

REGULATION AUTOMATED TRADING: CFTC SOURCE CODE TURNOVER PROVISION IS UNNECESSARY AND DANGEROUS TO U.S. MARKETS

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Abstract

Over the past several decades, the financial markets have experienced a technological revolution in how securities and other financial instruments are traded. Where these contracts and assets were once traded on the floors of various registered brick and mortar exchanges across the globe, they are now primarily traded via online platforms. While allowing greater efficiency and transparency in the markets, this shift has also spawned the practice of high-frequency algorithmic trading. This process uses highly sophisticated computers and complex algorithms to trade securities and derivative products faster than the human eye can blink. Although many argue that high-frequency algorithmic trading accounts for a great deal of liquidity in our markets and creates transparency with regard to prices, many feel that the nature of the practice creates the potential for extreme instability in the markets as well. Such instability has been exhibited periodically through occurrences known as “flash crashes.” In response to these events, the Commodity Futures Trading Commission has drafted legislation, known as Regulation Automated Trading, aimed at controlling the extent to which algorithmic trading can disrupt the marketplace. However, several of the provisions have come under a great deal of scrutiny. In particular, one provision provides that those engaging in high-frequency algorithmic trading make their source code (the algorithmic code which drives their business) available to regulatory agencies at any time. This Article analyzes the costs and benefits of high-frequency algorithmic trading, and how Regulation Automated Trading oversteps its bounds in trying to regulate the industry.

I. Introduction

The American financial markets on May 6, 2010 opened with a slightly elevated sense of volatility.¹ In response to a flurry of concerning problems

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1. See Charles R. Korsmo, *High-Frequency Trading: A Regulatory Strategy*, 48 U. RICH. L. REV. 523, 523 (2014) (noting that American stock markets opened on May 6, 2010 in less than stable conditions given the status of Greek debt hanging in the balance); see also Jill Treanor, *The 2010 “Flash Crash”: How It*

occurring in Greece the previous day, including “violent protests . . . against proposed austerity measures designed to avert a default on Greek government debt[,]” it is no wonder that investor sentiment was down.² From the opening bell until approximately 2:32 p.m., prices on all markets saw a general decline, with indexes associated with the stock market experiencing losses of approximately three percent.³ From 2:32 to 2:41 p.m., the market decline began to accelerate.⁴ “Then, at 2:41 p.m., the markets went careening entirely off the rails. In less time than it takes to soft-boil an egg, the markets took a sickening plunge of more than [five percent], so that by 2:45 p.m. markets were down nearly [ten percent] for the day.”⁵ From 2:45 until approximately 3:00 p.m., while the market as a whole began to rapidly recover, certain individual securities and exchange-traded funds saw extreme price fluctuations, where trading on some blue chip securities was conducted for as little as one penny and as much as \$100,000 a share.⁶ After 3:00 p.m., trading on most securities and indexes returned to their normal level,⁷ leaving many to pose the question: “What just happened?”

Several years later, on August 24, 2015, the markets experienced a similar inexplicable short-term swing.⁸ Even before the opening bell on this day, most securities and futures products had sustained declines in the broader market.⁹ However, as the opening minutes went by, many exchange-traded funds began to be traded at significantly less value than their underlying assets indicated.¹⁰ With “more than [twenty percent] of S&P 500 companies and more than [forty percent] of NASDAQ-100 companies reach[ing] daily lows that were [ten percent] or more below their previous day’s closing price[,]” it became clear that market events such as those of May 6, 2010 were not one-time, isolated incidents.¹¹ In fact, these not uncommon instances, known as “flash crashes,” have become a major cause for concern in the U.S. securities and derivatives markets over the past several years. Although these “flash crashes” are the result of a variety of market variables, many believe that their occurrence is primarily the result of high-frequency algorithmic trading. This practice utilizes sophisticated computer algorithms to

Unfolded, THE GUARDIAN (Apr. 22, 2015, 1:43 PM), <https://www.theguardian.com/business/2015/apr/22/2010-flash-crash-new-york-stock-exchange-unfolded> (analyzing how despite some financial uncertainty at the start of the day, the events of May 6, 2010 were entirely unexpected).

2. Korsmo, *supra* note 1.

3. See Staffs of the CFTC & SEC, *Findings Regarding the Market Events of May 6, 2010* 9 (Sept. 30, 2010), available at <http://www.cftc.gov/idec/groups/public/@otherif/documents/ifdocs/staff-findings050610.pdf> [hereinafter September CFTC-SEC Findings Report] (breaking down the market events of May 6, 2010, into several stages).

4. See *id.* (describing how in these nine short minutes, “the broad markets began to lose more ground, declining another 1–2%”).

5. Korsmo, *supra* note 1, at 524.

6. See September CFTC-SEC Findings Report, *supra* note 3, at 9, 86 (discussing how Apple Inc. (AAPL) was traded for as much as \$100,000 per share at approximately 3:29 p.m.); see also Korsmo, *supra* note 1, at 525 (identifying that Apple Inc. normally traded for around \$250 per share).

7. September CFTC-SEC Findings Report, *supra* note 3.

8. See generally Jonnelle Marte, *SEC Report Sheds Light on the August Flash Crash*, WASH. POST (Dec. 30, 2015), <https://www.washingtonpost.com/news/get-there/wp/2015/12/30/sec-report-sheds-light-on-the-august-flash-crash/> (recounting the sudden and dramatic market decline and rebound on August 24, 2015).

9. Staff of the SEC, *Equity Market Volatility on August 24, 2015* 9 (Dec. 2015), https://www.sec.gov/marketstructure/research/equity_market_volatility.pdf [hereinafter Equity Market Volatility on August 24, 2015].

10. Marte, *supra* note 8.

11. Equity Market Volatility on August 24, 2015, *supra* note 9, at 1.

execute trades faster than the human eye can blink, with little to no human deference.¹²

While many argue that high-frequency trading is beneficial to the overall market structure, such as by contributing a substantial portion of liquidity,¹³ “flash crashes” such as those which occurred on May 6, 2010 and August 24, 2015 make clear that the practice may be in need of tighter regulation.¹⁴ In response to these concerns, the Commodity Futures Trading Commission (“CFTC”) recently approved a comprehensive set of proposed rules regarding the practice of high-frequency automated trading.¹⁵ The rules, collectively known as Regulation Automated Trading (“Reg. AT”), “represent a series of risk controls, transparency measures, and other safeguards to enhance the U.S. regulatory regime for automated trading.”¹⁶ Despite the rules’ good intentions, many industry experts argue that the rules may be over-burdensome and unnecessary.¹⁷ One particular provision that has received a great deal of negative attention is the provision requiring AT persons (those whom the rules define as participating in algorithmic trading) to open up their source code repositories to the CFTC and Department of Justice without a subpoena.¹⁸

This Article aims to shed light on the source code repository provision and analyze its potential costs and benefits to the market as a whole. Part II of this Article will provide a brief background of the high-frequency trading industry and motivations behind the CFTC’s development of Reg. AT. Part III will then look closely at the source code turnover provision and analyze both the provision’s benefits and pitfalls with regard to creating stability in the general market. Finally, Part IV will propose a limitation on the source code turnover provision better suited to current regulatory practices and more protective of this valuable information. Part V will conclude.

12. See Korsmo, *supra* note 1, at 527–28 (describing how high-frequency traders “use high-speed computers to execute rapid-fire trades, usually without real-time human involvement, and have, in a matter of only a few years, gone from non-existent to conducting perhaps a majority of all trades on public securities markets”).

13. See Matthew O’Brien, *Everything You Need to Know About High-Frequency Trading*, ATLANTIC (Apr. 11, 2014), <http://www.theatlantic.com/business/archive/2014/04/everything-you-need-to-know-about-high-frequency-trading/360411/> (identifying several benefits to the market of high-frequency trading, including improving liquidity and reducing spreads and other price inefficiencies).

14. See Korsmo, *supra* note 1, at 528 (discussing high-frequency trading’s tendency to increase market volatility).

15. Press Release, CFTC, CFTC Unanimously Approves Proposed Rule on Automated Trading (Nov. 24, 2015), <http://www.cftc.gov/PressRoom/PressReleases/pr7283-15>.

16. *Id.*

17. See Letter from Walter L. Lukken, President & CEO, Futures Indus. Ass’n, to Christopher Kirkpatrick, Sec’y, CFTC, at 52 (Mar. 16, 2016) [hereinafter FIA Reg AT Comment Letter], *available at* <http://www.futuresmag.com/sites/default/files/FIA%20letter%20mar16.pdf> (identifying several aspects of Reg. AT that the Futures Industry Association disagrees with, mostly notably the source code repository).

18. See Regulation Automated Trading, at 510 (proposed Nov. 24, 2015) (to be codified at 17 C.F.R. pts. 1, 38, 40, & 170), <http://www.cftc.gov/idx/groups/public/@newsroom/documents/file/federalregister112415.pdf> [hereinafter Regulation Automated Trading]; see also Gregory Meyer & Philip Stafford, *US Regulators Propose Powers to Scrutinize Algo Traders’ Source Code*, FIN. TIMES (Dec. 1 2015, 10:45 a.m.), <http://www.ft.com/cms/s/0/137f81bc-944f-11e5-b190-291e94b77c8f.html#axzz47pavqdzF> (citing some of the harsh opposition that the CFTC has received from HFT firms regarding the source code repository provision).

II. Background

The U.S. derivatives markets have undergone a dramatic transformation over the past twenty years.¹⁹ Traditionally, derivatives were traded by humans who communicated and placed orders to other humans on registered trading floors.²⁰ Such was predominantly the case up until the early 2000's.²¹ As technology began to rapidly advance the financial industry, trading conducted by humans slowly became a thing of the past. In contrast to this human-centered environment, today's derivatives transactions are conducted on:

automated trading environments, [which] are characterized precisely by their high degree of automation, and by the wide array of algorithmic and information technology systems that generate, risk manage, transmit and match orders and trades, as well as systems used to confirm transactions, communicate market data and link related systems through high-speed communication networks.²²

These complex electronic trading platforms have caused many participants in the financial markets, from mutual funds to proprietary trading firms, to adopt the use of alternative trading systems.²³ These computer-driven systems automatically match derivatives orders to multiple markets through the use of sophisticated computer technology.²⁴ Despite the efficiencies that these systems have undoubtedly created, they have also allowed for the development and modern dominance of high-frequency trading ("HFT").²⁵

According to the CFTC's Technology Advisory Committee ("TAC"), HFT is a type of trading characterized by (1) "algorithms for decision making, order initiation, generation, routing, or execution, for each individual transaction without human direction;" (2) "low-latency technology that is designed to minimize response times, including proximity and co-location services;" (3) high speed connections to markets for order entry;" and (4) "high message rates (orders,

19. See Concept Release on Risk Controls and Systems Safeguards For Automated Trading Environments, 78 Fed. Reg. 56,542, 56,542 (Sept. 12, 2013) (describing the "fundamental evolution" that has revolutionized the futures markets, whereby "human-centered trading venues" have evolved with technology to become "highly automated and interconnected trading environments" where computers play the central role).

20. *Id.*

21. See Ambereen Choudhury & Julia Verlaine, *FX Traders Facing Extinction as Computers Replace Humans*, BLOOMBERG (Feb. 17, 2014), <http://www.bloomberg.com/news/articles/2014-02-18/fx-traders-facing-extinction-as-computers-replace-humans> (citing statistics generated by consulting group Aite Group LLC, indicating that electronic currency trading accounted for approximately twenty percent of currency transactions in 2001, and as much as sixty-six percent in 2013); see also Felix Salmon & Jon Stokes, *Algorithms Take Control of Wall Street*, WIRED (Dec. 27, 2010, 12:00 p.m.), http://www.wired.com/2010/12/ff_ai_flashtrading/ (discussing the rise in computerized trading and estimating that as of 2010, computer-driven trading accounted for as much as seventy percent of total trade volume).

22. Concept Release on Risk Controls, *supra* note 19.

23. See *Alternative Trading System – ATS*, INVESTOPEDIA, <http://www.investopedia.com/terms/a/alternative-trading-system.asp> (defining an ATS as "a trading system that is not regulated as an exchange, but is a venue for matching the buy and sell orders of its subscribers"); see also Jean Folger, *The Pros and Cons of Automated Trading Systems*, INVESTOPEDIA (Sept. 11, 2014, 3:00 p.m.), <http://www.investopedia.com/articles/trading/11/automated-trading-systems.asp>.

24. See Concept Release on Risk Controls, *supra* note 19, at 56,545 (describing an ATS as a "computer-driven system that automates the generation and routing of orders to one or more markets").

25. See Gregory Scopino, *The Questionable Legality of High-Speed "Pinging" and "Front Running in the Futures Markets*, 47 CONN. L. REV. 607, 619–20 (2015) (analyzing the technological advances that have led to the rise of HFT, including most prominently the ability to use computers to read and act upon data received from exchanges).

quotes or cancellations).”²⁶ This practice is typically conducted with the use of automated trading systems (“ATS’s”).²⁷ These ATS’s constitute a complex set of computer instructions, or algorithms,²⁸ designed to cause a computer to carry out a wide array of trading strategies.²⁹ Designated contract markets (“DCM’s”)³⁰ and DCM market participants utilize these highly sophisticated ATS’s for the “generation, transmission, management, and execution of orders, as well as . . . to confirm transactions, communicate market data, and link markets and market participants through high-speed networks.”³¹ Using these ATS’s, DCM’s are able to “accept, manage and match orders by automated means.”³²

Today, DCM’s and ATS’s are involved with an overwhelmingly large number of futures transactions, as the derivatives markets have made the shift to predominantly electronic trading.³³ Data published by the CFTC recently indicated that as of October 2014, as much as ninety-five percent of futures trades were conducted on some sort of electronic platform.³⁴ More specifically, the CFTC data indicates that in a two-year period ending in October 2014, ATS’s were utilized by at least one side of a transaction in eighty percent of foreign exchange futures volume, sixty-seven percent of interest rate futures volume, and sixty-two percent of equity futures volume.³⁵ Additionally, in its 2013 “Concept Release on Risk Controls and Systems Safeguards for Automated Trading Environments,” the CFTC indicated that “91.50% of exchange trading volume in U.S. futures markets was executed electronically.”³⁶ These figures demonstrate the extent to which automated trading dominates the futures and derivatives markets; and given the continuing advances in modern technology, there is no end of this dominance in sight.

26. *FIA Special Report: CFTC Discusses High-Frequency Trading*, FUTURES INDUS. ASS’N (June 23, 2012), <https://fia.org/articles/fia-special-report-cftc-discusses-high-frequency-trading>.

27. See Concept Release on Risk Controls, *supra* note 19, at 56,544 n.7 (stating that “[w]hile the Commission has no regulatory definition of [automated trading system], the term is generally understood to mean a computer-driven system that automates the generation and routing of orders to one or more markets. Other elements of an ATS may also include systems for analyzing market data as a precursor to order generation, managing orders for conformance with establish risk tolerances, receiving confirmations of orders placed and trades executed, etc.”).

28. See *Algorithmic Trading and Market Dynamics*, CME GRP. 1 (July 15, 2010), https://www.cmegroup.com/education/files/Algo_and_HFT_Trading_0610.pdf. “An algorithm simply refers to any pre-defined step-by-step process used to accomplish a task.” *Id.*

29. *Id.*

30. See *Designated Contract Markets (DCMS)*, CFTC, <http://www.cftc.gov/IndustryOversight/TradingOrganizations/DCMs/index.htm> (last visited Jan. 1, 2017) (defining DCMs as “boards of trade (or exchanges) that operate under the regulatory oversight of the CFTC, pursuant to Section 5 of the Commodity Exchange Act (CEA)”). “DCMs are most like traditional futures exchanges, which may allow access to their facilities by all types of traders, including retail customers.” *Id.*

31. Regulation Automated Trading, *supra* note 18, at 8.

32. *Id.* at 9.

33. *Id.* at 9–10.

34. See Richard Haynes & John S. Roberts, *Automated Trading in Futures Markets*, CFTC OFFICE OF CHIEF ECONOMIST 3 (Mar. 13, 2015), http://www.cftc.gov/idc/groups/public/@economicanalysis/documents/file/oce_automatedtrading.pdf (indicating that almost ninety-five percent of futures trading is conducted via electronic trading platforms, with the other approximately five percent attributable to either pit trading or block trading).

35. Regulation Automated Trading, *supra* note 18, at 11.

36. Concept Release on Risk Controls, *supra* note 19, at 56,545.

A. The Pros and Cons of High-Frequency Automated Trading

With its immense rise in popularity over the past decade, high-frequency automated trading has generated its fair share of praise and criticism. This section aims to address these points of view, while ultimately demonstrating that the practice may be in need of tighter regulation.

1. The Benefits of High-Frequency Automated Trading

Despite some negative connotations, high-frequency automated trading has undoubtedly contributed to our highly-efficient derivatives market today.³⁷ One of those benefits is the dramatic reduction in execution times for orders.³⁸ “The average time required to execute a trade on the major exchanges, which was once measured in minutes and was still measured in seconds as little as a decade ago, has fallen to a tiny fraction of a second.”³⁹ What this creates is a market where investors can be confident that their trades will be executed quickly without having to worry about price fluctuations before their orders are processed and finalized.⁴⁰

Furthermore, a “recent study of low latency activity in the equities market (typically associated with high frequency trading) concluded that ‘an increase in low-latency activity reduces quoted spreads and the total price impact of trades, increases depth in the limit order book, and lowers short-term volatility.’”⁴¹ With the ability of high-frequency traders to analyze data and readjust their orders so quickly, the broader market benefits from small bid-ask spreads for certain contracts.⁴² However, the practice of high-frequency trading has also received its fair share of criticism recently in response to several isolated incidents⁴³ and market events.⁴⁴

2. The Risks and Drawbacks Associated with High-Frequency Trading

In spite of these legitimate benefits that high-frequency trading provides to the financial markets, there are serious risks and drawbacks surrounding the

37. See generally Matt Levine, *High-Frequency Trading May be Too Efficient*, BLOOMBERG (Apr. 2, 2014), <http://www.bloomberg.com/view/articles/2014-04-02/high-frequency-trading-may-be-too-efficient> (describing some of the benefits that high-frequency trading provides to retail and institutional investors alike); see also Regulation Automated Trading, *supra* note 18, at 13 (weighing the potential risks and benefits of algorithmic trading).

38. See Korsmo, *supra* note 1, at 549 (crediting the emergence of high-frequency trading with the dramatic reduction in trade execution time).

39. *Id.*

40. *Id.*

41. Regulation Automated Trading, *supra* note 18, at 14, *citing* Joel Hasbrouck & Gideon Saar, *Low-latency trading*, 16 J. FIN. MKT. 646, 648 (2013).

42. See Korsmo, *supra* note 1, at 549–51 (discussing the tendency of high-frequency trading to lower latency and bid-ask spreads across the financial markets).

43. See Brian Louis & Janan Hanna, *Swift Guilty Verdict in Spoofing Trial May Fuel New Prosecutions in the U.S.*, BLOOMBERG (Nov. 3, 2015), <http://www.bloomberg.com/news/articles/2015-11-03/commodities-trader-coscia-found-guilty-in-first-spoofing-trial> (recounting the speedy (pun intended) trial of Michael Coscia, the 53-year-old former head of the high-frequency trading firm Panther Energy Trading LLC, where he was convicted for violating the anti-spoofing provision of the Dodd-Frank Wall Street Reform and Consumer Protection Act).

44. See Korsmo, *supra* note 1, at 523–24 (recalling the flash crash of May 6, 2010).

practice that must be taken into account by regulators moving forward. For instance, many industry insiders believe that high-frequency trading firms are able to “front-run” (or trade ahead of) the rest of the market due to the speed at which their computers and algorithms can process trades.⁴⁵ In a December 2013 comment letter to the CFTC, Dennis M. Kelleher, President and CEO of the financial reform organization Better Markets, Inc., wrote:

Suppose a high frequency trader has detected an institutional investor seeking to transact a large position in small increments. The HFT can discover this by pinging the market with small test orders at various price levels, immediately cancelling those orders that are not instantly filled. This technique is akin to using sonar to locate a whale underwater in order to harpoon it. Having established the presence of such a large trader, the HFT can position itself ahead of the trade, taking a small loss at first (to wipe out existing liquidity) before then making a big profit by flipping its position to the institutional investor.⁴⁶

Because of the advent of high-frequency automated trading, this type of occurrence is not uncommon in today’s futures markets.

In addition to front-running, the practice of spoofing has generated a great deal of attention in the high-frequency trading industry over the past few years.⁴⁷ Spoofing occurs when a trader “bids or offers with the intent to cancel [that] bid or offer before execution.”⁴⁸ Through spoofing, a trader manufactures the illusion of liquidity in the market by entering bids, orders, or offers.⁴⁹ These orders are then visible to other traders for a brief period of time before they are cancelled.⁵⁰ This practice entices large investors into transactions so that high-frequency traders can flip their positions and ultimately turn a substantial profit. Section 6c(a)(5)(C) of the Commodity Exchange Act specifically prohibits spoofing in the futures markets;⁵¹ however, the practice still remains a concern of regulators and investors.

Perhaps more concerning than front-running, spoofing, or other deceptive or manipulative trading practices is the potential for high-frequency trading to create extreme volatility and price fluctuations somewhat unexpectedly.

45. See Scopino, *supra* note 25, at 613–14 (describing how high-frequency traders use lightning-fast computers and algorithms to entice large institutional investors to enter a transaction in order to learn nonpublic information).

46. Letter from Dennis Kelleher, President & CEO, Better Markets, Inc., to Melissa Jurgens, Sec’y, CFTC 3 (Dec. 11, 2013), *available at* <https://www.bettermarkets.com/sites/default/files/CFTC-%20CL-%20ATS-%2012-11-13.pdf>.

47. See Louis, *supra* note 43 (highlighting the guilty verdict against Michael Coscia for spoofing in the financial markets in violation of Dodd-Frank).

48. *Q & A – Interpretive Guidance and Policy Statement on Disruptive Practices*, CFTC 2, *available at* http://www.cftc.gov/idc/groups/public/@newsroom/documents/file/dtpinterpretiveorder_qa.pdf (last visited Jan. 1, 2017).

49. Scopino, *supra* note 25, at 650–51.

50. *Id.*

51. 7 U.S.C. 6c(a)(5)(C). This section provides that:

It shall be unlawful for any person to engage in any trading, practice, or conduct on or subject to the rules of a registered entity that—
(A) violates bids or offers;
(B) demonstrates intentional or reckless disregard for the orderly execution of transactions during the closing period; or
(C) is, is of the character of, or is commonly known to the trade as, ‘spoofing’ (bidding or offering with the intent to cancel the bid or offer before execution).

Id.

As mentioned in Part I, there have been two instances of wild fluctuations in market conditions over the past decade that many believe to be attributable to high-frequency trading.⁵² The Flash Crash of May 2010 is believed to have been caused by “an automated execution algorithm [that] did not take price or time variables into account. Given the parameters of the program, the algorithm continued to send orders even as prices moved far beyond traditional daily ranges.”⁵³ Similarly, the flash crash on August 24, 2015 is believed in large part to be the result of how high-frequency trading algorithms are structured to trade when the market is under stress.⁵⁴

B. Regulation of High-Frequency Automated Trading Thus Far

In response to these practices and market events, the CFTC has undertaken a project to place tighter regulations on the high-frequency automated trading industry. In September 2013, the CFTC released its “Concept Release on Risk Controls and Systems Safeguards for Automated Trading Environments.”⁵⁵ This request for comments was intended to allow the CFTC to best update its regulations to accommodate for the new technological nature of market structures, as well as to “ensure that regulatory standards and internal controls are calibrated to match both current and foreseeable market technologies and risk.”⁵⁶ This stood as the first major step by the CFTC to specifically regulate automated trading.

After generating comments from industry experts and conducting a tremendous amount of research, on November 24, 2015, the CFTC unanimously approved Reg. AT.⁵⁷ “[Reg. AT] represent[s] a series of risk controls, transparency measures, and other safeguards to enhance the U.S. regulatory regime for automated trading.”⁵⁸ The rules were drafted in order to control risk in automated algorithmic trading activity by enforcing risk control measures (such as provisions regarding maximum order sizes), by creating development and testing standards for ATS’s, and requiring registration of certain traders that are currently unregistered with the Commission.⁵⁹ These proposed rules have generated a considerable amount of backlash from entities that engage in automated trading. Of particular concern to these organizations is proposed section 1.81 of Reg. AT, which would require all AT persons to maintain a repository of their source code to be subject to inspection by the CFTC or the Department of Justice without a

52. See Korsmo, *supra* note 1, at 523–24 (recounting the market events of May 6, 2010, where stock indexes dramatically tanked and recovered in a matter of only a few minutes); see also Alan Gula, *The Flash Crash of 2015*, WALL ST. DAILY (Aug. 26, 2015), <http://www.wallstreetdaily.com/2015/08/26/stock-market-flash-crash-2015/> (attributing the flash crash of August 24, 2015 in large part to high-frequency trading practices and their tendency to cause excess volatility in the futures and securities markets).

53. Regulation Automated Trading, *supra* note 18, at 52–53.

54. Gula, *supra* note 52.

55. See generally Concept Release on Risk Controls, *supra* note 19 (discussing the issues faced by the CFTC in drafting regulations for automated trading).

56. *Id.* at 1.

57. See CFTC Unanimously Approves Proposed Rule on Automated Trading, *supra* note 15 (summarizing the approval of proposed rules to regulate automated trading, known collectively as “Regulation Automated Trading”).

58. *Id.*

59. *Id.*

subpoena.⁶⁰ Despite this provision's potential to help the CFTC enforce rules violations and reconstruct troublesome market events, this provision has generated by far the most criticism and outrage from those to whom it applies.

III. Analysis

As it stands, section 1.31 of the Commodity Exchange Act governs the keeping and inspection of books and records for those under the Act's jurisdiction.⁶¹ More specifically, it provides that "[a]ll books and records required to be kept by the Act or by these regulations shall be kept in their original form (for paper form) or native file format (for electronic records) for a period of five years from the date thereof and shall be readily accessible during the first two years of the five-year period[.]"⁶² In addition, section 1.31(b) provides that:

Persons required to keep books and records by the Act or by these regulations shall produce such records in a form specified by any representative of the Commission. Such production shall be made, at the expense of the person required to keep the book or record, to a Commission representative upon the representative's request. Instead of furnishing a copy, such person may provide the original book or record for reproduction, which the representative may temporarily remove from such person's premises for this purpose. All copies or originals shall be provided promptly. Upon request, the Commission representative shall issue a receipt provided by such person for any copy or original book or record received. At the request of the Commission representative, such person shall, upon the return thereof, issue a receipt for any copy or original book or record returned by the representative.⁶³

Pursuant to proposed Reg. AT, these provisions would extend to all "AT Persons,"⁶⁴ or anyone that engages in algorithmic automated trading.⁶⁵

60. Regulation Automated Trading, *supra* note 18, at 469; see also *Statement of Commissioner J. Christopher Giancarlo Regarding Notice of Proposed Rulemaking on Regulation Automated Trading*, CFTC (Nov. 24, 2015), <http://www.cftc.gov/PressRoom/SpeechesTestimony/giancarlostatement112415> (questioning the CFTC's inclusion of the source code provision in Regulation AT and expressing particular concern over whether or not it is necessary or even legal for the CFTC to enforce).

61. 17 C.F.R. § 1.31 (2012).

62. *Id.* at (a).

63. *Id.* at (b).

64. See Regulation Automated Trading, *supra* note 18, at 465. The proposed regulations define "AT Person" to mean:

- ... any person registered or required to be registered as a—
- (1) futures commission merchant, floor broker, swap dealer, major swap participant, commodity pool operator, commodity trading advisor, or introducing broker that engages in Algorithmic Trading on or subject to the rules of a designated contract market; or
 - (2) Floor trader as defined in paragraph (x)(3) of this section.

Id.

65. Regulation Automated Trading defines "algorithmic trading" in any commodity interest (as defined in Commission regulation 1.3(yy)) on or subject to the rules of a DCM, where:

- (1) one or more computer algorithms or systems determines whether to initiate, modify, or cancel an order, or otherwise makes determinations with respect to an order, including but not limited to: the product to be traded; the venue where the order will be placed; the type of order to be placed; the timing of the order; whether to place the order; the sequencing of the order in relation to other orders; the price of the order; the quantity of the order; the partition of the order into smaller components for submission; the number of orders to be placed; or how to manage the order after submission; and
- (2) such order, modification or order cancellation is electronically submitted for processing on or subject to the rules of a designated contract market; provided, however, that Algorithmic Trading does not

For the industry, Reg. AT's proposed rules become problematic at section 1.81, which proposes new or amended "[s]tandards for the development, monitoring, and compliance of Algorithmic Trading system."⁶⁶ This section, more specifically, provides that each AT Person:

Maintain[s] a source code repository to manage source access, persistence, copies of all code used in the production environment, and changes to such code. Such source code repository must include an audit trail of material changes to source code that would allow the AT Person to determine, for each such material change: who made it; when they made it; and the coding purpose of the change. Each AT Person shall keep such source code repository, and make it available for inspection, in accordance with § 1.31 [of the Commodity Exchange Act].⁶⁷

Despite the fact that those who would be subject to proposed Reg. AT object to *many* of its provisions, this provision has caught the spotlight.⁶⁸ Their objections arise from the fact that, looking at the existing section 1.31 of the Commodity Exchange Act alongside proposed section 1.81 of Reg. AT, members of the CFTC and the Department of Justice ("DOJ") could access the source code of those engaged in algorithmic automated trading *without the use of a subpoena*.⁶⁹

The CFTC stresses that generally, Reg. AT was drafted in order to effectuate its goal of "reducing risk and increasing transparency in automated trading."⁷⁰ The source code repository provision is, arguably, aligned with that goal. For instance, with unrestricted access to the source code of algorithmic traders, the CFTC could better identify and punish those who engage in deceptive practices such as spoofing and front-running. With direct access to source code, the CFTC will be better able to infer the requisite intent in order to prosecute individuals for violations such as spoofing.⁷¹ In addition, the source code turnover provision may allow the CFTC to reconstruct chaotic market events more quickly than in years' past—one of its goals in proposing Reg. AT.⁷²

include an order, modification, or order cancellation whose every parameter or attribute is manually entered into a front-end system by a natural person, with no further discretion by any computer system or algorithm, prior to its electronic submission for processing on or subject to the rules of a DCM. (proposed § 1.3(ssss)).

Q & A – Notice of Proposed Rulemaking on Regulation Automated Trading ("Regulation AT"), CFTC 3–4 (Nov. 24, 2015), http://www.cftc.gov/idc/groups/public/@newsroom/documents/file/regat_qa112415.pdf.

66. Regulation Automated Trading, *supra* note 18, at 468.

67. *Id.* at 469.

68. See Gregory Meyer, *Industry Criticizes CFTC's Plans For New Automated Trading Rules*, FIN. TIMES (Mar. 16, 2016), <https://next.ft.com/content/d6558728-ebba-11e5-9fca-fb0f946fd1f0> (citing to the complaints of many in the automated trading industry regarding the limit orders that Reg AT proposes, and more significantly the source code turnover provision); see also Jonathan Watkins, *U.S. Automated Trading Rules Cause Uproar*, TRADE (Mar. 23, 2016), <http://www.thetradenews.com/Regulation/US-automated-trading-rules-cause-uproar/> (stating "perhaps the most controversial aspect of Reg AT is that algorithmic traders' source code repositories be open to inspection by the CFTC and Department of Justice (DOJ) without a subpoena").

69. Compare 17. C.F.R. § 1.31 (outlining the existing recordkeeping and disclosure requirements for persons subject to the jurisdiction of the Commodity Exchange Act), with Regulation Automated Trading, *supra* note 18, at 468 (section 1.81(a)(6) requiring AT Persons to maintain a source code repository in accordance with section 1.31 of the Commodity Exchange Act).

70. See *Q & A – Notice of Proposed Rulemaking on Regulation Automated Trading*, *supra* note 65.

71. Section 4c(a)(5)(C) of the Commodity Exchange Act prohibits "any trading, practice, or conduct . . . that is, is of the character of, or is commonly known to the trade as, 'spoofing'".

72. See *Q & A – Notice of Proposed Rulemaking on Regulation Automated Trading*, *supra* note 65, at 1–2 (stating "[e]ffective risk controls reduce the potential for market disruptions arising from system malfunctions and other errors or conduct. The risks of such disruptions are heightened by the interconnection

However, despite its good intentions, the source code provision of Reg. AT has received a great deal of opposition and criticism from the industry. Trading firms that would be subject to Reg. AT are concerned with the CFTC and the DOJ having access to their source code primarily for two reasons: (1) government entities, such as the CFTC and the DOJ have not been immune to data breaches, putting this source code in danger of being stolen by hackers; and (2) it is unprecedented in any industry to deliver proprietary information to a government agency without the use of a subpoena.

A. Reg. AT Places Source Code at Risk of Being Stolen Through Potential Data Breaches

In May 2012, a CFTC employee received a “phishing” email and unknowingly sent information to what turned out to be a fraudulent website.⁷³ Because of this action on the part of the employee, a third-party then was able to infiltrate the employee’s personal account with the CFTC, which stored a great deal of the Commission’s personnel information.⁷⁴ According to an email sent to Commission employees describing the incident, “The email account contained e-mails and attachments with the names, Social Security numbers and possibly other sensitive personally identifiable information of certain individuals.”⁷⁵ Although the CFTC was confident that this breach only affected Commission employees’ personal information, and not trading or market data,⁷⁶ incidents such as this are a reminder that the government is not immune to data breaches and the possibility of sensitive information falling into the wrong hands.

Furthermore, in its comment letter to the CFTC dated March 16, 2016, the Futures Industry Association identified two additional recent cyber security breaches that make the source code provision of Reg. AT troubling.⁷⁷ The first breach was with regard to the U.S. Office of Personnel Management (“OPM”) in June 2015.⁷⁸ “OPM discovered that the background investigation records of current, former, and prospective federal employees and contractors had been stolen.”⁷⁹ OPM and the office responsible for investigating this incident confidently concluded that as many as 21.5 million individuals’ social security numbers had been compromised, and that approximately 5.6 million fingerprints had been stolen as well.⁸⁰

of markets and increased use of high-speed and algorithmic trading, which makes the implementation of pre-trade risk controls and other measures even more necessary); *see also* Meyer, *supra* note 68 (quoting CFTC chairman Tim Massad saying, “What we’re interested in is making sure code is preserved, making sure that if there is a market disruption, we can reconstruct what happened, that there’s audit trail”).

73. *See* Silla Brush, *CFTC Data Breach Risks Employee’s Social Security Numbers*, BLOOMBERG (June 24, 2012), <http://www.bloomberg.com/news/articles/2012-06-25/cftc-data-breach-risks-employees-social-security-numbers> (describing how the CFTC, the nation’s preeminent derivatives regulator, put many of its own employees’ personal information at risk in a data breach in May 2012).

74. *Id.*

75. *Id.*

76. *Id.*

77. *See* FIA Reg AT Comment Letter, *supra* note 17 (expressing serious concerns about the ability of the CFTC to ensure that any source code made available to it was safe from the risks of data breaches).

78. *Id.*; *see* *What Happened* OFFICE OF PERSONNEL MGMT., <https://www.opm.gov/cybersecurity/cybersecurity-incidents/> (last visited Jan. 1, 2017).

79. *What Happened*, *supra* note 78.

80. *Id.*

Looking at the language of Reg. AT, “[i]f source code provided to the CFTC through an inspection request under section 1.31 was stolen by an unauthorized third-party, the consequences could be catastrophic to an AT Person.”⁸¹ An AT Person’s source code is extremely valuable, and the result of a significant investment of both money and technical expertise. In a sense, it is much like a company’s confidential business plan.⁸² In addition to providing details about a firm’s prior trades, it even sheds light on how that firm may plan to trade moving forward.⁸³ The source code turnover provision (section 1.31) of Reg. AT places firms in danger of having this information leaked to third parties and potentially destroying their competitive advantage over other firms.

B. The Surrender of Proprietary Information to Government Agencies Without a Subpoena is Unprecedented

In addition to creating the possibility that a firm’s source code could be accidentally leaked to third parties, section 1.31 is, from a broader perspective, entirely unprecedented action taken by regulators.⁸⁴ Requiring businesses to turn over proprietary information such as their source code not only approaches the line of violating precedent set out by the U.S. Supreme Court,⁸⁵ but also comes close to violating the protections provided by the Fourth Amendment.⁸⁶ There are no other industries where a U.S. regulatory agency has been given such free and unrestricted access to proprietary information like this.⁸⁷ Currently, the U.S. government can only obtain this information with the issuance of a subpoena.⁸⁸

With regulations as stringent as this, the benefits should certainly outweigh the costs by a considerable degree. However, many argue that this is not the case; and, rather, Reg. AT is overly broad and does not justify its intrusiveness.⁸⁹ Although having access to this information could allow the CFTC to better reconstruct market events and monitor traders for illegal activity, the source code

81. FIA Reg AT Comment Letter, *supra* note 17, at 53.

82. See *Protect Source Code to Protect Innovation in Markets*, FIA PRINCIPAL TRADERS GRP. (Apr. 21, 2016, 7:15 p.m.), <https://ptg.fia.org/articles/protect-source-code-protect-innovation-markets> (likening a firm’s source code to a business’s “codified business plan”). “[Source code] contains a firm’s strategy and instructions for how to trade given any number of variables. It is the lifeblood of many firms’ commercial success. Importantly, it does not just contain information on how a firm may have traded in the past—it details how the firm will trade in the future.” *Id.*

83. *Id.*

84. See *id.* (stating that the source code turnover provision unlike any other action taken by regulatory agencies).

85. In its comment letter, the FIA cites to the U.S. Supreme Court case of *New York v. Burger*, 482 U.S. 691 (1987). This case held that inspection schemes of this nature could be conducted absent a warrant only in the inspection was not unreasonable. *Burger*, 482 U.S. at 702. Reasonable in this context required that:

1. there must be a “substantial” government interest that informs the regulatory scheme pursuant to which the inspection is made;

2. the warrantless inspection must be “necessary to further [the] regulatory scheme;” and

3. “the statute’s inspection program, in terms of certainty and regularity of its application [must] provide a constitutionally adequate substitute for a warrant.” *Id.* at 702–03; FIA Reg AT Comment Letter, *supra* note 17, at 46.

86. U.S. CONST. amend IV.

87. FIA Reg AT Comment Letter, *supra* note 17, at 48.

88. See *Statement of Commissioner J. Christopher Giancarlo*, *supra* note 60 (expressing concern over the fact that no other industry (barring perhaps the military or other defense systems) that are forced to allow the government such unrestricted access to their proprietary information).

89. See Meyer, *supra* note 68 (pointing to an assertion made by the FIA that the benefits of Reg AT do not outweigh its potential costs).

turnover provision is unduly burdensome to justify this possibility. Enforcement of Reg. AT, as proposed, would likely require AT Persons to increase their internal compliance costs just in order to make sure that their code repositories are properly indexed.⁹⁰ As Commissioner of the CFTC, J. Christopher Giancarlo, expressed in a public statement following the release of Reg. AT, source code is extremely valuable information and its release into the wrong hands could prove detrimental to the U.S. markets.⁹¹ Accordingly, it is imperative that the source code provision in Reg. AT be amended or stricken before its enactment.

IV. An Alternative Regulatory Framework

In its comment letter to the CFTC, the Futures Industry Association provides a suggestion for alternative methods of regulating the automated trading industry and gaining access to source code.⁹² These alternatives focus on the existing U.S. legal landscape of requiring regulatory agencies to obtain a subpoena or getting voluntary turnover before obtaining proprietary information such as source code.⁹³ In such a circumstance, if an AT Person wished to challenge the validity of the subpoena, that AT Person could request a protective order to ensure that their valuable source code is protected by the court.⁹⁴ Alternatively, the affected AT Person could request additional confidentiality obligations to be enforced against the CFTC and the DOJ.⁹⁵ Such protections and confidentiality requirements could include restricting access to the source code to a limited number of individuals or computers without an internet connection (to protect against a data breach), allowing AT Persons to closely supervise the transfer and dissemination of their source code by regulators, mandating that regulators with access to source code sign confidentiality agreements prohibiting their release of the information, or prohibiting regulators from entering the private trading industry for a specific amount of time after they have had access to source code.⁹⁶ Through these suggested safeguards, the CFTC could still achieve its goal of increasing transparency and fairness in the markets, without infringing too much on the rights of AT Persons. Accordingly, the CFTC should take into serious consideration the alternative methods proposed by the Futures Industry Association.

V. Conclusion

In light of recent trends and market events, the automated trading industry has come under a great deal of scrutiny from the CFTC. Following the flash crashes of 2010 and 2015, the Commission was put under tremendous pressure to

90. See FIA Reg AT Comment Letter, *supra* note 17, at 54–55 (discussing how source code drastically differs from other types of information used in audit trails; more specifically, discussing how source code interacts with other lines of code and how AT Persons would have a difficult time organizing said code for the CFTC).

91. *Statement of Commissioner J. Christopher Giancarlo*, *supra* note 60.

92. FIA Reg AT Comment Letter, *supra* note 17, at 53–54.

93. *Id.*

94. *Id.*

95. *Id.*

96. See *id.* (identifying potential alternative approaches to creating a source code repository for the CFTC which would be less infringing and more protective than section 1.31 currently stands).

enact stricter regulations over this industry, which had previously operated in the shadows. However, the proposed Reg. AT is overly burdensome and fails to properly achieve its goal of creating fairness and transparency in the marketplace. In particular, the source code turnover provision contained in section 1.81 of the proposed Reg. AT threatens to expose AT Persons' valuable and proprietary source code to the possibility of being leaked to third parties, an occurrence which would be terrible for the U.S. marketplace. For these reasons, the CFTC should amend proposed section 1.81 of Reg. AT to be less intrusive and more careful to protect AT Persons' source code.