ENFORCEMENT

Market Manipulation and Algorithmic Trading: The Next Wave of Regulatory Enforcement?

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Computerized trading is squarely in the crosshairs of securities and commodities regulators. Also known as algorithmic trading, it now accounts for more than half of the trading volume in U.S. equities markets, and 60 percent of futures contract trading on the Chicago Mercantile Exchange.[1] Regulatory interest in high-frequency algorithmic trading was accelerated by the "flash crash" of May 6, 2010, during which the Dow Jones Industrial Average suddenly plunged 700 points and recovered within approximately 20 minutes. A joint SEC and CFTC report laid the blame for the crash in part on "automated execution programs and algorithmic trading strategies," which the regulators found had eroded liquidity and caused "disorderly markets."[2]

Since the "flash crash," the SEC has invested in sophisticated technology to ferret out suspicious trading by professional traders, and has begun to demand that firms and traders under investigation reveal their closely guarded algorithms. FINRA has ramped up its surveillance efforts to detect "so-called 'momentum ignition' strategies, where an entity will seek to create the appearance of legitimate market movement by entering

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[1] *See, e.g.*, Scott Patterson, *CFTC to Examine Rapid Trading*, The Wall Street Journal, at C3 (Jan. 31, 2012), http://online.wsj.com/article/SB10001424052970203920204577193130888885956.html?mod=ITP_moneyandinvesting_2; Nina Mehta, *Coordination Needed in Stock, Futures Oversight, Gira Says*, Bloomberg (Dec. 14, 2011, 11:22 AM), http://www.businessweek.com/news/2011-12-14/coordination-needed-in-stock-futures-oversight-gira-says.html; David Sheppard & Jonathan Spicer, *Analysis: High-frequency trade fires up commodities*, Reuters (Jun. 17, 2011, 10:56 AM), http://www.reuters.com/article/2011/06/17/us-commodities-highfrequency-idUSTRE75G0MT20110617.

[2] Findings Regarding the Market Events of May 6, 2010: Report of the Staffs of the CFTC and SEC to the Joint Advisory Committee on Emerging Regulatory Issues, at 6 (Sept. 30, 2010), http://www.sec.gov/news/studies/2010/marketevents-report.pdf.

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non-bona-fide orders or even effecting wash sales to bait other market participants to enter the market."[3] And the CFTC has created an advisory committee dedicated to technology issues and has expressed concern about staying in front of the marketplace as algorithms become more sophisticated.[4]

Predictably, this intensive regulatory focus has led to enforcement action against computerized trading firms and their employees. For example, in August 2010, FINRA exacted a $1 million penalty from one such firm, Trillium Brokerage Services, LLC, and fined and suspended eleven of its employees for allegedly manipulative "layering" and related supervision violations.[5] And last year, according to press reports, the Department of Justice and the SEC launched an investigation into whether high-frequency traders are placing and canceling waves of orders in an attempt to manipulate the market.[6]

This regulatory landscape raises the stakes for algorithmic traders in both securities and commodities markets. In this article, we describe the key legal theories that the SEC, FINRA, the CFTC, and other regulators are likely to deploy in investigations of potential market manipulation by algorithmic traders and their firms. The first section focuses on securities-law decisions that open the door to aggressive SEC enforcement activity based solely on traders'—or their algorithms'—alleged manipulative intent. Strategies used by algorithmic traders are at particular risk of triggering investigations, because they often involve rapid trading that regulators may presume have the specific purpose of moving prices.

The second section discusses the CFTC's new expanded powers to attack market manipulation and disruptive trading practices in the futures and swaps markets. As a result of the landmark Dodd-Frank financial regulatory reform legislation, the CFTC's weapons now include a broader anti-manipulation provision, which eliminates many of the historical obstacles that had made it difficult for the agency to bring and win manipulation cases. Dodd-Frank also created three new "disruptive trade practices" (DTPs)— essentially, practices deemed *per se* violations of the Commodity Exchange Act ("CEA")—and the CFTC recently published proposed guidance concerning their meaning and scope. Both the new anti-manipulation provision and the DTPs ratchet up the risk for algorithmic traders.

Finally, in the third section, we suggest some practical steps that algorithmic traders and their firms can take to reduce the risk of becoming the subject of a market manipulation investigation.

The SEC's "Sole Intent" Approach to Open-Market Manipulation. Traditionally, the law of market manipulation focused on what are now sometimes called "closed market" activities—such as wash sales, matched orders, or rigged prices—in which a single person or entity essentially controls both sides of a transaction in order to create a false appearance of legitimate market activity.[7] It is unlikely (we hope) that traders would design programs with the specific purpose of generating those sorts of trades. But given the complexity of many algorithms and the huge volumes of orders they generate, combined with the large number of traders pursuing different strategies at large institutions, there is a real risk that wash sales can occur by accident. Traders would be well advised to incorporate logic in their algorithms to prevent such trades, and firms should monitor them to fix any glitches (and potentially self-report them) before they catch the eye of a regulator.

Wash sales and other "closed market" trades, however, are only a small part of the growing regulatory risk faced by computerized trading. In the last two decades, the SEC and the courts have broadened the concept of market manipulation to include trading on the open market, which involves real counterparties and real economic risk. The SEC has taken the broad view that open-market activities amount to market manipulation if the trader's "sole intent" in placing an order is to move the price of a stock. In other words, the SEC considers manipulation to occur when, absent manipulative intent, the trader would not have made the bid or offer.

The D.C. Circuit reluctantly upheld the SEC's "sole intent" test ten years ago, while noting that in the case of open-market transactions "[i]t may be hard to separate a 'manipulative' investor from one who is simply overenthusiastic."[8] The Second and Third Circuits, however, subsequently rejected the "sole intent" test. Instead, they adopted an "inaccurate information" test, under which the alleged manipulator, in addition to acting with manipulative intent, must inject inaccurate information into the market such that the market does not reflect the "natural interplay of supply and demand."[9] There is little question that those courts intended the inaccurate information test to be more restrictive than the sole intent test; in the words of the Second Circuit, "[t]o be actionable as a manipulative act," a transaction "must be willfully combined with *something more* to create a false impression of how market participants value a security."[10]

Nonetheless, two subsequent district court decisions essentially gutted the inaccurate information test by conflating it with the sole intent test. Those decisions held that buying a stock solely to move the price *in and of itself* contaminates the market with inaccurate infor-

[3] Richard G. Ketchum, Chairman and CEO, FINRA, Speech at the Security Traders Assoc. Annual Conf. (Oct. 13, 2011), http://www.finra.org/Newsroom/Speeches/Ketchum/P124661.

[4] *See* Michael V. Dunn, Commissioner, CFTC, Opening Statement Before the Technology Advisory Committee, (Jul. 14, 2010), http://www.cftc.gov/PressRoom/SpeechesTestimony/dunnstatement071410.

[5] Suzanne Barlyn and Kristina Peterson, *FINRA Vows Vigilance On Fast-Trading Firms*, THE WALL STREET JOURNAL, at C6 (Dec. 20, 2010).

[6] Larry Tabb, *High-Frequency Trading and the Blind Scales of Justice*, WALL ST. & TECH., (May 17, 2011), http://wallstreetandtech.com/articles/229500751.

[7] *See Santa Fe Indus. v. Green*, 430 U.S. 462, 476 (1977).

[8] *Markowski v. SEC*, 274 F.3d 525, 528-29 (D.C. Cir. 2001) (holding that it could not find the SEC's interpretation to be "unreasonable"); *accord SEC v. Masri*, 523 F. Supp. 2d 361, 372 (S.D.N.Y. 2007) ("[I]f an investor conducts an open-market transaction with the intent of artificially affecting the price of the security, and not for any legitimate reason, it can constitute market manipulation.").

[9] *ATSI Communications, Inc. v. Shaar Fund, LTD*, 493 F.3d 87, 100 (2d Cir. 2007); *GFL Advantage Fund, Ltd. v. Colkitt*, 272 F.3d 189, 205 (3rd. Cir. 2001).

[10] *ATSI*, 493 F.3d at 101.

mation, by sending a false signal that the purchaser has "legitimate economic motives" for the transaction.[11] Ergo, according to those decisions, "sole intent" invariably equals "inaccurate information."

Although the SEC does not appear to have brought an open market manipulation case relying solely on the trader's intent since the Second Circuit rejected the sole intent test in 2007, the agency has clung to the view that manipulative intent alone suffices to establish market manipulation.[12]

As a result, the rejection by some courts of the sole intent test provides little practical comfort to algorithmic traders. Unless and until the law in this area is clarified by the Supreme Court or Congress, the SEC and FINRA are unlikely to limit their market manipulation investigations to "pump and dump" and other schemes involving the injection of false or misleading information into the market place. Rather, in an effort to find what is often suspected to be widespread market manipulation by high-frequency traders, we believe securities regulators will conduct intrusive and burdensome inquiries to determine whether trading programs were constructed and executed with "manipulative intent." These inquiries will likely include not only the usual review of vast amounts of electronic communications and other documents, but also sworn testimony from the persons who created and applied the algorithms—ranging from those who designed the trading strategy, to the programmers who coded the software, to the traders and their supervisors. Specialized, tech-savvy investigators may subpoena and analyze computer code in an attempt to reverse engineer their strategy and thereby discern whether the algorithm had the "sole intent" of moving market prices. These investigators will not be sympathetic to arguments that highly valuable and competitively sensitive trading strategies should be kept secret from regulators.

What other types of evidence will these investigators look for? There can be no exhaustive answer to this question, but several recurring factors emerge from the precedents:

A Pattern of Order Cancellations. Frequent and numerous cancellations may be a red flag to regulators looking for market manipulation. For example, in FINRA's settled action against Trillium Brokerage Services, LLC, the firm allegedly used a manipulative high-frequency "layering" strategy that involved repeated order cancellations.[13] After placing a limit order that they wanted to be filled, Trillium traders allegedly sought to create the false appearance of buy- or sell-side pressure by placing numerous non-bona fide orders on the opposite side of the market. According to FINRA, to minimize the risk of unwanted executions, the traders entered the non-bona-fide orders at prices outside the best available bid or offer. Within seconds after the "real" limit order was executed, the traders allegedly cancelled all the orders on the opposite side. (Interestingly, FINRA claimed that Trillium's trading strategy took advantage of, among others, other trading algorithms.)

"Bad" E-Mails or IMs. As in many types of enforcement action, inflammatory e-mails or instant messages are likely to play a starring role. Fairly or unfairly, from a regulator's perspective they can cut through layers of complexity to show what key actors were thinking in clear—and sometimes overly colorful—language.

Financial Motive Apart from Gain or Loss on the Allegedly Manipulative Transaction. Regulators and courts are more likely to find manipulative intent when the allegedly manipulated price increased the value of another position held by the defendant. For example, by incurring the expense of bidding up the price before the close of the market, the defendant in *SEC v. Masri* allegedly stood to avoid substantially greater losses on puts that he had sold.[14] By driving the market price down through massive sales, albeit at a loss, the defendant in *In re Amaranth Natural Gas Commodities Litigation* allegedly stood to make money from a far larger short position.[15]

Market Domination. In *SEC v. Masri, In re Amaranth, and Markowski v. SEC,* the defendants dominated trading either at the close or over a period of time.[16] This is another factor weighing in favor of a finding of manipulative intent. Notably, in *Masri,* there was no direct evidence of manipulative intent; the court inferred intent from the defendant's financial motivation and end-of-day market domination.[17]

Exculpatory Factors. Courts have been less likely to find manipulative intent if the trades were economically reasonable on their own terms, without reference to a derivative position; if the investor lost money on the overall transaction (including any derivative position); or if more shares were traded than necessary to move the share price.[18]

The CFTC's New "SEC-Like" Market Manipulation Enforcement Powers. The risk of regulatory enforcement action alleging manipulative algorithmic trading is not limited to trading in securities. The Dodd-Frank Act amendments to the CEA, and the CFTC's rules implementing them, extend this risk to trading in a variety of other instruments, in two key respects.

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[11] *See In re Amaranth Natural Gas Commodities Comm.*, 587 F. Supp. 2d 513, 534 (S.D.N.Y. 2008) ("Because every transaction signals that the buyer and seller have legitimate economic motives for the transaction, if either party lacks that motivation, the signal is inaccurate. Thus, a legitimate transaction combined with an improper motive is commodities manipulation."); *SEC v. Kwak*, No. 3:04-cv-1331, 2008 WL 410427, at *4 (D. Conn Feb. 12, 2008) (holding that buying stock in the open-market to make the stock more attractive to investors was "deceptive under section 10(b) because it tricks investors into thinking that the reported prices. . .reflect transactions that are solely the product of independent supply and demand").

[12] *See, e.g., Kirlin Secs., Inc.*, Exchange Act Release No. 61135, 2009 WL 4731652, at *12 (Dec. 10, 2009) (SEC review of FINRA disciplinary action) ("[T]he Commission has consistently held that an applicant's scienter renders his interference with the market illegal, and this understanding of the antifraud provisions has been explicitly ratified by at least one reviewing court.") (citing *Markowski*, 274 F.3d at 528-29).

[13] *Trillium Brokerage Services, LLC*, No. 200700767782-01, FINRA Letter of Acceptance, Waiver and Consent, at 5 (Aug. 5, 2010), http://www.finra.org/web/groups/industry/@ip/@enf/@ad/documents/industry/p122044.pdf.

[14] 523 F. Supp. 2d at 365-66, 372.

[15] 587 F. Supp. 2d at 524-25.

[16] *See Masri*, 523 F. Supp. 2d at 365-66; *In re Amaranth*, 587 F. Supp. 2d at 523; *Markowski*, 274 F.3d at 530.

[17] *See* 523 F. Supp. 2d at 372.

[18] *See, e.g., United States v. Mulheren*, 938 F.2d 364, 368-70 (2d Cir. 1991).

First, these amendments grant the CFTC powers substantially equivalent to the SEC's authority under Section 10(b) and Rule 10b-5 of the Securities Exchange Act. Before Dodd-Frank, the CFTC could bring manipulation charges only under the onerous requirements of Section 9(a)(2) of the CEA, which required proof that (1) the defendant possessed an ability to influence market prices; (2) an artificial price existed; (3) the defendant caused the artificial price and (4) the defendant had specific intent to cause the artificial price.[19] The general fraud prohibition contained in Section 4b of the CEA was held to apply only in limited circumstances, in connection with an order to make a futures contract for a customer.

Dodd-Frank overhauled this regime by creating Section 6(c)(1) as a stand-alone fraud-based manipulation provision, as well as by extending both Sections 9(a)(2) and 4b to cover swaps.[20] New CFTC rules 180.1 and 180.2, adopted pursuant to these amendments, provide the agency with fraud-based manipulation enforcement power similar to the SEC's authority under Rule 10b-5.[21] For example, the CFTC will no longer have to prove that the defendant's conduct had an actual price effect, and will need to establish only recklessness rather than specific intent.[22] These changes make it significantly easier for the CFTC to bring market manipulation enforcement actions, and the CFTC can be expected to look to the same sort of indicia discussed above in connection with the securities markets. Indeed, the CFTC's power to bring an action for fraud-based manipulation is now even more expansive than the SEC's because, unlike Securities Exchange Act Section 10(b) and SEC Rule 10b-5, CEA Section 6(c)(1) prohibits attempted as well as actual manipulation.[23]

In addition to the CFTC's ability to bring market manipulation cases more easily, the agency's new "disruptive trading practices" authority should be of significant concern for algorithmic traders. As amended by Section 747 of Dodd-Frank, CEA Section 4c(a)(5) defines three new prohibited disruptive trading practices (DTPs): (A) violating bids or offers; (B) demonstrating intentional or reckless disregard for the orderly execution of transactions during the closing period ("banging the close"); and (C) spoofing (bidding or offering with intent to cancel the bid or offer before execution). The head of the CFTC's Enforcement Division, David Meister, warned in a recent speech that he expects these new DTP prohibitions to be especially useful in enforcement actions against algorithmic traders.[24]

The CFTC has issued a proposed interpretive order providing important guidance to algorithmic traders concerning each of these new DTPs. First, according to

the order, the prohibition against violating bids and offers does not require intent, but does require that the trader have some control over the execution of bids and offers. Thus, the order states that, in the CFTC's view, no DTP occurs when "a person is unable to violate a bid or offer—*i.e.*, when a person is utilizing an electronic trading system where algorithms automatically match the best bid and offer."[25] While this provision does not impose a best execution standard across platforms, algorithmic traders should be careful not to design algorithms that might violate bids or offers on systems not designed to match the best bids and offers.

Second, the CFTC's proposed interpretation of "banging the close" states that this DTP applies only during the closing period, but "potential disruptive conduct outside the period may nevertheless form the basis for an investigation of potential violations under this section and other sections under the [CEA]." The order also defines an orderly market as one "characterized by. . .parameters such as a rational relationship between consecutive prices, a strong correlation between price changes and the volume of trades, levels of volatility that do not materially reduce liquidity, accurate relationships between the price of the derivative and the underlying such as a physical commodity or financial instrument, and reasonable spreads between contracts for near months and for remote months."[26] Under these provisions, algorithmic traders obviously must consider the impact of their trading on the closing period. But especially since reckless conduct suffices to violate this prohibition, algorithmic traders should also be aware that trading that results in what the CFTC views as a disorderly market—including unusual price execution sequences outside of the closing period—could trigger an investigation.

Finally, the order's guidance on "spoofing," which the statute describes as "bidding or offering with intent to cancel the bid or offer before execution,"[27] should be of great concern to traders who use algorithms that cancel many orders. According to the CFTC, "order modifications, or cancellations will not be classified as 'spoofing' if they were submitted as part of a legitimate, good faith attempt to consummate a trade."[28] On the other hand, the order provides a non-exhaustive list of prohibited conduct, including "[s]ubmitting or cancelling multiple bids or offers to create an appearance of false market depth." The CFTC's view of spoofing creates substantial risk for any strategy that involves entering orders that the trader (or algorithm) intends to cancel, in whole or part, from the outset.

How to Reduce the Risk of Getting Ensnared in a Market Manipulation Investigation. Many algorithmic traders have tended towards a view that they operate under the radar, perhaps comfortable in the belief that regulators are not sophisticated enough to penetrate their techniques and understand the arcane nature of their programs. In the current regulatory environment, such an attitude courts disaster. Merely responding to a regula-

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[19] *In re Amarath Natural Gas Commodities Comm.*, 587 F. Supp.2d at 530.

[20] Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 §§ 741(b), 753(a), Public Law 111-203, 124 Stat. 1376, 1730-31, 1750 (2010).

[21] CFTC Adopting Release for Rules 180.1 and 180.2, 76 Fed. Reg. 41398, 41399-401 (Jul 14, 2011) ("Adopting Release").

[22] Adopting Release, 76 Fed. Reg. at 41404-45.

[23] *Id.* at 41406.

[24] Remarks of David Meister, Director, CFTC Division of Enforcement, at the Monthly Luncheon of the Securities Industry and Financial Markets Association, Compliance & Legal Society, The Harvard Club, New York, New York, Dec. 20, 2011 (unpublished).

[25] CFTC Proposed Interpretive Order, 76 Fed. Reg. 14943, 14946 (Mar. 18, 2011).

[26] *Id.*

[27] *Id.* at 14947; Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 § 747, 124 Stat. at 1739 (to be codified at 7 U.S.C. § 6c).

[28] CFTC Proposed Interpretive Order, 76 Fed. Reg. at 14947.

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tory investigation can be enormously costly and distracting for individuals and firms, and enforcement actions alleging market manipulation can result in large fines, industry suspensions or bars, and other serious sanctions, not to mention the destruction of reputations and livelihoods. Thus, it is more important than ever to avoid trading strategies that risk attracting the attention of regulators, and for firms to ensure that they have effective supervisory systems and compliance programs that will promptly detect trades that might be deemed manipulative and allow the firm to take appropriate corrective action.

While a comprehensive treatment of supervisory and compliance systems is beyond the scope of this article, the following are a few basic components of such systems that algorithmic trading firms should consider:

Training. No one can effectively avoid or prevent market manipulation without understanding what it is. This is especially true when its legal definition is in flux and can be difficult to apply to specific trading strategies. All traders and supervisors should be trained on the basic concepts of market manipulation, and refresher training sessions should be conducted periodically, especially when significant developments occur in the regulatory landscape.

Surveillance. Firms should consider conducting regular surveillance for suspicious trading activity, such as wash sales, marking the close, frequent cancelations, and potentially market-dominating positions. Vendors offer off-the-shelf and customized tools for this purpose. Traders who consistently achieve unusually high returns may warrant extra scrutiny.

Review of Electronic Communications. As noted above, poorly written or overly colorful e-mails or instant messages can play a crucial role in a market manipulation case. Regular review of traders' electronic communications on a sample basis could help flag actual instances of problematic trading or identify individuals with poor e-communications practices.

Supervision. Algorithmic traders should not be left to operate on their own. Supervisors should maintain a presence on the trading floor, and—critically—must understand the strategies embedded in the algorithms that their traders are deploying. They should ensure that a knowledgeable compliance official or legal counsel is consulted whenever a new program or a change to an existing program raises a potential market manipulation issue.

Culture of Compliance. Senior management of trading firms should communicate regularly to all traders and other employees that market manipulation (as well as other fraudulent conduct) is antithetical to the firm's interests and will not be tolerated. Since any system of surveillance or supervision can be circumvented with enough effort and creativity, it is essential for firms to instill a sense of personal responsibility in all employees, but especially those entrusted with trading the firm's or customers' assets. Traders should be expected not only to avoid intentionally manipulative trading, but to raise their hands and seek advice when they have an honest question about whether a particular strategy could be viewed as manipulative. Of course, senior traders and managers must ''walk the walk'' in addition to ''talking the talk,'' by ensuring that their own conduct meets or exceeds the standards that they set for their subordinates.

Conclusion. Algorithmic traders can no longer assume that their activities are beyond the visibility or ken of regulators. Instead, the new regulatory focus on algorithmic trading, the SEC's stance on theories of ''open market'' manipulation, and the CFTC's broad new powers under Dodd-Frank augur a substantial increase in enforcement activity in this area. But a sound understanding of the key facts on which a market manipulation case is built, coupled with robust training, supervisory, and compliance protocols, can ensure that individual traders and the institutions for whom they work avoid conduct that could be deemed manipulative and protect them from the economic, professional, and reputational cost of defending against regulatory investigations and enforcement actions.