Chester Spatt's Statement for House Subcommittee on Capital Markets and Government Sponsored Enterprises (GSEs) hearing on "Equity Market Structure: A Review of SEC Regulation NMS," February 28, 2014.

I am pleased and honored to have the opportunity to present my views to the House Subcommittee on Capital Markets and Government Sponsored Enterprises (GSEs) at its hearing today on "*Equity Market Structure: A Review of SEC Regulation NMS*." I am the Pamela R. and Kenneth B. Dunn Professor of Finance at the Tepper School of Business at Carnegie Mellon University, where I have been a faculty member since 1979. I also served as the Chief Economist of the U.S. Securities and Exchange Commission from July 2004 until July 2007. My expertise as a faculty member includes such areas as trading mechanisms, market microstructure, trading, financial regulation, and the financial crisis. In addition to my faculty position my current affiliations include serving as a Research Associate of the National Bureau of Economic Research, Senior Economic Advisor to Kalorama Partners, a member of the Shadow Financial Regulatory Committee, the Financial Economists Roundtable, the Systemic Risk Council and the Federal Reserve's Model Validation Council. I also was one of the founders and the second Executive Editor of the *Review of Financial Studies*, which quickly emerged as one of the

preeminent journals in financial economics, as well as a Past President and Program Chair of the Western Finance Association.

There have been dramatic changes in the structure of our equity markets over the last two decades, reflecting both changes in technology and regulation. Prior to Regulation NMS, we saw dramatic reductions in the tick size from 1/8 to 1/16 to .01, due to decimalization. In the aftermath of Regulation NMS there is much faster execution due to the preference NMS provided to "fast markets" as well as greater competition among platforms and more fragmentation of order activity among platforms, as reflected by the decline in the New York Stock Exchange's share of trading in its own listings from about 80% to 20%. We have seen substantial declines in spreads and trading costs, especially at the retail level, in the aftermath of Regulation NMS, as well as a variety of "unintended" consequences of the regulatory changes.

I am pleased that the Subcommittee has organized today's hearing and focused attention on Regulation NMS. This illustrates an important change in the regulatory and oversight process. What I have observed in the past is that financial regulators rarely undertook serious retrospective reviews of the consequences of their actions and indeed, in the past cost-benefit analysis has not been a central priority of financial regulators. Financial regulators are now much more focused upon the importance of

cost-benefit analysis in light of various rulings by the District of Columbia Circuit Court of Appeals, several Executive Orders by President Obama and feedback from the Congressional oversight committees. Regulators have become much more sensitive in the last few years to understanding the full consequence of proposed regulations.

Along such lines, it is important for the SEC to help create the data to allow it (and others, such as academic economists) to study the impacts of various regulations. For example, in the context of decimalization I am pleased that the SEC now is signaling that it plans to undertake an experimental "pilot" analysis. It is not that I expect that wider ticks will significantly enhance the trading process and indeed, I am rather doubtful that wider ticks would have meaningful impact on IPO decisions. Instead, I feel that as regulators try to fine tune the structure of our markets that it is important that these decisions be consistent with well-informed economic analysis. The judgments by the SEC and other financial regulators should be heavily guided by data, including when necessary, data that the regulator generates. During my service as the SEC's Chief Economist this occurred most meaningfully in the pilot analysis that underlay the modernization of pricing restrictions on short sales, the Regulation SHO repeal of up-tick restrictions on short sales.

Ultimately, Reg NMS did have some profound impacts on the structure of equity trading. Putting aside briefly the particulars and whether NMS created its own distortions, NMS had the effect of resolving important open issues and in that sense provided considerable clarity to the trading community. The regulatory certainly that emerged shortly afterwards had been very helpful in encouraging the development of new platforms and the restructuring of existing ones. Indeed, regulatory uncertainty has been a serious problem in other facets of financial regulation in recent years. One of the more striking consequences of NMS was its emphasis in promoting electronic trading—the "fast markets." Specialists could no longer retain a thirty-second option to evaluate competing alternatives through the old ITS linkage. This helped open up the markets in my view and substantially contributed to the decline from 80% to 20% in the New York Stock Exchange's market share of its listed securities.[1] This has contributed to the greater fragmentation of trading and liquidity with enhanced competition in the quoting process. In several studies my co-authors and I document substantial declines in trading costs in the years following the adoption of Regulation NMS.[2]

[1] Incidentally, the New York Stock Exchange supported Reg NMS in the form adopted in which the order protection rule only protected the tops of the respective limit order books.

[2] See discussion in Angel, J., L. Harris and C. Spatt, 2011, "Equity Trading in the 21st Century," *Quarterly Journal of Finance*, 1, 1-53 as well as in our recent paper Angel, J., L. Harris and C. Spatt, 2013, "Equity Trading in the 21st Century: An Update."

At the same time, I see a number of concerns that NMS may have helped to foster. At its core NMS is highly prescriptive, which implies that aspects of its mandate can become entrenched and needlessly protect against potential market competition. To some extent, NMS imposes a degree of price-fixing and treats the pricing from different platforms equivalently and regards price outcomes as the product that various platforms provide. This limits the extent to which platforms can consider differentiating themselves and instead imposes a "one size fits all" structure. Meanwhile some platforms are performing SRO services, while others are providing more modest compliance services. This raises the question as to whether price is all that matters from an investor's perspective.

One of the most striking aspects of NMS is the structure of its order protection rule. While orders at the top of the book from each platform are protected, orders below are not. Though I am not advocating extending the protection all the way down the book (which would even be more prescriptive than the current form and add to the technological burden of the rule), such an approach would be more coherent because protection would be provided to orders at a given price level regardless of platform. In contrast, the structure of NMS does not protect orders above a threshold price, but instead only those at the very top of each platform's book. In effect, the orders protected are not at a continuous set of prices.

While I do think there are a variety of reasons for the increase of fragmentation that has resulted from NMS including competition across platforms that limits rent extraction by intermediaries, one contributor to fragmentation that is quite undesirable in my view is a direct consequence of guaranteeing protection at the top of each platform's book. NMS creates an incentive against consolidation of platforms and even an incentive for platforms to arise and to quote because of the special advantage being provided under NMS for the best bid and offer on a platform.

Presumably, one of the motives for order protection in the broad is to ensure that platforms are not disadvantaging customers relative to the available alternatives. Yet NMS does so only relative to the top of the book and not against the entire book. Furthermore, brokers have had a longstanding best execution responsibility with respect to how they route trades. While that responsibility is not as prescriptive as the NMS requirement on platforms, regulators should ensure that brokers are fulfilling their responsibility by having appropriate standards and protocols for routing orders. One metric that we should look to for evaluating NMS is whether it has reduced somewhat the extent of abuse of Best Execution responsibilities. More broadly, the interaction and overlap between Best Execution and NMS is an important issue for regulators to

consider because of the complementary aspect of these rules and one that I don't believe has received the attention that it deserves.

Important distortions in execution strategy and routing decisions arise from the "make or take" pricing that is permitted under Regulation NMS.[3] These distortions arise at various levels. For example, there are incentives to collect liquidity rebates and avoid fees for taking liquidity. At the same time these fees and rebates are often booked to the broker rather than the customer, potentially significantly distorting the choice of venue in the routing decisions. Indeed, most routing decisions are not based on the effectiveness or timeliness of anticipated execution given equilibrium behavior. The regulatory structure sets the stage for conflicts of interest that would not arise intrinsically—after all, in most commercial relationships it would be illegal for the purchasing agent to receive direct payments from the buyer. Potential fixes could be straightforward, but much of the structure of the industry has developed around the distortions induced by the regulatory structure. An important point to emphasize is that the make-or-take distortion is now much larger than at the time of the adoption of NMS since the nominal magnitude of the fees and rebates are the same, but the base (the effective spread) is much lower.

[3] A more detailed discussion of these issues is provided in Angel, J., L. Harris and C. Spatt, 2011, "Equity Trading in the 21st Century," *Quarterly Journal of Finance*, 1, 1-53 as well as in our recent paper Angel, J., L. Harris and C. Spatt, 2013, "Equity Trading in the 21st Century: An Update."

While NMS is highly prescriptive, I would suggest that a natural approach for developing modifications and revisions is for the SEC to lay out principles and standards that market designs should satisfy. Indeed, such an approach would allow the regulator to focus on its strengths—investor protection and the development of core principles that market design should satisfy.

In conclusion, I want to emphasize that I regard NMS as having contributed to some important improvements in our equity markets, including greater competition, lower spreads and even lower institutional trading costs. The clarity and regulatory certainty that NMS created for a time soon after its adoption also was very helpful in the late 2000s, yet largely lacking in recent discussions of financial regulation in broader contexts. NMS is an important issue because of its central role in equity market structure framework. Indeed, I strongly support recent calls for a comprehensive review of equity market structure.[4] I feel that too much of the focus in discussion of the equity market structure has been on high frequency trading and especially the 2010 flash crash and other trading snafus. This distracts us from important broader aspects of equity market structure.

[4] For example, see Aguilar, L., "Seeing Capital Markets through Investor Eyes," Washington, December 5, 2013; Gallagher, D., "Remarks at FIA Futures and Options Expo," Chicago, November 6, 2013; and Piwowar, M., "The Benefit of Hindsight and the Promise of Foresight: A Proposal for a Comprehensive Review of Equity Market Structure," London, December 9, 2013.

As I conclude, I also want to observe that I find fascinating the surprising degree of attention paid to equity as compared to fixed-income trading. Yet I would anticipate that there would be much greater scope for improvements in fixed-income trading, compared to equity trading. This was striking to me as well during my service as the SEC's Chief Economist from 2004 to 2007. In reviewing market structure I would not focus solely on equity trading.