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**HIGH FREQUENCY TRADING: IS REGULATION THE  
ANSWER?**

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## I. INTRODUCTION

*“The Time to Buy is When There’s Blood in the Streets.”*

– *Baron Rothschild*

Historically, the United States government (the “Government”) has been slow in implementing regulations to combat economic crimes carried out by financial institutions. Financial regulatory reforms in the United States have occurred principally in the aftermath of major financial scandals. Prior to the Wall Street Crash of 1929, the Government did not seriously consider the implementation of regulations regarding the sale of securities, although such proposals existed.<sup>1</sup> However, after the stock market crashed, Congress passed the Securities Exchange Act of 1933 and the Securities Exchange Act of 1934, which created the Securities and Exchange Commission (“SEC”).<sup>2</sup> In a similar fashion, Congress passed the Sarbanes-Oxley Act of 2002 in response to financial reporting and corporate governance scandals like those of Enron Corporation and WorldCom, Inc.<sup>3</sup> Finally, in 2010, Congress enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act to address the issues that led to the financial crisis of 2008 and the Great Recession.<sup>4</sup>

Notwithstanding the Government’s procrastination in addressing critical issues undermining the U.S. financial system, a new danger with the ability to impact financial markets, investors, and the U.S. economy, lurks nearby. This danger is the practice of high frequency trading (“HFT”).

HFT is “[o]ne of the most significant market structure developments in recent years.”<sup>5</sup> Warren Buffett, one of the world’s best financial minds, has criticized HFT.<sup>6</sup> The practice of HFT is commonly used among large institutional traders, including pension and mutual funds.<sup>7</sup> Will the Government be slow to respond yet again? Or will it remain

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<sup>1</sup> *What We Do*, SEC. & EXCH. COMM’N, <http://www.sec.gov/about/whatwedo.shtml> (last modified June 10, 2013).

<sup>2</sup> *Id.*

<sup>3</sup> Allison Fass, *One Year Later, the Impact of Sarbanes-Oxley*, FORBES (July 22, 2003, 7:00 AM), [http://www.forbes.com/2003/07/22/cz\\_af\\_0722sarbanes.html](http://www.forbes.com/2003/07/22/cz_af_0722sarbanes.html).

<sup>4</sup> Kimberly Amadeo, *8 Ways the Dodd-Frank Wall Street Reform Act Made You Safer*, THE BALANCE, <https://www.thebalance.com/dodd-frank-wall-street-reform-act-3305688> (last updated Sep. 23, 2016).

<sup>5</sup> Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3606 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt. 242).

<sup>6</sup> Alex Crippen, *Buffett, Gates and Munger Criticize High-Frequency Trading*, CNBC (May 5, 2014, 9:03 AM), <http://www.cnbc.com/2014/05/05/buffett-gates-and-munger-criticize-high-frequency-trading.html>.

<sup>7</sup> Michael J. McGowan, *The Rise of Computerized High Frequency Trading: Use and Controversy*, 16 DUKE L. & TECH. REV. ¶ 1, 2 (2010).

one step ahead and implement necessary regulations to curtail any negative effects of this practice?

This Article explores the practice of HFT, its impact on financial markets and the investing community, and whether there is a need for regulatory reform regarding HFT. Part II provides relevant background information regarding the practice of HFT. Moreover, Part II argues that regulators should not attempt to define HFT while undergoing efforts to understand whether HFT merits regulation. Instead, Part II proposes an alternative approach. Part III examines relevant federal laws and regulations that apply to HFT, as well as specific cases involving HFT. Furthermore, Part III analyzes some of the proposed regulations aimed at curtailing any negative effects that HFT may have. Part IV analyzes the positive and negative effects of HFT by focusing on strategies and tools utilized by HFT firms. Lastly, this Article contends that HFT practices do not call for further regulation and instead proposes that case law be used to address any concerns that arise due to HFT.

## II. THE PRACTICE OF HIGH FREQUENCY TRADING

### A. What is High Frequency Trading?

Defining HFT is a difficult challenge.<sup>8</sup> However, the term HFT, in its simplest sense, is a form of high-speed algorithmic trading.<sup>9</sup> There are five characteristics identified by the SEC and attributed to firms engaged in HFT.<sup>10</sup> These are: (1) the use of extraordinarily high-speed and sophisticated computer programs for generating, routing, and executing orders; (2) the use of co-location services and individual data feeds offered by exchanges and others to minimize network and other types of latencies; (3) very short time-frames for establishing and liquidating positions; (4) the submission of numerous orders that are

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<sup>8</sup> See Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3606 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt. 242); see generally *In re Barclays Liquidity Cross and High Frequency Trading Litig.*, 126 F. Supp. 3d 342, 349 (S.D.N.Y. Aug. 26, 2015) (mentioning that “there is no definitive definition of what constitutes HFT”).

<sup>9</sup> *In re Barclays Liquidity Cross & High Frequency Trading Litig.*, 126 F. Supp. 3d. at 349. Algorithmic trading is a trading system that uses mathematical models to make decisions about transactions in the financial markets. *Algorithmic Trading*, INVESTOPEDIA, <http://www.investopedia.com/terms/a/algorithmictrading.asp> (last visited Oct. 28, 2016); Campbell R. Harvey, *High Frequency Trading*, NASDAQ, <http://www.nasdaq.com/investing/glossary/h/high-frequency-trading> (last visited Oct. 28, 2015).

<sup>10</sup> Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3606 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt 242).

cancelled shortly after submission; and (5) ending the trading day in as close to a flat position as possible (that is, not carrying significant, unhedged positions overnight).<sup>11</sup> The SEC has been reluctant to provide a clear-cut definition of HFT.<sup>12</sup> Instead, the SEC has focused on analyzing particular strategies and tools used by trading firms to determine whether any of these strategies or tools merit regulation.<sup>13</sup>

The U.S. Commodity Futures Trading Commission (“CFTC”) has defined HFT in a broad and imprecise manner.<sup>14</sup> The CFTC has noted that characteristics of HFT include: (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) recurring high message rates (orders, quotes or cancellations) determined using one or more objective forms of measurement, including (i) cancel-to-fill ratios, (ii) participant-to-market message ratios, or (iii) participant-to-market trade volume ratios.<sup>15</sup> Additionally, the CFTC has noted that HFT is a “mechanism used by a variety of trading strategies, including but not limited to, liquidity provision and statistical arbitrage.”<sup>16</sup>

Together, the SEC and CFTC have refused to provide a precise definition of HFT. Both agencies define HFT by a subset of characteristics and attributes.<sup>17</sup>

HFT concerns exist beyond U.S. borders. Other countries have taken aim at regulating HFT.<sup>18</sup> For instance, German authorities passed regulations targeting HFT practices.<sup>19</sup> Germany’s Act on the

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<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at 3607.

<sup>13</sup> *See id.* at 3607–11.

<sup>14</sup> Commodity Futures Trading Commission Concept Release on Risk Controls and System Safeguards for Automated Trading, No. RIN 3038-AD52, 17 C.F.R. § 1, 13 (2013).

<sup>15</sup> *Id.*

<sup>16</sup> *Id.* at 13–14., n.15.

<sup>17</sup> *Id.* at 13; SEC. & EXCH. COMM’N, EQUITY MARKET STRUCTURE LITERATURE REVIEW, PART II; HIGH FREQUENCY TRADING (2014), 4, [https://www.sec.gov/marketstructure/research/hft\\_lit\\_review\\_march\\_2014.pdf](https://www.sec.gov/marketstructure/research/hft_lit_review_march_2014.pdf).

<sup>18</sup> Linette Lopez, *There's A Hot New Global Trend, And High-Frequency Traders Should Be Very Afraid*, BUSINESS INSIDER (Sept. 27, 2012, 12:56 PM), <http://www.businessinsider.com/countries-regulate-high-frequency-trading-2012-9>.

<sup>19</sup> *See generally High-Frequency Trading: New Rules for Trading Participants*, BAFIN (Mar. 26, 2013), [https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Meldung/2013/meldung\\_130322\\_hft-gesetz\\_en.html](https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Meldung/2013/meldung_130322_hft-gesetz_en.html)

(indicating that BaFin is Germany’s financial supervisory authority).

Prevention of Risks and Abuse in High-frequency Trading (the “German Act”) defines HFT as an algorithmic trading technique characterized by three characteristics:<sup>20</sup> (1) the use of infrastructure intended to minimize latency, particularly co-location, proximity hosting or high-speed direct electronic market access; (2) system determination of order initiation, generating, routing or execution without human intervention; and (3) high message intra-day rates which constitute orders, quotes or cancellations.<sup>21</sup> Particularly significant, pursuant to the German Act, HFT shall *only* be deemed to exist if all three characteristics are met.<sup>22</sup> Specifically, the first characteristic is presumed to exist if the servers on which the algorithms initiate, generate, route or execute orders are proximate to the trading venue’s matching engine and if a bandwidth of 10 gigabits per second is utilized.<sup>23</sup> Also, the German Act’s third characteristic is satisfied once 75,000 or more intra-day messages exist on average during a year for a particular trading venue.<sup>24</sup>

Thus, unlike U.S. regulatory agencies, German regulatory agencies have established clearly defined guidelines for determining when trading techniques are considered HFT and thus subject to greater oversight.

## B. Strategies and Tools Used in High Frequency Trading

As mentioned above, HFT is a subset of algorithmic trading.<sup>25</sup> As a result, the strategies and tools employed by firms engaged in HFT depend on the technological capabilities of their electronic trading systems and the success of their algorithmic codes. Some common HFT strategies used by firms include passive market making, arbitrage, structural, and directional strategies.<sup>26</sup> This section will explain these common strategies and how HFT firms profit from their use.

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<sup>20</sup> See *Information Provided by BaFin on the German High-frequency Trading Act*, BAFIN (May 21, 2013), [http://www.eurexchange.com/blob/506084/19a0e8580cf5b024ff549aa4b904c1be/data/er13106e\\_BBafi.pdf](http://www.eurexchange.com/blob/506084/19a0e8580cf5b024ff549aa4b904c1be/data/er13106e_BBafi.pdf).

<sup>21</sup> *Frequently asked Questions relating to the High-Frequency Trading Act (Hochfrequenzhandelsgesetz)*, BAFIN, 8–9, [https://www.bafin.de/SharedDocs/Downloads/EN/FAQ/dl\\_faq\\_hft\\_en.pdf?\\_\\_blob=publicationFile&v=1](https://www.bafin.de/SharedDocs/Downloads/EN/FAQ/dl_faq_hft_en.pdf?__blob=publicationFile&v=1) (last updated Feb. 28, 2014).

<sup>22</sup> *Id.* at 9 (emphasis added).

<sup>23</sup> *Id.*

<sup>24</sup> *Id.* at 10.

<sup>25</sup> See *supra* note 9 and accompanying text.

<sup>26</sup> Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3607 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt. 242).

Market making strategies are not new.<sup>27</sup> Centuries ago, owners of stock certificates would create markets in stocks by sitting outside of the Bank of New England ready to quote prices to buyers and sellers of securities.<sup>28</sup> Despite the rise of computerized trading, this old strategy has refused to go away. However, the purpose of firms utilizing market making strategies (hereinafter, “Market Makers”) has evolved as a result of electronic trading systems.<sup>29</sup> Traditionally, Market Makers existed to provide liquidity to the market by always buying and selling securities at specific prices.<sup>30</sup> Traditional Market Makers still exist today, and they are appointed by security exchanges to act as Market Makers for specific equities.<sup>31</sup> These Market Makers profit from liquidity rebates offered by the exchanges for which they provide liquidity.<sup>32</sup> However, today’s non-traditional Market Makers utilize electronic trading systems to simultaneously buy (bid) and sell (offer) stocks and profit on the difference by earning a spread between the bid and offer price (known as the “bid-ask spread”).<sup>33</sup> These Market Makers input the bid and offer prices (or limits) into their algorithms and let computers perform the actual buying and selling of stocks.<sup>34</sup> In some circumstances, the multiple bids and offers placed by Market Makers lead to a large number of orders and cancellation rates as high as 90%.<sup>35</sup>

Of particular importance within market making, is the use of a directional strategy known as “pinging.”<sup>36</sup> The practice of pinging

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<sup>27</sup> See Ian Lyall & Simon Duke, *CITY FOCUS: Market Making is a Tradition Worth Saving*, THIS IS MONEY, <http://www.thisismoney.co.uk/money/article-1217026/CITY-FOCUS-Market-making-tradition-worth-saving.html> (last updated Sept. 29, 2009).

<sup>28</sup> *Id.*

<sup>29</sup> See Tanmoy Chakraborty & Michael Kearns, *Market Making and Mean Reversion*, UNIVERSITY OF PENNSYLVANIA, <https://www.cis.upenn.edu/~mkearns/papers/marketmaking.pdf> (last visited Dec. 15, 2015).

<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3607 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt. 242); see also *infra* Part II.C. (describing that traditional market makers also profit from earning the “bid-ask spread”).

<sup>33</sup> *Chakraborty & Kearns, supra* note 29, at 1; Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3607 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt. 242).

<sup>34</sup> McGowan, *supra* note 7, at ¶ 23.

<sup>35</sup> Concept Release on Equity Market Structure, Exchange Act Release No. 34-61358, 75 Fed. Reg. 3594, 3607 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt. 242).

<sup>36</sup> Gregory Scopino, *The (Questionable) Legality of High-Speed “Pinging” and*

involves the submission of limit orders inside the bid-ask spread almost concurrently with the cancellation of such an order.<sup>37</sup> A Market Maker will essentially put a small amount of buy orders into the market and then cancel orders that are not instantly filled. This allows the Market Maker to detect the presence of a large institutional trader seeking to purchase the shares.<sup>38</sup> As a result, the Market Maker will eliminate all the liquidity in the stock, even if it has to purchase it at an unattractive price.<sup>39</sup> It will then change its position to issue that very same security to the institutional buyer at a less attractive price.<sup>40</sup>

Another strategy commonly used by HFT firms is arbitrage.<sup>41</sup> Arbitrage is a process by which riskless profit is made by exploiting incorrectly priced securities.<sup>42</sup> For instance, assume that a junkyard is offering \$600 for junk cars and an individual seller is selling a totaled car for \$200. As a result, someone will buy the car from the individual seller and sell that car to the junkyard for a \$400 profit. This is arbitrage; that person is exploiting the price difference in two separate markets. In an analogous fashion, HFT firms attempt to earn a spread by purchasing (or selling) a product in one market and almost instantaneously selling (or buying) it in another for a profit.<sup>43</sup> Another form of arbitrage involves exploiting the difference in price discrepancies between related securities in the same market. For example, arbitrageurs will seek out “discrepancies between the price of an ETF and the underlying basket of stocks and buy (or sell) the ETF and simultaneously sell (or buy) the underlying basket to capture the price difference.”<sup>44</sup>

Finally, structural trading strategies utilized by HFT firms are the backbone of their business model. Most HFT strategies depend on

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“*Front Running*” in the *Futures Markets*, 47 CONN. L. REV. 607, 607 (2015).

<sup>37</sup> *Id.* at 622, n. 61 (quoting Rory Gillen, *High-Frequency Traders Push Markets Towards the Precipice*, THE IRISH TIMES, (July 2, 2013), <http://www.irishtimes.com/business/personal-finance/high-frequency-traders-push-markets-towards-the-precipice-1.1449329>).

<sup>38</sup> *Id.* (quoting SCOTT PATTERSON, DARK POOLS: HIGH-SPEED TRADERS, A.I. BANDITS, AND THE THREAT TO THE GLOBAL FINANCIAL SYSTEM 7 (2012)).

<sup>39</sup> *Id.* at 625.

<sup>40</sup> *Id.*

<sup>41</sup> McGowan, *supra* note 7, at ¶ 11.

<sup>42</sup> ROBERT J. RHEE, CORPORATE FINANCE 167 (Aspen Publishers, Wolters Kluwer Law & Business, forthcoming 2016).

<sup>43</sup> Equity securities are listed on various stock exchanges and as a result arbitraging can exist. Some common markets include the NYSE, NASDAQ, AMEX and OTC.

<sup>44</sup> Concept Release on Equity Market Structure, Exchange Act Release No. 34-61358, 75 Fed. Reg. 3594, 3608 (Jan. 21, 2010), <https://www.sec.gov/rules/concept/2010/34-61358fr.pdf>.

structural strategies to be effective. For instance, the use of the structural strategy of co-location is critical for HFT firms because other strategies, including pinging and arbitrage, rely on speed.<sup>45</sup> The speed at which (1) market data arrives from exchange servers to servers of HFT firms, (2) decisions are processed at trading engines of HFT firms, (3) HFT firms can access exchange servers, and (4) orders can be executed at exchanges, are critical to an HFT firm's profit making abilities.<sup>46</sup> HFT firms are constantly trying to improve their speed in order to gain an edge on their competition.<sup>47</sup> Co-location is the practice by which HFT firms locate their own trading servers and electronic trading systems near a stock exchanges' servers in order to improve trading speed.<sup>48</sup> In some situations, third parties are responsible for hosting the matching engines of exchanges and consequently HFT firms will locate their trading servers near these third party hosts.<sup>49</sup> Through the use of co-location, HFT firms can obtain and transmit information to exchanges as well as make and cancel orders at millisecond speeds.<sup>50</sup> This allows HFT firms to remain one step ahead of other buyers when they ping and it allows them to arbitrage at faster speeds than their competition.

### **C. The Insignificance of Defining High Frequency Trading: A Proposed Alternative**

As noted in Part II.A., regulators have taken different approaches when defining HFT.<sup>51</sup> The German Act sets objective thresholds which must be met by firms in order for the practice they are engaging in to be defined as HFT and accordingly be subject to the German Act.<sup>52</sup> In contrast, U.S. regulatory agencies have refused to define HFT narrowly. Instead, they have defined HFT using characteristics and attributes.<sup>53</sup> Thus, regulators have struggled to pinpoint exactly what HFT *is* and what should be labeled as HFT. Moreover, regulatory agencies have proclaimed that the lack of a clear definition of HFT impacts their

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<sup>45</sup> *Id.* at 3610.

<sup>46</sup> *Id.* at 3606.

<sup>47</sup> *Id.*

<sup>48</sup> McGowan, *supra* note 7, at ¶ 20.

<sup>49</sup> *Id.* at 3610.

<sup>50</sup> *Id.*

<sup>51</sup> *Concept Release on Equity Market Structure*, *supra* note 11, at 3606; *Commodity Futures Trading Commission Concept Release on Risk Controls and System Safeguards for Automated Trading*, *supra* note 15, at 13.

<sup>52</sup> See BAFIN, *supra* note 20.

<sup>53</sup> STAFF OF THE DIV. OF TRADING AND MKTS., EQUITY MKT. STRUCTURE LITERATURE REVIEW PART II: HIGH FREQUENCY TRADING 4–5 (2014).

overall understanding of market structure issues.<sup>54</sup> Unfortunately, the pursuit of a definition of HFT actually complicates and hampers any desired regulatory schemes. For example, Germany's narrow definition of HFT is under inclusive and permits firms engaged in algorithmic trading activities to side-step regulation. A firm engaged in trading activity can avoid the authorization requirement<sup>55</sup> introduced under the German Act and avoid regulation by manipulating its volume limit to be less than 75,000 messages per trading venue per trading day.<sup>56</sup> One commentator has suggested that attempting to establish an objective definition for something as subjective as HFT is silly due to the subjective nature of the practice.<sup>57</sup> Additionally, measuring and collecting data on numerical thresholds would be complex and costly.<sup>58</sup> Under a narrow definition of HFT, firms meeting any requisite thresholds and thus falling within the established definition of HFT (altogether, "Regulated Firm") will be supervised and required to satisfy certain requirements. Not only would this approach be administratively burdensome and costly for regulators, but it would be futile as well. Regulatory agencies will have to adopt a two-step approach. First, firms meeting the HFT definition as set out by any established parameters would be subject to the oversight of regulatory agencies. Second, regulators will have to probe the Regulated Firms and determine which specific trades warrant civil and/or criminal liability (hereinafter, "illegal trades"). Although it can be argued that the two-step approach outlined above allows regulators to focus on firms that are likely to be engaged in illegal trades, it likewise allows firms that do not meet the narrow definition of Regulated Firm to be completely disregarded by regulators unless an additional, independent set of measures, i.e., a *third* step, is established to target them. Such a three-step approach would be unnecessarily costly and expose regulators to multiple rounds of administrative oversight.

In sharp contrast to the German definition of HFT, the characteristic and attribute oriented approach U.S. regulatory agencies have adopted is over inclusive. The over inclusiveness in the U.S. characterization of

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<sup>54</sup> Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3607 (proposed Jan. 21, 2010) (to be codified at 17 C.F.R. pt. 242).

<sup>55</sup> See *High-Frequency Trading: New Rules for Trading Participants*, *supra* note 19, at 10–11.

<sup>56</sup> For example: if Firm A trades on two days in a 12-month period, achieving 100,000 messages on day one and 25,000 messages on day two, it will essentially circumvent registration by averaging 62,500 messages per trading day.

<sup>57</sup> Rob Daly, *Can High Frequency Trading Be Defined?*, WATERS TECHNOLOGY: SELL-SIDE TECHNOLOGY (Dec. 16, 2011), <http://www.waterstechnology.com/sell-side-technology/opinion/2133536/frequency-trading-defined>.

<sup>58</sup> See *id.*

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HFT stems from the fact that the defining characteristics of HFT overlap with characteristics associated with other forms of algorithmic and automated trading systems (“ATS”) that do not warrant additional regulation.<sup>59</sup> Essentially, the characteristics outlined by U.S. regulators describe both legal and illegal trades. In response to a request from the CFTC for public comment on a proposed definition of HFT, the FIA Principal Traders Group noted the following:

if a market participant uses an automated trading system [ATS] and is directly connected to an exchange; does it really make a difference if he or she enters a thousand orders per day instead of one million orders per day? Does it really matter, for purposes of monitoring trading activity, whether or not a trader holds positions at the end of the day?<sup>60</sup>

In other words, some of the characteristics laid out by U.S. regulators in an attempt to define HFT would subject firms engaged in acceptable trading activity to closer scrutiny. This would lead to an inefficient use of resources, administrative burdens for regulators, and higher costs.

The FIA and other commentators have suggested another approach to define the elusive concept of HFT.<sup>61</sup> The FIA recommends that regulators define a new term, “Direct ATS Participant,” characterized by the use of an ATS connected to an exchange, and supervise these ATSs in an attempt to assess any risks posed by them.<sup>62</sup> It would be easy for regulatory agencies to obtain and review information about orders and trades made by each ATS because exchanges maintain audit trails.<sup>63</sup> This approach appears to differentiate itself from the German approach because it lacks specific parameters. Accordingly, the first-step mentioned above is eliminated under this approach.

At its core, the FIA’s approach is not a new definition. Instead, the

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<sup>59</sup> See John Damgard, *FIA Response to CFTC Proposed Definition of High Frequency Trading*, AUTOMATEDTRADER (Dec. 14, 2016), <http://www.automatedtrader.net/headlines/99556/fia-response-to-cftc-proposed-definition-of-high-frequency--trading>. (Automated trading systems are currently regulated by several regulatory bodies in various countries); See also Jan de Bel, *Automated Trading Systems and the Concept of an “Exchange” in an International Context Proprietary Systems: A Regulatory Headache!*, 14 U. PA. J. INT’L BUS. L. 169, 171 (1993).

<sup>60</sup> Damgard, *supra* note 59.

<sup>61</sup> See Daly, *supra* note 57.

<sup>62</sup> Damgard, *supra* note 59.

<sup>63</sup> *Id.*

FIA's approach recommends that regulatory agencies surveil all firms with direct access to the market via ATSS.<sup>64</sup> The approach eliminates a definition of HFT, and instead recommends regulatory oversight of the group of market participants capable of performing concerning trading activities due to the technologies they use. Although the FIA's approach regarding the elimination of the first-step is acceptable, the method the FIA recommends for targeting concerning trading activity is flawed. The FIA instructs that, by surveilling all firms with direct access to the market via ATSS, regulators will have the ability to do studies that focus on a subset of these market participants.<sup>65</sup> For example, "staff could filter the audit trails of Direct ATS Participants to examine trading from those that submit more than a certain number of orders in a day, or that trade more than a certain number of contracts."<sup>66</sup> Unfortunately, this aspect of the FIA's recommended approach resembles a parameter-based approach for targeting firms engaged in concerning trading activities. Essentially, the FIA has done nothing more than suggest regulators adopt the German approach after all.

Rather than focusing on defining a particular practice as HFT, regulators should focus on the strategies and tools utilized by traders and determine whether specific trades are concerning or not and thus warrant civil and/or criminal liability. Of course, this would require regulators to draw a line determining which trades are illegal and which are legal based on the underlying strategies and tools utilized by firms to make these trades and the effects of the trades on the market and investing public.

For purposes of this Article, the term "HFT" will from hereinafter be used to refer to trading—neither legal nor illegal trading—carried out by firms; it is simply a term used for purposes of determining precisely what *should* be regulated and to reference the broad subject-matter of this Article. However, the term "illegal HFT" will be used to refer to the group of HFT activity that *does* warrant regulatory action coupled with criminal and/or civil liability due to its concerning nature.<sup>67</sup> All in all, HFT "is a broad term that, like anything else, contains both people who play by the rules and those who do not."<sup>68</sup>

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<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> For now, what constitutes "illegal HFT" has yet to be determined. An exploration of the strategies and tools utilized in HFT and their effects must be considered before reaching this determination. This discussion will take place in Part IV, *infra*.

<sup>68</sup> Kim Janssen, *Spoofing Trial to Shine Light on Secret World of High-Frequency Trading*, CHICAGO TRIBUNE (Oct. 23, 2015, 2:24 PM), <http://www.chicagotribune.com/business/ct-spoofing-trader-trial-1025-biz-20151023-story.html>.

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### III. FEDERAL AUTHORITY ADDRESSING HIGH FREQUENCY TRADING

Before precariously assuming that regulatory reform is needed in the area of HFT, it is first critical to determine whether any existing authority exists to curtail any hampering effects HFT may have on markets, investors, or the economy. This Part seeks to locate and analyze whether any current administrative rules or federal statutes exist to prevent any concerning strategies employed by HFT firms. Next, this Part analyzes existing HFT cases and reviews currently proposed HFT rules and whether proponents of such rules are on the right track towards curtailing concerning practices.

#### A. Current Laws that Impact High Frequency Trading

Very little, if any, federal statutory law directly targets the practice of HFT. For example, Dodd-Frank's Volcker Rule curtails the ability of banks to engage in HFT by placing quantitative limitations on their ability to engage in trading activities.<sup>69</sup> However, banks are not the only entities engaged in HFT activities; hedge funds, mutual funds, and independent proprietary trading firms engage in the activity as well.<sup>70</sup> Consequently, the Volcker Rule has failed to make a dent in the HFT industry, and instead has led the \$28.1 billion industry to shift away from banks towards hedge funds and other HFT firms.<sup>71</sup>

Despite the absence of clear authority addressing practices and strategies used by HFT firms and traders, regulators and enforcement agencies have made use of existing statutes and regulations in an effort to curtail some HFT practices. The federal authority that has been utilized to bring these charges is discussed in Part III.B.

#### B. High Frequency Trading Cases

There is not a substantial body of case law dealing with the practice of HFT.<sup>72</sup> This is perhaps attributable to the fact that HFT is a recent development and the difficulty private plaintiffs and regulators face in

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<sup>69</sup> Dodd-Frank Act §619, 12 U.S.C. §1851 (2012).

<sup>70</sup> McGowan, *supra* note 7, at ¶2.

<sup>71</sup> Beverly Goodman, *Tapping the Brakes on High-Speed Trading*, BARRONS, <http://www.barrons.com/articles/SB500014240527487037541045772392317460435> 66 (last visited Dec. 15, 2015).

<sup>72</sup> See Michael T. Gass & Michael R. Dube, *High-Frequency Trading Cases Slow to Take Shape*, LAW360 (Feb. 6, 2015, 1:17 PM), [https://www.choate.com/uploads/1178/doc/Gass,\\_Dube\\_-\\_High-Frequency\\_Trading\\_Cases\\_Slow\\_To\\_Take\\_Shape.pdf](https://www.choate.com/uploads/1178/doc/Gass,_Dube_-_High-Frequency_Trading_Cases_Slow_To_Take_Shape.pdf).

bringing actions under existing statutory and common law theories.<sup>73</sup> Despite these difficulties, the practice of HFT is here to stay. More cases will likely arise as this obscure area of securities law develops, especially if proposed rules are in fact adopted by regulators.<sup>74</sup> This section analyzes some of the prominent criminal and administrative cases that concern HFT practices.

### 1. “Marking the Close”

In what the SEC deemed the “First High Frequency Trading Manipulation Case,”<sup>75</sup> the SEC sanctioned Athena Capital Research, LLC, for “willfully violat[ing] Section 10(b) . . . and 10b-5” of the Securities Exchange Act of 1934.<sup>76</sup> The SEC’s investigation found that Athena used an algorithmic trading strategy to manipulate the closing price of stocks listed on the NASDAQ for a six-month period.<sup>77</sup> Athena’s trading strategy involved taking advantage of NASDAQ closing imbalance messages to accumulate positions in imbalanced stocks with the intention to exit the position at a better price than where it accumulated the shares.<sup>78</sup> Critical to Athena’s strategy was exiting all of its accumulated positions, also known as ending the day in a “flat” position.<sup>79</sup> The effect of Athena’s strategy was to dominate the market volume for particular stocks and consequently drive up the price of shares.<sup>80</sup> Significantly, Athena knew that its strategy would impact the price of stocks, especially during the latter accumulation phases of its strategy.<sup>81</sup> Essentially, by artificially impacting the prices of stocks at the end of the trading day, Athena engaged in fraudulent trading strategies.<sup>82</sup> Athena settled the SEC’s charges for \$1 million and neither

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<sup>73</sup> See *id.*; see also Harry Frischer et al., *Big Loss for Plaintiffs in High Frequency Trading Cases*, NAT’L L. REV. (Sep. 3, 2015), <http://www.natlawreview.com/article/big-loss-plaintiffs-high-frequency-trading-cases>.

<sup>74</sup> See *infra* Part III.C.

<sup>75</sup> SEC Charges New York-Based High Frequency Trading Firm with Fraudulent Trading to Manipulate Closing Prices, SEC. & EXCH. COMM’N, <http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370543184457> (last visited Dec. 15, 2015).

<sup>76</sup> *In re* Matter of Athena Capital Research, LLC, Exchange Act Release No. 73369, ¶ 55 (Oct. 16, 2014), <https://www.sec.gov/litigation/admin/2014/34-73369.pdf>.

<sup>77</sup> *Id.* at ¶ 1.

<sup>78</sup> *Id.* at ¶ 21.

<sup>79</sup> *Id.* at ¶¶ 23, 25.

<sup>80</sup> See *id.* at ¶¶ 29, 33.

<sup>81</sup> *Id.* at ¶¶ 36, 38.

<sup>82</sup> SEC Charges New York-Based High Frequency Trading Firm with Fraudulent Trading to Manipulate Closing Prices, *supra* note 75 (“Traders today

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admitted nor denied the SEC's findings.<sup>83</sup>

## 2. Layering

In *SEC v. Milrud*,<sup>84</sup> the SEC filed suit against Aleksandr Milrud for engaging in a “manipulative trading strategy known as ‘layering’ or ‘spoofing’.”<sup>85</sup> A layering scheme initially involves the placement of multiple orders that a trader intends to cancel before execution – for instance, an order to sell.<sup>86</sup> The trader at the same time of creating the non-bona fide (sell) order places a bona fide opposite (buy) order which the trader does intend to execute.<sup>87</sup> The non-bona fide (sell) order serves to deceive other market participants into believing that there is a sell interest in the security, causing them to execute sell orders against the trader's bona fide (buy) order at an artificially depressed price.<sup>88</sup> Once the (buy) position is established after this first round of layering, the trader will engage in a second round of layering on the opposite side of the market by placing a non-bona fide buy order and bona fide sell order.<sup>89</sup> This second round allows the trader to eliminate his established position from the first round of layering at an advantageous price and obtain illegal profits.<sup>90</sup> The SEC alleges that Milrud's layering strategy violated Sections 17(a)(1) and 17(a)(3) of the Securities Act of 1933,<sup>91</sup> Sections 9(a)(2) and 10(b) of the Securities Exchange Act of 1934,<sup>92</sup> and Rules 10b-5(a) and 10b-5(c)<sup>93</sup> promulgated thereunder.<sup>94</sup> The SEC intends to seek an order for Milrud to return his ill-gotten gains received as a result of the alleged misconduct and interest thereon, as well as pay civil penalties.<sup>95</sup>

In a separate action, the U.S. Attorney's Office filed criminal

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can certainly use complex algorithms and take advantage of cutting-edge technology, but what happened here was fraud...”).

<sup>83</sup> *Id.*

<sup>84</sup> Complaint, *SEC v. Milrud*, No. 2:15-cv-00237-KM-SCM, 2015 WL 154556 (D.N.J. Jan. 13, 2015).

<sup>85</sup> *Id.* at ¶ 1.

<sup>86</sup> *See id.*; Bill Singer, *Update: 1st Criminal Prosecution of Layering and Spoofing Hits HFT Sphere*, BROKEANDBROKER (Jan. 13, 2015), <http://www.brokeandbroker.com/2654/milrud-layering-spoofing/>.

<sup>87</sup> Complaint, *supra* note 84, at ¶ 1; Singer, *supra* note 86.

<sup>88</sup> *Id.* at ¶ 1.

<sup>89</sup> *Id.* at ¶ 22.

<sup>90</sup> *Id.*

<sup>91</sup> 15 U.S.C. §§ 77q(a)(1), 77(q)(a)(3).

<sup>92</sup> 15 U.S.C. §§ 78i(a)(2), 78j(b).

<sup>93</sup> 17 C.F.R. § 240.10b-5(a), (c) (2016).

<sup>94</sup> Complaint, *supra* note 84, at ¶ 4.

<sup>95</sup> *Id.* at ¶ 14.

charges against Milrud in the United States District Court in New Jersey.<sup>96</sup> The pertinent charge was conspiracy to commit “securities fraud” under Section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5 thereunder.<sup>97</sup> Milrud has pleaded guilty to the criminal charges.<sup>98</sup>

In another administrative proceeding, the SEC filed a cease-and-desist order against Joseph Dondero for violating Sections 9(a)(2) and 10(b) of the Securities Exchange Act and Rule 10b-5 promulgated thereunder.<sup>99</sup> According to the SEC’s order, Dondero obtained nearly \$1 million in ill-gotten profits from a layering scheme.<sup>100</sup> He subsequently agreed to settle the charges by paying more than \$1.9 million.<sup>101</sup>

Recently in *United States v. Coscia*,<sup>102</sup> a jury convicted defendant Michael Coscia of layering.<sup>103</sup> This was the U.S. government’s first criminal prosecution of layering.<sup>104</sup> The charges were brought under the anti-spoofing provision of the Commodities Exchange Act.<sup>105</sup>

### C. Proposed Rules and Regulations Addressing High Frequency Trading

Since the release of the Michael Lewis’ book *Flash Boys*,<sup>106</sup> HFT has been a topic of hot debate. The Department of Justice (“DOJ”), Federal Bureau of Investigation (“FBI”), the CFTC, the SEC, the New York Attorney General and the Massachusetts Secretary of Commerce are just some of the parties keenly interested in reviewing HFT practices

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<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> Ed Beeson, *Canadian High-Speed Trader Pleads Guilty In Spoofing Case*, LAW360 (Sep. 14, 2015, 5:23 PM), <http://www.law360.com/articles/702366/canadian-high-speed-trader-pleads-guilty-in-spoofing-case>.

<sup>99</sup> *In re Visionary Trading LLC*, Exchange Act Release No. 71871, 3 (Apr. 4, 2014), available at <https://www.sec.gov/litigation/admin/2014/34-71871.pdf>.

<sup>100</sup> *Id.*

<sup>101</sup> Sarah N. Lynch, *SEC Charges Trading Firm Owner, Others in 'Spoofing' Case*, REUTERS (Apr. 4, 2014, 2:26 PM), <http://www.reuters.com/article/2014/04/04/us-sec-enforcement-spoofing-idUSBREA331DD20140404>.

<sup>102</sup> *United States v. Coscia*, 100 F. Supp. 3d 653, 655 (N.D. Ill. 2015).

<sup>103</sup> Tom Polansek, *Update 3-High-Frequency Trader Convicted in First U.S. Spoofing Case*, REUTERS (Nov. 3, 2015, 9:32 PM), <http://www.reuters.com/article/2015/11/04/court-spoofing-verdict-idUSL1N12Y3OI20151104>.

<sup>104</sup> *Id.*

<sup>105</sup> 7 U.S.C. § 6c(a)(5)(C) (2014).

<sup>106</sup> MICHAEL LEWIS, FLASH BOYS: A WALL STREET REVOLT (2014).

and strategies.<sup>107</sup> HFT has also sparked congressional interest from several legislators and congressional committees.<sup>108</sup> Even U.S. presidential candidate Hillary Clinton incorporated taking action against HFT into her political campaign.<sup>109</sup> The concerns caused by HFT and the call for regulatory reforms have become prominent on a global scale.<sup>110</sup> This section explores and analyzes some of the proposed and contemplated regulations aimed at curtailing HFT practices.

**Order Cancellation Fees.** The imposition of charges or fees for excessive order cancellations may curtail HFT firms from placing orders that they do not plan to execute and as a result discourage manipulative practices like layering.<sup>111</sup> However, dissenters claim that order cancellation fees will have negative consequences such as lowering market liquidity.<sup>112</sup> Moreover, regulators and lawmakers will likely face difficulty establishing precisely what amount of order cancellations should be deemed “excessive.” Such a regulation may also be over inclusive and target traders who have a bona fide reason for cancelling their orders.

**Minimum Order Exposure Times.** Proponents of minimum order exposure times would require that orders which have been submitted may not be canceled until a certain amount of time has elapsed.<sup>113</sup>

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<sup>107</sup> Gary Shorter & Rena S. Miller, *High-Frequency Trading: Background, Concerns, and Regulatory Developments*, Congressional Research Service, at 2 (Jun. 19, 2014), <https://www.fas.org/sgp/crs/misc/R43608.pdf>.

<sup>108</sup> *Id.* at 1.

<sup>109</sup> *Clinton to Propose Tax on High-Frequency Trading*, CNBC (Oct. 7, 2015, 10:45 PM), <http://www.cnbc.com/2015/10/07/hillar-clinton-to-propose-tax-on-high-frequency-trading-in-wall-st-reform.html>.

<sup>110</sup> Maureen Stapleton, *Laws and regulators need get up to speed with high-frequency trading technology, panelists say*, ABA JOURNAL (Jun. 12, 2015, 2:50 PM), [http://www.abajournal.com/news/article/laws\\_and\\_regulators\\_need\\_get\\_up\\_to\\_speed\\_with\\_high-frequency\\_trading\\_techno](http://www.abajournal.com/news/article/laws_and_regulators_need_get_up_to_speed_with_high-frequency_trading_techno); *see also* Shorter & Miller, *supra* note 100, at 33 (discussing European Union HFT regulations).

<sup>111</sup> Shorter & Miller, *supra* note 107, at 34; *see also supra* Part III.B.2 (discussing the manipulative trading strategy of layering).

<sup>112</sup> Charles M. Jones, *What do we know about high-frequency trading?*, COLUMBIA BUSINESS SCHOOL at 2 (Mar. 20, 2013), <https://poseidon01.ssrn.com/delivery.php?ID=621088068104090080118125109119093106036027002004054026093006108094086092103119097112126054119097105100002113089090119022067122008022042062050092104104091069121029047015124070103009006071029096007006075029031029028005007073116080121079064065118000&EXT=pdf>.

<sup>113</sup> Shorter & Miller, *supra* note 107, at 34.

Current SEC Chair Mary Jo White has been a proponent of the imposition of such minimum exposure times.<sup>114</sup> Proponents claim that such a requirement would curtail a high volume of cancelled orders by HFT firms and thereby hamper manipulative practices such as layering in the same way that order cancellation fees would.<sup>115</sup> However, determining the threshold amount of time that can elapse before order cancellations are allowed may be challenging. Determining the threshold amount is also crucial to the effectiveness of such a proposal. If the order exposure time is too long it may do more harm than good. For example, it may “severely” discourage liquidity in markets.<sup>116</sup> Also, this proposed regulation may be over inclusive and negatively impact traders who are not engaging in manipulative or deceptive practices. After all, there may be justifiable reasons for firms to cancel orders before the elapsing of the required minimum exposure time. For example, market sentiment may change shortly after a firm places an order, causing it to want to cancel its order to limit its downside potential.

**A Transaction Tax.** Some critics have elaborated upon the idea of imposing a tax on HFT transactions as a way of curtailing any negative effects HFT may cause.<sup>117</sup> As mentioned earlier, Hillary Clinton is a proponent of such taxing scheme.<sup>118</sup> Several U.S. congressmen have even introduced bills proposing some form of taxation on trades of securities.<sup>119</sup> Revenue collected by taxing HFT could be used to “reduce the budget deficit [or] . . . pay for needed public spending without unduly burdening individual investors.”<sup>120</sup> The tax itself may curtail manipulative HFT practices and reduce market volatility.<sup>121</sup> However, a HFT transaction tax may nevertheless “reduce share prices, increase volatility, reduce price efficiency, worsen liquidity, increase trading costs, and cause trading to move offshore.”<sup>122</sup> Moreover, the

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<sup>114</sup> Mary Jo White, Chair, Sec. & Exch. Comm., Global Exchange and Brokerage Conference: Enhancing Our Equity Market Structure (Jun. 5, 2014), <http://www.sec.gov/News/Speech/Detail/Speech/1370542004312>.

<sup>115</sup> Shorter & Miller, *supra* note 107, at 34.

<sup>116</sup> Jones, *supra* note 112, at 3.

<sup>117</sup> Shorter & Miller, *supra* note 107, at 35.

<sup>118</sup> *Clinton to Propose Tax on High-Frequency Trading*, *supra* note 109. Several critics have responded harshly to Clinton’s proposals. See Bradley Hope, *Critics Push Back at Clinton Tax Proposal Targeting High-Frequency Traders*, WALL ST. J. (Oct. 8, 2015, 4:41 PM), <http://www.wsj.com/articles/critics-push-back-at-clinton-tax-proposal-targeting-high-frequency-traders-1444328022>.

<sup>119</sup> See Shorter & Miller, *supra* note 107, at 36.

<sup>120</sup> *Id.*

<sup>121</sup> *Id.*

<sup>122</sup> Jones, *supra* note 112, at 3.

idea that individual investors would not be hampered by such a tax is illusory. Individual investors at times rely on large institutional traders (some of which use HFT strategies and tools) to manage their money and make trades on their behalf; this is essentially what pension fund and other retirement fund account managers do. In the end, the effects of a transactional tax on trading are “uncertain” at best.<sup>123</sup>

**Registration with FINRA.** In what appears to be its first step in an effort to curtail any hampering effects of HFT, the SEC unanimously agreed to propose a rule amendment requiring algorithmic trading firms to register with the Financial Regulatory Authority (FINRA).<sup>124</sup> Currently, FINRA is the sole organization responsible for regulating “off-exchange”<sup>125</sup> trading.<sup>126</sup> Specifically, the amendment would limit an exemption that under current law allows certain proprietary traders to engage in off-exchange trading without registering with FINRA.<sup>127</sup>

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<sup>123</sup> See Shorter & Miller, *supra* note 107, at 36.

<sup>124</sup> Andrew Ackerman, *SEC Rules Would Boost Oversight of High-Frequency Firms*, WALL ST. J. (Mar. 26, 2015, 11:16 AM), <http://www.wsj.com/articles/sec-completes-startup-stock-sale-rules-1427303817>.

<sup>125</sup> Anastasia T. Rockas, *The SEC Proposes FINRA Regulation for High-Frequency Traders*, SKADDEN, ARPS, SLATE, MEAGHER & FLOM LLP (May 22, 2015), <https://www.skadden.com/insights/sec-proposes-finra-regulation-for-high-frequency-traders> (“‘Off-exchange’ trading refers to transactions that occur on ATSS and directly with a broker-dealer, acting either as agent or principal (i.e., over-the-counter (“OTC”) trading). The term ‘off-exchange activity,’ does not refer to transactions that are not listed on a national securities exchange.”).

<sup>126</sup> *Id.*

<sup>127</sup> *SEC Proposes Rule to Require Broker-Dealers Active in Off-Exchange Market to Become Members of National Securities Association*, SEC. & EXCH. COMM. (Mar. 25, 2015), <http://www.sec.gov/news/pressrelease/2015-48.html>.

The proposed amendments to Rule 15b9-1 under the Exchange Act would narrow an exemption that currently exempts certain brokers-dealers from membership in a national securities association if they are a member of a national securities exchange, carry no customer accounts, and have annual gross income of no more than \$1,000 that is derived from securities transactions effected otherwise than on a national securities exchange of which they are a member. Income derived from proprietary trading conducted with or through another broker-dealer does not count against the \$1,000 limit. The exemption originally was designed to accommodate exchange specialists and other floor members that might need to conduct limited hedging or other off-exchange activities ancillary to their floor-based business. Over time, the markets have undergone a substantial transformation, including the emergence of active cross-market proprietary trading firms, many of which engage in so-called high-frequency trading strategies. Although the business of these firms may not be focused

According to SEC officials, the regulatory change may increase regulators' ability to supervise the market for fraudulent and manipulative activities.<sup>128</sup> The proposed rule would require about 125 proprietary trading firms, some of which are HFT firms, to register with FINRA.<sup>129</sup> Registration with FINRA would subject HFT firms to FINRA's off-exchange market regime. FINRA (i) requires that all off-exchange trades be reported to it via its trade reporting facilities ("TRFs"), (ii) maintains a regulatory audit trail ("OATS"), which provides regulatory data on orders, quotes, routes, cancellations and executions, (iii) maintains surveillance technology and specialized regulatory personnel to provide surveillance, supervision and enforcement of activity occurring off-exchange, and (iv) maintains a detailed set of member conduct rules, which apply to all activities of a member firm, regardless of whether the activities are on or off-exchange.<sup>130</sup> FINRA registration would subject HFT firms to a plethora of new obligations and associated costs.<sup>131</sup> Unfortunately, according to securities experts, the proposed amendment may not significantly improve oversight of HFT because some HFT firms are already registered with FINRA.<sup>132</sup>

#### **IV. THE EFFECTS OF STRATEGIES AND TOOLS USED IN HIGH FREQUENCY TRADING**

In light of the substantial background information provided in Parts II and III, this Part seeks to scrutinize the pros and cons of HFT by analyzing the specific effects of strategies and tools utilized in HFT. In particular, this Part will focus on the importance that maintaining market efficiency plays in our markets and in protecting investors.

##### **A. Positive Financial Implications of High Frequency Trading**

Despite the public outcry for regulatory reform regarding HFT,

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on an exchange floor, and they may be responsible for a substantial percentage of the trading volume in the off-exchange market, many are not members of a national securities association because they have been able to rely on the broad proprietary trading exemption in Rule 15b9-1.

*Id.*

<sup>128</sup> Ackerman, *supra* note 124.

<sup>129</sup> *Id.*

<sup>130</sup> Rockas, *supra* note 125.

<sup>131</sup> *Id.*

<sup>132</sup> Ackerman, *supra* note 124.

commentators argue that HFT may be beneficial to capital markets. One potential benefit of HFT is that it adds liquidity to markets.<sup>133</sup> Liquidity is perhaps the most important characteristic that investors appreciate in a market because it gives them the opportunity to dispose of or acquire securities whenever there is price movement.<sup>134</sup> Liquidity “act[s] as a sort of shock absorber, smoothing out the sharp swings that might result if panicky sellers can’t find buyers or desperate buyers can’t find sellers.”<sup>135</sup> Thanks to the speed at which high frequency trades are executed, due in part to co-location, intermediaries between buyers and sellers of securities are more willing to assume the risk of buying securities (and in the process increase trading volume), hoping to sell them at a profit.<sup>136</sup> Accordingly, this increase in trading volume and liquidity has improved the important practice of market making.<sup>137</sup>

However, market making strategies employed by HFT firms must be observed cautiously because in some situations the multiple bids and offers placed by HFT firms lead to a large amount of orders and high cancellation rates.<sup>138</sup> Thus, rather than simply providing liquidity to the market, HFT firms may be engaging in the manipulative act of layering.<sup>139</sup> Another concern caused by market making strategies involves the manipulative practice of ping-pong.<sup>140</sup> But ping-pong strategies are not necessarily always manipulative, and HFT firms engage in such practices for reasonable purposes such as chasing momentum in stocks.<sup>141</sup>

In addition, some commentators have claimed that “the most dramatic benefit that investors have reaped over the past ten years in conjunction with HFT is the lower cost reflected in executing a

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<sup>133</sup> McGowan, *supra* note 7, at ¶ 2.

<sup>134</sup> Christopher Whittall, *ECB’s Coeuré: Volatility Signals Reduced Market Liquidity*, WALL ST. J. (May 19, 2015, 1:57 PM), <http://www.wsj.com/articles/ecbs-coeuré-volatility-signals-reduced-market-liquidity-1432058272>.

<sup>135</sup> *Id.*; see also Simon Nixon, *Why Liquidity-Starved Markets Fear the Worst*, WALL ST. J. (May 20, 2015, 4:30 PM), <http://www.wsj.com/articles/why-liquidity-starved-markets-fear-the-worst-1432153849>.

<sup>136</sup> Burton Malkiel, *High-Frequency Trading Benefits both Large and Small Investors*, FINANCIAL TIMES (Dec. 15, 2009, 2:00 AM), <http://www.ft.com/cms/s/0/33881656-e918-11de-a756-00144feab49a.html#axzz3uK78ab8B>.

<sup>137</sup> See *supra* Part II.B.

<sup>138</sup> Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3607 (Jan. 21, 2010), <https://www.sec.gov/rules/concept/2010/34-61358fr.pdf>; see *supra* Part II.B.

<sup>139</sup> See *supra* Part III.B.2.

<sup>140</sup> See *supra* Part II.B.

<sup>141</sup> Jiangmin Xu, *Optimal Strategies of High Frequency Traders* 1, 35, [https://scholar.princeton.edu/sites/default/files/JiangminXu\\_JobMarketPaper\\_Revision\\_0.pdf](https://scholar.princeton.edu/sites/default/files/JiangminXu_JobMarketPaper_Revision_0.pdf) (last visited Dec. 15, 2015).

trade.”<sup>142</sup> Transaction costs over the past decade have dropped by about 50%.<sup>143</sup> The benefits of lower transactional costs are not reaped solely by large institutional investors; small retail investors benefit from these lower costs as well.<sup>144</sup>

Consequently, due to the reduction in transaction costs, share prices are higher today than they would be without the advent of HFT.<sup>145</sup> This is particularly beneficial to long-term investors who do not trade in and out of positions but rather hold positions for longer periods of time.<sup>146</sup> Higher share prices are also important to corporations because the higher the value of a corporation’s equity, the lower its cost of equity capital is likely to be.<sup>147</sup> With a lower cost of equity capital, corporations are likely to invest more and spark economic activity, resulting in an increase in gross domestic product and improving the national economy.<sup>148</sup>

## B. Positive Legal Implications of High Frequency Trading

Several commentators have claimed that HFT improves market efficiency.<sup>149</sup> For instance, arbitrage strategies “close gaps across markets” and allow prices to “reflect information quickly” by creating efficient markets.<sup>150</sup> Market efficiency is important to the sustainability and overall structure of securities markets. Additionally, market efficiency is particularly important for investors, especially small retail investors.

Market efficiency is extremely important in maintaining certain securities laws effective and useful. For instance, perhaps the most significant protection afforded to investors is SEC Rule 10b-5,<sup>151</sup> promulgated by the SEC under Section 10(b)<sup>152</sup> of the Securities and Exchange Act of 1934. Section 10(b) hosts a broad antifraud provision

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<sup>142</sup> Nathan D. Brown, *The Rise of High Frequency Trading: The Role Algorithms, and the Lack of Regulations, Play in Today’s Stock Market*, 11 APPALACHIAN J.L. 209, 219 (2012).

<sup>143</sup> Malkiel, *supra* note 136.

<sup>144</sup> Brown, *supra* note 142, at 220.

<sup>145</sup> Jones, *supra* note 112, at 51.

<sup>146</sup> *Id.*

<sup>147</sup> *Id.*

<sup>148</sup> *Id.*

<sup>149</sup> *The Impact of High-frequency Trading: Manipulation, Distortion or a Better-functioning Market?*, WHARTON UNIV. OF PA. (Sept. 30, 2009), <http://knowledge.wharton.upenn.edu/article/the-impact-of-high-frequency-trading-manipulation-distortion-or-a-better-functioning-market/>.

<sup>150</sup> Malkiel, *supra* note 136.

<sup>151</sup> 17 C.F.R. § 240.10b-5 (2016).

<sup>152</sup> 15 U.S.C.S. § 78j (2014).

aimed at preventing any manipulative or deceptive acts in connection with the purchase or sale of securities.<sup>153</sup> Likewise, Rule 10b-5 prohibits the employment of manipulative and deceptive devices in connection with the purchase or sale of any security.<sup>154</sup> Rule 10b-5 also makes it unlawful “[t]o make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading” in connection with the purchase or sale of any security.<sup>155</sup> Due to the broad reach of Rule 10b-5’s language, it has been applied in a variety of factual contexts.<sup>156</sup> Actions under Rule 10b-5 have been brought for insider trading, against individuals receiving nonpublic information from insiders, and for material misstatements or omissions made to the investing public.<sup>157</sup>

Particularly significant is the availability of purchasers or sellers of a security to have a civil private right of action under Section 10(b).<sup>158</sup> This right allows ordinary investors to directly enforce Rule 10b-5, as opposed to waiting for the SEC to bring a civil enforcement proceeding or the DOJ to bring a criminal prosecution against violators.<sup>159</sup> To prevail on a claim under Rule 10b-5, a plaintiff must establish several fundamental elements.<sup>160</sup> First, the plaintiff must have been an actual purchaser or seller of a security.<sup>161</sup> Second, the alleged action must have involved a misstatement or omission.<sup>162</sup> Third, the misstatement or omission must have been material.<sup>163</sup> Fourth, the defendant’s misstatement or omission must be committed with scienter.<sup>164</sup> Fifth, the plaintiff must have relied on the material misstatement or omission.<sup>165</sup> Finally, the plaintiff’s reliance on the material misstatement or omission

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<sup>153</sup> *Id.* at § 78j(b).

<sup>154</sup> 17 C.F.R. § 240.10b-5 (2016).

<sup>155</sup> *Id.*

<sup>156</sup> STUART R. COHN, *SECURITIES COUNSELING FOR SMALL AND EMERGING COMPANIES* § 20:14 (2016-2017 ed.).

<sup>157</sup> *Id.* at § 20:14, 20:15.

<sup>158</sup> *See* Superintendent of Ins. of N.Y. v. Bankers Life & Cas. Co., 92 S.Ct. 165, 169 n.9 (1971) (establishing that a private right of action is “implied” under Section 10(b) of the Securities Exchange Act of 1934).

<sup>159</sup> Brenda Hamilton, *SEC Rule 10b-5*, SEC. LAW. 101 (Feb. 24, 2013), <https://www.securitieslawyer101.com/2013/rule-10b-5/>.

<sup>160</sup> Keith A. Rowley, *Cause of Action for Securities Fraud Under Section 10(B) of the 1934 Securities Exchange Act and/or Rule 10B-5*, in 9 *CAUSES OF ACTION* 271, 301 (Colleen C. Courtade ed., 2d ed. 1997).

<sup>161</sup> *Id.*

<sup>162</sup> *Id.*

<sup>163</sup> *Id.*

<sup>164</sup> *Id.*

<sup>165</sup> *Id.*

must have been the proximate cause of the plaintiff's economic loss.<sup>166</sup>

Despite the overwhelming burden placed on plaintiffs to establish a prima facie case under Rule 10b-5, case law has eroded away some of these difficulties. Consider the element of reliance. In *Basic Inc. v. Levinson*, the Supreme Court explicitly adopted a rebuttable presumption of reliance supported by the fraud-on-the-market theory.<sup>167</sup> In effect, since the *Basic* decision, plaintiffs no longer need to prove that they were aware of any misstatements or omissions in order to prove reliance,<sup>168</sup> nor do plaintiffs need to prove that as a cause of hearing (or reading) such misstatements or omissions they decided to sell or purchase their securities.<sup>169</sup> After the adoption of the fraud-on-the-market theory, an investor who did not read or hear about the misstatement or omission could nevertheless establish the element of reliance.<sup>170</sup> As described by the Court in *Basic*:

[t]he fraud on the market theory is based on the hypothesis that, in an open and developed securities market, the price of a company's stock is determined by the available material information regarding the company and its business.... Misleading statements will therefore defraud purchasers of stock even if the purchasers do not directly rely on the misstatements.... The causal connection between the defendants' fraud and the plaintiffs' purchase of stock in such a case is no less significant than in a case of direct reliance on misrepresentations.<sup>171</sup>

Despite the Court's endorsement of the theory, it made sure to disclaim that it was not in a position to assess the validity of the fraud-on-the-market theory.<sup>172</sup>

The Court in *Basic* did however carefully note that the "Court of Appeals found that petitioners 'made public, material misrepresentations and [respondents] sold Basic stock in an impersonal, efficient market.'"<sup>173</sup> The presence of an efficient market is what is

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<sup>166</sup> *Id.*

<sup>167</sup> *Basic Inc. v. Levinson*, 485 U.S. 224, 250 (1988).

<sup>168</sup> COHN, *supra* note 156, at § 19:8.

<sup>169</sup> *Id.*

<sup>170</sup> *Id.*

<sup>171</sup> *Basic*, 485 U.S. at 241–42 (quoting *Peil v. Speiser*, 806 F.2d 1154, 1160–61 (3d Cir. 1986)).

<sup>172</sup> *Id.* at 242.

<sup>173</sup> *Id.* at 248.

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critical here, as it is the crux of the fraud-on-the market theory.<sup>174</sup> Courts have expressly based their acceptance of the fraud-on-the-market theory “not on the legislative history of the securities laws but rather on academic support for the efficient [capital] markets hypothesis.”<sup>175</sup>

Accordingly, if HFT does in fact make markets more efficient, then curtailing or hampering HFT practices in any way may undermine the efficient capital markets hypothesis, which is exactly what the fraud-on-the market theory relies upon to establish reliance for plaintiffs bringing claims under Rule 10b-5. In other words, market efficiency is important to afford our investors legal protection.

### C. Negative Implications of High Frequency Trading

Despite the significant benefits that HFT appears to bring to the table, there are claimed negative effects of HFT. The primary concern that investors fear with HFT is that it may lead to increased volatility.<sup>176</sup> Due to the fact that HFT is a form of algorithmic trading, a situation may be created where a predatory algorithm can lock in a profit for a proprietary firm from an artificial increase or decrease in price.<sup>177</sup> This can cause a stock to move a substantial amount without any tangible rationale.<sup>178</sup> As a result, a trader may lose a substantial amount of money due to the stock’s movement. However, volatility is more of a concern for short-term investors because long-term investors do not suffer any permanent losses as a result of market volatility.<sup>179</sup> Nevertheless, securities regulators already have precautions in place such as trading halts and kill switches in order to prevent volatile market episodes.<sup>180</sup>

## V. CONCLUSION

Considering existing regulations, such as SEC Rule 10b-5, aimed at preventing manipulative and deceptive practices regarding the sale or

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<sup>174</sup> Daniel R. Fischel, *Efficient Capital Markets, the Crash, and the Fraud on the Market Theory*, 74 CORNELL L. REV. 907, 907 (1989).

<sup>175</sup> *Id.*

<sup>176</sup> McGowan, *supra* note 7, at ¶ 45.

<sup>177</sup> *Id.*

<sup>178</sup> *Id.* at ¶ 45.

<sup>179</sup> See generally Kenny Yang, *Volatility + Fear Is a Good Combination for Long-Term Investors*, GURUFOCUS (Aug. 25, 2015), <http://www.gurufocus.com/news/355889/volatility--fear-is-a-good-combination-for-longterm-investors>.

<sup>180</sup> See generally Jones, *supra* note 112, at 38, 40.

exchange of securities and the overwhelming number of positive consequences of HFT compared with its negative consequences, the need for any drastic regulatory overhaul targeting HFT is unnecessary. The benefits of market efficiency and cheaper trading costs that institutional and retail investors reap due to HFT should not be overlooked and hampered by proposals like transactional taxes or order cancellation fees.

Moreover, it is important to consider that many of the trading strategies utilized by HFT firms are not new.<sup>181</sup> The only thing that HFT has introduced is newer technology that allows HFT firms to carry out trading strategies in a more effective manner.<sup>182</sup> In other words, HFT simply allows traders to do what they have been doing for years; it just so happens that now it occurs much faster than before. As former SEC Chairman Arthur Levitt said, “[w]e should not set a speed limit to slow everyone down to the pace set by those unwilling or unable to compete.”<sup>183</sup>

Rather than pass new regulations targeting HFT like other countries have done, U.S. regulators should focus on spotting when deceptive or manipulative practices are taking place and apply the general securities regulations currently in force to charge violators. Essentially, “illegal HFT” simply boils down to deceptive and manipulative practices that are being carried out in a new, faster way. This is what the SEC has been doing with cases involving layering schemes. The SEC’s proposal to require algorithmic trading firms, including HFT firms, to register with FINRA appears to be a first step to improve oversight. However, it is uncertain whether that is enough to locate traders engaging in illegal trades. All in all, regulators such as the SEC, are in charge of “protect[ing] investors, maintain[ing] fair, orderly, and efficient markets, and facilitat[ing] capital formation.”<sup>184</sup> The balancing of these interests is critical, and only time will tell whether the current proposals will improve the SEC’s directives or instead whether a different regulatory body should be created or charged with the oversight. Nonetheless, one thing is clear: more regulations are not the answer to deceptive and manipulative practices, and instead oversight and case law development is the proper course of action.

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<sup>181</sup> For example, previous Concept Releases published by the SEC to solicit the public’s views on securities issues have contained many of the same HFT strategies discussed throughout the article. *See e.g.*, Concept Release on Equity Market Structure, 75 Fed. Reg. 3594, 3607 (proposed Jan. 21, 2010), <https://www.sec.gov/rules/concept/conceptarchive/conceptarch2010.shtml>.

<sup>182</sup> *See id.* at 3594, 3599, 3602, and 3611–14.

<sup>183</sup> Malkiel, *supra* note 136.

<sup>184</sup> *About – What We Do*, SEC. & EXCH. COMM’N, <http://www.sec.gov/about/whatwedo.shtml> (last modified June 10, 2013).

