Testimony of Erik R. Sirri

Equity Market Structure: A Review of SEC Regulation NMS

Before the House Subcommittee on Capital Markets
and Government Sponsored Enterprises
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1. Introduction

Chairman Garrett, Ranking Member Maloney, and Members of the Committee:

Thank you for inviting me to testify today on the topic of Regulation NMS and U.S. equity market structure. I am currently a Professor of Finance at Babson College in Wellesley, Massachusetts. I worked for the SEC on two occasions, first from 1996-1999 as the Chief Economist, and then from 2006-2009 as the Director of the Division of Trading and Markets.

2. Current equity market structure

Regulation NMS is just shy of being nine years old.[1] When evaluating market structure regulation, one must acknowledge how relatively well our equity markets function. In so many ways, these markets are the envy of the world. They are deep, liquid, and constantly evolving. Throughout the credit crisis, they performed well, even when liquidity vanished from other markets and credible prices could not be established for many instruments.[2]

The success of U.S. equity markets is all the more remarkable given the breadth and variety inherent in their structure: More than a dozen registered exchanges and more than 60 other market trading centers are linked by high-speed networks, all of which are supplemented by the negotiated upstairs and OTC markets. These other market trading centers come in various forms and names: ECNs, ATSs, internalizing broker-dealers, institutional order matching systems, and dark pools. The traditional model of trading on an exchange floor, with specialists and market makers, is no longer viable as a standalone entity. It is simply not profitable to trade that way anymore, as the NYSE found out in the middle of the last decade. That change was not *per se* caused by Regulation NMS as much as it was a consequence of the move to more automated markets and the loss of certain ITS protections. Today, a modern electronic market-maker that trades as much as 15% of the daily volume in a large-cap NASDAQ stock may earn as little as 1 or 2 hundredths of a cent ($.0001-$.0002) per share.

The large number of trading venues in the United States provides both benefits and challenges to market participants as well as to regulators. The old worry about a dominant primary market acting as a monopolist is now gone. In its place are a series of new issues concerning fair access, connectivity, computerized trading, and the robustness of systems.

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[1] Regulation NMS, Securities and Exchange Commission Release No. 34-51808, June 9, 2005.

[2] "Equity Trading in the 21st Century," James Angel, Lawrence Harris, Chester S. Spatt, Working Paper, May 18, 2010.

The modern era of electronic markets began in 1996, with the SEC's promulgation of the Order Handling Rules that removed a two-tier market structure that existed on NASDAQ. This change was closely followed by Regulation ATS, which provided a framework for new electronic trading systems to develop outside of the framework of full exchange regulation. The change of stock price increments from eighths, to sixteenths, and finally to pennies occurred in the early 2000's. Even with these changes, however, market centers were integrated in only the most rudimentary sense: Trade execution times on some markets were measured in tens of seconds just ten years ago and orders were routed among market centers using an inefficient system known as ITS. Then in 2005 the SEC adopted Regulation NMS to address some of the perceived problems that had arisen in equity market structure over the previous decade.

3. Regulation NMS

Regulation NMS was a controversial rule at its adoption. The record of testimony, comment letters, and statements reflects proponents and dissenters among market participants as well as at the Commission. At its core NMS has four prongs:

1. The Order Protection Rule protects immediately accessible quotes at automated market centers by requiring incoming orders to interact with the top of their order books, and requires markets to avoid so-called "trade-throughs." One of the reasons cited for the promulgation of this Rule was the finding that retail orders were receiving inferior executions at certain broker-dealers, and not receiving the benefit of better prices elsewhere in the marketplace.

2. The Access Rule allows private linkages among market centers, and limits access fees to a maximum of three mils ($.003) per share. The Rule also requires market centers to avoid locking or crossing the protected quotations of other markets. Some commentators have cited this rule as contributing to a situation where certain market participants trade explicitly to arbitrage access fees and liquidity rebates charged by different market centers.[3]

3. The Sub-Penny Quote Rule prohibits quoting in less than one-penny increments for stocks priced over one dollar per share. The Rule was designed to mitigate the so-called "stepping ahead" problem, where traders place orders at prices incrementally better than pre-existing exchange limit orders, thereby stepping ahead of these existing orders. This behavior discourages the display of customer liquidity, and can effectively bypass traditional exchange price-time priority rules.

4. The Market Data Rules sought to allocate market data revenues among market centers to encourage and reward the dissemination of useful trading and quotation data.

4. Considerations when modifying market structure rules

Regulation NMS, coupled with the evolution in firms' business models, advancements in communications, improvements to trading infrastructure at market centers, and development of

[3] "Maker-Taker Pricing Effects on Market Quotations," Larry Harris, Working Paper, USC Marshall School of Business, August 30, 2013.

computer-driven order strategies, have reshaped equity trading in the United States. But what haven't changed are certain facts about market participants that affect trading and routing decisions. Among these, I include the following:

a) Traders avoid revealing their unexecuted trading interest to the market. This observation is not a statement about the harmful use of dark pools or opaque order forms. Rather, traders have always valued confidentiality, a benefit historically conferred through use of the traditional exchange trading floor. Any rules to enhance transparency are constrained by this desire for confidentiality, as traders forced into a transparent market against their wishes will elect not to submit their orders in the first place, holding them "upstairs" until they are ready. There is thus a limit to how much transparency can be brought to any marketplace.

b) There will always be some investors with superior trading skill or information that want to capitalize on their advantage. At the same time, less-skilled or informed traders will try to avoid trading with skilled traders wherever possible. These forces can lead to a natural segmentation of markets.[4]

c) You cannot force liquidity providers or market makers to provide liquidity to a marketplace if it is not profitable for them to do so. They will simply exit the market. This principal contributed to the demise of traditional market makers and specialists on physical exchanges.

d) Brokers own the relationship with retail and institutional customers, and will attempt to protect and profit from these relationships.

Regulating trading is difficult in part because trading has traits of a zero-sum game. Once a marketplace reaches a level of efficiency, regulatory changes that confer gains to one set of market participants often come at the expense of other participants. For example, in the mid-1990s the SEC, in its desire to promote competition for the New York Stock Exchange, began allowing a practice known as *preferencing* to occur on the regional exchanges. This change promoted competition among market centers at the potential expense of execution quality for customer orders executed on the regional exchanges.[5]

One indication of the efficiency of U.S. equity markets is the ease with which order flow can be re-routed among market centers based on very small changes in prices or costs. For example, so-called maker-taker fees typically range from 0.1 to 0.3 cents per share, with the profit to the exchange being a function of the difference between the access fee received and liquidity rebate paid. Changes in fees of as little as $.001/share can cause order flow from one venue to be rerouted to another as brokers attempt to lower costs or earn higher rebates from customer flow. The fact that large movements in order flow result when costs or prices move by as little as a tenth of a cent is both a testament to the quality and efficiency of our market and a cautionary tale to regulators. It demonstrates how sensitive business models are to very small changes in

[4] Examples of such segmentation include ITG's POSIT system as well as Liquidnet.

[5] "Order Preferencing and Market Quality on U.S. Equity Exchanges," Mark Peterson, Erik R. Sirri, Review of Financial Studies, 2003, vol. 16, No. 2, 385-415.

costs, and how quickly trading platforms, brokers, dealers, investors, and exchanges can react to changes in the competitive landscape. One should expect that any meaningful change in equity market regulations 2ill have large consequences in the routing of orders and business models of market participants.

I understand that SEC Commissioners have been calling for broad review of equity market structure.[6] Chairman White has announced plans for a review of equity market structure and has instructed the staff to develop the necessary empirical evidence to accurately assess our current market structure and to consider a range of possible changes.[7] I believe that a thorough study such as the one the Commission is contemplating is an important step to complete before implementing any substantive change to market structure regulation.

5. Two final thoughts

I would like to offer two final thoughts. First, as important as it is to revisit our equity market structure, I would be remiss if I didn't highlight the need for improvements in the structure of our fixed income markets. U.S. fixed income markets (including the corporate, municipal, and Treasury bond markets) are larger than our equity markets. Bond investors trade using an opaque OTC network of dealers in which retail investors may pay spreads of 3%, 4% or even 5% as bonds move from sellers to buyers.[8] In contrast, the same investors in trade equity markets in millisecond turnaround times and stocks may trade in spreads less than one-tenth of a percent. I hope that regulators are able increase their focus on the trading structure of these vital markets.[9]

Second, I think it is important in any review of equity market structure to continue focusing on the responsibilities of brokers that handle customer orders and their "best execution" duties. Although market structures have an ephemeral quality, the principal underlying common law duty of best execution associated with broker-dealers who handle customer orders is a constant. Existing interpretations of the duties of "best execution", however, have not have kept pace with the changes in market structure and with automated trading.[10] Examples of potential concerns

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[6] See "Market 2012: Time for a Fresh Look at Equity Market Structure and Self-Regulation," Commissioner Daniel M. Gallagher, October 4, 2012; "Seeing Capital Markets Through Investor Eyes," Commissioner Luis A. Aguilar, December 5, 2013; "The Benefit of Hindsight and the Promise of Foresight: A Proposal for A Comprehensive Review of Equity Market Structure," Commissioner Michael S. Piwowar, December 9, 2013; Remarks before the Trader Forum 2014 Equity Trading Summit, Commissioner Kara M. Stein, February 6, 2014.

[7] Chairman's Address at SEC Speaks 2014, Chairman Mary Jo White, February 21, 2014. At this speech Chairman White also announced the intention to implement a tick-size pilot.

[8] For municipal bonds see "Secondary Trading Costs in the Municipal Bond Market," Lawrence E. Harris and Michael S. Piwowar, The Journal of Finance, Vol. 61, No. 3 (Jun., 2006), pp. 1361-1397. For corporate bonds see "Transparency and Liquidity: A Controlled Experiment on Corporate Bonds," Edie Hotchkiss, Michael Goldstein, Erik R. Sirri, Review of Financial Studies, 2007, Vol. 20, No. 2., 235-273.

[9] For example, see Remarks at the Conference on Financial Markets Quality, Speech by Commissioner Daniel M. Gallagher, Sept. 19, 2012; "Bringing Municipal Bond Trading Into the Light," Speech by Commissioner Elisse B. Walter, Oct. 1, 2012.

[10] For example, see Securities Exchange Act Release No. 37619A (Sept. 6, 1996), 61 FR 48290, ("Order Handling Rules"), at section III.C.2, "The Commission believes that broker-dealers deciding where to route or execute small customer orders in listed or OTC securities must carefully evaluate the extent to which this order flow would be afforded better terms if executed in a market or with a market maker offering price improvement opportunities. In conducting the requisite evaluation of its internal order handling procedures,

include the effects of access fees and liquidity rebates on broker routing decisions, and the routing of non-marketable customer limit orders to exchanges rather than to other venues more advantageous to the limit order.[11] While on the one hand "best execution" is an imprecise concept, it is also a flexible one that can be adapted to the changing market structures we see today. The Commission should, as part of its review market structure, revisit their guidance on best execution and consider whether another approach, such as one based on policies and procedures, would be useful in augmenting any change to market structure under consideration.

I believe there is little question that our equity markets are better today than they were ten years ago. The harder question to answer is whether they could have been, or can yet be, a better marketplace through revisions to our existing market structure rules.

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a broker-dealer must regularly and rigorously examine execution quality likely to be obtained from the different markets or market makers trading a security." See also "Best Execution," NASD Notice to Members 01-22, April 2001, at pg. 205, "At a minimum, firms should conduct such [regular and rigorous] reviews on a quarterly basis; however, members should consider, based on the firm's business, whether more frequent reviews are needed, particulartly [sic] in light of the monthly market center statistics made available..."

[11] For an empirical analysis of agency problems in limit order routing, see "Can Brokers Have it all? On the Relation between Make Take Fees & Limit Order Execution Quality," Working Paper, by Robert Battalio, Shane Corwin, and Robert Jennings, November 5, 2013.