April 30, 2010

Elizabeth M. Murphy
Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

Re: Concept Release on Equity Market Structure, Release No. 34-61358, File No. S7-02-10

Dear Ms. Murphy:

Hudson River Trading LLC ("Hudson River Trading") appreciates the opportunity to comment on the above referenced Concept Release on Equity Market Structure.[1] Hudson River Trading is a quantitative trading firm that develops automated trading strategies that provide liquidity and facilitate price discovery on exchanges and Alternative Trading Systems ("ATSs"). We appreciate the Commission's decision to undertake a wholesale review of market structure as we believe these issues are best addressed in a deliberate and comprehensive manner.

Hudson River Trading believes the goal of any changes in market structure should be to promote fair and equal access for all participants, foster competition, and maximize market efficiency. Policies focused on market efficiency benefit investors by reducing their cost of investing, leading to better overall returns. Additionally, such policies help to promote the efficient allocation of capital, which aids companies in capital formation and ultimately economic growth.

It is important to be mindful of the potential consequences that can come with regulatory changes. Changes in market structure can require market center operators and market participants to adapt their businesses to a new environment. We respectfully suggest that market structure changes contemplated by the Commission be evaluated based on their impact on long-term market efficiency and the resulting impact on investors.

In our comments, Hudson River Trading will address several issues raised in the concept release, including fairness, competition, efficiency, co-location, long-term investors and short-term professional traders, liquidity rebates, direct data feeds, minimum price variation, minimum duration of orders and batch processing, and over-the-counter trading and the "trade-at" rule.

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[1] The views expressed in this letter are specific to Hudson River Trading. Separately, Hudson River Trading has joined with three other proprietary trading firms to address additional market structure issues.

Background

The Commission's actions over the past fifteen years have opened the US equity markets to more participants and given all investors additional control over their orders. Specifically, the Order Handling Rules ensured that all investors' orders would have the ability to compete to set the best price. Regulation ATS established a framework for fully automated trading venues that allowed for investor orders to interact directly without the intervention of a dealer. Decimalization, which encompassed the move from fractions to decimals and the corresponding move to a one cent minimum price variation, resulted in dramatically reduced spreads for investors by allowing investors to compete to set the best price at finer increments. Finally, Regulation NMS enhanced competition among market centers by allowing participants to trade on automated markets in situations that previously would have required a delay for manual markets to update their quotes. Collectively, these changes transformed the equity markets. They have leveled the playing field and promoted competition among market centers and market participants, resulting in a dramatic improvement in market efficiency.

Fairness

The equity markets have become fairer since the introduction of the above mentioned reforms. Nearly all equity exchanges have adopted price-time priority matching algorithms. Price-time priority not only provides an equitable methodology for matching orders, but also promotes competition among market participants as it rewards price discovery. This structure differs greatly from the structure of the markets fifteen years ago, in which virtually every order went through a privileged intermediary (market makers in the Nasdaq market and the specialist in the NYSE market).

Of course, fair access standards have been an important and effective component of policy. These standards provide a uniform fee schedule for all market participants, ensure that market participants are not unfairly discriminated against, and ensure fair connectivity to the markets. Fair access standards are critical to avoiding unnecessary barriers to entry. As the practice of co-location has become more widespread, we believe strongly that it should come under the rubric of fair access standards, which we address in further detail below.

While fair access standards ensure that all services are made available on equal terms, they have not mandated a one-size-fits-all approach for exchange services. Exchanges often offer different order types, connectivity protocols, market data feeds and membership types. In doing so, exchanges allow each firm to determine the appropriate services for such firm's business. We believe this approach promotes innovation while ensuring that all market participants have access to the services that best fit their business.

Competition

Healthy competition among market participants leads to tighter spreads, improved price discovery and greater market liquidity. Reducing or eliminating barriers to entry is a significant way for policy to encourage competition. Market participants should not be guaranteed future success simply because they are established or because they have been granted a privileged position by an exchange. On the contrary, market participants should be rewarded for their contribution to market efficiency and should not be shielded from competition from other market participants on fair terms. Any proposal that seeks to give one or a small number of firms an advantage in exchange for obligations deserves the highest degree of scrutiny. Similarly any proposal that raises barriers to entry without a corresponding benefit to overall market performance should be viewed with skepticism.

Some market participants advocate policies that would have the effect of tilting the playing field in their direction. While some firms' business models will be aligned with promoting fairness, competition and efficiency, it is important that policy is not influenced by its short-term impact on certain firms or certain business models. Furthermore, rulemaking designed to benefit particular market participants at the expense of overall market efficiency is likely to end up harming the very participants the rules were designed to aid through degraded market quality. Policy should be driven instead by what rules promote fair and efficient markets in the long run, regardless of their impact on particular market participants.

Efficiency

Empirical evidence and academic research are clear: the efficiency of the equity markets has improved dramatically over the past several years, and the increased automation of the markets has spurred this improvement. Quoted spreads have fallen,[2] directly benefiting retail investors whose orders are executed at or better than the National Best Bid or Offer. Liquidity is deeper and more diverse.[3] Academic studies have attempted to isolate the impact of algorithmic or high frequency trading. These studies have come to similar conclusions: algorithmic trading increases liquidity,[4] narrows spreads,[5] enhances price discovery,[6] and does not contribute to volatility.[7] Furthermore, the equity markets also proved to be more resilient than other markets during the extreme volatility of late 2008 and early 2009. Unlike markets that are dominated by a small number of

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[2] See Angel, James J., Lawrence Harris, and Chester Spatt, 2010, Equity Trading in the 21st Century, *Quarterly Journal of Finance*, forthcoming. http://www.sec.gov/comments/s7-02-10/s70210-54.pdf
[3] See Id.
[4] See Hendershott, Terrence, Jones, Charles M. and Menkveld, Albert J., Does Algorithmic Trading Improve Liquidity? (February 5, 2009). *Journal of Finance*, Forthcoming; WFA 2008 Paper. Available at SSRN: http://ssrn.com/abstract=1100635
[5] See Id.
[6] See Id.
[7] See Hendershott, Terrence and Riordan, Ryan, Algorithmic Trading and Information (September 2009). NET Institute Working Paper No. 09-08. Available at SSRN: http://ssrn.com/abstract=1472050 and Chaboud, Alain, Hjalmarsson, Erik, Vega, Clara and Chiquoine, Ben, Rise of the Machines: Algorithmic Trading in the Foreign Exchange Market (October 2009). FRB International Finance Discussion Paper No. 980. Available at SSRN: http://ssrn.com/abstract=1501135

entrenched players, the equity market functioned smoothly, providing fair, efficient two-sided prices to investors.

Co-location

The Commission has raised several questions about the fairness of co-location and its effect on the market. We believe that markets are undoubtedly fairer and more efficient if markets explicitly offer co-location services that are regulated under a fair access standard.

It has become clear that proximity to a market center has become economically valuable to some participants. Those participants will seek to minimize latency whether or not market centers offer co-location. And if official co-location with a market were unavailable, then they would try to achieve lower latency by negotiating to acquire space from whoever happens to have space nearby, perhaps from a third party co-location provider. Such a framework for connecting to a market would be opaque, difficult to regulate, and would impair competition. New participants would find learning how best to connect to a market to be difficult, and larger, more established participants would have a built-in trading advantage not based on their investment expertise but on pre-existing relationships that give them a physical and informational edge.

On the other hand, a transparent and regulated co-location offering would allow every participant to know what options exist for connectivity to an exchange as well as what those options cost. It would level the playing field by ensuring that no one is able to get a better deal (either in cost or in service) than anyone else. By setting co-location prices based on market demand, exchanges could ensure that space is always available to those willing to pay for it and that no participants are left out, unable to negotiate a deal on equal terms as others. We believe this is the fairest way to allocate resources and would not privilege any participants over others.

The effect of co-location on the market and long-term investors is undoubtedly beneficial, on par with other decisions market participants make. Such participants engage in this activity with the intent of improving the way they invest, no different from deciding to buy a newer computer, to use a more streamlined software product, or to hire a more skilled analyst who makes better trading decisions. As participants make such choices and try to maximize the profitability of their investing, they in turn make markets more efficient: their participation in the market contributes to liquidity, and their efforts to succeed economically directly contribute to price discovery. Long-term investors, as a result, are able to trade at lower cost and at prices that reflect the best information the market collectively has. In general, as participants improve the ways in which they make investment decisions, the market becomes more efficient.

The Commission has asked about access to co-location: whether the costs are so high that it effectively creates a barrier for smaller firms, and whether investors not in a position to pay for co-location are disadvantaged. We believe these questions are closely related. Not all participants value co-location equally. For instance, it's hard to imagine an investor trading small sizes of highly liquid stocks a few times a year being able to benefit significantly (or at all) from co-locating directly with an exchange – the cost of the technology investment would dwarf the trading decisions that would be at stake. On the other hand, all investors can choose from a number of brokers who may themselves be co-located at exchanges, and who are able to aggregate the fixed costs of such technological investments against the small benefits each of their customers receives in turn from that technology. It is our understanding that some brokers currently offer products to their customers that take advantage of co-location with market centers.

Furthermore, we don't believe that a high price for co-location services represents a barrier to entry. Generally, co-location offers market participants a cost effective alternative to building and maintaining a data center. Moreover, if co-location were priced too low, then it would be oversubscribed; that in turn might be beneficial for current participants, who are able to consume all the currently available space, but that would disadvantage new participants from being able to compete on a level playing field. On the other hand, if co-location is expensive because it's in high-demand, then the price mechanism is ensuring that the scarce resource is being allocated to the participants who value it the most, while at the same time providing a fair, unbiased way of determining who gets the space. And a high price means that suppliers of co-location have an incentive to provide more of it, which is exactly what should happen if proximity to an exchange is valuable.

Finally, the Commission has asked whether any obligations should be placed on participants in order to utilize co-location. We believe this would be the antithesis of promoting competitive and efficient markets and strongly recommend against such a policy. First, co-location is not at all like the specialist advantage that has existed on traditional manual exchanges, in that it is open to everyone (under a fair access standard) and there is no trading privilege or information advantage implicitly conferred in connection with co-location. Merely receiving data faster than some participants is not a market structure advantage if everyone is allowed to do so. If co-location were viewed as a special advantage, then presumably purchasing faster software or faster computers (whether or not co-location is used) would logically follow as being special advantages as well. On the other hand, a participant with inferior technology who chooses to co-locate may just be trying to narrow the technological gap between them and competitors with faster technology who don't need co-location to trade efficiently – imposing restrictions on only the former would thus seem to be too far-reaching in dictating the terms on which participants compete.

Second, placing obligations on co-location customers would mean that brokers would generally be unable to offer services harnessing the benefits of co-location to their retail or institutional customers, as their order flow presumably wouldn't meet whatever obligations are being imposed. And third, this would serve as a sharp barrier to entry that would prevent smaller firms from being able to compete with larger firms. While establishing such rules today could benefit existing firms (including ours) that are likely able to adapt their business to fit into the regulatory mold that is prescribed, we think that market quality will suffer in the long-run.

Minimum Price Variation

The Commission requested comment on whether the minimum price variation ("MPV") is leading to distortions in order routing and internalization in low-priced stocks. We believe that having highly active securities currently bound by the one cent MPV encourages internalization or otherwise executing orders off-exchange. Where the MPV is enforcing an artificially wide spread, investors (or their intermediaries) can receive some benefit from the price improvement or payment for order flow opportunities that a non-exchange venue might offer.

A stock's price, liquidity, and volume are all factors that are relevant to whether a stock's MPV is too high. Consequently, we do not believe the Commission should simply choose a price level under which stocks will have a smaller minimum price variation.[8] Instead, selecting stocks that are currently constrained due to the MPV and have trading characteristics that support spread reduction would uncontrovertibly have a beneficial, targeted impact.

A one-size-fits-all approach to MPVs is not appropriate for US equities. The current policy requiring a one cent MPV for all equity securities trading at a price over $1 creates an excessive implicit transaction cost to investors. One approach to addressing this can be found in Europe, where tick size tables are generally used to ensure that all investors and market participants know the appropriate MPV for a given stock. Alternatively, revisiting the inter-market framework to develop a system where markets could compete on MPV might be the most efficient way to achieve optimal tick sizes, although such an approach would need to be part of a comprehensive review of inter-market regulation.

Hudson River Trading recommends that the Commission consider proposals to reduce the MPV for securities that have artificially wide spreads due to the one cent MPV. Any reduction in the MPV for these securities would benefit investors, particularly long-term investors or other traders who predominantly utilize marketable orders to trade. Any proposal should also be accompanied by a methodology for reviewing the impact of the reduction in MPV.[9]

Long-Term Investors and Short-Term Professional Traders

The Commission raised several questions about long-term investors and short-term professional traders, including so-called high frequency traders. All market participants using publicly available information to make buy and sell decisions, regardless of their trading frequency or professional expertise, contribute to price discovery and liquidity by their very participation in the equity market. In fact, the diversity of time horizons and trading strategies is what makes the US equity market efficient. Curtailing any particular

[8] Some high-priced securities, including highly liquid exchange traded funds, would likely benefit from a reduction in the MPV.

[9] This approach was recently adopted by the Commission in approving the Options Penny Pilot.

strategy is likely to hurt all market participants; overall, finding a seller when one wants to buy or a buyer when one wants to sell would be more difficult.

The Commission noted in the release that "the collective effect of professional traders competing to profit from short-term trading strategies can work to the advantage of long-term investors." We believe this has been evidenced by the improvements in market quality that have accrued to long-term investors. Recently there have been reports in the media and in comment letters of ways in which the interests of professional traders are at odds with long-term investors. The examples typically demonstrate a scenario in which a professional is able to abuse market structure to the detriment of retail customers or institutional investors. While many different hypothetical scenarios or stories can be presented purporting to demonstrate how a professional trader might take advantage of others, we have observed several kinds of fallacies that are frequently displayed. For instance, many of these scenarios impute a very high level of prescience to professional traders regarding the direction a security's price will move; if a trading scenario relies on a stock to move in a certain direction for the story to make sense, then roughly half the time the story will not apply, as the stock may move in the opposite direction. In other examples, an implicit contradiction might be built in, such as assuming that a customer order is both uninformed and yet also directionally predictive, or that market professionals might have orders outstanding on automated exchanges that somehow aren't eligible for immediate execution. And finally many scenarios complain about an investor getting worse prices than they are entitled to because the market, essentially, is too efficient. That market participants are able to analyze publicly available information to effect price discovery on shorter time scales than ever before is a virtue, not a vice. If that means that sometimes an investor will determine a security is undervalued, decide to buy it, but be unable to acquire the full desired position before others reach the same conclusion and the market moves toward fair value, then we should keep in mind that for every buyer unable to buy at a discount, there may also be a seller who received a price closer to fair value. We believe that a healthy skepticism and deeper analysis of all of these kinds of scenarios is warranted. Furthermore, it should be noted that these claims are contrary to the dramatic improvement in market quality we have experienced over the past several years.

Unlike strategies that use publicly available information to place orders intended for execution, manipulative strategies or practices designed to exploit private customer order information are detrimental and illegal. By way of example, the Commission describes a "momentum ignition" strategy where "a proprietary firm may initiate a series of orders and trades in an attempt to ignite a rapid price move either up or down." Momentum ignition strategies are a form of "spoofing" and are illegal under existing exchange rules.[10] Hudson River Trading supports efforts to ensure regulators have the tools and ability to detect and deter any such manipulative activity.

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[10] For example, NASDAQ Rule 3351 and BATS Rule 12.1.

Over-the-Counter Trading and "Trade-at" Rule

The Commission requested comment on several aspects of the over-the-counter ("OTC") market with a primary focus on execution quality for individual investors. As the Commission noted in the release, individual investors' orders are generally considered to be uninformed, in that they are unlikely to cause or have information about short-term price movements. Individual investor orders are typically internalized at the NBBO and are sometimes provided price improvement. Retail brokers are often provided payment in exchange for routing order flow to a particular OTC market maker, a practice known as payment for order flow. As discussed above, internalization is more attractive in securities that have an artificially wide spread due to the one cent minimum price variation.

The existence of payment for order flow and price improvement are generally driven by OTC market makers' ability to discriminate among potential customers, taking the other side of individual investor orders which, unlike orders from proprietary trading firms or institutional investors, are unlikely to have a short-term adverse impact on the liquidity provider. While this discrimination is in favor of the individual investor's orders, it is unclear that the benefit inures to the individual. While any price improvement that the order receives clearly benefits the investor, the payment for order flow typically goes to the retail brokerage. Furthermore, public quote competition would be more intense if more individual investor orders were sent to and executed on the public market as the degree of adverse selection would be reduced. This increased quote competition would lead to narrower spreads and decreased costs for investors.[11] In addition, individual investors would contribute more greatly to the price discovery process making stock prices more efficient.

However, it is worth noting that the US options market does not provide for off-exchange trading and that the options market suffers from other pricing and market structure distortions.[12] No rule will eliminate market professionals' desire to interact with uninformed order flow. However, the Commission should endeavor to ensure that individual investors are the ultimate beneficiaries of any discrimination, not their intermediaries.

Furthermore, promoting greater transparency of retail broker execution quality would provide a strong incentive for brokers to improve their order handling for their customers, and it would provide investors with a better tool to assess the execution quality achieved by their broker and to compare among brokers.[13] In particular, making information

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[11] Note that the potential decrease in spreads would offset some or all of the potential loss of price improvement that individual investors currently receive.

[12] These include payment for order flow; pricing based on the type of account from which the order was sent (customer, professional customer, firm, market maker, and "away market maker"); and priority based on participant type where the specialist receives a guaranteed participation on certain incoming orders.

[13] See letter from Christopher Nagy, Managing Director Order Strategy, Co-Head of Government Relations, TD Ameritrade dated April 21, 2010. Available at: http://sec.gov/comments/s7-02-10/s70210-159.pdf and letter from Janet M. Kissane, SVP - Legal & Corporate Secretary, Office of the General

available that would allow investors to analyze the extent to which a broker is meeting its best execution obligation on each order, rather than just in the aggregate for all of a broker's executions, could allow investors to make more informed choices about how they would like their orders handled.

Liquidity Rebates

The Commission raised several questions surrounding liquidity rebates. As part of their overall strategies, many market participants provide liquidity to the market and generally receive liquidity rebates from exchanges and ECNs. Hudson River Trading believes that any changes in the rates of the rebates should be determined in the open and competitive marketplace and not by regulation. Competition among exchanges and ECNs is intense and has resulted in a diversity of pricing models. In fact, some exchanges and ECNs have become successful by introducing pricing models that charge liquidity providers or have no rebate for liquidity provision. In addition, rebates provide exchanges with a tool to compete with off-exchange trading venues that typically have more pricing flexibility as well as the ability to discriminate among prospective trading counter-parties. We believe that any proposal on liquidity rebates should be considered in conjunction with pricing on ATSs as well as over-the-counter trading, including payment for order flow practices. Exchanges should be able to compete with off-exchange trading centers for order flow on equitable terms.

Direct Data Feeds

Many exchanges and ECNs offer market data feeds. These feeds often include the exchange's or ECN's full depth-of-book. Most direct data feeds are available to all participants, including non-members, on fair terms; some are even free of charge. The Commission requested comment on whether direct data feeds should be delayed to ensure they are not faster than consolidated data feeds. Rather than take such an approach, we would recommend that fairness and efficiency would both be promoted by ensuring direct market data feeds are made available to all market participants, as is largely the case already. Certainly if all participants can choose to consume the data that best fits their business, then we should not degrade the quality of market data by artificially slowing down these technologies. Doing so would increase the risk that liquidity providers take in providing prices to investors, likely leading to wider bid-ask spreads.

Furthermore, the benefits of direct data feeds for non-professional traders and long-term investors go beyond merely having more efficient markets to trade in; they extend more directly from services that brokers are able to offer today, such as smart order routers that utilize such feeds to make routing decisions. Consequently, slowing down direct data feeds makes the quoted prices order routers respond to less timely, which would likely reduce fill rates and harm execution quality for all investors.

Counsel, NYSE Euronext dated April 23, 2010. Available at: http://sec.gov/comments/s7-02-10/s70210-154.pdf.

Duration of Orders and Batch Processing

The Commission requested comment on the brief duration of many orders and if these orders significantly detract from the quality of liquidity in the current market structure. Hudson River Trading believes that the ability to execute, update and cancel orders quickly contributes to market quality by allowing market participants to manage executions and risk more closely. The speed at which markets respond to new orders, execute orders and respond to cancellation requests has improved dramatically over the past ten years. The markets have evolved from requiring manual intervention on nearly all orders to requiring no manual intervention on most orders. Most exchanges can process orders, executions and cancellations in milliseconds. The ability to enter and execute orders in such short time frames allows market participants to increase the certainty of execution and improve fill rates. The ability to cancel an order quickly due to changing market conditions allows firms to provide liquidity efficiently and manage risk effectively.

The Commission specifically requested comment on a minimum requirement on the duration of orders, such as one second. Hudson River Trading believes any such requirement would have the potential to detract from market quality. The ability to adjust or cancel orders leads to lower spreads; market participants are more willing to enter aggressive orders if they can cancel or adjust them in the event that market conditions change. However, if a market center operator determined that having a minimum requirement on the duration of orders in its system would provide higher quality liquidity to its users, it should be free to implement that requirement. If the minimum order life was successful, other markets may follow suit.

The Commission has also asked whether market centers could "batch process all orders each second," as a means to eliminate a perception of unfairness. While more detail would be needed to analyze such an idea's effect on market quality and whether or not it would be a fair system itself, we believe a market center should be free to experiment with an idea like this.

In general, market centers should be free to innovate and explore how best to operate a market in accordance with the principles of fair and equal access. While many markets offer price-time priority, for instance, not all do, nor should all markets be required to do so.[14] Similarly, a market could propose to batch process orders or institute a minimum order duration. Having multiple market centers that are able to innovate to address a portion of the market without disrupting the broader market is a strength of our current market structure. We believe that policy would be most effective at promoting market efficiency if it did not mandate a particular micro-structure on all market centers.

[14] NASDAQ OMX PSX recently announced that it plans to launch a market in which the size of an order would be a component in calculating an order's priority.
http://www.nasdaqtrader.com/TraderNews.aspx?id=ETA2010-018

Conclusion

Hudson River Trading applauds the Commission's decision to issue a concept release concerning the market structure issues facing the equities market. We believe that the goal of any changes in market structure should be to promote fair and equal access for all participants, promote competition, and maximize market efficiency, thereby creating the best marketplace for capital formation. We do not believe that trade-offs need to be made among these goals as they are self-reinforcing. Any market structure changes should be evaluated based on their impact on long-term market efficiency.

Hudson River Trading appreciates the opportunity to submit these comments and is available to meet and discuss them with the Commission and its staff in order to respond to any questions.

Sincerely,

Suhas Daftuar
Managing Director