

H U D S O N R I V E R T R A D I N G L L C

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August 13, 2004

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

Re: Proposed Regulation NMS, File No. S7-10-04

Dear Mr. Katz:

Hudson River Trading LLC appreciates the opportunity to comment on proposed Regulation NMS. Hudson River Trading designs and executes high-volume trading strategies that add liquidity and narrow quoted spreads in US equity markets.

We welcome the Commission's efforts to harmonize inter-market regulations. Our equity markets, particularly for Nasdaq securities, are already very efficient and are becoming more so every day. Nevertheless, a more uniform regulatory framework can encourage this trend by fostering competition both among marketplaces and liquidity providers, resulting in lower transaction costs for all investors. Indeed, the open regulatory atmosphere that governs trading of Nasdaq securities is ultimately responsible for the abundance of competition among liquidity providers in those securities. Such competition has resulted in a more transparent, more liquid, and more efficient market, all of which undoubtedly benefit investors by allowing them to execute their orders at the best prices possible. However, the trade-through provision of the proposed Regulation NMS would reverse this progress by extending trade-through prohibition to Nasdaq issues. Not only is such an action unnecessary – trade-through incidents are already infrequent – but it will result in worse executions for investors, discourage competition, and create an extremely complicated regulatory environment that will increase uncertainty in our markets.

To our knowledge, no empirical evidence has been presented that suggests not having a trade-through rule discourages limit order placement. On the contrary, the Commission has noted that quoting in Nasdaq appears to be competitive without a trade-through rule. Furthermore, as Nasdaq and others have noted, Nasdaq securities already enjoy fewer trade-through incidents than NYSE securities. Our own analysis of available trade data suggests the same. And this is unsurprising: investors already want the best price when they trade. Having a rule mandating they seek their self-interest doesn't help. For the overwhelming majority of cases, trade-through incidents do not represent traders missing better opportunities, but instead reflect stale quotes.

When market participants trade-through a published quotation, they do so because they believe that quote to be inaccessible. They could believe that because they have already attempted to access the quote and did not get executed. Or it could be because the marketplace publishing the quote is slow enough that the quote is likely to be stale. If a given marketplace is known to be slow at updating its quotation, then during times when prices are changing, sophisticated participants realize that the probability of getting filled at an advantageous price by that slow marketplace is very small. In our highly competitive markets, the older a quote is, the higher the chance that some other participant has already tried to execute against it.

A trade-through rule would merely force investors to chase after stale quotes, which by definition won't give them better fills (or any fills at all). So it will not improve investor executions. However, it will have an effect: when markets are moving, the rule will force them to move at the pace of the slowest participant, since the faster markets cannot trade at prices worse than the quotations of the slower ones. This, in turn, will result in lower quality executions for investors.

For example, if the market is rising, slower quotations at the best ask are often inaccessible; sophisticated traders have already executed against them. Yet any new orders to buy at that ask price must first be routed to the slow market before they can be posted as limit orders in the destination of the investor's choosing. Meanwhile, unsophisticated investors wanting to sell, likely unaware of the short-term price move, may place orders at an artificially low quoted best bid.

Taken together, during these times it is impossible to buy (because the slow quote serves as a price ceiling below the fair value), and sellers removing liquidity on the bid are doing so below where market participants are actually willing to buy. In particular, unsophisticated investors relying on market orders or marketable limit orders will either not receive an execution (when buying) or will receive an artificially low one (when selling). Thus a trade-through rule will bring investors lower quality executions. (It is worth noting that in order for investors to receive the best executions, both trading-through and quoting-through must be permitted. We discuss quote-through below.)

Furthermore, slow-quoting marketplaces have little incentive to improve their quotation speeds, since they receive additional order flow as a reward for their comparatively poor performance. That is, by not updating their quotation, they are able to display stale quotes that are better priced than other markets' legitimate quotes. The trade-through prohibition will force market participants to route their orders to the slow market before seeking execution elsewhere, which translates into increased order flow for the slow market. This, in turn, means that liquidity providers will be encouraged to place their orders in the markets that publish the slowest quotations to the public, as they will receive higher fill rates resulting from these additional routed orders. Faster marketplaces will then have an incentive to actually perform worse; if they can slow down their public quotation, they can wind up with extra order volume.

This situation exists whether or not the marketplaces whose quotes receive trade-through protection are automated, though the magnitude of the problem is greater the slower the worst marketplace. Even among automated markets, system speeds vary significantly. With the proposed rule, our markets would only become more efficient if the worst marketplace improves. Better is the current Nasdaq regulatory environment, which allows the best marketplaces to perform unhindered by their less efficient competitors.

Not only does a trade-through rule encourage markets to get worse, but it also presents a host of complex problems for traders trying to comply with the rule. The Commission intends that the published quotes from all market participants are to be used to determine the range of prices at which it is legal to execute orders. But there is more than one choice of data source for those prices. Many ECNs offer more timely data feeds that have more information than their quotation in the consolidated national feeds (CQS and UQDF). Are traders to be allowed to use that information in deciding where to trade? Such information will yield a valid trading range that is different from the one available from the national feed for a significant fraction of the day, particularly in times of high volatility.

We believe that individual participants should be able to use whatever data they have available to augment the information disseminated in the consolidated data feeds. However, whether or not that is permitted, data synchronization issues will cause marketplaces to handle orders differently than customers placing them expect. For example, suppose we place a buy order on Market A at a price below the national best offer. But just after placing the order, Markets B and C have updated their quotes to reflect offers priced lower than our buy order. Under the proposal, Market A could route our

order to either of these markets if it had the updated quotes at the time our order arrived. But we don't know whether that happened or not; in particular, we don't know if Market A will route our order to Market B, Market C, or neither. We therefore don't know if we should be trying to execute against either of those quotes directly; we have lost control of our order execution. This uncertainty that is created is an unfortunate consequence of any trade-through prohibition that denies investors the opportunity to opt-out of order routing.

The Commission's proposal would allow a market center to execute at a worse price as long as it has attempted execution on markets with better quotations first. The Commission has also suggested that customer orders part of an "intermarket sweep" should perhaps also be an exception to the trade-through rule. We support both these exceptions to the trade-through prohibition as ways to mitigate the effects of slower marketplaces. However, implementation of these ideas raises regulatory difficulties. Suppose Market A receives many orders all attempting to trade at a price inferior to a quote in Market B. When Market A receives the first order, it can fulfill its obligations under the proposal by sending part of that order to Market B and executing any remaining shares at the inferior price. But what does it do with all subsequent orders it receives at that inferior price? If another identical order arrives simultaneously, surely Market A isn't responsible for sending it to Market B as well (assuming the previous order was for the full size of Market B's quote). But how is Market A to know whether its relief from sending orders to Market B has expired? If an order arrives half a second after Market A has routed its first order to execute against Market B's quote, but Market B's quote still hasn't updated, is Market A obligated to send that order to Market B? Also, if Market A receives an order that is labeled as part of an intermarket sweep, is that sufficient for Market A to temporarily not route other incoming orders to markets with better priced quotations without ever having sent an order itself, because the sweep order it received signifies that some market participant has tried to execute against all the better quotes already?

In order for regulation to not favor either automated or manual markets, as the Commission has stated its intention to be, guidelines for this issue need to be determined. In the absence of a rule, one could imagine that manual markets might not route orders to a market displaying a better quotation for several seconds after having attempted execution at that market's quotation. If that turns out to be the case, automated markets and, indeed, all other market participants would be at a disadvantage if not granted the same flexibility with their order routing.

Let's return to the example where Market A receives several orders to execute at a price inferior to the quotation of Market B, because this situation presents other troubling issues. If Market A routes part or all of the first order it receives but not subsequent orders, then we will routinely see that first order getting filled later than orders placed after it that were not routed. Worse yet, many times the shares that are routed from the first order will never get executed at any price, because when prices are rapidly changing, Market B may not have any shares left at the better price, and Market A may not have any shares remaining at the inferior price by the time Market B responds. In the effort to maintain price priority, the Commission could be sacrificing time priority for identically priced orders sent to the same marketplace. This is unfair.

Finally, while the proposal has indicated that trade-through prohibitions can be suspended for markets facing material technical problems, it's not clear how this would manifest itself in practice. There was a period in 2003, for example, when quotes from Archipelago Exchange in the UQDF data stream were significantly delayed, by several seconds or more. But the data was not delayed uniformly throughout the day; it was intermittent, and the degree of the problem varied. At what point could marketplaces have decided that the problem was severe enough to warrant disabling order routing to that participant and ignoring their quote for the purposes of trade-through compliance?

We think answering questions like this is best left for individual traders, because the speeds across different markets translate into different execution probabilities depending on market conditions. And

only the investors can know how to balance those probabilities with their tolerance on execution price. Moreover, sophisticated investors who quantitatively model execution likelihood should be permitted to use those models to achieve their own best execution. Unsophisticated investors should be able to choose brokers who are allowed to compete on execution capability.

Our markets would be worse off with a trade-through rule. If the Commission decides to implement one, then investors must be allowed to opt-out.

Opt-out

Our firm executes high-volume automated trading strategies that add tremendous liquidity to the markets. We are not a broker-dealer and do not serve as an agent for anyone else's orders. Consequently we have no conflicts of interest in our order placement decisions, unlike many other liquidity providers in our markets today. Furthermore, our liquidity is added out in the open, via limit orders in public limit order books that are visible to anyone. Thus our firm is among the set of participants whose use of limit orders the Commission is trying to encourage.

But the trade-through proposal of Regulation NMS will not provide encouragement for us to place limit orders in Nasdaq securities. On the contrary, it will make order execution more difficult. During periods of volatility, trade-through prohibition will prevent us from executing our orders; this exposes us to more risk. Added risk directly translates into higher trading costs that affect our ability to add liquidity. Our ability to quote aggressively diminishes as trading costs increase, which results in wider spreads and reduced liquidity. Likewise, as trading costs decrease, our ability to quote aggressively is enhanced.

Opt-out would at least allow our firm to seek its own best execution. Furthermore, it can help mitigate the reduced incentive for marketplace innovation under a trade-through rule, as markets will compete for this self-directed order flow.

As self-interested market participants, we already seek the best price on all of our executions. In fact, we develop sophisticated algorithms to do just that, algorithms that take into account all the complicated issues that can crop up from trying to utilize data from multiple data sources with different properties. We would like to affirm to the Commission that our ability to seek best execution would be harmed by trade-through protection, and compliance with a trade-through rule will therefore only hinder our ability to add liquidity to the marketplace.

Defining automated markets/quotations

If the Commission declines to offer firms the ability to opt-out from the trade-through prohibition, then it must provide a detailed definition for what constitutes an automated market or quotation. Since trade-through prohibition will eliminate the incentive for markets to provide fast responses and actually encourage slower quoting, a standard must be set to ensure that performance doesn't significantly degrade from current levels.

The Commission has asked whether investors benefit from sub-second response times. There is no doubt that they do. All investors benefit from market prices reflecting all the available information. Suppose, for example, that the price of a stock is changing every 2 seconds. If the markets take half a second to respond to orders and disseminate their quotes, then 25% of the time, an investor looking to the markets as a guide for the price at which to execute will be doing using incorrect prices. In periods of more rapid price changes the problem is even worse. Fast response times are what allow our markets to function smoothly even in times of high volatility.

We believe that the key provisions of the automated market definition should be that market participants get fast, automated responses free of human intervention to their orders (both placements and cancels), and that published quotations get refreshed automatically in response to executions and

cancels. We believe that a turnaround time of 250 milliseconds for each of these is well within the capability of all the automated marketplaces today and would be a reasonable choice.

If the Commission chooses to provide trade-through protection for all quotations labeled “automated” or “fast”, rather than to markets designated as automated, then we fear that when hybrid markets switch their quotation from automated to manual, orders may get delayed just as they do now. We therefore propose that if trade-through protection is to be extended quotation-by-quotation, then market participants must be able to label orders they place as requiring immediate turnaround, and all market centers must respond to orders labeled as such within 250 milliseconds, independently of whether the market center’s current quotation is fast or slow.

But this kind of regulation is not what the Commission should be handling. There are a multitude of issues that come up when trying to regulate technological response times. For example, how does a market time itself? Presumably market centers will measure the time from when an order arrives to when a response is sent. But the network delay time is also a significant contributor to the speed of a system. If a market center doesn’t provide sufficient bandwidth to its automated order facility, then even fast turnaround times within its system might still result in very slow order response times in general. Different participants, moreover, receive different performance depending on the quality of their network connection to the market center. And very little corrective action can be taken if a market’s system has technical problems. In times of high quote volume, systems that are not performing as well as mandated standards will harm the entire marketplace if the provisions of the trade-through rule cannot be effectively bypassed.

Issues surrounding mandated performance standards are too complex for the Commission to take a hand in resolving. Instead the market should sort itself out on its own, as it has been doing. The rise in market share of ECNs is a response to investors’ need for faster, more reliable, and more transparent trading systems, and ECNs continue to compete by improving their systems in response to their customers. The creation of Nasdaq’s SuperMontage system was a response to that trend. Even now, the NYSE is making plans to follow suit, with their recent proposal to create a less restricted automated order execution system. Eliminating all trade-through prohibitions would foster the competitive forces that have driven these innovations and would be a far simpler way to encourage market efficiency.

Quote-through

Related to the ability to trade through is the ability to quote through (publish quotes that would lock or cross an existing quotation). We believe that quoting through should be permitted, in general. But in particular, automated markets must be permitted to quote through manual markets. If not, then unsophisticated traders will continue to be taken advantage of by participants displaying stale quotes, as we described in the trade-through discussion above. It’s bad enough that stale quotes are permitted to remain in the published quotation; what’s worse is when those stale quotes prevent legitimate, accessible quotes from appearing. If quote-through were permitted, then all market participants would be able to see the true prices at which others are placing orders. This helps investors who do not follow short-term price moves; such investors may look at the top of the market and choose to place their orders at those prices. If there truly is buy interest at prices higher than sell interest, then these investors ought to be told that so that they can get the best price whichever direction they’re intending to trade. If the crossed market isn’t displayed, then either marketable buy or marketable sell orders will be executed at an artificially high cost.

We do not believe that locked and crossed markets confuse investors any more than the alternative of preventing market centers from posting locking or crossing quotes, a prohibition that misleads investors about the true price of a security. If the Commission is committed to uncrossed markets, however, it would do better by forcing data display vendors to remove the quote or quotes being crossed. Our analysis has shown that new quotes coming in that cross the market are far more likely

to still be present when the market becomes uncrossed than the older quotes. Given that, investors will have better information if those older, stale quotes get removed to make way for the more recent data.

And it is hard to imagine that market efficiency could somehow be improved by taking information away from market participants. Electronic markets need to be able to disseminate complete quotation data in order for price discovery to take place. Unlike participants on the floor of an exchange, ECN participants have no other communication methods open to them besides the public order book. Public price discovery ought to be encouraged in our market centers, as it gives investors more confidence in our markets. Restricting quote-through would take valuable information out of our markets and make price discovery less transparent to investors.

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The central argument made by supporters of a trade-through rule is that the rule prevents ordinary investors from receiving executions at inferior prices. Since self-interested investors making their own order routing decisions would never deliberately subject themselves to an inferior price, these alleged inferior executions must stem from brokers acting on behalf of clients. If this is in fact what participants are concerned about – and we agree, there is a potential for agents to neglect their duty to their clients – then it is the principle of best execution that needs to be examined. Enacting a trade-through rule does not solve the problem of brokers failing to provide best-execution; it instead lowers execution quality for all investors.

We look forward to further discussing these issues with the Commission.

Sincerely,

Suhas Daftuar
Managing Director
Hudson River Trading LLC