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High-Frequency Trading: Are the Exchanges the Next Targets?



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High-frequency trading – computerized trading based on complex algorithms designed to rapidly analyze the financial markets and execute orders – has recently drawn considerable attention from the Securities Exchange Commission (SEC) and the Commodities Futures Trading Commission (CFTC). As legislators and regulators come to better understand high-frequency trading practices, new attention is being focused on the role of the trading exchanges themselves in high-frequency trading, in particular whether the exchanges are discriminating between high-frequency traders and ''everyone else'' for coveted performance, pricing, or other services.

I. High-Frequency Trading Today. In recent years, the practice of high-frequency trading (also called high-speed trading) has grown expansively, now accounting for approximately 50% of all U.S. equity trading and 60% of futures contracts trading on the Chicago Mercantile Exchange.[1] The practice involves computerized systems capable of extraordinarily fast calculation and data transmission time that run mathematical algorithms to identify price mismatching and trading opportunities and execute trades in milliseconds – and increasingly in microseconds.

Proponents believe that these advanced systems create liquidity, have brought about historically low transaction costs through narrowed bid-ask spreads, and have increased market efficiency. Critics contend, however, that high-frequency trading has disadvantaged investors without access to cutting-edge technologies, contributed to market volatility, eroded investor confidence in the integrity of the markets, and has led to a two-tiered marketplace: those capable of high-frequency trading, and those without such capabilities.[2]

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[1] Scott Patterson, *CFTC to Examine Rapid Trading*, WALL ST. J., Jan. 31, 2012, http://online.wsj.com/article/SB10001424052970203920204577193130888885956.html?mod=ITP_moneyandinvesting_2.

[2] N. Am. Secs. Adm'rs Ass'n, 2013 Legislative Agenda, *available at* http://www.nasaa.org/issues-and-advocacy/legislative-agenda-1/ (''HFT appears to have potentially dangerous implications for ordinary 'mom and pop' investors. In

In addition to controversial high-frequency trading strategies that have drawn regulatory scrutiny,[3] high-frequency trading raises concerns regarding the exchanges themselves, particularly regarding discriminatory practices and information asymmetries. Recent regulatory action indicates that although exchanges enjoy immunity ''from private damages suits in connection with the discharge of their regulatory responsibilities'' by virtue of their quasi-governmental status,[4] these entities are not exempt from by regulatory enforcement authority.[5]

II. The SEC's Action Against the NYSE. The SEC's September 2012 Cease-and-Desist Order against the New York Stock Exchange (NYSE)[6] indicates that regulators are concerned with even miniscule timing advantages.[7]

The Order addressed the release of data through two proprietary feeds. The SEC found that beginning in June 2008, the NYSE, through one proprietary feed, ''sent real-time depth-of-book market data, which included information about its best-priced quotations and execution prices, to its subscribers before NYSE sent data to a Securities Information Processor (the 'Network Processor') that made quotes and traders available to the public on a consolidated basis.''[8] Through a second proprietary feed, NYSE ''during multiple intervals of high-volume trading during the first half of 2010, sent quote data to customers before NYSE sent it to the Network Processor.''[9] The SEC found that the average gap in the NYSE's release of proprietary and public data ''ranged from single digit milliseconds to 100 or more milliseconds.''[10] The Order noted that the timing advantage was significant because, *inter alia*, many traders incorporate the data ''into computer algorithms that make a high volume of rapid trading and order routing decisions.''[11]

The SEC found that such preferential practices violated Rule 603(a) of Regulation NMS (National Market System).[12] Rule 603(a) requires ''exclusive processors'' of market data, such as NYSE and other exchanges, to distribute data to market data vendors and the Network Processor for consolidation for public distribution on terms that are ''fair and reasonable'' and ''not unreasonably discriminatory.''

While the SEC recognized that, due to the consolidation process, consolidated data feeds generally reach market participants later than information from proprietary feeds, the SEC's 2010 Concept Release on Equity Market Structure indicates that the Commission is more closely examining the fairness of heightened data access disparities afforded by combined direct feed and co-location practices, especially in the context of high-frequency trading.[13]

III. Direct Access Feeds and Co-Location. To achieve lightning-fast access and insight into the market, high-frequency trading firms often rely on direct access feeds and co-location. Direct access feeds are offered by exchanges for a fee and provide subscribers with market data prior to other investors who rely on the aggregate market data feed provided by the Consolidated Tape Association/Securities Information Processor. Obtaining data via a direct feed will always provide a timing advantage because an aggregated feed receives data from all exchanges, aggregates it, and normalizes the data before distribution.[14] Co-location allows for reduced data transmission time between a firm's own technology systems and exchange-operated systems, a critical component of high-frequency trading success.[15]

To minimize transmission time and achieve low latency, high-frequency trading firms may pay exchanges to allow them to place their servers in the same data center that houses the exchange's systems. The combination of direct access feeds and co-location provides a firm at least a 0.4 microsecond advantage over investors and firms that use the aggregate market data

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this regard, Congress' goal should be to level the playing field among market participants by ensuring that access to information and activities by sophisticated and speculative investors do not unfairly disadvantage or harm retail investors.'').

[3] Eliot Lauer, Jason Gottlieb and Alyssa Astiz, *Stay Afloat in the New Wave of High-Frequency Trading Actions*, N.Y. L.J. at 4 (Feb. 24, 2013), *available at* http://www.newyorklawjournal.com/PubArticleNY.jsp?id=1202589088509&slreturn=20130125132239.

[4] *Standard Inv. Chartered, Inc. v. Nat'l Ass'n of Secs. Dealers, Inc.*, 637 F.3d 112, 116 (2d. Cir. 2011), *cert. denied*, 132 S. Ct. 1093 (2012).

[5] Complaint *U.S. CFTC v. Byrnes*, (S.D.N.Y. Feb. 21, 2013) (13 Civ. 1174); *In re New York Stock Exchange LLC and NYSE Euronext*, SEC Release No. 67857 (Sept. 14, 2012) [hereinafter *In re NYSE*]; Jacob Bunge, *CFTC Suit Marks New Era*, WSJ.COM, Feb. 24, 2013, http://online.wsj.com/article/SB10001424127887323699704578324560048304722.html (noting that the CFTC's recent filing of a Complaint against the New York Mercantile Exchange (''NYMEX'') for disclosure of material non-public information is the first time the Commission has sued an exchange in federal court, setting the stage for a ''legal showdown'' between NYMEX and the Commission, ''a standoff that market experts say could become a regular event as new financial-market laws come into force'').

[6] *In re NYSE*, *supra* note 5.

[7] *See* Press Release, SEC, SEC Charges New York Stock Exchange for Improper Distribution of Market Data (Sept. 14, 2012), *available at* http://www.sec.gov/news/press/2012/2012-189.htm (''Improper early access to market data, even measured in milliseconds, can in today's markets be a real and substantial advantage that disproportionately disadvantages retail and long-term investors.'') (quoting Robert Khuzami, Director of the SEC's Division of Enforcement); *see also Computerized Trading: What Should the Rules of the Road Be?: Hearing Before the Subcomm. on Secs., Ins., and Inv. of the S. Comm. on Banking, Hous., and Urban Affairs*, 112th Cong. (2012) [hereinafter *Hearing*] (testimony of Sen. Carl Levin) (discussing the NYSE settlement and stating that the findings indicate that ''some traders seem to be given a leg up on the rest of us. They get information faster. The process it faster. And they are given tools to take advantage of that information to the detriment of the rest of the market.'').

[8] *In re NYSE*, *supra* note 5, at *3.

[9] *Id.*

[10] *Id.*

[11] *Id.* at *6.

[12] *Id.* at *10.

[13] SEC Concept Release on Equity Market Structure, 75 Fed. Reg. 3594 (January 21, 2010).

[14] *Hearing*, *supra* note 7 (written testimony of Larry Tabb, CEO, TABB Group).

[15] Rob Iati, *The Real Story of Trading Software Espionage*, ADVANCED TRADING (July 10, 2009), http://www.advancedtrading.com/algorithms/the-real-story-of-trading-software-espio/218401501 (''To realize any real benefit from implementing these strategies, a trading firm must have a real-time, colocated, high-frequency trading platform—one where data is collected and orders are created and routed to execution venues in sub-millisecond times.'').

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feed.[16] This advantage, when coupled with rapid systems and computerized algorithms, permits firms to see price movements in advance of other investors and to view orders before they are displayed to the market, thus prompting considerable concern regarding the fairness of ''allow[ing] a head start in exchange for a payment.''[17] Even measured in fractions of microseconds, the difference in having a system co-located with the exchange servers can be enough to get a better price, even for a later-placed order.

Information asymmetries that result from direct access feeds and co-location have frustrated other investors who feel they are unable to compete with these advanced technologies that allow high-frequency traders to ''virtually predict the future'' and provide a ''first in line'' position.[18] Some argue that the data access advantage afforded by co-location and direct feeds is akin to possession of material, non-public information,[19] trading on which is considered front-running and prosecutable under § 10(b) of the Exchange Act and corresponding Rule 10b-5, and § 4c(a) of the Commodities Exchange Act.[20] Distribution of material, non-public information is also prosecutable under § 20(e) of the Exchange Act and § 13c(a) of the Commodities Exchange Act as aiding and abetting, if the distributor provides substantial assistance to another in violation of the securities laws.

In addition, some private direct access feeds provide sensitive information regarding individual behavior and order placement that allows high-frequency trading firms ''to track when an investor changes price on his order, how much stock the investor is buying or selling in accumulation, as well as the ascertaining of hidden order flow.''[21] This information allows high-frequency traders to predict short-term price movements and trade ahead of other investors.

While exchanges contend that co-location and direct access feeds are available for all investors, realistically, very few individual or even institutional investors have the capital to expend for the advanced computer systems and servicing required to decipher and react to this sort of data. If the regulators determine that co-location and direct access feeds have led to impermissible front-running, we are likely to see future anti-manipulation enforcement action targeting these practices – not only against the firms engaging in such trading, but against the exchanges who allow it as well. Even if the regulators take no action on this point, private lawsuits by excluded investors are always a possibility.

IV. Discriminatory Practices. Regulators are also questioning whether exchanges, in an effort to secure lucrative high-frequency trading volume, have provided high-frequency trading firms preferential treatment at the expense of other investors. Specifically, regulators are questioning whether high-frequency trading firms have collaborated with exchanges to create order types that leverage algorithmic capabilities to provide an advantage over investors without sophisticated technologies.[22] Critics of high-frequency trading argue that the evolution of exchanges into for-profit entities that ''make money through volume and churn'' has created a tremendous conflict of interest that provides a strong bent toward high-frequency trading and inclination to favor those who execute such strategies, and ''little incentive to maintain fair, orderly markets.''[23]

Among the areas of inquiry are the array of new order types that have emerged in response to the implementation of Regulation NMS which prohibits ''locked markets,'' occurring when a national best bid equals the national best offer, and ''crossed markets,'' occurring when the national best bid is greater than the national best offer. Order types, which allow traders to control how their orders are treated, are one potential method by which exchanges are ''putting the interests of high-frequency traders, an important source of their revenue, ahead of the needs of other investors.''[24]

Specific order types allow high-frequency traders to book ''hidden'' quotes that would otherwise be impermissible if displayed to market participants under Regulation NMS's prohibition of locked and crossed markets, are unfairly prioritized and filled before earlier executed orders.[25] These order types have appeal to high-frequency and other professional traders, who ''often prefer to quote at a price that would lock the market rather than simply execute against the original quote,'' a trading tactic that ''increases their profits and ensures they maintain their standing in the exchange's queue.''[26] As Regulation NMS applies only to entered and displayed orders, exchanges purportedly created

[16] *Hearing*, *supra* note 7 (written testimony of Larry Tabb).

[17] *Hearing*, *supra* note 7 (testimony of Andrew M. Brooks, V.P. and Head of U.S. Equity Trading, T. Rowe Price Assocs., Inc.).

[18] Letter from Southeastern Asset Mgmt., Inc., to Elizabeth M. Murphy, Secretary, SEC (Apr. 28, 2010), *available at* http://www.sec.gov/comments/s7-02-10/s70210-164.pdf.

[19] *See* Geoffrey Rogow, *Colocation: The Root of All High-Frequency Trading Evil?*, WSJ.com, Sept. 20, 2012, http://blogs.wsj.com/marketbeat/2012/09/20/collocation-the-root-of-all-high-frequency-trading-evil/ (quoting David Lauer as stating ''[c]olocation reeks of non-public information''); *see also* 17 C.F.R. § 1.59(a)(6) (''Non-public information means information which has not been disseminated in a manner in which makes it *generally available to the trading public*.'') (emphasis added).

[20] In addition to § 4c(a) of the Commodities Exchange Act, the landmark Dodd-Frank legislation provided the CFTC with broader anti-manipulation authority and new ''disruptive practices'' enforcement authority akin to that of the SEC's under § 10(b) of the Securities Exchange Act (the ''Exchange Act'') and corresponding Rule 10b-5. *See* CFTC Adopting Release for Rules 180.1 and 180.2, 76 Fed. Reg. 41398, 41399-401 (July 14, 2011).

[21] Sal Arnuk & Joseph Saluzzi, *Exchanges and Data Feeds: Data Theft on Wall Street*, Themis Trading LLC (May 11, 2010), *available at* http://www.themistrading.com/article_files/0000/0554/THEMIS_TRADING_White_Paper_—_Data_Theft_On_Wall_Street_—_05-11-10.pdf.

[22] Scott Patterson & Jenny Strasburg, *For Superfast Stock Traders, a Way to Jump Ahead in Line*, WSJ.com, Sept. 19, 2012, http://online.wsj.com/article/SB10000872396390443989204577599243693561670.html.

[23] *Hearing*, *supra* note 7 (testimony of David Lauer, Consultant, Better Markets).

[24] Scott Patterson & Jean Eaglesham, *Exchanges Retreat on Trading Tools*, WSJ.com, Oct. 23, 2012, http://online.wsj.com/article/SB10001424052970203400604578074963881803302.html.

[25] Peter Chapman, *Exec Says Change Locked Cross Rule*, Traders Magazine (Nov. 2012), http://www.tradersmagazine.com/issues/25_344/locked-cross-rule-trading-110514-1.html.

[26] *Id.*

''hidden'' order types to satisfy this lucrative, high-volume customer base and circumvent the Regulation without actually violating it. Such order types may nonetheless be in contravention of regulatory guidelines which generally require exchanges to honor the best-priced orders and to execute them in the order in which they were entered, principles known as ''price-time priority.''[27]

The SEC has been questioning whether exchanges have been misleading in seeking approval for certain order types, have mischaracterized order types to investors, or have not provided adequate disclosures about order types to the general public.[28] Should the regulators determine that these order types violate price-time priority to allow high-frequency traders an unfair advantage over other investors, exchanges may be facing enforcement action for failing to promote just and equitable principles of trade and for permitting unfair discrimination between customers.[29] If high-frequency trading firms have knowingly or recklessly used unfair order types, or played a substantial role in their creation, they may too be targeted in enforcement action for aiding and abetting liability under § 20(e) of the Exchange Act,[30] or under the SEC's broad anti-manipulation authority.[31]

V. Conclusion. The recent surge of legislative and regulatory interest in high-frequency trading and advanced trading technologies, as exemplified by the SEC action against the NYSE, foreshadows a substantial future increase in litigation and enforcement activity in this area, and indicates a likely push for reform of the securities laws. As the regulators continue their investigation into high-frequency trading and come to better understand the roles of the exchanges and high-frequency trading firms in deploying new technologies and developing new products, they will be encouraged to bring actions for abusive conduct not only against trading entities, but against exchanges as well. Exchanges and firms employing these sophisticated order types, direct access feeds, and co-location services, should pay close attention to ensure fair and predictable market access as the legislature and regulators continue to examine potential abuses of high-frequency trading.

[27] Patterson & Strasburg, *supra* note 22.

[28] Patterson & Eaglesham, *supra* note 24; *see also* Scott Patterson & Jean Eaglesham, *Exchanges Get Closer Inspection*, WSJ.COM, Nov. 19, 2012, http://online.wsj.com/article/SB10001424127887323622904578129210389143012.html.

[29] Exchange Act, § 6(b)(2).

[30] *Id.*

[31] *Id.* § 10(b).

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