Most investors rightly rely on their brokers to navigate the dispersed market ecosystem on their behalf. But monitoring the execution quality and costs of orders can be difficult for even the most sophisticated investors, given the number of trading venues and order types available to brokers.

The cost to the broker for executing in different venues can vary widely. Some venues make payments directly to brokers as a means to attract particular types of order flow. These payments include the liquidity rebates paid by exchanges that use a "maker-taker" fee structure. They also include payments offered by off-exchange market makers to retail brokers for the marketable order flow of their customers.

When fees and payments are not passed through from brokers to customers, they can create conflicts of interest and raise serious questions about whether such conflicts can be effectively managed.

Broker conflicts and other improper practices that have harmed investors have, of course, long been a focus of the SEC's enforcement program. In one case, for example, the SEC brought fraud charges against a brokerage firm and two former employees who caused many institutional clients to pay substantially higher amounts than disclosed for the execution of orders.[20] In another case, the SEC charged a broker operating as an ATS and two of its top executives with failing to disclose to customers that the vast majority of their orders were filled by a trading operation affiliated with the ATS.[21]

As one step to more generally address these issues, I have asked the staff to prepare a recommendation to the Commission for a rule that would enhance order routing disclosures. Rule 606 of Regulation NMS currently requires some public disclosure of broker order routing practices, but it does not cover the large orders typically used by institutional investors. The rule proposal would address this gap by requiring disclosure of the customer-specific information that a broker is expected to provide to each institutional customer on request. While some brokers already voluntarily provide some of this information, a rule is necessary to ensure that the disclosed information is useful, reliable, and uniformly available on request to all institutional customers.

Another source of broker conflicts is the large number of complex order types offered by the exchanges, which have been a recent focus of the SEC's examination program. The majority of these order types are designed to deal with the maker-taker fee model and the SEC's rule against locking quotations.

I am asking the exchanges to conduct a comprehensive review of their order types and how they operate in practice. As part of this review, I expect that the exchanges will consider appropriate rule changes to help clarify the nature of their order types and how they interact with each other, and how they support fair, orderly, and efficient markets.

In addition to these specific measures, we are considering more generally the questions relating to conflicts, including whether and how to further mitigate or eliminate potential sources of conflicts between brokers and customers. Exercising care in this area, however, is very important, because a number of fee structures are intertwined with many aspects of the current market structure, including the trading strategies that generate quotes on the public exchanges.

Building Quality Markets for Smaller Companies

The final market structure issue I want to highlight today is the quality of the equity markets for smaller companies. The number of domestic companies listed on U.S. exchanges now has dropped in half from the highs of more than 7,000 in the 1990s.[22] This decline has largely resulted from a reduction in the number of IPOs, particularly IPOs of smaller companies.[23]

While there obviously are a variety of factors at play here, the decline of new public companies is reducing the growth opportunities for U.S. investors. If the downward trend continues, the strength of the U.S. equity markets can be compromised.

In enhancing market structure, we must focus closely on the particular needs of smaller companies and their investors. As you know, I instructed the SEC staff last fall to move forward on work to develop a pilot program to allow wider tick sizes for the stocks of smaller companies. I anticipate that the Commission will soon complete its review of the terms of such a pilot, which will inform our broader understanding of how to build more robust markets for smaller issuers. I am also open to other ideas on ways to achieve this vitally important objective.

IV. Looking Ahead

I expect that the specific measures I have identified today to be considered by the Commission in the coming months. While our review in each of these five areas has already resulted in discrete actions targeting specific issues, the more fundamental policy questions demand — and are receiving — close attention at the SEC. While we do not require perfect solutions, our regulatory changes must be informed by clear-eyed, unbiased, and fact-based assessments of the likely impacts — positive and negative — on market quality for investors and issuers. Continued engagement by all market participants on these issues is critical.

To facilitate this engagement, the SEC staff will populate our market structure website with summaries of key issues that provide a framework for further analysis, identifying areas that the staff is focused on and where public perspectives are essential. I am also recommending to the Commission that the SEC establish a new Market Structure Advisory Committee comprised of experts with a diversity of backgrounds and viewpoints. The new committee will serve as an additional forum and resource for reviewing specific, clearly articulated initiatives or rule proposals.

We will continue the disciplined, data-driven approach to market structure that has marked the last year. Our comprehensive review and follow-up actions will ensure that our equity markets continue to operate fairly and efficiently, and in a manner that both optimally protects investors and promotes capital formation.

Thank you.

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[1] Investment Technology Group, Inc. ("ITG") maintains a large database of investor information and periodically generates statistical reports on institutional trading costs available at http://www.itg.com/thought-leadership/reports. Collectively, the ITG reports indicate that U.S. implementation shortfall costs declined from 63 basis points in Q3 2003 to 44 basis points in Q1 2006 to 36 basis points in Q3 2013. The ITG reports are consistent with other analyses of costs for institutional investors in the U.S. equity markets. *See*, *e.g.*, Angel, James J., Lawrence E. Harris and Chester S. Spatt, "Equity Trading in the 21st Century: An Update," at 23-24 (June 21, 2013) ("Angel, Harris and Spatt (2013)") (available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1584026).

[2] *See* Chicago Board Options Exchange ("CBOE"), "Volatility Indexes at CBOE," at 1 (January 2014) (available at http://www.cboe.com/micro/VIX/pdf/CBOE30c7-VOLindex_QRG.pdf).

[3] SEC staff analysis. Average intraday volatility was calculated on a quarterly basis as the average difference between the daily high and the daily low in the S&P 500 Index, divided by the closing price. Maximum volatility was calculated the maximum difference between the daily high and daily low, divided by the closing price.

[4] *See*, *e.g.,* Angel, Harris and Spatt (2013) at 5.

[5] SEC Press Release No. 2012-107, "SEC Approves Proposals to Address Extraordinary Volatility in Individual Stocks and Broader Stock Market" (June 1, 2012).

[6] *Id.*

[7] SEC Press Release No. 2010-210, "SEC Adopts New Rule Preventing Unfiltered Market Access" (November 3, 2010). One market access risk is the potential for erroneously submitting a single large order or a flood of small orders that disrupt trading. *See* SEC Press Release 2013-222, "SEC Charges Knight Capital With Violations of Market Access Rule" (October 16, 2013).

[8] SEC Press Release No. 2013-35, "SEC Proposes Rules to Improve Systems Compliance and Integrity" (March 7, 2013).

[9] Calculating the percentage of algorithmic trading in U.S. equities is challenging due to the lack of data identifying all orders that are submitted algorithmically. *See* Staff of the Division of Trading and Markets, U.S. Securities and Exchange Commission, "Equity Market Structure Literature Review, Part II: High Frequency Trading," at 5 (October 7, 2013) ("HFT Literature Review") (available at http://www.sec.gov/marketstructure/research/hft_lit_review_march_2014.pdf. Estimates of high frequency trading volume — a large subset, but by no means all, of algorithmic trading — are over 50% of total volume. *Id.* at 4-5.

[10] The consolidated feeds necessarily are slower because of the extra step required for data to move from various trading venues to the SIP and the time required for the SIP to consolidate that data. The average time

required for SIPs to consolidate data was approximately 1 second at the end of 2006, but currently has declined to approximately 1 millisecond. *See, e.g.,* Consolidated Tape Association, "Notice of Filing and Immediate Effectiveness of the Nineteenth Charges Amendment to the Second Restatement of the CTA Plan and Eleventh Charges Amendment to the Restated CQ Plan," Securities Exchange Act Release No. 70010, 78 FR 44984, 44992 (July 25, 2013).

[11] As the SEC staff has reviewed and posted on the market structure website, the economic literature on high frequency trading suggests that at least some HFT firms employ aggressive strategies that are associated with increased transitory price volatility. HFT Literature Review at 25-28, 31-33. *See also* Kirilenko, Andrei, Albert S. Kyle, Mehrdad Samadi and Tugkan Tuzun, 2014, "The Flash Crash: The Impact of High Frequency Trading on an Electronic Market," working paper (available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1686004).

[12] For more liquid securities, the limit is a 5% price move in five minutes; for most other listed securities, the limit is 10% price move in five minutes. The percentages are doubled during the opening and closing periods. When the limits are reached and persist, a temporary trading pause is triggered to facilitate a more deliberate price discovery process. *See* SEC Press Release 2012-107, "SEC Approves Proposals to Address Extraordinary Volatility in Individual Stocks and Broader Stock Market" (June 1, 2012).

[13] *See* HFT Literature Review at 30-33.

[14] In 2010, for example, the NASDAQ OMX Philadelphia exchange launched a trading model that gave priority to the size of orders rather than speed. The Nasdaq OMX Group, Inc., "NASDAQ OMX Launches First U.S. Equity Price-Size Exchange" (September 20, 2010) (available at http://ir.nasdaqomx.com/releasedetail.cfm?ReleaseID=508731).

[15] *See* Tuttle, Laura, 2014, "OTC Trading: Description of Non-ATS OTC Trading in National Market System Stocks," at 7-8 ("Tuttle (2014)") (available at http://www.sec.gov/marketstructure/research/otc_trading_march_2014.pdf).

[16] *See* Tuttle (2014) at 8-9; Tuttle, Laura, 2013, Alternative Trading Systems: Description of ATS Trading in National Market System Stocks, at 5-6 ("Tuttle (2013)") (available at http://www.sec.gov/marketstructure/research/alternative-trading-systems-march-2014.pdf).

[17] Staff of the Division of Trading and Markets, U.S. Securities and Exchange Commission, "Equity Market Structure Literature Review, Part I: Market Fragmentation," at 7 (October 7, 2013) ("Fragmentation Literature Review") (available at http://www.sec.gov/marketstructure/research/fragmentation-lit-review-100713.pdf).

[18] Fragmentation Literature Review at 10-12.

[19] FINRA makes the ATS trading volume data available at http://www.finra.org/Industry/Compliance/MarketTransparency/ATS/.

[20] SEC Press Release 2013-266, "SEC Charges ConvergEx Subsidiaries With Fraud for Deceiving Customers About Commissions" (December 18, 2013).

[21] SEC Press Release 2011-220, "Alternative Trading System Agrees to Settle Charges That It Failed to Disclose Trading by an Affiliate" (October 24, 2011).

[22] Angel, Harris and Spatt (2013) at 26.

[23] During the 1980s, an average of 204 companies completed IPOs each year. Gao, Xiaohui, Jay R. Ritter and Zhongyan Zhu, 2013, "Where Have All the IPOs Gone?," at 39, working paper (available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1954788). These numbers were much higher during the 1990s, but have significantly decreased since. From 2010 through 2013, for example, an average of only 106 companies completed IPOs. Jay R. Ritter, "Initial Public Offerings: Updated Statistics," at 26 (April 20, 2014) (available at http://bear.warrington.ufl.edu/ritter/IPOs2013Statistics.pdf). During the 1980s, an average of 114 small companies completed IPOs each year, but this figure fell to 31 from 2010 through 2013. *Id.*

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