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## Insider Information and the Limits of Insider Trading

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## Insider Information and the Limits of Insider Trading

Yesha Yadav<sup>\*</sup>

### INTRODUCTION

In recent years, the prohibition against insider trading has experienced intense scrutiny in the courts, with the Second and Ninth Circuits—and eventually the United States Supreme Court—engaging in heated debate on the logic and limits of the law.<sup>1</sup> Unsurprisingly, given the subject matter of the cases, commentary has focused on how broadly the law should apply to liability for tipping and trading on corporate secrets.<sup>2</sup> Just as the Securities and Exchange Commission (“SEC”) and federal prosecutors were hitting their stride in pursuing a slew of high-profile, headline-grabbing cases, the decision of the Second Circuit in *U.S. v. Newman* unexpectedly tightened what kinds of relationships and transactions could give rise to liability.<sup>3</sup> Authorities could no longer go after tipping between friends and family without first having to show that the tipper received a meaningful personal benefit for the information and the tippee knew of this bargain—a burden that previously had not bothered prosecutors too much as the law had allowed them to simply assume such a benefit in close relationships.<sup>4</sup> After *Newman*, tippers and tippees down the chain of shared confidences found themselves much less likely to be caught by the heightened evidentiary standards of what counted as an offense. The Ninth Circuit’s decision in *U.S. v. Salman*, largely upheld by the Supreme Court, has reversed most of the heightened fact-finding requirements introduced by *Newman*.<sup>5</sup> This back-and-forth between the

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1. *Salman v. United States*, 137 S. Ct. 420 (2016); *United States v. Newman*, 773 F.3d 438, 452 (2d Cir. 2014), *cert. denied*, 136 S. Ct. 242 (2015); *United States v. Salman*, 792 F.3d 1087 (9th Cir. 2015), *cert. granted*, 136 S. Ct. 899 (2016).

2. See e.g., Donna M. Nagy, *Salman v. United States: Insider Trading’s Tipping Point?*, 69 STAN. L. REV. ONLINE 28 (2016).

3. Amy, Kristen Bartlett et al., *The Ripple Effects of U.S. v. Newman Continue: SEC Lifts Administrative Bar on Downstream Insider Trading Tippee and Tipper Requests that Third Circuit Vacate SEC Settlement*, ORRICK BLOGS (Mar. 2, 2016), <https://blogs.orrick.com/securities-litigation/2016/03/02/the-ripple-effects-of-u-s-v-newman-continue-sec-lifts-administrative-bar-on-downstream-insider-trading-tippee-and-tipper-requests-that-third-circuit-vacate-sec-settlement/>.

4. *Newman*, 773 F.3d at 452-53.

5. *Salman*, 137 S. Ct. 420; *U.S. v. Salman*, 792 F.3d 1087, 1093 (9th Cir. 2015); Jon Eisenberg, *Insider Trading Law After Salman*, HARV. L. SCH. F. ON CORP. GOVERNANCE & FIN. REG. (Jan. 18

circuits, however, is still telling. It points to a deeper uncertainty about the policy goals of the law and how information flows can reasonably be regulated within an innovative, complex securities marketplace.

This essay offers brief observations on the internal coherence of the rationales underlying the prohibition against insider trading, taking the opportunity offered by *Newman* and *Salman* to reflect on its central policy aims. I do not discuss these cases specifically, or what a resolution by the Supreme Court might mean for the future of insider trading. Scholars and commentators have thoughtfully critiqued *Newman* alongside the doctrinal whiplash that has followed in its wake.<sup>6</sup> Rather, I take this opportunity to look under the hood of securities trading to examine information flows within the mechanisms by which securities are bought and sold. I argue that the design of modern markets—and the allocation of informational access it institutionalizes—entrenches the place of a cohort of actors that systematically enjoy first sight of information coming from exchanges and the ability to react to and change prices before others on the “outside” can get a look. I have termed this select group of traders “structural insiders.” Securities trading has come to be dominated by high-speed traders buying and selling securities in milli-and-micro-seconds.<sup>7</sup> In order to achieve velocity, these traders need to be able to: (i) locate themselves (meaning, their computer servers) as close as possible to the exchange’s trading floor (meaning, the exchange’s computer servers); (ii) quickly receive information from exchange servers to their own; and (iii) be able to reply automatically to new information from exchanges without waiting for human beings to first read and analyze this data. These three features—close location (co-location) with exchange servers, information feeds between exchanges and traders, and automated response to new

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2017), <https://corpgov.law.harvard.edu/2017/01/18/insider-trading-law-after-salman/>.

6. Jill E. Fisch, *Family Ties: Salman and the Scope of Insider Trading*, 69 STAN. L. REV. ONLINE 46, 48-50 (2016); Nagy, *supra* note 2; Jonathan R. Macey, *The Genius of the Personal Benefit Test*, 69 STAN. L. REV. ONLINE 64, 69 (2016); A.C. Pritchard, *The SEC, Administrative Usurpation, and Insider Trading*, 69 STAN. L. REV. ONLINE 55, 57-60 (2016); Donald C. Langevoort, *Informational Cronyism*, 69 STAN. L. REV. ONLINE 37, 38-40 (2016).

7. See e.g., Matthew Baron et al., *Risk and Return in High-Frequency Trading*, J. FIN. & QUANTITATIVE ANALYSIS (forthcoming), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=24331](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=24331); and U.S. Sec. & Exch. Comm’n, *Equity Market Structure Literature Review Part II: High Frequency Trading* 3-5 (2014), [https://www.sec.gov/marketstructure/research/hft\\_lit\\_review\\_march\\_2014.pdf](https://www.sec.gov/marketstructure/research/hft_lit_review_march_2014.pdf)

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information—give high-speed traders a structural head start in receiving information on the state of the market, responding to it and impacting prices before those lacking these means can see this information and trade on it. In other words, because structural insiders are the first to see and trade on new data, those on the outside are forced to transact on stale information and old prices.<sup>8</sup>

As I argue in my Article, *Insider Trading and Market Structure*, the emergence of structural insider trading in securities markets tests the conceptual bounds of the law and policy of corporate insider trading.<sup>9</sup> A structural informational advantage for a specialist group of traders creates cost-benefit trade-offs that appear analogous to those seen in the more familiar context of corporate insider trading. And yet, structural insider trading is not only perfectly legal but also widely regarded by policymakers as essential to maintaining market function and, on some measures, to improving how markets perform.

To be clear, I do not wish to suggest that high-speed trading—and the structural design that enables it—is or ought to be considered illegal by bringing the weight of the prohibition to bear on the mechanics of how securities are traded. Nor do I wish to imply that there is something nefarious about structural insider trading that should merit urgent attention from lawmakers. Rather, the goal of this research is twofold. First, it draws into relief the differential allocation of informational rights and privileges within securities markets. In other words, even though the trade-offs of trading on confidential corporate information or not-fully-public exchange data may be similar, the law applies differently to control use of such information for trading. Secondly, if this project has a normative aim, it lies in advocating that regulators outline a sharper vision of what counts as a harmful and unfair allocation of informational privileges—in other words, clarifying what should fall within the prohibition against insider trading and why. Should confidential, corporate information merit different legal treatment than data from exchanges and trading venues that is not-fully-public? If confidential corporate information is different, then why? And, to the extent that policymakers are comfortable with imposing a different legal regime for confidential corporate information versus

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8. Yesha Yadav, *Insider Trading and Market Structure*, 63 UCLA L. REV. 968, 992-1002 (2016).

9. *Id.*

trading data, how should the law respond to future technologies that also push the limits and traders that seek out opportunities to arbitrage between different legal regimes relating to confidential or restricted information?<sup>10</sup>

### I. WHY WE REGULATE TRADING ON INSIDER INFORMATION

With insider trading long the subject of splashy headlines, thrilling exposes, and prime-time television shows, its place as a pillar of the regulatory canon might well be taken for granted.<sup>11</sup> But, this has not always been the case. Rather than deriving from statute with express congressional mandate, the prohibition against insider trading has grown out of the courts and the SEC, its parameters elaborated over time by judges and administrative regulation.<sup>12</sup> In the absence of a special statute to prevent insider trading, jurisprudence anchors the prohibition in the general anti-fraud provision of Section 10b of the Securities Act 1934 and its Rule 10b-5.<sup>13</sup> That the scope of the offense has developed incrementally can be seen in the evolving explanatory accounts used to justify protecting confidential, corporate information.<sup>14</sup>

In the classic sense, the prohibition against insider trading looks to protect shareholders from being confidently, consistently out-gunned by better-informed directors and managers. Corporate officers, with close access to confidential information, can always beat shareholders of a company to the most profitable trades in the company's securities. On account of their proximity to confidential information, managers can derive systematic rents from the bare fact of their position, rather than any

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10. See also, Yesha Yadav, *Insider Trading in Derivatives Markets*, 103 GEO. L. J. 381 (2015) (examining the use of corporate insider information by banks to transact in credit default swaps).

11. See e.g., Andrew Ross Sorkin, *An Insider Trading Tale That Reads Like a Thriller*, N.Y. TIMES (Feb. 7, 2017), <https://www.nytimes.com/2017/02/07/books/review/black-edge-sheelah-kolhatkar.html>; and Ethan Wolff-Mann, *Watch the New Trailer for Showtime's Insider Trading Drama 'Billions'*, TIME.COM (Aug. 12, 2015), <http://time.com/money/3994583/showtimes-billions-insider-trading-giam-atti-damian-lewis-wall-street-series/>

12. *In re Cady, Roberts & Co.*, 40 S.E.C. 907, 912 (1961); *In re Merrill Lynch*, 43 S.E.C. 933, 936-40 (1968); *SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833, 848-50 (2d Cir. 1968), *rev'd on other grounds*, 446 F.2d 1301 (2d Cir. 1971).

13. *In re Cady, Roberts & Co.*, 40 S.E.C. at 912; Donald C. Langevoort, "Fine Distinctions" in the *Contemporary Law of Insider Trading*, COLUM. BUS. L. REV. 429, 431-35 (2013) (describing the role of Rule 10b-5 as the basis for the prohibition).

14. See Langevoort, *supra* note 13 (noting the differing grounds offered for the prohibition).

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special skill in trading or analyzing a company's future prospects. Shareholders always lose; insider-managers always win.<sup>15</sup> Knowing that they cannot beat insider managers, rational shareholders will be wary of entering the market, or at least reduce the amount of capital they contribute to account for the likelihood of loss. From the standpoint of market quality, if shareholders engage in this kind of discounting, capital markets will be poorer, leaving public companies to face higher capital costs when trying to raise money.<sup>16</sup>

Another key reason for the prohibition is also grounded in this policy concern. Under *Cady Roberts*, corporate officers in a fiduciary position to their shareholders must disclose their plans to trade on confidential information, or face a prohibition on trading. The law works to impose restrictions on corporate insiders as a way to level the playing field between shareholders and corporate insiders with access to confidential information. By imposing costs on corporate insiders, the law limits the possibility of shareholder suffering systematic losses and markets suffering from resulting economic harm as capital allocation is impacted in securities markets.

The classic account, however, leaves unresolved the question of how to control the conduct of outsiders that either routinely come into contact with confidential information (e.g. lawyers) or those who happen upon such intelligence by chance (e.g. coming upon confidential files).<sup>17</sup> These scenarios pose a legal headache because such people do not always owe a duty of care and loyalty as fiduciaries to a company's shareholders. Yet, they can also cause similar harms to those arising out of trading by insider managers. If outsiders trade on a company's confidential information, their conduct diminishes the value of shareholders' rights in their company's confidential information. Further, similar to the classic account, it raises

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15. For example, in the absence of the prohibition, if managers know that the company will suffer a heavy loss, they will sell their shares before damaging information comes to light. Shareholders holding these shares or those buying shares from managers will end up holding securities that lose value when managers sell their securities and when the negative information becomes public. Managers thus win, while existing and future shareholders end up losing.

16. See William K.S. Wang, *Trading on Material Non-Public Information on Impersonal Stock Markets: Who Is Harmed, and Who Can Sue Whom Under SEC Rule 10b-5?*, 54 S. CAL. L. REV. 1217, 1222–35 (1981) (discussing the underlying rationales for the prohibition).

17. *Chiarella v. United States*, 445 U.S. 222, 226–29 (1980).

concerns for market quality, where shareholders become wary of investing their capital because they can lose out to informed outsiders.

How should the law assign responsibility for keeping information secret? Is someone who finds misplaced files in a train compartment under the same legal duty to protect this information from disclosure as the company's attorney? Though the law briefly flirted with the concept of requiring that everyone have equal access to information, such that anyone who trades on secret information without authorization may be liable, it now looks to impose liability on anyone that contracts to keep information secure.<sup>18</sup> Under *U.S. v. O'Hagan*, anyone who "misappropriates" confidential information for trading securities may be liable for the offense of insider trading.<sup>19</sup> This source need not be the company itself: it may be the law firm that advises the company, or a printer that contracts to produce the company's annual reports. Instead of looking to a defendant's fiduciary duty to a company's shareholders, the law can instead look to a defendant's duty to his or her own employer.<sup>20</sup> Under the misappropriation theory of insider trading, the law can cast a wide net to protect confidential corporate information held by a moving cast of characters, not all of which may be corporate insiders.<sup>21</sup>

Though the classical and misappropriation grounds for liability are broad, they do not mandate full and equal access across investors. If someone simply happens upon confidential information and does not owe a duty of loyalty to the source of this information, then she is free to trade under either theory. The existence of a fiduciary duty acts as a controlling check to limit liability.

Despite these constraints, however, regulation and jurisprudence have sought to broaden the perimeter of what kinds of relationships might give rise to a duty to maintain confidentiality. Under the SEC's Rule 10b5-2, for example, relationships of trust and closeness—those between spouses

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18. Donna M. Nagy, *Insider Trading and the Gradual Demise of Fiduciary Principles*, 94 IOWA L. REV. 1315 (2009) (detailing the broadening application of the prohibition to sanction theft and misuse of confidential information).

19. *United States v. O'Hagan*, 521 U.S. 642 (1997); Richard W. Painter et al., *Don't Ask, Just Tell: Insider Trading After United States v. O'Hagan*, 84 VA. L. REV. 153 (1998).

20. *O'Hagan*, 521 U.S. at 652-54.

21. *SEC v. Dorozhko*, 574 F.3d 42, 51 (2d Cir. 2009) (hackers held to have misappropriated information for the purposes of insider trading liability).

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or business associates—can create the duty necessary to make trading on confidential information obtained through such interactions a potential offense.<sup>22</sup> Courts have shown themselves willing to stretch legal interpretation to find that a breach of a fiduciary duty has taken place in order to impose sanctions on bad actors.<sup>23</sup> For example, hackers stealing confidential information from databases and trading on this stolen intelligence have been found to have committed insider trading even though they do not easily fit the definition of fiduciaries.<sup>24</sup> In this way, the law generally has shown itself to be strongly protective of a company's confidential information and the value it holds for its shareholders.

Despite the prohibition's centrality and its widening reach over the years, it has not come without controversy. Influential scholars have offered powerful critiques of its rationales, arguing that, far from being a positive for market quality, it is in fact deeply detrimental for market performance. As Professor Henry Manne famously argued, restrictions on information flow are damaging because they reduce how efficiently markets perform.<sup>25</sup> Because insiders cannot trade freely, high-quality, well-sourced information about a company's fundamentals is not as clearly reflected in securities prices.<sup>26</sup> Though shareholders may lose money against better-informed insiders, the overall robustness of markets can be enhanced by a more accurate, detailed flow of insider knowledge and insight.<sup>27</sup>

## II. STRUCTURAL INSIDERS AND INSIDER TRADING

So, what does market structure, the mechanisms governing how securities are bought and sold, have to do with the law and policy of insider trading? Securities markets have undergone a thoroughgoing structural transformation in recent years, reflected in the steady and ever

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22. 17 C.F.R. § 240.10b5-2 (2012).

23. Donald C. Langevoort, "Fine Distinctions" in *the Contemporary Law of Insider Trading*, 2013 COLUM. BUS. L. REV. 429, 431–33 (2013) (noting the broadening of the reach of Rule 10b-5's prohibition, to extend to such situations like hacking as well as under Rule 10b5-2.).

24. *Dorozhko*, 574 F.3d at 51.

25. HENRY G. MANNE, *INSIDER TRADING AND THE STOCK MARKET* 77-88 (1966).

26. *Id.* at 100-05.

27. *Id.* at 80-90.



fuller automation of the processes by which securities are bought and sold.<sup>28</sup> I argue that today's markets comprise a cohort of "structural insiders" that are the first to see information from exchanges.<sup>29</sup> This head-start, combined with their capacity to respond automatically to new data, gives these structural insiders the ability to trade and change prices before others on the "outside" receive the information. This structural insider trading, I suggest, exhibits some of the harms seen in more conventional corporate insider trading. However, unlike corporate insider trading, structural insider trading in market structure constitutes a clearly lawful practice.<sup>30</sup>

One may visualize modern market structure as a collection of computer servers and sophisticated algorithms rather than traders huddling in trading pits.<sup>31</sup> Computerized processes govern how we trade securities (e.g. analyzing incoming news, submitting orders to buy and sell shares, matching these orders, and moving trades towards execution and settlement), thereby accelerating dramatically the pace of transactions. According to the SEC's 2014 review, high-frequency trading (HFT), in which securities turn over in milliseconds and microseconds, drives over fifty percent of all traded U.S. equity volume.<sup>32</sup> Enabling securities to change hands at this speed necessitates that markets include some key structural features: (i) traders should be able to get data to their servers rapidly from exchanges; (ii) traders' algorithms must be capable of crunching this data and responding automatically by sending orders to an exchange without the need for real-time human intervention; and (iii) physics dictates that traders be able to locate their servers as close as possible to those of the exchange to reduce (as much as possible) the time

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28. GOV'T OFFICE FOR SCI., *FORESIGHT: THE FUTURE OF COMPUTER TRADING IN FINANCIAL MARKETS: FINAL PROJECT REPORT 19-20* (2012)

29. Yadav, *supra* note 8.

30. *But see*, *City of Providence v. BATS Global Markets, Inc.*, 878 F.3d 36 (2d. Cir. 2017) (plaintiffs argue that exchanges defrauded investors by failing to communicate the systematic structural advantages of HFT. The Second Circuit has allowed the case against the exchanges to proceed).

31. Jeffrey G. MacIntosh, *High Frequency Traders: Angels or Devils?*, C.D. HOWE INST. (2013), [https://www.cdhowe.org/pdf/Commentary\\_391.pdf](https://www.cdhowe.org/pdf/Commentary_391.pdf)

32. SEC, *Equity Market Structure Literature Review, Part II: High Frequency Trading 4-7* (2014), [https://www.sec.gov/marketstructure/research/hft\\_lit\\_review\\_march\\_2014.pdf](https://www.sec.gov/marketstructure/research/hft_lit_review_march_2014.pdf).

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it takes for data and orders to travel from the exchange to the traders' servers and back again.<sup>33</sup>

Exchanges have developed infrastructure to accommodate HFT, adapting the architecture of information flows to encourage the rapid transfer of data between traders and trading venues. While a fuller discussion is outside the scope of this essay, three key innovations are worth highlighting. First, exchanges like the NYSE and the NASDAQ allow traders to locate their servers next to those of the exchange. Both the NYSE and the NASDAQ, for example, own extensive real estate (notably in New Jersey) specifically designed to warehouse the servers belonging to traders right next to those of the trading venue.<sup>34</sup> In other words, communication between the exchange and trader occurs not on the trading floor on Wall Street, but between co-located servers housed together in specialist facilities built to enable the high-speed movement of order-and-price-related data between traders and exchanges. Indeed, exchanges are constantly innovating to offer products that provide ever-faster means to communicate with their traders. Commentators have spoken of a “race to zero” as venues compete with one another to offer ever more cutting edge technologies to transmit data, e.g., using lasers or microwaves that can embed information for transmission between traders and exchanges.<sup>35</sup> Reflecting the shift to algorithmic, high-speed trading, then, the modern exchange looks and works very differently to its conventional portrayal in popular culture.<sup>36</sup> Using algorithms, traders send orders to buy and sell securities from their servers to those of an exchange. These servers are co-located mere meters away from one another in vast warehouses. An exchange's servers match orders from buyers and sellers and then confirm

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33. Yadav, *supra* note 6.

34. Michael Aitken et al., *Trade Size, High Frequency Trading, and Co-Location Around the World*, EUR. J. FIN. (forthcoming Mar. 2014); Michael Mackenzie & Jeremy Grant, *NYSE Euronext Bets on 'Co-Location' Centres*, FIN. TIMES (Sept. 29, 2009), <https://www.ft.com/content/2d62bcfa-ad26-11de-9caf-00144feabdc0>.

35. Scott Patterson, *High-Speed Stock Traders Turn to Laser Beams*, WALL ST. J. (Feb. 11, 2014), <https://www.wsj.com/articles/highspeed-stock-traders-turn-to-laser-beams-1392175358>.

36. See Matthew Philips, *My Laser is Faster Than Your Laser*, BLOOMBERG (Apr. 23, 2012), <http://www.bloomberg.com/bw/articles/2012-04-23/high-speed-trading-my-laser-is-faster-than-your-laser>.

the deal by transmitting this fact back to the co-located servers of the traders.<sup>37</sup>

Secondly, exchanges offer proprietary subscription feeds of information comprising data related to orders and prices that is generated, collated and coded by the exchange. Traders can purchase granular, detailed flows of information that describe the state of the market, such as the buy-and-sell orders coming into the exchange, the depth of demand for securities indicated by the volume of orders, the last best prices at which a security traded and so on.<sup>38</sup> These data feeds are delivered directly from the exchange to the trader's co-located servers. Such subscription feeds do not come cheap. In addition to the fees that exchanges charge traders to co-locate their servers, data feeds are an important source of revenue for trading venues.<sup>39</sup> Recent years have seen traders complain about the rising costs of purchasing data feeds and server space in an exchange's warehouse.<sup>40</sup> They are, however, essential everyday items for traders seeking to make their money using HFT strategies.

Finally, HFT traders depend on sophisticated algorithms that are capable of responding automatically to new information as it emerges from the market. Because it is biologically impossible for human beings to achieve the feat of transacting on a millisecond-by-millisecond basis, traders need algorithms programmed to receive data, analyze its significance, and respond by themselves in line with pre-set instructions. Simply put, human beings are not involved in the trade-by-trade decision-making; rather, they program their algorithms *ex ante* for this task and monitor their performance during the day. High-speed algorithms must be entirely automated in their operation, continuously receiving data, analyzing its content and responding by sending out orders. These algorithms must be powerful enough to interact with those of other traders

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37. Yadav, *supra* note 8, at 996-98.

38. See Shengwei Ding et al., *How Slow is the NBBO? A Comparison with Direct Exchange Feeds*, 49 FIN. REV. 313 (2014) (discussing the shortcomings in speed and content of the public feed v. direct feeds).

39. John McCrank, *IEX Says Stock Exchanges Should Disclose More on Data Revenue*, REUTERS (Jun. 21, 2017), <https://www.reuters.com/article/us-usa-exchange-data/iex-says-stock-exchanges-should-disclose-more-on-data-revenue-idUSKBN19C2VA>.

40. Matt Turner, *There's a New 'Hot-Button' Issue on Wall Street, and Battle Lines are Being Drawn*, BUS. INSIDER (Nov. 3, 2016), <http://www.businessinsider.com/stock-exchanges-market-data-cost-beco-ming-big-issue-2016-10>.

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and to respond dynamically to incoming news and a changing market environment.<sup>41</sup>

These three features together, preconditions for HFT to flourish, mean that co-located HFT traders receiving direct feeds of information from exchanges constitute a type of structural insider in today's marketplace. By dint of co-location and data feeds, they receive a first look at exchange data. With this advantage, HFT traders can respond automatically to new information by sending back an order, changing prices before others on the "outside" can get a look.<sup>42</sup> A cohort of traders, then, receive detailed exchange data, react to it and are able to impact the state of the market, such that those on the outside systematically transact on the basis of stale information.<sup>43</sup>

To be sure, it is debatable whether the data that exchanges generate constitutes the kind of confidential information that the law seeks to regulate under the prohibition against corporate insider trading. For a start, this data is designed to be disseminated widely across the market.<sup>44</sup> That some traders receive it before others should not perhaps matter. Secondly, this data may not really seem like the kind of information that the law traditionally targets. A first view of price-and-order flow related data hardly appears like the stuff of headlines, unlike tips about a company's future merger, a surprise earnings announcement or corporate scandal. Thirdly, it is arguable that some traders have always enjoyed greater proximity to the exchange relative to others, like those working physically next to the trading pits. Algorithmic structural insiders, therefore, might just be following a long line of well-established historical precedent.

While these arguments are appealing at first glance, they fall short under deeper scrutiny. Importantly, even though exchange data is eventually intended to become public, the law still treats this information as restricted and subject to strict conditions about its dissemination.<sup>45</sup>

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41. Michael Kearns & Yuriy Nevmyvaka, *Machine Learning for Market Microstructure and High Frequency Trading*, in HIGH FREQUENCY TRADING-NEW REALITIES FOR TRADERS, MARKETS AND REGULATORS 4-8 (David Easley, Marcos López de Prado & Maureen O'Hara eds., 2013).

42. Yadav, *supra* note 8, at 992-1003.

43. Yadav, *supra* note 6.

44. Regulation National Market System Rule 603, 17 C.F.R. § 242.603 (2010).

45. *Id.*

Regulation thus stipulates how and when information becomes public.<sup>46</sup> Specifically, exchanges must ensure that information enters the public data feed and the direct subscription feeds at exactly the same time.<sup>47</sup> To be clear, these rules do not regulate whether different types of traders also must receive this information at the same time.<sup>48</sup> This legal caveat allows exchanges to construct information feeds that permit certain traders to systematically receive price-related data earlier than others. Not only are direct subscription feeds designed to communicate with co-located traders at rapid speeds, but they are packed with a much richer reserve of data than what exchanges include in the public feed.<sup>49</sup>

The larger question lies in working out what impact these differences in access to exchange information have on traders. Are these variations economically significant to ensure that structural insiders are able to win against other traders? Anecdotal evidence would seem to answer in the affirmative. The fact that traders continue to pay for increasingly expensive data and co-location fees suggest that they add enough value to justify this outlay. Moreover, though the profits of HFT firms have been falling, many have been successful at reaping, consistent gains.<sup>50</sup> Perhaps the best-known example is that of Virtu Financial, whose 2014 IPO filing document revealed that its ability to deploy its HFT strategies had resulted in the firm enjoying a near flawless winning streak over four years of operation, losing money on just a single day during this period.<sup>51</sup> This example still does not tell us whether the ability of HFT traders to make money in this way is dependent on their ability to get a first look of exchange information. However, the advantages of structural insider trading do seem to matter considerably. Empirical studies show that HFT

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46. *Id.*

47. *Id.*

48. *Id.*; Regulation National Market System Rule 600, 17 C.F.R. § 242.600 (2010); Regulation National Market System Rule 611, 17 C.F.R. § 242.611 (2010); Gary Stone, *SIP vs. Direct Feeds Latency - What Are the Rules?* BLOOMBERG TRADEBOOK (May 15, 2014), <https://www.bloomberg.com/professional/blog/sip-vs-direct-feeds-latency-rules/>.

49. New York Stock Exch. LLC, Exchange Act Release No. 67857, 2012 WL 4044880 (Sept. 14, 2012).

50. Gregory Meyer, *How High-Frequency Trading Hit a Speed Bump*, FIN. TIMES (Jan. 1, 2018), <https://www.ft.com/content/d81f96ea-d43c-11e7-a303-9060cb1e5f44>.

51. Greg Laughlin, *Insights into High Frequency Trading From the Virtu Initial Public Offering 2-4* (Ctr. for Analytical Fin., Univ. of Cal. Santa Cruz, Working Paper, 2014).

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traders have made markets much better at reflecting new information, at least in the very near term.<sup>52</sup> Tellingly, HFT traders appear to predict the direction of the order flow over a few seconds.<sup>53</sup> This capacity to anticipate market direction and to trade accordingly would seem to follow from the ability of traders to see information ahead of others in the market and respond quickly in order to make consistent gains by trading with those who may be less informed.

Putting this together, structural insider trading represents a paradigm shift from past eras of market design. Historically, a group of actors has always enjoyed a proximity advantage in relation to their ability to access information from exchanges. In the past, these traders have included the so-called designated “specialists” charged by the NYSE to maintain market function by standing ready to buy and sell with investors to thus provide flow and continuity to trading. Recognizing their centrality and their ready access to data about who was trading, what and for how much, a body of law carefully regulated the ability of these specialists to transact using the insider information accessible on account of their position.<sup>54</sup> In addition to specialists, some traders have always enjoyed proximity to exchanges, such as by working closer to the pits, or by dint of paying for and possessing more sophisticated technology than their peers, like carrier pigeons, the telegraph or fax.<sup>55</sup> From this viewpoint, one can argue that HFT structural insiders simply continue an age-old tradition of traders leveraging their natural geographical advantage or their skill at communicating faster than their peers.<sup>56</sup>

Notwithstanding this similarity on the surface, HFT traders possess a systematic advantage distinct from traders in eras past. Notably, HFT traders utilize technology that is designed to respond automatically, in milliseconds, to new information, removing the human element entirely

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52. See Jonathan Brogaard et al., *High Frequency Trading and Price Discovery* (Eur. Cent. Bank, Working Paper No. 1602, 2013).

53. *Id.*

54. 17 C.F.R. § 240.11a-1 (2008); FINRA Reg. Notice 11-24 (May 2011); Press Release, SEC, SEC Charges The New York Stock Exchange with Failing to Police Specialists (Apr. 12, 2005), <https://www.sec.gov/news/press/2005-53.htm>.

55. Joel Hasbrouck et al., *New York Stock Exchange Systems and Trading Procedures* (N.Y. Stock Exchange Working Paper No. 93-01, 1993).

56. See Jerry Adler, *Raging Bulls: How Wall Street Got Addicted to Light-Speed Trading*, WIRED (Aug. 3, 2012), [https://www.wired.com/2012/08/ff\\_wallstreet\\_trading/](https://www.wired.com/2012/08/ff_wallstreet_trading/).

from real-time transactions.<sup>57</sup> This helps HFT traders enjoy pervasive information processing advantages relative to those on the outside. In less automated markets, a trader in Montana transacting on the NYSE might still beat another trader transacting from the exchange's floor by virtue of possessing better insights about the security or the direction of the order flow. Today, with HFT, the playing field is more clearly and systematically tilted in favor of the structural insider. The HFT trader will always receive information first through co-location and detailed direct feeds and be able to respond to this new information automatically without waiting for a human being to analyze the data.<sup>58</sup> By contrast, the trader in Montana will receive information from the slower, public feed, analyze this data and respond with an order on the basis of information that is already stale.<sup>59</sup> Even if the trader in Montana pays for a subscription feed but does not buy co-located space, she will receive information with a delay owing to the geographic distance.<sup>60</sup> Moreover, when the Montana trader's order is sent to the NYSE, it becomes part of the order flow data entering the exchange. As the exchange publishes this data through a direct feed, it is seen first by HFT structural insiders who can then trade ahead of the Montana trader by responding automatically to this new data of co-location and doing so faster than anyone on the outside.<sup>61</sup> While the trader in Montana might certainly make money from the trade, perhaps because she possesses profitable, fundamental insights, she will nevertheless lose a small part of this eventual gain to the HFT trader.<sup>62</sup>

This uneven allocation of informational advantages brings costs and benefits similar to those in conventional insider trading. In the case of traditional corporate insider trading, regulation is justified to reflect the harm arising from one set of shareholders being constantly outrun and beaten to the best trades by insider managers, or by those possessing confidential information because of their access to it. Shareholders that

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57. Alain Chaboud, Benjamin Chiquoine, Erik Hjalmarsson & Clara Vega, *Rise of the Machines: Algorithmic Trading in the Foreign Exchange Market*, 69 J. OF FIN. 2045 (2014)

58. Yadav, *supra* note 8, at 1026-28.

59. Yadav, *supra* note 8, at 1026-29.

60. Yadav, *supra* note 8, at 1026-29.

61. Yadav, *supra* note 8, at 997-1003, 1026-29.

62. See Yadav, *supra* note 8, at 968, 976-77.

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know that they will always lose against better-informed insiders will discount what they invest or exit the market altogether.

For a start, structural insider trading allows HFTs to make steady and systematic gains unavailable to those on the “outside.” As noted above, finance scholars have observed that HFT traders tend to accurately predict the near term direction of order flow. This facility in forecasting the likely movement of share prices makes sense from the standpoint of structural insider trading. Because HFT traders have the first view of data from exchanges, they are better able to see where market prices are headed.<sup>63</sup>

This ability allows HFT traders to make regular, consistent gains ahead of those on the outside. Importantly, by knowing in which direction the market is moving, HFT traders can gauge likely demand and transact ahead of slower, structural outsiders. For example, an HFT trader receiving direct feeds of data to their co-located servers may see that there is demand to buy securities of Public Company. Direct feeds can reveal such interest by disclosing steadily increasing prices for Public Company’s shares. A first look at the latest prices for Public Company’s stock allows HFT traders to submit competitive orders to purchase Public Company’s shares and then to turn around and sell them to other investors at a slightly higher price at which the HFT trader bought them. In addition to making a small profit on each trade, this strategy allows the HFT to enter a trade knowing that its risk is low, given the tiny increments of time over which positions are taken. From the standpoint of structural outsiders, this practice is likely to be undesirable. Informed traders that spend time and expense in investigating companies may see a small portion of their eventual winnings lost to HFT structural insiders who are capable of anticipating their orders and thus freeriding on their investment knowledge.<sup>64</sup>

Interestingly, some scholars argue that market quality can suffer where information becomes expensive. They observe, notably, that those who must pay dearly for information may choose to reduce their engagement in

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63. Brogaard et al., *supra* note 52, at 4-6.

64. MICHAEL LEWIS, *FLASH BOYS: A WALL STREET REVOLT* (2014) (this was one of the concerns highlighted by this book); Adam D. Clark-Joseph, *Exploratory Trading* 3 (Jan. 13, 2013) (unpublished manuscript) <http://www.nanex.net/aqck2/4136/exploratorytrading.pdf> (noting the capacity of HFTs to anticipate orders and detect future demand and explaining the strategies used).



the marketplace.<sup>65</sup> This finding makes a great deal of sense. Investors who must spend money on information infrastructure (e.g. to purchase subscriptions to data feeds, or perhaps to co-locate their servers near an exchange) are likely to be less motivated to spend additional funds on researching information. Or, they may shift their attention to less complex, less costly research. If investors see their orders being anticipated, and a portion of their gains being reaped by a structural insider, they may enter the market less often, or seek ways to avoid HFT traders. Anecdotally, some fundamental investors have sought to shift some of their trading to non-exchange venues that advertise themselves as offering a trading environment with limited or no HFT trading.<sup>66</sup>

Just like more conventional theories of insider trading, there are also many benefits to structural insider trading and to crafting policies that encourage this cohort of traders to enjoy a preferential and rapid access to exchange data. For example, scholars underscore the benefits of HFT for improving the efficiency of securities markets as traders react in milliseconds to new information, helping prices to quickly reflect the most current state of the markets.<sup>67</sup> Further, commentators note that investors face reduced costs in trading, as HFT traders offer ready-made counterparties to those seeking to buy or sell securities. Facing lower risks on account of their structural insider access to information, HFT traders can offer investors opportunities to transact at much lower costs (“spreads”).<sup>68</sup> In this way, HFT traders bring structural efficiencies to market structure. They help prices to quickly reflect incoming news; investors see lower transaction costs in trading. HFT, however, does not directly increase the depth of information in the market.<sup>69</sup> Unlike

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65. See David Easley et al., *Differential Access to Price Information in Financial Markets* 1, 3–6 (J. Of Fin. & Qualitative Analysis, Working Paper No. 11-2011, 2013).

66. Stephen Foley, *Big Fund Managers Form New Dark Pool Equity Trading Venue*, FIN. TIMES (Jan. 19, 2015).

67. See Yadav, *supra* note 8, at 992, 1018-21; and Sarah Zhang, *Need for Speed: An Empirical Analysis of Hard and Soft Information in a High Frequency World* (Oct. 17, 2012), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1985951](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1985951) (noting the special skill of HFT traders to rapidly incorporate hard data into securities prices, though highlighting that non-HFTs dominate in analyzing softer information); see also, Brogaard et al., *supra* note 52.

68. Nataliya Bershova & Dmitry Rakhlin, *High-Frequency Trading and Long-Term Investors: A View From the Buy-Side*, J. OF INV. STRATEGIES (2012). See also Yesha Yadav, *How Algorithmic Trading Undermines Efficiency in Capital Markets*, 68 VAND. L. REV. 1607, 1628 (2015).

69. Yadav, *supra* note 8, at 1023-26.

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conventional corporate insider trading, where directors or corporate insiders might offer unique insights through their transactions, structural insiders do not add to the informational content of the market. Rather, they enable information to enter the market more quickly and give investors the access to ready liquidity when they wish to trade.<sup>70</sup>

#### CONCLUSIONS

The goal of this essay and the accompanying Article is not to argue that HFT constitutes an illegal activity under Rule 10b-5, nor to suggest that it merits sanction for giving traders – through co-location and direct feeds – an upper hand in catching first sight of key market data. HFT is, of course, perfectly legal and the practice of exchanges offering co-location products and detailed data feeds similarly allowed under regulation. Any inference of possible illegality is negated by the fact that this activity occurs in the open and is overseen by the SEC. Nevertheless, structural insider trading offers a lens through which to analyze the overall internal coherence of how we regulate sensitive, confidential information in public securities markets. Like trading on corporate confidential information, structural insider trading underlying HFT systematically gives one set of investors the opportunity to transact on information not fully available to everyone else. HFT traders, by dint of co-location, direct feeds and automated responses, can trade on the most up-to-the-microsecond view of the market, and change prices as a result, before this information enters the bloodstream of the outsider investing public. Just like trading on corporate confidential information, this preferential position can cause certain harms familiar to scholars of insider trading, reflected in disadvantaged investors looking to scale back or adapt their participation in capital markets. The benefits of insider trading also look similar. Corporate insider trading can bring deeper informational efficiencies; structural insider trading offers infrastructural efficiencies reflected in the ability of prices to quickly signal the latest state of risk in the market. Of course, these practices are not exactly alike. Perhaps one can argue that any trader is technically free to buy co-located space or direct feeds and develop automated trading

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70. Yadav, *supra* note 68, at 1628-29; Yadav, *supra* note 8, at 1023-26.

technology to achieve the status of structural insider – whereas not everyone can become a corporate director or manager. And yet, even here, such differences are more theoretical than real. Though everyone might technically be able to buy themselves a spot alongside the matching engines of the NYSE, it is far too costly to imagine that taking up this option is actually feasible for all but the most resourced, specialist trader.

But the co-existence of structural insider trading alongside more common corporate insider trading – where the former is legal and the latter is not – draws into relief the unevenness in the law and policy governing the regulation of restricted information in public markets. Broadly, these variations in the allocation of information rights and costs between investors – with one set able to trade more freely on restricted information, while another cannot – forces a larger reckoning for policymakers to clarify the purposes of insider trading policy in the innovation age. Why can a structural insider enjoy a systematically stronger hand against an outsider investor, when a corporate director cannot? Should structural insider trading require greater regulation to bring it into line with corporate insider trading law, or should the prohibition against corporate insider trading be relaxed to resemble the permissions allowed to HFT traders? Or, perhaps, the regimes should remain as they currently are – but if this is to be the case, then why? As I show in my research, the law and policy of corporate insider trading faces broader conceptual challenges from innovations in financial markets that have evolved with little regard paid to the traditional bounds of the law against insider trading. HFT provides one such example, as its traders have pioneered a practice that is both historically familiar but also novel in its business model, leveraging skill, automated technology and access to give its users a first look of market-moving, sensitive exchange data. The tussle between *Newman* and *Salman* has resulted in courts returning to a broad prohibition on insiders trading on confidential information. With this return to broad liability, it is urgent to clarify why the law takes this approach and how fully it should apply. Without it, confidential market information is left at once over- as well as under-protected and traders are invited to find ways, once more, to innovate around the law.