

High-Frequency Trading Litigation Presents Complex Issues for Experts

By Zachary Ziliak, Pavitra Kumar, and Torben Voetmann

INTRODUCTION

High-frequency trading (“HFT”) began quietly as a natural result of technological advances. It gained traction thanks to regulatory changes, garnered initial popular attention through the Flash Crash in May 2010, and achieved first-page prominence with the publication of Michael Lewis’s “Flash Boys: A Wall Street Revolt” in March 2014. Once a latency-sensitive, computer-intensive trading strategy followed only by market experts, HFT now receives daily (usually negative) attention from the media, the government, and seemingly every day trader with a Twitter handle.

Anti-HFT developments have proceeded apace, along many fronts. Sensing the shift in the wind, HFT firm Virtu Financial delayed its IPO for fear of a backlash.ⁱ The U.S. Department of Justice investigated whether certain high-speed trading practices violate insider trading laws.ⁱⁱ The FBI and the Commodity Futures Trading Commission (“CFTC”) similarly began investigating “spoofing,” a strategy in which traders post and cancel orders to create a false appearance of market activity.ⁱⁱⁱ The Securities and Exchange Commission (“SEC”) instituted cease-and-desist proceedings based on alleged spoofing by Visionary Trading LLC,^{iv} paralleling similar proceedings by the CFTC against Panther Energy Trading LLC in July 2013.^v SEC Chair Mary Jo White outlined the SEC’s plans for HFT regulation.^{vi} The Senate’s Permanent Subcommittee on Investigations held a hearing on conflicts of interest at brokerages, another issue raised in *Flash Boys*.^{vii} New York Attorney General Eric Schneiderman launched a broad and high-profile investigation into all things HFT.^{viii}

All this public attention has predictably spawned litigation. In *Braman v. CME Group, Inc.*, three traders representing a putative class of purchasers of futures data alleged that the Chicago Mercantile Exchange (“CME”) and Chicago Board of Trade had given HFT shops advance access to order data, in violation of the Commodities Exchange Act.^{ix} One week later, *City of Providence, Rhode Island v. BATS Global Markets, Inc.* essentially republished *Flash Boys* in the form of a complaint, alleging violations of the Securities Exchange Act and corresponding regulations.^x The *Providence* complaint asserts a plaintiffs’ class of “all public investors who purchased and/or sold shares of stock listed on a U.S.-based exchange or alternative trading venue between April 18, 2009 and the present and were injured thereby,”^{xi} phrasing that seemingly takes care of the numerosity requirement. The *Providence* plaintiffs assert Exchange Act claims (Sections 10(b), 20A, and—interestingly—6(b)) against all the registered stock exchanges and proposed defendants’ classes of all brokerages and HFT firms. The factual allegations range from fairly clear violations (spoofing, front-running by brokers, hiding details of order types) to activities that frustrated characters in Michael Lewis’s book but did not obviously break any laws.

The ensuing months have brought several more such HFT cases. At least three further class action complaints have been filed in parallel to *Providence*.^{xii} Meanwhile, *Lanier v. BATS Exchange, Inc.* pursued a different tack, alleging that exchanges breached contracts to deliver “valid” data in a “non-discriminatory” manner to class members, by delivering identical data to HFTs slightly earlier.^{xiii} Similar complaints will likely follow, potentially adding new defendants and new causes of action.

This proliferation of cases involving a relatively new and legally untested technology will present courts with various challenges: for instance, when does material information about a company cease to be “non-public” at each location, if it propagates out through standard channels at less than light speed? Equally, litigants will face questions regarding the ecology of the markets, the rules for liability, and the magnitude of any resulting damages. In this recondite and highly interconnected industry in particular, expert testimony and non-testimonial advice are likely to play key roles in the development of case strategy, at a variety of stages.

DEMONSTRATING LIABILITY

First, there is a need for experts in market structure and trading strategies to separate the smoke from the fire in HFT allegations so that attorneys can understand—and ultimately explain—what is really going on. Merely calling something “electronic front-running” does not necessarily imply liability along the lines of traditional front-running. More generally, some of the activities currently alleged would (even if true) be both legal and rational, while others (if true) could legitimately result in liability. The distinction turns not on how loudly characters in *Flash Boys* protested against a particular practice, but rather on what existing statutes, regulations, and contracts demand. Drawing this distinction requires a deep understanding of what various market participants are alleged to have done, as well as an ability to parse the relevant laws.

Second, once the general contours of liability have been sketched, important questions follow as to whether liability attaches in a particular case and how damages are to be calculated, all of which require an understanding of market structure or financial modeling in addition to the law. At the micro level, for instance, what exactly is required to transform a violation into proper behavior? Changing a policy and letting that percolate through a defendant’s whole system yields different results than merely adding a safeguard to prevent the specific harm observed. At the macro level, how far down the chain of causation should one go when assigning fault to a particular defendant? That is, given the interplay among market participants, when is it fair to cut off the change analysis and assume that all else remains equal, despite the imposed change in the defendant’s behavior? These are fundamentally legal questions, but their answers hinge on issues of market behavior.

Similarly, questions of adequate care likely turn on expert opinions. If a defendant is alleged to have acted negligently in releasing an algorithm that disrupted markets or selected inappropriate trades, expert input will be required on the questions of how much testing and what internal controls a market participant should have in place. Symmetrically, what duty do *plaintiffs* bear to make efficient use of order types? If, for example, most market participants routinely split large orders before sending them to exchanges and route the component trades at random times, should damage calculations assume similar sophistication by the plaintiffs, or rather the (potentially disfavored) approach they actually took?

More generally, changes in market structure—such as the growth of HFTs and dark pools—and the interplay among market participants call into question established legal presumptions. As SEC Chair White said on June 5, “the consensus of the research is that the current extent of dark trading can sometimes detract from market quality, including the informational efficiency of prices.”^{xiv} This suggests one approach for rebutting the presumption of reliance under *Halliburton Co. v. Erica P. John Fund, Inc.*,^{xv} applicable well beyond the context of HFT and dark-pool litigation.

CALCULATING DAMAGES

If liability is shown (or assumed, for purposes of settlement discussions), how can damages be calculated in practice? Limited knowledge of other market participants’ behavior can add huge error bars to estimates of but-for market activity. This problem is not unique to the HFT space, and experts have long used event studies and linear regression to tease apart the various competing causes of observed market moves. In the presence of HFT, however, market responses can be distinctly *non-linear*, as evidenced by the Flash Crash. Damage calculations in this space are thus likely to require new models, not traditionally seen in securities cases.

The precise methodology for such damage calculations would turn on the alleged misdeeds, but an abiding theme is the complexity stemming from feedback loops in the trading ecosystem. The various market participants have optimized their behavior to suit particular evolutionary niches within the prevailing rules as they are currently understood. Damage calculations that posit a but-for world with even one change to those rules are likely to trigger complex and potentially incalculable responses by market participants in any suitably robust model.

For instance, suppose a complaint asserts that brokers failed to provide clients with best execution when they routed orders based on maker-taker payments. This presents complicated issues even in terms of liability, as the determination of “best execution” cannot be purely local: seeking higher rebates or lower charges could lead to additional revenue that could be fed back to clients directly or in the indirect form of reduced brokerage fees. But even assuming liability, estimation of damages from suboptimal order routing is nontrivial. For starters, price movements between placement of the order and completion of the fill must be separated into shifts in underlying prices and evanescent responses to an order that can be anticipated on account of the chosen routing strategy. But more fundamentally, what is the but-for world? If all broker-dealers provided a form of best execution that responded differently to payment for order flow and maker-taker payments, that would shift the whole market ecology, changing incentives for HFTs and exchanges. A model that holds all other market participants static is potentially incomplete, while one that models all resulting interplay could be intractable.

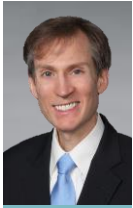
Similarly, consider the case of trading venues accused of giving HFTs early access to order data, in violation of securities laws, the Core Principles for designated contract markets, or contracts. Experts would be asked to estimate how much that improper release of information had harmed plaintiffs, which involves both the obvious issue (how far did HFTs move prices in response to advance order data?) and deeper questions (if the exchanges had not provided such data, how would HFTs have responded, and what would this have meant for the plaintiffs?). Where, instead, the complaint alleges order-type details were hidden, legal and factual questions arise as to how parties would have used order types if all details had been public, along with difficult simulation questions as to how plaintiffs’ orders would have fared given improved use of order types.

For cases against HFTs, in turn, should the but-for calculation eliminate HFTs outright, or merely ban particular practices? And what cascade effects would such a ban have on the equilibrium state of the market as a whole? Would HFTs depart, widening spreads and thus increasing transaction costs? Moreover, even the simplest model could require parsing the defendants' code, plus drawing reasonable (but fallible) inferences as to the decision rules of other market participants.

CONCLUSION

In summary, challenging analytical questions arise in nearly every permutation of HFT claims, with such claims likely to continue. Given the complex interplay among a multi-participant market spread across numerous and disparate trading venues, ever-changing regulations, untested legal theories, and challenging impact assessments, litigants will need to build teams of attorneys and experts who understand market structure, the prevailing law, and all necessary computational concerns.

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- ⁱ Telis Demos & Bradley Hope, *High-Speed Trader Virtu Delays IPO's Launching*, WALL ST. J., Apr. 2, 2014, at C1.
 - ⁱⁱ Alex Rogers, *Justice Department To Probe High-Frequency Trading*, TIME, Apr. 4, 2014.
 - ⁱⁱⁱ Sarah N. Lynch, *U.S. SEC charges trading firm owner, others in "spoofing" case*, REUTERS, Apr. 4, 2014.
 - ^{iv} *Visionary Trading LLC*, Admin. Proc. 3-15823, <http://www.sec.gov/litigation/admin/2014/34-71871.pdf> (Apr. 4, 2014).
 - ^v Panther Energy Trading LLC, Comm. Fut. L. Rep. (CCH) P32,686 (July 22, 2013).
 - ^{vi} Mary Jo White, Chair, SEC, *Enhancing Our Equity Market Structure*, <http://www.sec.gov/News/Speech/Detail/Speech/1370542004312> (June 5, 2014).
 - ^{vii} *Conflicts of Interest, Investor Loss of Confidence, and High Speed Trading in U.S. Stock Markets: Hearing Before the S. Permanent Subcomm. on Investigations*, 113th Cong. (June 17, 2014).
 - ^{viii} See, e.g., Press Release, N.Y. Atty. Gen., A.G. Schneiderman Calls For New Efforts To Eliminate Unfair Advantages Provided By Trading Venues To High-Frequency Traders, <http://www.ag.ny.gov/press-release/ag-schneiderman-calls-new-efforts-eliminate-unfair-advantages-provided-trading-venues> (Mar. 18, 2014).
 - ^{ix} Complaint, *Braman v. CME Group, Inc.*, No. 14-cv-2646 (N.D. Ill. Apr. 11, 2014).
 - ^x Complaint, *City of Providence, R.I. v. BATS Global Mkts., Inc.*, No. 14-cv-2811 (S.D.N.Y. Apr. 18, 2014).
 - ^{xi} *Id.* ¶ 60.
 - ^{xii} Complaint, *Am. Eur. Ins. Co. v. BATS Global Mkts., Inc.*, No. 14-cv-3133 (S.D.N.Y. May 2, 2014); Complaint, *Harel Ins. Co. v. BATS Global Mkts., Inc.*, No. 14-cv-3608 (S.D.N.Y. May 20, 2014); Complaint, *Flynn v. Bank of Am. Corp.*, No. 14-cv-4321 (S.D.N.Y. June 13, 2014).
 - ^{xiii} Complaint, *Lanier v. BATS Exch., Inc.*, No. 14-cv-3745 (S.D.N.Y. May 23, 2014).
 - ^{xiv} White, *supra* note vi.
 - ^{xv} *Halliburton Co. v. Erica P. John Fund, Inc.*, No. 13-317, 2014 U.S. LEXIS 4305 (June 23, 2014).

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