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Mr. Jonathan G. Katz, Secretary
Securities and Exchange Commission
450 Fifth Street NW
Washington, DC 20549-0609

May 19, 2004

File No. S7-10-04

Dear Mr. Katz:

Here are my comments on the proposed Reg NMS.

In brief:

- The proposal does not address the key need to rationalize the regulation of competing trading platforms. Market data fees are closely related to the issue of who regulates which parts of the market because of the historical cross subsidization of regulation from data fees. Broker-dealer regulation should be separate from operating trading platforms. And *some entity other than a trading platform* should regulate trading across different platforms.
- The proposed limit on access fees does not go far enough. Instead, the Commission should adopt a "chooser pays" system in which the displayed price is the real price that is available without any additional charge. The firm that chooses the trading platform freely chooses to pay whatever fee the trading platform charges. In this way, competition will prevent any abuses.
- The Commission has not adequately justified a need for a uniform trade-through rule. Different listing markets should be free to compete with different rules.
- One of the great achievements of the existing national market system is the National Best Bid and Offer along with previous sales data. These data feeds are the bedrock for monitoring execution quality. The Commission must make very sure that the reforms contemplated here do not degrade the quality of the NBBO data with locks and crosses. Even "*de minimis*" access fees may create incentives for locking and crossing.
- Since the Commission is proposing to re-enact 11ac1-5 and 11ac1-6, now is a good time to fix the problems with the original rules. A much more useful rule

would require brokerage firms to supply similar information to that required currently from market centers.

- Banning subpennies is a great idea for all the reasons mentioned in the proposing release. The commission should consider a pilot program to experiment with different tick sizes including \$.01. \$.05, and \$.10 for different priced stocks.

My detailed comments follow.

Cheers,

James J. Angel

Comments by Professor James J. Angel, Ph.D., CFA
on
Regulation NMS
File No. S7-10-04

<u>My background:</u>

I am currently an Associate Professor of Finance at Georgetown University, and I study the details of how securities markets operate. The courses I have taught at Georgetown have included "Regulation in Securities Markets" and "World Equity Markets." I have previously been the Visiting Academic Fellow at the NASD (1999-2000), and a former chair of the Nasdaq Economic Advisory Board. I am also a member of NASDAQ's OTC Bulletin Board Advisory Committee. I have visited over 35 exchanges around the world and sat on numerous trading desks. However, my comments are my own and do not necessarily reflect those of Georgetown University, NASDAQ, or anyone else. I have not received any compensation for these comments.

Preliminary comments: The Network IS the Market.

The stock market is not just a single trading platform, but it is really a network that combines all potential buyers and sellers together. Indeed, to borrow from the rallying cry of Sun Microsystems, "The network IS the market." Each trading platform, such as a stock exchange, securities association, or alternative trading system, operates a sub-network within this network.

In network economics, the value of a network increases as the number of users attached to the network increases. Other examples of networks include telecommunications, computer operating systems, and VCR formats. (Remember VHS v. Betamax?)

The network economics of the stock market industry have major implications for regulatory policy. In network markets, the smaller networks want to get access to the customers of the bigger networks, while the dominant network usually wants to prevent rival networks from accessing its customers. Regulators face an unappetizing menu of "second best" alternatives in an attempt to foster competition. The network regulator ends up regulating the terms and conditions of access among competitors who don't want to cooperate with each other. The never-ending arguments in the telecommunications industry over the fees that long-distance companies pay for local access are similar to the issues faced here over access fees to trading platforms and the sharing of market data revenue.

In network industries, the dominant network often ends up with such an overwhelming advantage over its competitors that government regulation arises to prevent the dominant firm from behaving like a monopolist. Indeed, the 1975 "National Market System" amendments to the Exchange Act can be seen as Congress' attempt to reign in the NYSE by forcing it to share its quotation data with its rivals. Reg NMS is the Commission's latest approach at dealing with these network issues.

The Commission has yet to address the critical issue of regulation in a competitive environment.

Traditionally, the U.S. has adopted an exchange-based model of "self" regulation. The NYSE regulated NYSE-member broker dealers, along with trading in NYSE-listed stocks, while the NASD regulated just about everyone else. Thus, if a broker from the Peoria branch of a NYSE-member firm embezzled funds from a customer, it was the job of the NYSE to discipline that broker. This assignment of broker-dealer regulation is a historical accident that has nothing to do with the job of operating a trading platform.

This worked reasonably well in an era in which exchanges were treated like natural monopolies. However, we are now in a new era in which global for-profit trading platforms compete vigorously with each other. Assigning any one trading platform with the task of regulating events outside its platform can lead to many potential abuses. For example, that trading platform could use its regulatory leverage over its users to gain order flow to the platform that would naturally have gone elsewhere in a freely competitive market.

Regulators need to have the authority to discipline firms that violate the rules. A trading platform that does the regulating must investigate and, if need be, punish rule violations. However, there is a clear conflict of interest if the alleged violator is a competitor. The regulator may be overzealous in an attempt to prevent business from going to the competitor, or it may be underzealous because it does not want to be accused of overzealousness.

Furthermore, the regulator that monitors trading will need access to very detailed trade data in order to monitor for rule compliance in areas such as the short sale rule, insider trading, and so forth. A trading platform that also regulates could use that detailed trading information for competitive purposes against its rivals. If nothing else, the detailed information could provide the regulating entity a clearer competitive understanding of the customers, revenues, business model, and future plans of its competitor.

Paying for the regulation is another serious issue. Even if the platform does not abuse its regulatory powers in any way, it still must spend significant amounts to police a market properly. We need good cops in our financial markets, because money attracts thieves. This regulation has to be paid for in some way. Historically, regulatory expenses were just like taxes that the dominant market incurred for the privilege of being the dominant market. This doesn't work in a competitive world. Forcing one market to pay for regulation while others get a free ride leads to a very unfair playing field. Even if there is an explicit regulatory fee paid by the other platforms to the platform that does the regulation, there will still be concerns about whether the rivals are paying too much or too little for the regulation.

Historically, regulation was paid for out of the general revenues of the dominant trading platform, including listing fees, data revenue, transaction fees, and member charges. As this rule proposal deals with data revenue and transaction fees, it is important to keep in mind that the issue of who does the regulation and how it will be paid for has not been resolved.

Indeed, the issue of the fees for market data is also an unresolved issue. Consumers of the data often complain that the fees are far in excess of the production cost for the data. They point out that it is their orders and trades that create the data. Yet the markets that aggregate the data view the data as their own intellectual property and bristle at the thought of price controls. This was less of an issue when the markets were not-for-profit entities that were owned by participants. However, for-profit trading platforms now report the majority of shares traded in the U.S., so the issue of monopoly power in pricing will not go away.

Some entity has to monitor trades over the entire market to look for insider trading and other violations. Furthermore, some entity needs to monitor the actions of the trading platforms to ensure that they are in compliance with the rules. And some entity needs to discipline that rogue broker from Peoria. None of these tasks naturally belong to a competitive trading platform. Further debate is needed to determine the best structure of this type of regulation in the United States.

The Commission should adopt a "chooser pays" rule for trading platform access fees.

The proposed "de minimis" cap on access fees merely reduces a fundamentally flawed situation, but does not fix it. Market participants, who are under great pressure to get best execution for their clients, often have little choice but to go to the platform displaying the best price at the moment. They thus have no control over the access fees. As the Commission rightly pointed out in the proposing release, these access fees have created numerous problems. In particular, the regulations created a very unlevel playing field in which ECNs could charge access fees while others such as market makers could not.

Whereas the participant that accesses a displayed order often has little choice, the counterparty that originally placed that order had considerable choice as to where, when, and how to submit the order. It is that submitting party that basically controlled which of many competing trading platforms would get the order. It makes sense that the party with the ability to choose should bear 100% of the cost of that choice. Forcing anyone else to pay creates distorted incentives. Eliminating access fees altogether would lead to truth in advertising in displayed quotes, something that is long overdue. The chooser of the platform should pay the fees.

It makes more sense to structure access fees so that the "chooser" pays. With multiple competing platforms, let the person who chooses the trading platform pay that platform's fees. Trading platforms would be free to set their fee at any level they wished. However, anyone who wanted to could then access that particular order without paying an additional fee to the platform.

Think of the eBay analogy: The person who chooses which auction site to use (the seller) pays the auction site fees, and the buyer pays the list price straight to the seller without paying an added fee to the auction site.

Instead of "chooser pays" we now have a pathological pricing structure in which the chooser gets paid, and the other side of the trade has little choice but to pay because of the best-execution obligation. As pointed out in the release, this creates perverse incentives to lock or even cross a market. Even allowing allegedly "de minimis" access fees may permit this problem to continue.

The proposed trade through rule is probably unnecessary.

It should be noted that the current focus on the trade-through rule has come about not because of complaints about trade throughs in markets lacking such a rule, but from the complaints that the existing rule is hampering competition in markets where it exists. Hmmm. Let me get this right. Nobody is complaining about trade throughs on Nasdaq, so let's come up with a new rule and extend it to Nasdaq. That does not make much sense to me.

Instead, why not just scrap the old rule? It served its purpose in its time, and now it's time to let go of it. Let's give the old trade through rule a gold watch and a retirement party.

The experience of the Nasdaq market demonstrates that a trade through rule is probably unnecessary. As the Commission itself noted in the proposing release, "Yet, even without a viable trade through rule, the Nasdaq market does not appear to lack competitive quoting in the most actively traded securities."

Brokerage firms are under enormous competitive pressure to provide best execution for their clients. Because brokers and customers can monitor executions against the NBBO, a trade through is unnecessary.

Let markets compete with trade through rules if they want them.

The Commission has not made a persuasive case that a uniform trade through rule across all markets is necessary. If some listing markets want a trade through rule, then the Commission should authorize a listing market to establish a trade through rule for securities listed on its market that would apply to all trading platforms in that security. In this way markets can compete with trade through rules. If such a rule leads to a higher quality market, then one would expect all markets to adopt it for competitive reasons.

The proposed trade through rule is excessively vague.

Proposed rule 242.611 permits a trade through if "(2) The order execution facility that initiated the trade-through made every reasonable effort to avoid the trade-through but was unable to do so because of a systems or equipment failure, material delay, or malfunction in its own market."

This is extremely vague. What does "every reasonable effort" mean? How long is a "material" delay? Ten milliseconds? Twenty milliseconds? One second? Two hours? What happens if a market routes out to avoid a trade through and gets no response? In today's nanosecond markets, *any* delay is material to some investors.

The vague rule proposal calls on the markets to adopt rules to implement this rule. Given the competitive nature of the markets and the controversy over this issue, getting any kind of consensus on the details of the rule will be next to impossible.

Indeed, if the Commission wants a uniform rule, it should flesh out the details of the rule and publish them in accordance with the normal rulemaking procedures of administrative law. Leaving the details up to markets that don't want to cooperate is a recipe for an administrative disaster.

This means that nobody yet has a clue as to how this rule will be implemented. The specifics are extremely important, because the tiniest details will have an enormous impact on the competitive structure of the industry.

The proposed trade through rule has too many implementation problems.

A strict trade through rule will thoroughly gum up the works and lead to enormous operational problems. The only reason the listed market works as well as it does right now at the present time is that the current rule is so widely ignored in practice.

One problem with a strict rule stems from inevitable communication glitches. Problems include:

- Markets back away from their displayed quotes, often for the legitimate reason that someone else got the stock first or else the order was cancelled.

- Communications lags can and do occur. Although theoretically computers can responds within nanoseconds, in practice communication networks are somewhat slower. Forcing the entire market mechanism to stop because one node is slow is a lousy way to design a market network.
- System lags are most critical at peak moments such as the open, the close, and when news is coming out. This is the time when a market system needs to be most resilient, not most fragile.
- Lags can also cause outtrades in the following manner. If an order is routed out and no response is received, the order expires. The platform goes ahead and executes the order internally. A nanosecond later the execution report arrives from the other market. What happens then?
- A strict trade-through rule can cause a "swarming" problem that will swamp communication facilities. For example, suppose that in a high volume stock Market A posts the best bid for 100 shares, a penny higher than the next highest market, Market B. Ten orders are then routed by other markets to Market A, but only one of those orders get filled. Now Market B has the best bid, but that bid is timing out because it was placed by an electronic trader with a time-in-force of just a few seconds. Nevertheless, the nine orders that were declined by Market A now come sailing into Market B, only to be turned away again. These orders now proceed to Market C, where the first three are filled and the remaining six are declined. But now, another bid has arrived at Market A and it is now the high bidder. Those six orders are then resent to Market A, which fills four of them and rejects the next two, which are finally filled in Market D.
- This phenomenon of chasing the bid will exacerbate communication glitches at peak moments when all systems will be operating close to peak capacity.

If you must have a trade through rule, make it flexible enough to avoid these problems.

One possibility is a trade through rule that prevents extreme trade throughs, but does not seek to prevent small ones. Such a rule would include the following safety valves:

- A market could trade through another market if it does not receive a response in 10 milliseconds. If the other market cannot respond quickly enough, tough.
- There should be a $.03 *de minimis* exemption for all stocks. This would eliminate the bulk of the system traffic that would clog the markets as computers wildly chase the ephemeral market at the inside.
- In times of "fast markets" the regulatory authority should have the ability to increase the exemption level even higher.
- The NBBO operator should be quick to exclude any market from the official NBBO at the first hint of any system troubles that are slowing responses.

If you must have a trade through rule, start with a pilot and then analyze the results.

The proposed rule is a major change in the way the U.S. markets currently operate. If the Commission decides that it must implement some form of a trade through rule, it should start as a well designed experimental pilot in say, 50 NYSE and 50 NASDAQ securities, stratified across different sizes. The pilot should run for long enough, perhaps a year, to gather and analyze sufficient data to determine whether the rule is worth extending to other securities.

Let's fix 11ac1-5. More emphasis should be placed on the brokerage firm and not the trading platform.

The proposed rule re-enacts the well meaning but flawed 11ac1-5 and 11ac1-6. In passing rule 11ac1-5, the Commission had the good intention of improving trade execution by providing execution quality information for different market centers. However, this information is for the most part ignored by consumers. Indeed, this information is useless for most consumers, because most consumers cannot or do not want to choose the market centers. Instead, the consumers hire brokerage firms as agents to make that decision for them.

But how good are those agents doing? Most consumers have no way of figuring out whether Brokerage A does a better job than Brokerage B of providing quality execution.

A better approach would be to have the brokerage firms provide 11ac1-5 type information so that customers themselves could see which brokerage firms were skilled at getting good quality executions. This should not be burdensome for brokerage firms because they presumably are already monitoring the quality of the executions they provide for their customers, and should already be collecting the necessary data.

If the brokerage firms published execution quality information, then competitive pressure will force them to do an even better job of getting best execution for their customers. The brokerage firms would then have the proper incentive to monitor the performance of different trading platforms to obtain ever better execution quality.

In order for the data to be useful for retail consumers, the rule should require brokerage firms to provide a few summary statistics in addition to the stock by stock numbers.

These summary statistics could include:

- Average execution time for intraday market orders 100-500 shares.
- Percentage of intraday market orders 100-500 shares filled
    - Outside the NBBO at time of order placement
    - At (or less than one cent better than) the NBBO
    - One or more cents better than the NBBO

- Percentage fill rate after one hour for uncancelled limit orders 100-500 shares
    - Placed at the NBBO quote.
    - Placed inside the NBBO.

The mandated minimum tick size of $.01 is a good idea.

As the Commission points out in the release, there are many good reasons for a minimum tick size. While the Commission is addressing the topic, it should also consider that for some stocks an even larger tick size may be optimal. The original decimalization release called for experimentation with different tick sizes. This was never implemented. Perhaps higher tick sizes may be optimal, especially for higher priced stocks. The Commission should seriously consider experimenting with different tick sizes to help determine the optimal tick policy.

The NBBO is a great achievement. Maintaining a transparent, and accessible NBBO is essential.

The implementation of the 1975 amendments fundamentally expropriated the quotation and price data which had previously been the intellectual property of the markets that produced the data. We are now entering a new era in which intellectual property such as sound and movie copyrights are more protected in our legal system and more respected by consumers. The expropriation of the price data by the government should only be made if there is an overwhelming public necessity. The consumer protection made possible by the NBBO is just that reason.

One of the great achievements of the current NMS system is the National Best Bid and Offer. Although there are some problems with crossed and locked markets (mostly as a result of the absurd situation with access fees) and with trade throughs (the result of antiquated intermarket linkages and policies), the NBBO provides a clear benchmark against which to judge best execution. Indeed, the whole foundation of SEC regulations on best execution such as 11ac1-5 depends on the existence of a clear, unambiguous NBBO that is widely accessible to investors. It is easy for an investor to judge the quality of execution by comparing the execution price with the NBBO at the time of order submission. Without this ability to monitor execution quality, the quality of our markets would suffer greatly.

Time and sales data are also important for judging limit order execution quality. By observing the time, price, quantity, and location of trades, investors can monitor whether their limit orders have been filled properly.

Clearly, these two outstanding benefits merit the regulation needed to create the NBBO and the time and sales data. The SEC must take care to protect these two extremely useful features of the current system. However, it should also be careful not to overextend its mandate and unnecessarily expropriate additional intellectual property of the trading platforms. To this extent, the proposal to allow market participants to sell other data on an unregulated basis is a step forward.

The data sharing formula is a step in the right direction, but the complexity will lead to squabbles.

As the Commission well knows, the existing formula for dividing up the tape revenue has led to various abuses, including print stealing and trade shredding. The new proposed formula is a step forward, but I suspect that a simpler formula would be much better.

The complexity of the current formula, particularly the NBBO improvement credit, is likely to lead to many disputes among plan participants. For example, does the NBBO improvement credit apply to a market that locks or crosses another market? As the Commission points out, the Improvement Credit creates incentives for gaming.

Furthermore, given the wide variations in the interpretation of 11ac1-5 by various participants, there are also likely to be wide variations in the interpretation of the formula among plan participants. Industry practitioners have mentioned cases in which they have given the same data feed to different vendors and come up with different 11ac1-5 results. The complexity of the rule is likely to lead to endless misunderstandings, miscodings, and arguments among the plan participants.

The complexity might be worth it if there was something to be gained from it. However, it is unlikely that the Improvement Credit will lead to much of a different outcome than the Quotation Share. Improved quotes come from market participants who decide to quote aggressively for their own account, not from the entities operating trading platforms. Such market participants will quote aggressively if and only if it is in their best economic interest, and gaining Improvement Credit for the trading platform is probably not going to sway their trading decision.

For these reasons, a simpler formula makes much sense. I recommend dropping the Improvement Credit and allocating the revenue 50% on Trading Share and 50% on Quotation Share.

Given the announcement that the NYSE plans to qualify as an automated market, I suspect that the section on non-automated markets will soon be moot. However, the devil is always in the details, and the definition of "automated" market will be vital. Will a market that responds in 1.1 seconds be considered "automated"? Again, the proposed rule is extremely vague on this point.

The Commission has not addressed tape rebates.

The proposed rule does not address the issue of whether SROs should be allowed to rebate tape revenue to participants. The existing situation has led to an environment in which some SROs have become print shops that do little more than print trades that were arranged elsewhere. Some would argue that this could be a good thing in that it helps transfer the rents in the data revenue back to the entities that produce the trades that lead to the revenue.

Given that the tape revenue will be explicitly allocated by security, issuers will be able to determine exactly how much tape revenue they are bringing to a listing market. This may produce pressure by some issuers to rebate part of that revenue back to the issuers.

Is this a good thing, or do the rebates undercut the abilities of the SROs to provide needed regulation? Will these rebates lead to a "race to the bottom" as SROs gut their regulation in order to provide rebates? This is an issue that needs to be addressed, and soon.

The advisory committee is a good idea.

I must admit I am biased on this one. I think that these are interesting and important issues and I would be interested in serving on such an advisory committee.

Plans should be required to post tape revenue data on the web.

In the spirit of openness and transparency, the plans should be required to post at least annually, reports on their web sites showing the revenue received, and the allocation by security and by market center. This will help to enlighten the public on this extremely important topic.