U.S. Senate Committee on Banking, Housing, and Urban Affairs

The Role of Regulation in Shaping Equity Market Structure and Electronic Trading.

Prepared testimony of

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My name is James J. Angel and I am an associate professor of finance at the McDonough School of Business of Georgetown University.[1] I wish to thank the Committee for looking at these important issues and for asking me to appear before you. I have been asked to focus on the regulation, practices, and structure of the United States stock markets. I will begin with regulation.

Regulation

If Congress gets regulation right, then the regulators will make the right decisions on the details. Congress can then devote its scarce time to other important matters. If our regulatory system worked

[1] My comments are strictly my own and do not necessarily represent those of Georgetown University or anyone else. From 2000 through 2010 I served as an independent director on the board of directors of the Direct Edge stock exchanges (EDGX and EDGA). I was a Visiting Academic Fellow from 1999 to 2000 in residence at the NASD (now FINRA), and have served as Chair of the Nasdaq Economic Advisory Board. As an investor I practice what I preach in terms of portfolio diversification and hold a well-diversified stock portfolio that includes small investments in a large number of public companies, including most financial services firms. I also provide expert consulting services to government agencies, law firms, exchanges, financial services firms, and others.

properly, Congress would not have to spend its time addressing minutiae (albeit important minutiae) such as the tick size in our financial markets.

Money attracts thieves just like garbage attracts flies, and that is one of the reason why we need good cops to keep the bad guys out of our financial markets. We all benefit from fair and orderly markets that protect investors, supply capital to support economic growth, provide useful risk management tools, and promote economic efficiency.

Unfortunately, the United States has an extremely fragmented financial regulatory structure. There are literally hundreds of different financial regulatory agencies at the state and federal level. As we learned in the financial crisis, many items can fall through the cracks and the different regulatory agencies do not always play nicely with each other, to say the least.

Congress attempted to address many regulatory issues in the Dodd-Frank and JOBS Acts. However, these Acts did not really address the structure of our regulatory system, which is badly in need of reform. Here are just a few of the symptoms of dysfunction in our regulatory system:

1. **The JOBS Act could and should have been done by the SEC with its pre-existing authority.**

In 2012, Congress passed the JOBS Act with a broad bipartisan consensus in order to make capital more freely available to growing enterprises and thus create more jobs. Among other things, the JOBS Act temporarily reduces regulatory burdens for newly public "emerging growth companies," reduces restrictions on private share offerings, and provides a framework for crowdfunding.

All of these provisions could and should have been done by the SEC using its pre-existing legislative authority. In particular, Section 36 of the Securities Exchange Act gives the SEC broad powers to exempt particular entities or groups of entities from various rules. The SEC should have recognized the problems in capital formation that led Congress to adopt the JOBS Act and used its existing powers to do what the JOBS Act mandated. Yet it did not. As an institution, it was unable to recognize the problems facing our capital markets and craft appropriate solutions. Worse yet, the SEC has missed, perhaps intentionally, many of the mandated deadlines in the JOBS Act.

2. **The implementation of the Volker Rule demonstrates the fragmentation of our financial regulatory system.**

As part of the 2010 Dodd-Frank legislation, the Congress passed the so-called "Volker Rule" to prohibit "proprietary trading" by banks. Alas, our regulatory system is so fragmented that no less than four (!) agencies have had to engage in rulemaking to implement this provision.[2] The rulemaking sausage factory has come up with an extremely complex and expensive rule. Similar evidence of fragmentation arises in the various swap rules in which the CFTC has the bulk of the responsibility and yet the SEC has to do rulemaking for the tiny slice in its jurisdiction.

[2] See http://www.sec.gov/rules/proposed/2011/34-65545.pdf.

3. Glacially slow responses by the SEC to apparent violations of federal securities laws hurt investor confidence.

The old saying "Justice delayed is justice denied" is just as true now as it has always been. When investors perceive that little is done to enforce our securities laws, they lose confidence in our financial system. The lack of high-level prosecutions from the recent financial crisis is but one example.

Even if our regulatory system is vigorously attempting to enforce the laws, the long delays between the observation of the alleged offense and any visible regulatory action create the impression that the SEC is incapable of properly enforcing our securities laws. Here is one example of which I have some personal knowledge:

In April of 2013, W2007 Grace Acquisition I, ("Grace") a Goldman Sachs controlled entity, filed an application with the SEC seeking an exemption from its registration requirements under the Securities Act of 1934.[3] To make a very long story short, Grace was the successor company to Equity Inns, a publicly traded firm. Goldman led a leveraged buyout in 2008 that bought up the common shares of Equity Inns, but not the NYSE-listed preferred shares. Most of these preferred shares were held by retail investors, many of them senior citizens. Grace claimed that it had less than 300 shareholders of record, which permitted it to deregister its shares from the SEC and stop providing public financial information.[4] One of the shareholders, a Mr. Joseph Sullivan, created a series of trusts in order to increase the measured number of shareholders "of record" over the 300 threshold, which would require Grace to once again file public financial statements with the SEC.[5] Grace filed for an exemption, claiming that the Sullivan trusts should be counted as only one shareholder of record.

It has been more than a year since this petition was filed, and the SEC has not announced any decision in the matter. It is my understanding that the SEC has not even bothered to contact Mr. Sullivan to examine the nature of his trusts. For the SEC to take over a year on this matter without even contacting the creator

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[3] Disclosure: I own less than 100 shares of Goldman Sachs common stock as well as less than 100 shares of the preferred stock of W2007 Grace Acquisition I. There are many more plot twists in this soap opera. See the SEC comment file 81-939 at http://www.sec.gov/rules/other/2013/34-69477-application.pdf. Even if the SEC and FINRA are investigating allegations of various infractions, this should not stop the SEC from ordering the firm to resume its filing of public financial statements.

[4] Title VI of the JOBS Act reiterated the 300 shareholder of record threshold below which issuers could deregister from the SEC, which suspends their filing requirements. Under SEC Rule 12(h)(3)(e), if the number of shareholders "of record" of a deregistered issuer increases above the 300 threshold as of the end of its fiscal year, then the issuer has 120 days to resume filing.

[5] For the purposes of counting the number of shareholders "of record" to determine whether a company is required to file financial statements with the SEC, current interpretations of SEC rules do not count beneficial shareholders who hold shares in street name in brokerage accounts. Grace has well over 1,000 beneficial shareholders. It is quite odd that the SEC does not count retail shareholders who hold shares in street name in brokerage accounts when it determines whether a company has enough shareholders to merit required registration with the SEC.

of the trusts to learn more about their nature shows a shocking slowness or sloppiness in its handling of the matter. However, my examination of the shareholder of record list indicates that there are and have been many more than the required 300 shareholders of record needed to require a resumption of its registration requirements even without the Sullivan trusts.[6] Grace appears to be openly and flagrantly delinquent in its SEC reporting obligations, to the detriment of its preferred public shareholders. That the SEC has allowed this delinquency to fester leads to the suspicion that Goldman is getting the Bernie Madoff or John Mack treatment in this case. Even if the SEC in its infinite wisdom rules otherwise, this proceeding should not have been dragging on for over a year with no end in sight. This does not bode well for public confidence.

I would like to emphasize that the problems with our regulatory structure are not the fault of the people who work there. Most of the people who work in these agencies are hard working and intelligent people who are honestly trying to do their jobs as best as they can. The problem is the structure of the regulatory system, and this is something that only Congress can fix. I will get to my suggested solutions at the end.

Practices

Trading technology has changed dramatically in recent years, and there has been much controversy over various practices used in the financial markets. This section describes some of the controversial practices in financial markets.

Not all users of high-speed computers are the same.

There has been much discussion lately of modern trading practices. Often all uses of high-speed computers are lumped into one catch-all phrase of "high-frequency trading." "High-frequency trading" is a misleading catchall term. Some "HFT" practices help the market, and some hurt. This is why we need a regulatory system that is smart enough to tell the difference between the good and bad uses of high speed computers and that has the capacity to keep out the bad while not harming the good.

Market making and ETF arbitrage benefit low-frequency retail investors.

Here is one example of a "high frequency" technique that is beneficial to low frequency retail investors like me. Many retail investors invest through exchange traded funds ("ETFs"), convenient basket products that allow an investor to buy part of a large basket of securities with a single trade. For

[6] For more details, see one of my comment letters at http://www.sec.gov/comments/81-939/81939-41.pdf.

example, an investor can buy a basket of all 30 stocks in the Dow Jones Industrial Average by buying the Dow Diamonds ETF. Retail investors can trade the ETF with the confidence that its price will closely track the price of the stocks in the index because arbitrageurs monitor the price of the ETF and the price of the stocks that go into the ETF. When the price of the ETF gets out of line with the price of the stocks in the basket, arbitrageurs swoop in to buy the cheap side and sell the expensive side in order to capture the difference. This pushes the cheap side up and the expensive side down, and thus pushes prices back into the proper alignment. Because this is such a simple strategy, it is easy to duplicate and there are many competitors. When an arbitrage opportunity arises, there is a race to take advantage of it. The first trader to trade wins, and the rest lose, even if they lose by only a thousandth of a second. Therefore, the traders invest in technology to speed up their trading by buying the fastest computers they can and then putting them as close to the stock exchange computers as they can get so that their orders will get to the exchange even faster.

Traders use high speed computers to engage in a variety of other trading strategies as well. These include market making, a strategy similar to that of a car dealer who provides the service of convenience by buying at a trade-in price and selling at the retail price. The car dealer does not want to be a long-term owner of the car, but to sell it as quickly as possible. Likewise, market makers do not want to be long-term investors, but they provide the service of immediacy to investors who want to buy or sell a stock quickly. By being willing to buy and sell at all times, they make sure there is a buyer when long-term investors want to sell and vice versa. Competition between market makers helps to keep transactions costs low for the long-term investors.

Other strategies are more controversial.

Traders have been looking for trends in stock prices since the beginning of financial markets. Generations ago, "tape watchers" would gather in brokerage firms to watch the ticker tape and guess where prices were going. Later, chartists and day traders would do the same. These investors attempt to discern where prices are going by learning from the information that large investors leak when they break up large orders into many smaller trades. As the price and quantity of every stock trade in the highly transparent U.S. market become public knowledge immediately, every time one of these small pieces of a larger order trade, they are leaving clues about their future trading.

Now, instead of standing in brokerage firms and reading a paper ticker tape, some traders use computer programs to guess which way prices are going. Some would call these predictive traders "predatory" traders as they seek to gain from the stock price movements caused by larger traders. It is a myth, however, that such traders "see" institutional orders before they hit the market. Such traders merely guess at the direction of future stock price movements based on the data that are available to anyone who wants to pay for it.

Here is an example known as "latency arbitrage." Suppose that there are two stock exchanges that are 25 miles apart. It takes about one hundred microseconds (millionths of a second) for light, and thus information, to travel from one exchange to the other by the fastest route. Both exchanges are offering to sell 5,000 shares at $20.00 per share. Suddenly someone buys all 5,000 shares available on the first

exchange, and now the only shares available for sale on the first exchange are priced at $20.01. At this point it stands to reason that if a sophisticated large trader has bought up all of the shares on the first exchange, then prices are going up. Those 5,000 shares that are offered on the second exchange might still be available, and whoever buys them will make money as the price goes up. Indeed, the large trader who bought up all the shares on the first exchange may well be on his or her way to try to buy up the shares on the second exchange. Now the race is on. Traders use the fastest computers and communication links they can to rush to the other exchange and buy up the cheap shares there before anyone else does. If the large trader is using a slow communication line, the fast trader may well arrive at the second exchange in time to scoop up the available shares at $20.00, leaving none behind for the large trader whose order initiated the transaction.

These high speed traders use a variety of techniques to trade as fast as possible. Not only do they buy the fastest computers they can, they try to locate them as close as possible to the computers used by the stock exchanges to process trades, a process known as co-location. They subscribe to the fastest data feeds possible, the direct data feeds offered by the exchanges, and transmit their orders using the fastest data lines they can.[7] There has been a considerable hue and cry over the fact that some investors pay for faster data feeds than other investors receive. The important fairness consideration is to make sure that such high speed data feeds are available on non-discriminatory terms to all market participants.

As a low-speed low-frequency investor, I am not concerned that some, if not most, market participants have faster computers and faster data feeds than I do. My trading strategies, like those of most retail investors, are not based on reacting instantaneously to news or other information, but instead on longer-term buy and hold strategies. As I am not racing to react faster than other participants, I do not care that other high-speed investors are racing with each other.

Some uses of high speed technology are just plain bad.

I will not argue that all uses of high-speed computers are necessarily good. Manipulators can use fast computers as well. One manipulative strategy is known as order ignition. Here is an example. A computer program (known as an algorithm, or "algo") searches for a stock where the amount of buy orders seems unusually small and the stock seems vulnerable as a result. Then the algo puts in a large short sale order with the intent of pushing down the price in order to trigger "stop" orders, orders to sell after a stock has dropped below a specified price. The triggered selling of the stop orders causes the stock to drop further, at which time the algo kicks in and buys the stock back to cover the short at a profit. Such manipulative trading is antithetical to a fair and orderly market.

Maker-taker pricing

[7] The direct feeds are faster than the consolidated data feed that contains the data from all of the exchanges. The consolidated data feed will always be slower because it takes time for the information to travel from the exchange that created it to the point of consolidation and to be consolidated into the data feed.

The current pricing system used by most stock exchanges is usually called "maker-taker" pricing. The exchanges charge a fee to market orders because they "take" liquidity and pay a rebate to a limit order that gets filled because it made liquidity. For example, suppose a customer puts in a limit order to buy 100 shares of BAC at a price not to exceed $15.00 per share. Later, another customer market order comes in and is matched with that resting limit order. Under typical exchange pricing schedules, the market order would pay the exchange 30 cents and 28 cents of that (93%!) is rebated to the resting limit order.

I have long criticized maker taker pricing.[8] It has created a number of distortions in the market, and I have called for its elimination or restriction. However, as I believe in evidence-based rulemaking, it would be appropriate to conduct a scientifically designed pilot experiment to examine the impact of reducing and eliminating exchange access fees. I believe that eliminating or reducing maker-taker pricing would greatly reduce the incentive for investors to send orders to some so-called "dark pools", as one of the advantages of such trading platforms is to avoid exchange fees.

Broker order handling practices

The practices by which brokerage firms route customer orders are also controversial. Brokerage firms have a duty of "best execution" in handling their customers' equity orders.[9] The SEC currently requires market centers to disclose execution quality statistics in Rule 605 and for brokerage firms to disclose how they route orders in Rule 606. However, these disclosures currently do little to inform retail customers how well their orders are being filled. A better solution would be for the brokerage firms themselves to disclose execution quality directly to their customers.

Exchange order types

The proliferation of special order types at the stock exchanges has also been controversial. Critics charge that these order types create an unfair advantage as well as add complexity to the marketplace. However, they are available to all investors.[10] The real question is whether they can cause the market to react in an unstable or otherwise undesirable manner. So far I have seen no evidence that they do.

[8] See my comment letters to the SEC at http://www.sec.gov/rules/proposed/s71004/jjangel012505.pdf and http://www.sec.gov/rules/proposed/s71004/jjangel051904.pdf, as well as my joint articles with Larry Harris and Chester Spatt, Equity Pricing in the 21st Century and Equity Pricing in the 21st Century: An Update.

[9] I concur with SEC Chair White's comments that brokers should have a similar best execution requirement for retail fixed income orders. http://www.sec.gov/News/Speech/Detail/Speech/1370542122012#.U7o0A_ldWSo

[10] However, many retail trading web sites are simplified to the point that they do not offer complex order types. Investors wanting to use complicated order types would have to go to brokerage firms that offer them.

Tick size: Issuers should be allowed to choose their own tick size.

The tick represents the smallest allowable price differences in stocks. Currently, the U.S. has a "one tick fits all" model with a tick size of one penny for all stocks over $1.00. Thus, brokers are allowed to accept orders at $10.00 and $10.01, but not $10.0001. The tick represents the smallest amount of money an investor has to pay to jump to the next level in the queue. A wider tick benefits patient traders who place limit orders, as investors would have to pay more to jump in front of them. However, a wider tick harms impatient traders who cross the bid-ask spread and trade with market orders and thus pay a higher transaction price. The optimal tick represents a tradeoff that results in a balanced ecosystem of liquidity takers and demanders. The optimal tick is not zero and not infinity, but somewhere in between. And it is not the same for all stocks.

The SEC is currently planning a pilot study to examine the impact of different tick sizes on smaller stocks. This is good as far as it goes, as it will provide useful information with which to inform rulemaking. However, the big issue is "Who decides what the tick size will be for various companies?" I believe that each issuer should be able to select their own tick size, as they have the proper incentive to select a tick that provides optimal liquidity for their company. Neither the exchanges nor the SEC have the similarly powerful incentive to get it right.

The risks of technology: We are still vulnerable to major disruptions like the Flash Crash.

Most of the time our markets work well. Except when they don't. The Flash Crash of May 2010 is a case in point. I had warned the SEC in writing five times in the year before the Flash Crash that our market was vulnerable to such disruptions.[11] Our market is still vulnerable. Our market is a complex non-linear network. It is in the nature of financial markets that from time to time they are overwhelmed with tsunamis of trading activity that can overwhelm the capacity of the market network to produce fair and orderly prices. Complex networks that are pushed beyond their capacities fail in weird and strange ways that are difficult if not impossible to predict.

Subsequent to the Flash Crash, the U.S. equity markets instituted several types of circuit breakers:

[11] These are listed in my December 8, 2010 testimony to the Senate Committee on Senate Subcommittee on Securities, Insurance, and Investment and the Senate Permanent Subcommittee on Investigations. This testimony also contains a summary of the events of the Flash Crash.
http://www.banking.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=a4f49d29-fe78-4ed9-a839-3a6c09917298

1) The "Limit-Up Limit Down" system causes a short trading halt in individual stocks if the market price moves outside of a predetermined price band.[12]

2) The short sale circuit breaker restricts short selling at the bid price for the rest of the day and the subsequent day if a stock drops 10% below the previous day's price. [13]

3) Market-wide circuit breakers halt the entire market for various periods of time under various conditions. [14]

These are mostly improvements as far as they go, but there is still more work to be done.[15] In particular, there is no evidence of any coordination in these efforts across the equity, options, and futures markets, despite the fact that the Flash Crash demonstrated the close interrelationships between these markets and the ease with which a disruption in one market can be transmitted to other markets. This is another example of the dangers caused by the fragmentation of our regulatory system.

The current system deals appropriately with disruptions to the trading of individual stocks, although more refinement is needed for handling small stocks with wide bid-ask spreads. However, the system is totally untested in dealing with large market wide disruptions across multiple asset classes. The rigidity of the rules could also hamper the restart or lack thereof when the next tsunami hits the markets. And there will always be another one coming. We just don't know when.

Structure

The U.S. has a competitive, "open-architecture" equity market structure.

[12] See http://www.sec.gov/rules/sro/nms.shtml#4-631 for details.

[13] See http://www.sec.gov/rules/final/2010/34-61595.pdf for details.

[14] See http://www.sec.gov/rules/sro/bats/2012/34-67090.pdf. Indeed, note that the market-wide circuit breakers were done as rule filings by 16 separate SROs. See SR-BATS-2011-038; SR-BYX-2011-025; SR-BX-2011-068; SR-CBOE-2011-087; SR-C2-2011-024; SR-CHX-2011-30; SR-EDGA-2011-31; SR-EDGX-2011-30; SR-FINRA-2011-054; SR-ISE-2011-61; SR-NASDAQ-2011-131; SR-NSX-2011-11; SR-NYSE-2011-48; SR-NYSEAmex-2011-73; SR-NYSEArca-2011-68; SR-Phlx-2011-129. This is another example of the absurd fragmentation of our regulation among SROs.

[15] For more technical comments on circuit breakers, see my comment letter at http://www.sec.gov/comments/sr-bats-2011-038/bats2011038-2.pdf.

Many commenters use the pejorative term "fragmented" to describe the current U.S. market structure. This word has a negative connotation. Its synonyms include broken, shattered, splintered, and disorganized. It is anything but these. Our markets are better than they have ever been by traditional measures of transactions costs, speed of execution, intraday volatility, transparency, and certainty of settlement.

However, the high quality of the U.S. markets does not imply that they can't get better. The fundamental trading problem has not been solved. Our market structure allows new market entrants to ideas for better trading systems to plug into our National Market System. This competition improves the breed.

It should be noted that we have the market structure that Congress rightly decreed in 1975. In 1975, Congress passed the so-called National Market System amendments to our securities laws. In particular, Congress added Section 11A (a)(1)(c) to the Securities Exchange Act which called for a competitive market structure with competition among exchanges, broker-dealers, and other than exchange markets. And that is what we have today.

Some complain that we have "too many" exchanges or other places to trade. Do we have too many supermarkets or gas stations to choose from? Normally we depend upon competition to provide incentives for efficiency and good customer service. The cost of trading is much lower in the hyper competitive equity space than in the highly concentrated futures industry.

A competitive market structure makes good economic sense.

The logic behind a competitive market structure is simple and compelling. A monopoly exchange structure suffers from all of the normal problems of a monopoly. Even a not-for-profit monopolist will lack incentive to improve the product or to run the operation efficiently. A for-profit monopolist will charge high prices to the detriment of social welfare. In the olden days, the technology was such that the NYSE was an almost natural monopoly. As the saying goes, liquidity attracts liquidity, and the old NYSE had a huge network advantage over everyone else because it had the liquidity that investors sought.

In order to prevent monopoly there is a need for competition. And the profit motive is a great motivator for competition. That gives us a world of competing for-profit exchanges.

Fortunately, the computer revolution has changed the economics of the equity exchange business. An equity exchange is no longer a natural monopoly, but a hotly competitive enterprise. Low cost and high speed communications have neutralized most of the network advantage of the dominant exchanges, making it possible for entrants to enter the business.

The U.S. is not alone in adopting this structure. Most developed countries are moving toward market structures in which for-profit entities compete with each other. The European approach expressed in MIFID (Markets in Financial Instruments Directive) is an example.

Some observers claim that the current market structure is a result of Regulation NMS, which was passed by the SEC in 2005. However, NMS merely codified and updated a number of rules. What was significant, was that it extended trade-through protection to NASDAQ-listed stocks, which did not have it before, and it provided trade-through protection only to orders that were electronically accessible, which forced the NYSE to more fully automate its systems.[16]

For the record, here is an oversimplified summary of NMS (CFR §§ 242.600 through 242.612)

Rule 601: All trades in NMS stocks must be reported to the consolidated tape.

Rule 602: Each exchanges best bids and offers must be reported so that the consolidated National Best Bid and Offer (NBBO) can be calculated.

Rule 603. Brokers must display consolidated trade and quote information to clients. They can't just give out the data from only one exchange.

Rule 604. Dealers must display customer limit orders to the market.

Rule 605. Market centers must report execution quality statistics.

Rule 606. Brokerage firms must report each quarter how they route customer orders and what kind of payment for order flow they receive.

Rule 607. Brokers must disclose payment for order flow to customers.

Rule 608. Exchanges work together to form NMS plans.

Rule 609. Securities Information Processors (SIPs) must register on Form SIP.

Rule 610. The access fee (take part of maker-taker) is limited to $.003 per share. Locked and crossed markets are prohibited.

Rule 611. Exchanges must have policies to prevent trade throughs.

Rule 612. The tick size for all stocks over $1.00 is $.01.

Recommendations to Congress

[16] A trade-through occurs when one exchange trades at a price even though another exchange was quoting a better price. I commented at the time, and still believe, that a trade-through rule that prevents trade throughs is unnecessary. The economic incentives pushing brokerage firms to get the best price for their customer are so overwhelming that they can and do go to the market with the best price. A trade-through rule just adds significant complexity to the market network with little improvement in market quality.

1. **Start the debate to fix regulation.**

   This will be a long and sometimes painful process that will take many years. Even though pessimists will say that nothing will be passed due to partisan gridlock, or that an SEC-CFTC merger is impossible because the various committees do not want to give up their oversight powers, we need to start the process now. Reform will not occur unless the debate begins.

   Congress should direct all of the federal regulatory agencies and self-regulatory organizations such as FINRA to conduct thorough studies of the structure and effectiveness of regulation and make suggestions for reforms that 1) simplify the currently complex and overlapping regulatory system, 2) reduce unnecessary compliance costs, 3) provide usable rights of appeal for high-handed regulatory action or inaction, 4) enhance consumer protection, and 5) enhance economic efficiency and capital formation. Although these goals sometimes appear to conflict, we need to start the process now.

   Congress should also fund a study similar to the U.K. Foresight project in which experts from around the world are invited to submit studies on the relevant topics.

   Of course, there should be lots of hearings as part of this debate.

   However, this process should also closely examine experience around the world. We did not invent financial regulation. We copied much of the U.S. system from the U.K. many years ago. Congress should explicitly study the experience of other countries around the world to see what we should do here. In particular, there has been a lot of fresh thinking in Europe as the Europeans struggle to harmonize their regulation, and we can learn from their debates as well.

2. **Consider functional based regulation.**

   Currently, our regulatory system is a hodgepodge of institutional based regulators. However, financial services spill across these institutional boundaries, leading to many overlaps and gaps. We should seriously consider a functional based system with regulatory bodies based on function rather than institution. We would thus have a markets regulator, a consumer protection regulator, a solvency regulator, a guarantee fund, and so forth.

3. **The role of SROs needs to be rethought.**

   This debate should include a thorough examination of the SRO model. The current SRO model came about as part of a political compromise during the creation of the SEC. The industry would regulate itself through exchange-based SROs, and the SEC would regulate the SROs. This moved part of the cost of regulation off the federal budget, and provided some

industry input into the result. Since the NYSE was the dominant exchange, it regulated exchange member firms and the NASD regulated the rest. This worked well for many years. However, in a world with competing trading platforms, there needs to be a market-wide regulator. Although FINRA has become the *de facto* market wide regulator, its role should be examined carefully.

4. **Put the SEC and CFTC in the same buildings.**

   The SEC and CFTC in particular should integrate their operations. Even if a full merger is not yet politically feasible, placing the agencies in the same buildings with shared common facilities will enhance cooperation between the agencies.

5. **Move the locus of SEC/CFTC operations from DC to NY and Chicago.**

   Our regulatory agencies have problems attracting enough good people with industry experience. These people are usually found in New York and Chicago, and are often unwilling to uproot their families for the kind of salaries the government offers. By moving most operations to our financial centers, the SEC will be able to hire people who know where the bones are buried, and more closely and personally monitor the industry.

6. **Fully fund the SEC budget with close oversight of how the money is spent.**

We have been pennywise and pound foolish in how we fund the SEC. We have gotten what we have paid for. The sum total of every dollar spent on the SEC since its founding in 1934, even grossed up for inflation, is less than investor losses from one Bernie Madoff. A properly functioning agency will more than pay for itself with lower compliance costs for law abiding citizens, faster and more efficient capital raising, and fewer investor losses due to fraud.

However, the SEC has a history of misallocating resources in the past. Congress should specify carefully where the money should be spent and follow up on the results.

7. **Monitor the qualifications of the people in the regulatory agencies.**

   One longstanding problem with the SEC is that it has plenty of lawyers but an insufficient number of people with other necessary qualifications. Congress should demand regular updates from regulatory agencies on the nature and qualifications of the staff. In particular, every time a regulator testifies before you, I suggest asking the following questions:

   a) How many people are working on this issue?

   b) How many of them have two or more years of industry experience?

c) How many of them have passed a FINRA exam such as Series 7?

d) How many of them have degrees in:

   a. Economics or business?

   b. Engineering or computer science?

e) How many of them have professional certifications such as CFA or CPA?

8. <u>Monitor the speed of execution, but watch out for games.</u>

One of the major problems with the SEC is the slow speed with which it operates. The slowness of its operations is a major impediment to investor confidence. While accuracy is more important than speed, speed is nonetheless important. The SEC's lawyer-dominated culture feels that the glacial progress of judicial and legislative processes is appropriate for regulation, when in fact it is wholly inadequate in the modern world. The SEC needs to have a cultural change so that it recognizes that delay is costly to the country.

Congress has repeatedly attempted to address this issue by providing deadlines for the SEC to respond. The SEC repeatedly misses these deadlines with seeming impunity, while misallocating resources to other non-mandated areas. However, Congress needs to be very careful that the SEC does not play VA-style games with the numbers.

Congress needs to demand statistics from regulatory agencies on the length of time that an agency is taking on various areas. For example, Congress should expect and pay attention to statistics on the status of mandated rulemakings, length of investigations in process, SRO rule filings, and no-action letter requests.

9. <u>Create a Serious Fraud Office to prosecute criminal financial offenses.</u>

It was a great disappointment to me and others how few criminal prosecutions occurred subsequent to the financial crisis.[17] Currently, the SEC only has civil jurisdiction and must turn over criminal cases to the Department of Justice. However, DOJ has many other responsibilities, and it is understandable that terrorists and gangsters will be their top priority. A separate agency focused only with prosecuting financial fraud will be able to develop expertise in complex financial fraud will leaving financial fraud FBI et al. get distracted by going after terrorists and truly bad guys.

10. <u>Encourage agencies to provide more status information to tipsters.</u>

[17] See http://www.justice.gov/oig/reports/2014/a1412.pdf.

The agencies should be encouraged to be more open with tipsters and complainants about the status of investigations. I can attest from personal experience that it is extremely frustrating to receive no follow up after submitting a tip. A simple follow up message to the effect of "The case is still open" or "We plan no further action at this time" would help to increase investor confidence in the integrity of the system by letting them know that something is being done with their complaints.

11. **Open an investor advocate offices in or attached to every state and Congressional district.**

As members of Congress, you are well aware of the numerous complaints that you get from frustrated citizens with regard to financial matters. Often citizens are so confused by the overwhelming alphabet soup of federal and state agencies that they don't know where to turn for help. A properly funded financial ombudsmen type office attached to every Senator or Representatives office would provide appropriate guidance to help citizens navigate the regulatory maze. The office would also follow up on cases to make sure that they do not get the Bernie Madoff and John Mack treatments. This will increase investor confidence because investors will feel heard and have a sense that their tips are getting a proper investigation.

12. **Continue to build a culture of evidence-based rulemaking at federal regulatory agencies.**

The forthcoming pilot experiment with regard to tick size is a great step forward. It is sad that once again it took Congressional action to prod the SEC to do something it could and should have done on its own volition. The Congress should encourage a culture of evidence-based rulemaking through carefully designed pilot experiments. I have heard that there is some concern at the SEC that the agency may not have legislative authority to conduct properly randomized scientific pilot studies. Congress should clarify the relevant statutes to indicate that the SEC does indeed have such authority.

13. **Amend the APA to require agencies to look at how other countries and other entities address similar issues.**

Many agencies have an insular culture that does not naturally explore how other entities deal with similar problems. This is a mistake. We do not have to keep reinventing the wheel. The Administrative Procedures Act should be amended to require each rulemaking to explicitly address how other countries and other entities have addressed similar issues. This is particular important given the global nature of financial services, and the need to work with other regulators. Explicitly examining how other regulatory entities address a problem makes it more likely that we will adopt a similar approach, leading to a more uniform global regulatory environment and thus reducing compliance costs.