



High-Frequency Trading Litigation in 2015: Explored

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The Brattle Group
Dr. Pavitra Kumar
Senior Associate

The Brattle Group
Paul Hinton
Principal

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Lauren J. Schreur
Attorney

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Economists at The Brattle Group have experience in investigations, litigation, and enforcement actions involving the analysis of algorithmic trading strategies, alleged disruptive practices, and manipulation claims related to a variety of instruments in securities and commodities markets. Our experts also have experience working with “big data,” and our terabyte-scale data storage solutions provide for massive parallel processing, which is often required for the effective analysis of dark pool and high-frequency trading activity.



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Brief Speaker Bios:



Dr. Pavitra Kumar

Dr. Pavitra Kumar is a Senior Associate at The Brattle Group with expertise in corporate finance issues including business valuation, securities and market microstructure. Since joining Brattle in 2009, she has conducted financial statement and valuation analysis in bankruptcy disputes, evaluated structured investments in tax litigation, and quantified business damages in a variety of scenarios. Dr. Kumar is also regularly involved in marketing initiatives and litigation concerning complex financial instruments. She has co-authored a recent academic journal article on the nature and impacts of high-frequency trading (Computerized and High-frequency Trading, May 2014, Michael A. Goldstein, Pavitra Kumar and Frank C. Graves, *The Financial Review*, Vol. 49, No. 2), as well as a previous paper on the credit rating agencies' role in failed structured finance instruments.



Paul Hinton

Paul Hinton is a Principal of The Brattle Group located in New York City. He is a member of the Securities Practice and has testified as an expert in finance and economics in securities class actions, broker-customer disputes and commercial litigation. His interest in equity market structure and HFT centers around the challenges for regulation and enforcement, a topic on which he recently co-authored an article in *Financier Worldwide*.



Lauren J. Schreur

Ms. Schreur's practice focuses on securities litigation and broker-dealer inquiry and enforcement proceedings by the SEC and FINRA. She also has experience with general commercial litigation and internal investigations.

Additionally, Ms. Schreur advises clients regarding compliance with federal and state securities laws and regulations and the rules of self-regulatory organizations.

Prior to joining Finn Dixon & Herling LLP, Ms. Schreur was an associate at Wilmer, Cutler, Pickering, Hale and Dorr LLP in their Broker-Dealer Compliance and Regulation group in New York.



High-Frequency Trading Litigation in 2015: Explored

Summary

Over the past few years, regulators have focused on High Frequency Trading by financial firms. This trading increased following release of a purported exposé of trading firm's use of high-speed algorithms and information gathering. Some HFT strategies, such as passive market making, may increase overall liquidity in the market. The Joint CFTC-SEC Advisory Committee expressed concern over the volume of orders and cancellations of trades (spoofing). Charges of alleged fraud and securities violations were filed against numerous financial services and national securities exchanges. The US Securities and Exchange Commission (SEC), Commodity Futures Trading Commission (CFTC), and Federal Bureau of Investigation (FBI) announced that they were actively investigating HFT practices. HFT will continue to create challenging analytical and legal issues considering the complexity and multi-party nature of trading, rapidly changing regulations, un-tested legal theories, and litigation.

In a two hour live webcast, a panel of thought leaders and practitioners assembled by The Knowledge Group will discuss the latest, significant issues surrounding High-Frequency Trading (HFT) Litigations.

Key issues include that will be covered in this course are:

- High-Frequency Trading
- Market Manipulation
- Insider Trading
- Order Flow Payments
- Demonstrating Liability
- Calculating Damages
- Federal and State Regulation
- Regulation NMS in Trading

Featured Speakers:

SEGMENT 1:



Dr. Pavitra Kumar
Senior Associate
The Brattle Group



SEGMENT 2:



Paul Hinton
Principal
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SEGMENT 3:



Lauren J. Schreur
Attorney
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**SEGMENT 1:**

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Introduction

Dr. Pavitra Kumar is a Senior Associate at The Brattle Group with expertise in corporate finance issues including business valuation, securities and market microstructure. Since joining Brattle in 2009, she has conducted financial statement and valuation analysis in bankruptcy disputes, evaluated structured investments in tax litigation, and quantified business damages in a variety of scenarios. Dr. Kumar is also regularly involved in marketing initiatives and litigation concerning complex financial instruments. She has co-authored a recent academic journal article on the nature and impacts of high-frequency trading (Computerized and High-frequency Trading, May 2014, Michael A. Goldstein, Pavitra Kumar and Frank C. Graves, *The Financial Review*, Vol. 49, No. 2), as well as a previous paper on the credit rating agencies' role in failed structured finance instruments.

Dr. Kumar holds a Ph.D. in Financial Economics from the MIT Sloan School of Management, and a B.Sc. (First Class Hons) in Mathematics and Economics from the London School of Economics.



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Outline

- Overview of high-frequency trading (“HFT”) and recent prominent suits
- Three main areas of HFT-related litigation:
 - Litigation against exchanges and/or other trading venues
 - Litigation related to disruptive trading practices
 - Litigation related to market access violations



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Overview of High-Frequency Trading



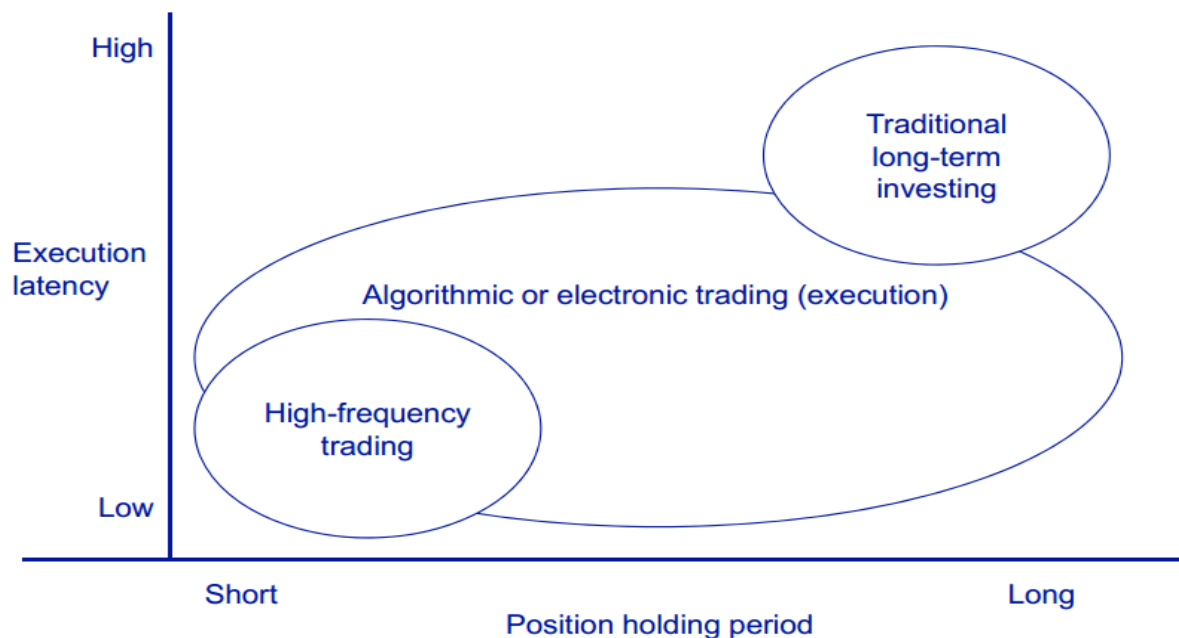
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HFT vs. Algorithmic Trading and Traditional Long-Term Investing

- HFT is a type of algorithmic trading involving the use of sophisticated technological tools to rapidly trade securities



Source: Aldridge 2010



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Market Size of HFT

High Gear

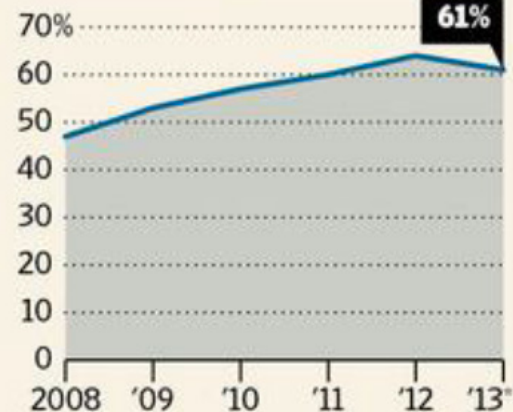
Percentage of U.S. stock trading done by high-frequency firms:



Source: TABB Group
The Wall Street Journal

High on Futures

High-frequency trading as a percentage of U.S. futures-market volume



Source: Tabb Group
The Wall Street Journal
*Through 1Q

Evolution of Markets and HFT



1998: SEC
implements
Reg. ATS

2005:
Reg. NMS
Approved

2007: Reg.
NMS
Implemented

2008-2009: Dark
Pools Take Off

Short-sell
uptick rule
removed



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HFT Strategies

Name	Description of strategy
Electronic market making	Liquidity-providing strategies that mimic the traditional role market makers once played. These strategies involve making a two-sided market aiming at profiting by earning the bid-ask spread . This has evolved into what is known as Passive Rebate Arbitrage.
Statistical arbitrage	Traders look to correlate prices between securities in some way and trade off of the imbalances in those correlations .
Liquidity detection	Traders look to decipher whether there are large orders existing in a matching engine by sending out small orders (“pinging”) to look for where large orders might be resting. When a small order is filled quickly, there is likely to be a large order behind it.



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Recent HFT “Flash Boys” Suits



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“Flash Boys” Investigations and Litigation

- April 2014: SEC instituted cease-and-desist proceedings against HFT firm Visionary Trading LLC for “spoofing”
 - Paralleled CFTC charges against Panther Energy Trading for spoofing in July 2013
- April 2014: Braman v. CME
 - Futures traders alleged that Chicago Mercantile Exchange and Chicago Board of Trade gave HFT shops advance access to order data, in violation of Commodity Exchange Act
- April 2014: City of Providence v. BATS (discussed next)
- May 2014: Lanier v. BATS
 - Alleged exchanges breached contracts by delivering identical data to HFTs slightly earlier
- June 2014: NY State Attorney General filed civil fraud charges against Barclays over its dark pool



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Plaintiffs in 'Flash Boys' Complaint: City of Providence v. BATS

- Lawsuit filed by the City of Providence, Rhode Island brought on behalf of ambitious putative class
- Class includes **all public investors** “who purchased and/or sold shares of stock in the **United States between April 18, 2009 and the present** (the “Class Period”) on a registered public stock exchange (the “Exchange Defendants”) or a United States-based alternate trading venue and were injured as a result of the misconduct.”



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Defendants in 'Flash Boys' Complaint: City of Providence v. BATS

- A total of 42 defendants including:
 - 14 brokerages;
 - 16 securities exchanges; and
 - 12 high-speed traders

- Defendants include:
 - The major exchanges, including NYSE and NASDAQ;
 - Trading platforms such as the BATS Global Markets;
 - Major banks, such as BofA, UBS and Barclays; and
 - Several large and small trading firms



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Allegations in 'Flash Boys' Complaint: City of Providence v. BATS

The complaint alleges three substantive claims:

- Section 10(b) of the Exchange Act and Rule 10b-5
 - Prohibits any act or omission resulting in fraud or deceit in connection with the purchase or sale of any security
- Section 6(b) of the Exchange Act
 - Requires that the exchanges operate **in a fair and equitable manner**
- Section 20A of the Exchange Act
 - Specifies the liabilities to contemporaneous traders for **insider trading**



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Allegations in ‘Flash Boys’ Complaint: City of Providence v. BATS (ctd.)

- Defendants collectively engaged in conduct that **manipulated the U.S. securities markets**
- Exchanges sold “special access” to material, non-public data, including orders made by the investing public, so that HFT defendants could trade against them
- Brokers directed their customers’ trades to stock exchanges and alternate trading venues that had been rigged and were subject to informational asymmetries
- Defendants’ alleged conduct deprived investors of the “**market integrity**” on which all securities buyers and sellers rely



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Litigation Against Exchanges and Trading Venues



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Litigation Against Exchanges and Trading Venues: Overview

- Pertains to trading venues' and automated trading systems' ("ATS") **violation of stated rules and practices**:
 - Failure to adopt and present rules according to stated practice
 - Failure to comply with stated rules
 - Violates section 19 of Securities & Exchange Act
 - **Not** fraud
- Brokerage firms' **conflicts of interest** between clients and HFT firms for which they facilitate access to exchanges:
 - Failure to disclose material information
 - Misstatements regarding access to exchanges by aggressive traders



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Litigation Against Exchanges and Trading Venues: Examples

- Jan 2015: SEC charged 2 Direct Edge exchanges \$14 million for failing to properly describe “price sliding” order types (e.g. “Hide Not Slide”)
 - First SEC case focusing on stock exchange order types
- Jan 2015: SEC fined UBS > \$14 million over dark pool operations
 - Failed to disclose existence of order type that allowed HFTs to buy and sell securities in increments of less than one penny and jump ahead of other orders that were at legal, whole-penny prices
 - Barred under Reg. NMS
- Sep 2012: SEC fined NYSE \$5 million for compliance failures that provided certain customers with head start on trading
 - Violation of Section 603(a) of Reg. NMS

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Barclays Dark Pool Litigation: Allegations

The complaint (NY Attorney General vs. Barclays) alleges two substantive claims:

- Martin Act Securities Fraud – General Business Law § § 352 *et seq*
 - Barclays engaged in acts, practices and/or omissions that employed deceptions, misrepresentations, concealment, suppression, fraud and false promises regarding the issuance, distribution, exchange, sale, negotiation or purchase of securities
- Persistent Fraud and Illegality – Executive Law § 63(12)



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Barclays Dark Pool Litigation: Allegations (ctd.)

- Barclays made false statements to clients and investing public about its dark pool:
 - Falsified marketing material on extent and type of HFT
 - Under-represented the percentage of aggressive HFT activity in the pool
 - Misrepresented “Liquidity Profiling” service which protected clients from predatory trading
 - Routed disproportionately high % of client orders to the dark pool and other venues based on profitability rather than execution quality
 - Secretly gave detailed information about identity and activity of other traders to HFTs
 - Charged HFTs far less than ordinary traders



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Litigation Against Exchanges and Trading Venues: Economic Questions

Assess materiality of disclosures and other allegedly false/misleading customer representations:

- Disputes regarding early HFT access to order data:
 - How much did improper release of information harm plaintiffs?
 - How far did HFTs move prices in response to advance order data?
 - If exchanges had not provided such data, how would HFTs have responded and how would this have affected plaintiffs?
- Disputes regarding concealment of order types:
 - How would parties have used order types if all details had been public?
 - How would plaintiffs' orders have fared given improved use of order types?



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Dark Pool Litigation (Broker-Dealers): Economic Questions

- How to estimate damages from suboptimal order routing?
 - If broker-dealers provided best execution that responded differently to payment for order flow, shifts incentives for HFTs and exchanges
- Do toxic (i.e. HFT-dominated) venues deliver worse trade execution?
- How much do customers rely on brokers' reporting of order execution performance?
 - What measures are available to assess order execution performance?
 - How transparent is reporting for dark pools?
 - Why should customers care who they trade against rather than solely order execution performance?



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Litigation Related to Disruptive Trading Practices

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Disruptive Trading: Overview

- “Disruptive Practices” under Section 747 of Dodd-Frank Act/Commodity Exchange Act section 4c(a)(5) include:
 - Violating bids and offers
 - Disorderly execution of transactions around the closing period
 - Spoofing:
 - Bidding or offering with the intent to cancel the bid or offer before execution
- Disruptive practices easier to prove than market manipulation because do not require demonstrating cause and effect



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Disruptive Trading: Examples of Layering and Spoofing

- Jan 2015: SEC and US Attorney criminal charges against Canadian trader (Milrud) for orchestrating “layering” practice **in equities markets**:
 - Designed to trick others into buying/selling stocks at artificially inflated/depressed prices
- July 2013: CFTC action and criminal charges against Panther for spoofing **in commodities markets**:
 - Prosecuted as disruptive trading but could classify as manipulation
 - Example of strategy: Put in small sell order (intended to execute) and several subsequent large buy orders at progressively higher prices (intended to cancel)
 - Market rises on impression of buying interest, fill sell order, then cancel buys



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Disruptive Trading: Pinging

- Feb 2015: “Pinging” might be illegal under certain anti-spoofing provisions of Commodity Exchange Act*:
 - Often called “electronic front running” but differs from traditional front running by brokers
 - Pinging differs from spoofing in that traders are willing to fill pinged orders whereas a spoof bid always cancels before execution
 - Pinging similar to manipulative strategies such as “banging the close” in which traders create the illusion of more activity in the market
 - Difficult to identify perpetrators of pinging given high volume of bids and offers
 - **Key economic question-** Show **cause and effect** and **intent** to manipulate markets:
 - Demonstrate lack of economic reason for engaging in these strategies and/or awareness of price impact



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Litigation Related to Market Access Violations

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Litigation Related to Market Access Violations: Overview and Examples

- Concerns erroneous trade checks and failure of broker-dealers to adopt adequate risk controls before providing customers access to markets
- Recent examples include:
 - Dec 2014: SEC penalized Morgan Stanley for failing to curb rogue trader who engaged in fraudulent trading of Apple
 - Oct 2013: SEC charged Knight Capital for lack of adequate safeguards to prevent the entry of millions of erroneous orders in August 2012
- Expert input required on how much testing and what internal controls a market participant should have had in place



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References

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Introduction

Paul Hinton is a Principal of The Brattle Group located in New York City. He is a member of the Securities Practice and has testified as an expert in finance and economics in securities class actions, broker-customer disputes and commercial litigation. His interest in equity market structure and HFT centers around the challenges for regulation and enforcement, a topic on which he recently co-authored an article in *Financier Worldwide*.



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Is there anything wrong with HFT trading? A review of trading behaviors and litigation issues



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Agenda

What is the HFT trading at issue in these cases?

- were they triggered by revelations in Flash Boys?
- unknown to both the SEC and market participants?

Are aggressive trading behaviors illegal?

- deceptive practices: fraud under 10b
- is the CFTC anti-disruptive trading rule a good model for the SEC?

What features of the market structure pose concerns to economists?

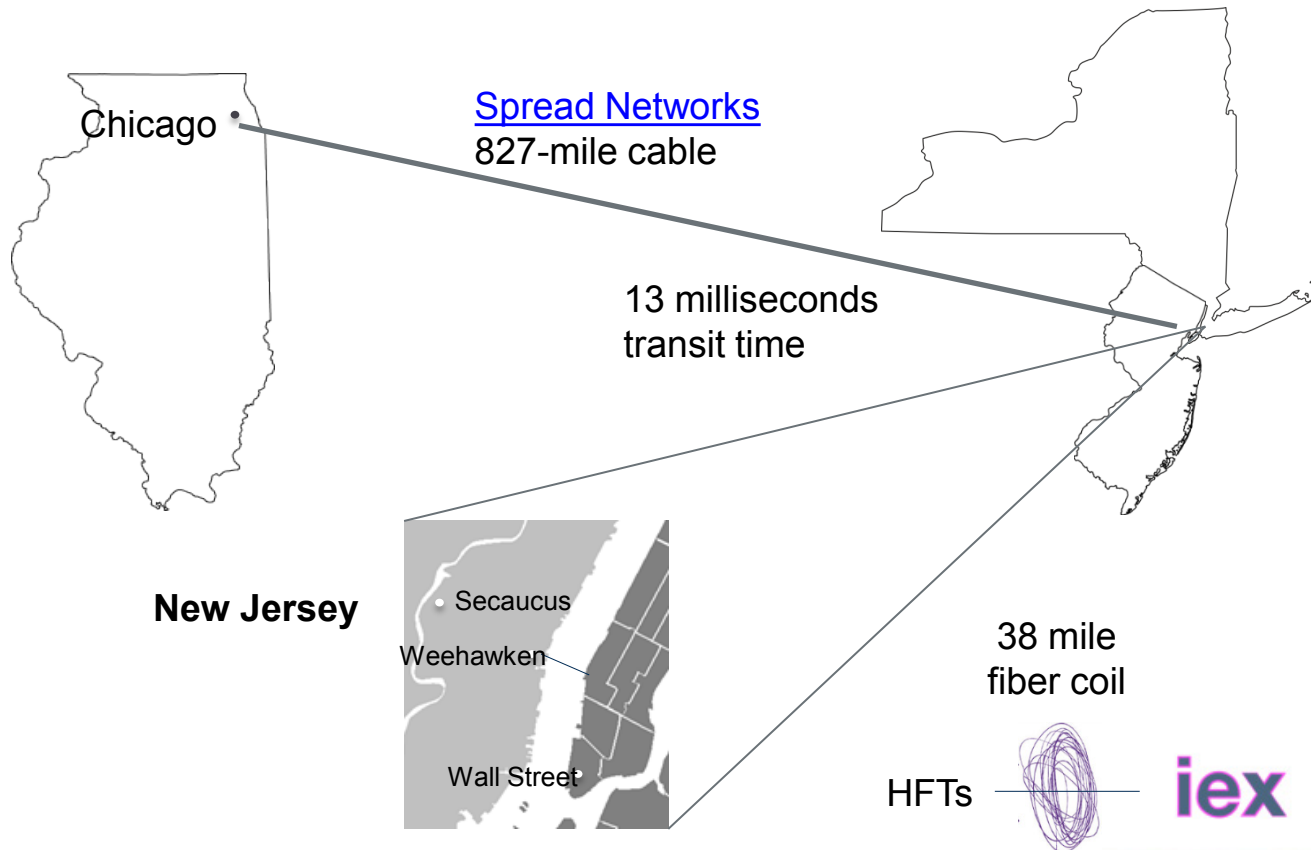


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The Flash Boys Story – IEX solved the problem





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How Did Flash Boys Translate into Litigation?

Trading abuses:

- order anticipation strategies: front-running
- pinging?
 - Spoofing? Is every HFT trading spoofing all the time?
- special order types that give HFT advantages
 - e.g. immediate execute or cancel

“Unfair” advantages of speed?

- colocation arrangements
- long term investor bias from speed
- dark pool rules deceptively loaded against long term investors

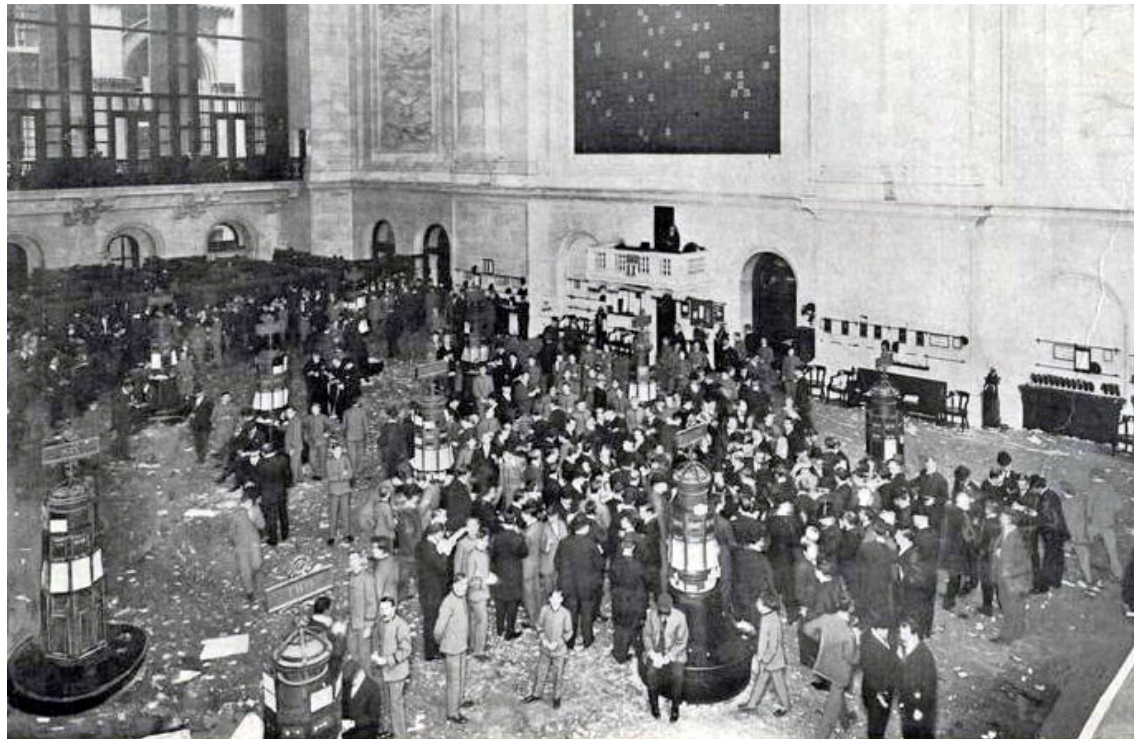
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1908 was a whole different world...





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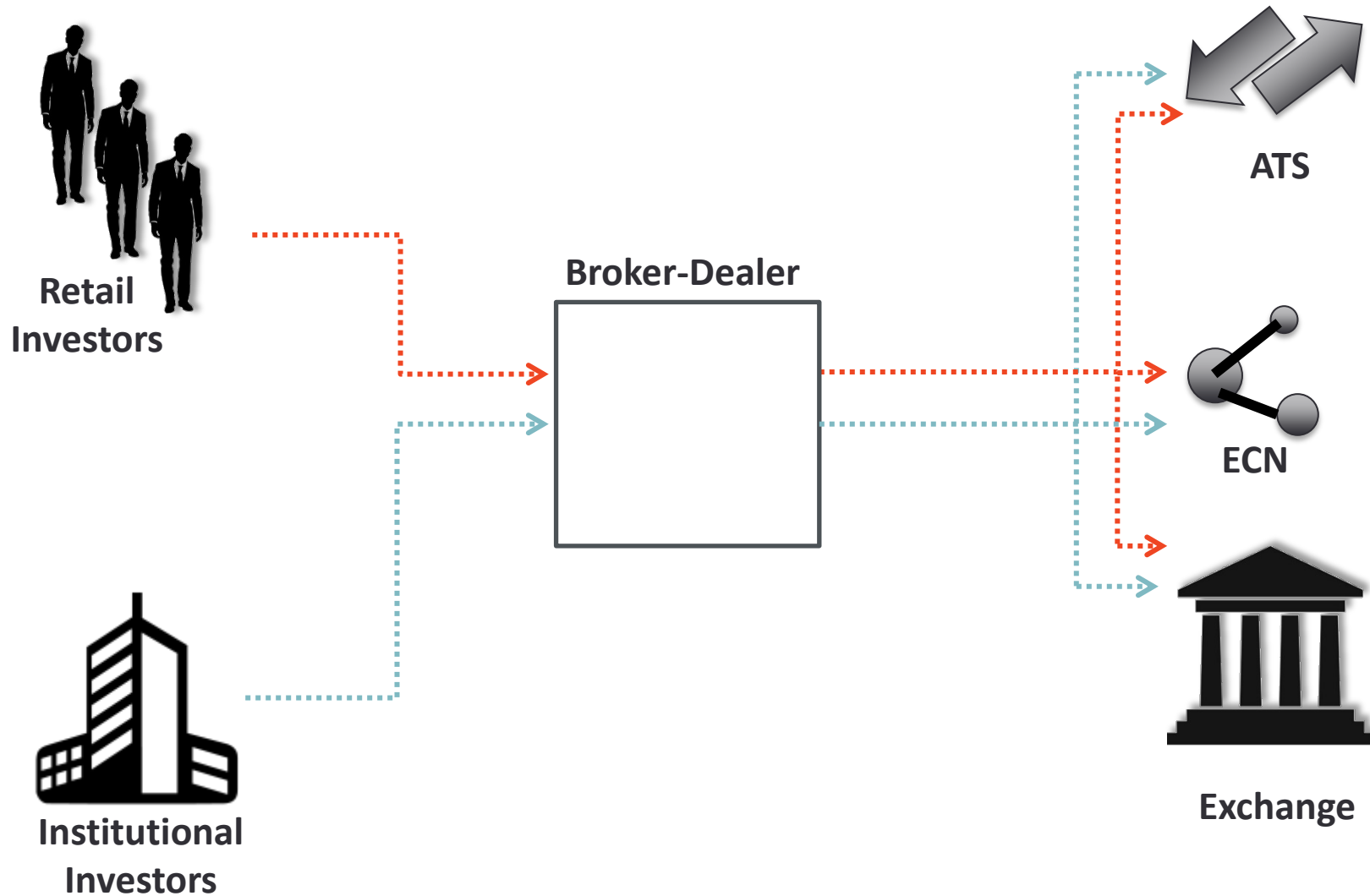
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The Current Market Structure Evolved Over Decades

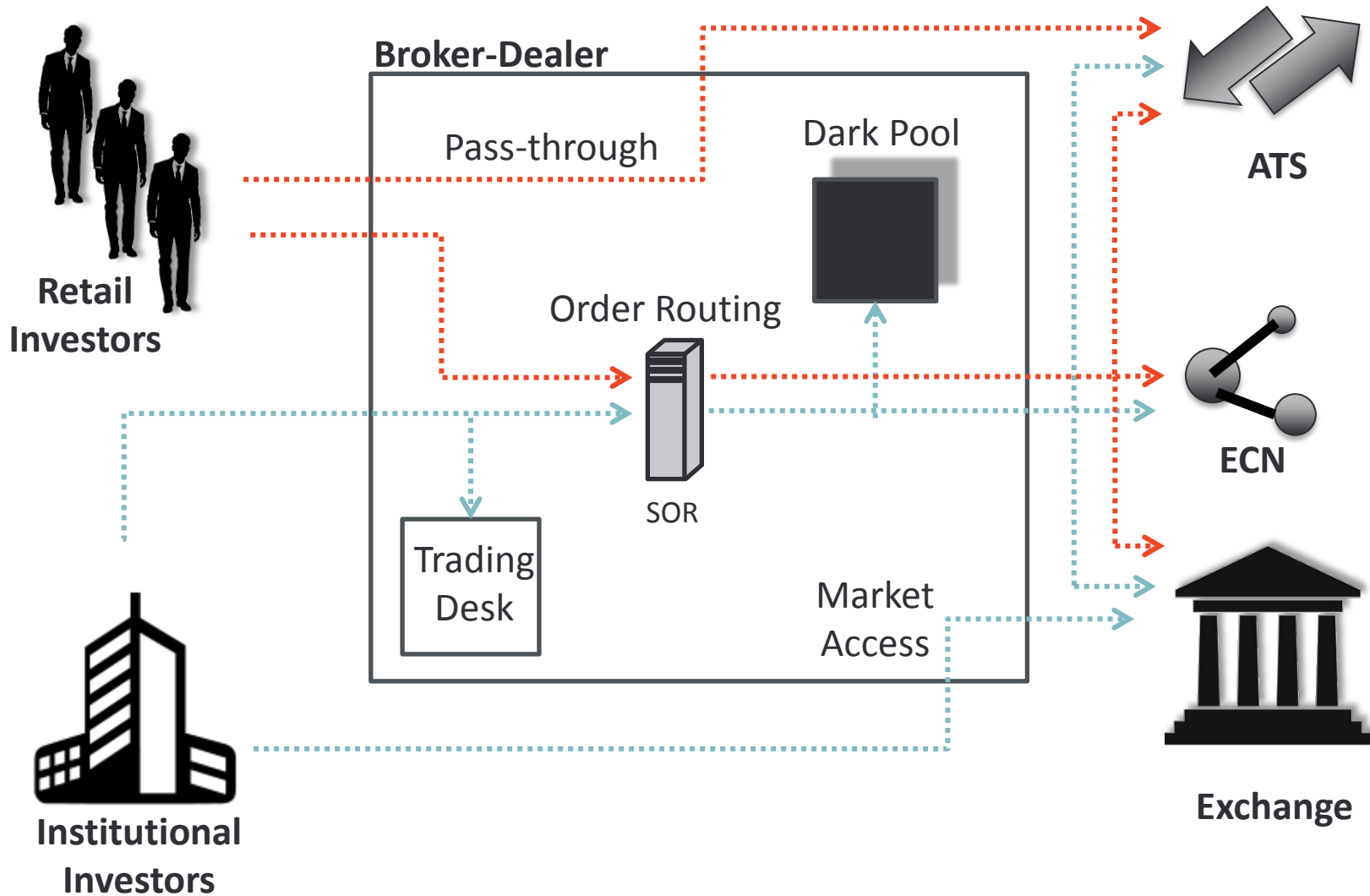
- 1980s:** payment for order flow: \$0.01 to \$0.02 per share + guaranteed immediate executions at the NBBO
- 1990s:** retail order competition increased order flow payments; payment for limit orders inhibited by Manning Rule
- 1997:** SEC order handling rules: ECN limit order competition with dealers (maker-taker pricing)
- 2002-2004:** separation of marketable and non-marketable orders
- 2005-2007:** regulation NMS – phase-out of rules to protect manual quotation on exchanges
- 2008:** NYSE Specialist phase-out

Broker-Dealers are Central to the Equity Market Structure



Source: FT Interactive

Broker Dealers Have Multiple Roles



Source: FT Interactive



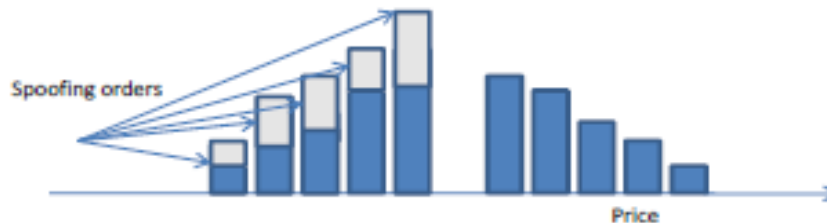
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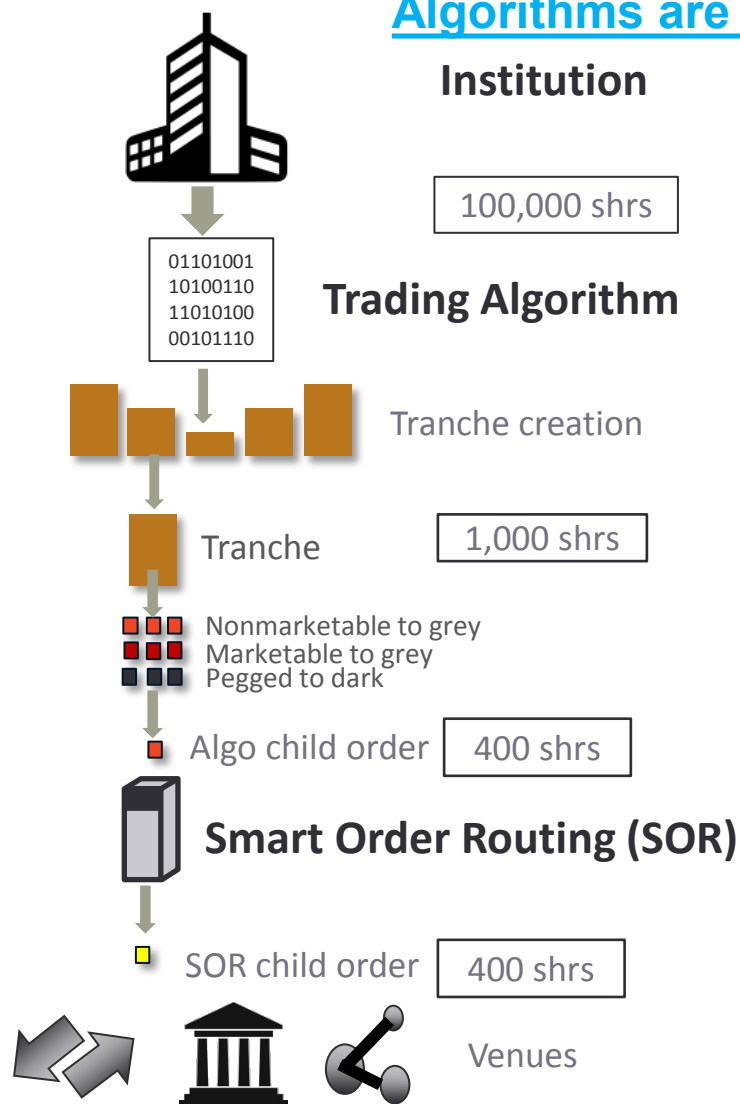
The diagram illustrates a sequence of buy and sell orders over time. The x-axis represents time steps from 20.03 to 20.13. The y-axis represents price. Green blocks represent buy orders, and blue blocks represent sell orders. The 'Best bid' is indicated at 20.07 and the 'Best ask/offer' is indicated at 20.09.

Time Step	Order Type	Price	Quantity
20.03	Buy	200	300
20.03	Buy	300	300
20.03	Buy	600	300
20.04	Buy	200	300
20.04	Buy	300	300
20.04	Buy	600	300
20.05	Buy	200	300
20.05	Buy	300	300
20.05	Buy	600	300
20.06	Buy	200	300
20.06	Buy	300	300
20.06	Buy	600	300
20.07	Buy	200	300
20.07	Buy	300	300
20.07	Buy	600	300
20.09	Sell	200	300
20.09	Sell	300	300
20.09	Sell	600	300
20.10	Sell	200	300
20.10	Sell	300	300
20.10	Sell	600	300
20.11	Sell	200	300
20.11	Sell	300	300
20.11	Sell	600	300
20.12	Sell	200	300
20.12	Sell	300	300
20.12	Sell	600	300
20.13	Sell	200	300
20.13	Sell	300	300
20.13	Sell	600	300

- layering: a range of limit orders secures executional priority
- spoofing: orders on one side in an attempt to affect the price



Algorithms are Essential to Order Execution



Order execution is complex

- algorithms optimize orders
- smart order placement
 - dynamic routing using real time metrics of liquidity and order execution performance by venue

Inter-Venue competition is intense

Trading centers act as agents

- order execution measurement is complex
- ATS rules govern trading
- reputational element

Practical regulatory reach is limited

- ability to distinguish pinging from smart order placement is poor



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SEC Raised Market Structure Concerns in 2010

Impact of dark pools on price discovery

- proposed trade-at rule

Fairness of market structure

- professional traders will almost certainly always be able to trade faster than long term investors

High Frequency Trading

- “is it possible to reliably identify harmful strategies”?
- “are there regulatory tools that would address harmful strategies while at the same time have minimal impact on beneficial strategies?”

Fragility

- market volatility
- market crashes
- abnormal liquidity



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Are Aggressive Trading Behaviors Illegal?

Front running?

- when trader breaches no duty of trust?
- when front running involves deception?
- are order anticipation strategies inherently deceptive?

Insider trading?

- is misappropriation of private information illegal?
- if information is acquired by deception?
 - SEC Dorozhko case
 - CFTC CEA section 180.1 fraud based rule
- is “pinging” deceptive?

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Are Aggressive Trading Behaviors Illegal?

DECEPTIVE PRACTICES: FRAUD UNDER 10B

Fraudulent statements or omissions

- conflicts of interest: colocation; payments for order flow
- misrepresentations: in order execution or ATS operation
- order execution performance is ultimate source of transparency, but can transparency cure other disclosure shortcomings?

Fraudulent trading?

- catch all? “Employment of manipulative and deceptive devices”
- *Sante Fe Ind. v Green*: wash trading or banging the close: manipulative and deceptive devices: “artificially affecting market activity”



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Is CFTC Anti-Disruptive Trading Rule a Good Model for the SEC?

What are the CFTC's rules?

- violates bids or offers
- reckless disregard for orderly execution during a closing period
- spoofing

How could they apply to HFT?

- 10b requires effect on market activity
- disruptive trading rule does not depend on actual effect e.g. London Whale
 - Potential for interference with “legitimate market forces”
- order cancelation is not proof of spoofing



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Economists Have Their Own Concerns About The Equity Market Structure

Rent seeking (competition is not always good)

Quality of liquidity (market fragility)

Unconstrained algo wars could distort prices

- flash crash
- closing periods

If competition is working don't interfere

- competitive solutions beat regulation: IEX exchange



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Conclusions

Adverse impacts of abusive HFT practices were well known feature of post-NMS equity market structure prior to Flash Boys revelations

Undesirable HFT practices are difficult to distinguish and regulate without impact on beneficial market making

SEC anti-disruptive rule could help clarify the appropriate focus for enforcement and litigation



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Should There be a Ban on HFT?

*"I would ban high speed trading- the automated, computer-driven trading of large volumes of financial assets in a short time frame by introducing lags in the trading process or increasing capital requirements or both. As far as I can see, it is entertaining, but it's largely a zero-sum game, using resources, **contributing potential volatility in markets**. The economic benefits in terms of enhancing the pricing, capital allocation and risk spreading functions of the financial system, seem negligible."*

Michael Spence

IMF hosted conference "Macro and Growth Policies in the Wake of the Crisis" March 7-8, 2011

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Introduction

Ms. Schreur's practice focuses on securities litigation and broker-dealer inquiry and enforcement proceedings by the SEC and FINRA. She also has experience with general commercial litigation and internal investigations.

Additionally, Ms. Schreur advises clients regarding compliance with federal and state securities laws and regulations and the rules of self-regulatory organizations.

Prior to joining Finn Dixon & Herling LLP, Ms. Schreur was an associate at Wilmer, Cutler, Pickering, Hale and Dorr LLP in their Broker-Dealer Compliance and Regulation group in New York.

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Moving Forward: FINRA and SEC Plans

- FINRA
 - FINRA Exam Priorities for 2014 and 2015
 - Market Access controls
 - Supervision and governance surrounding trading technology and change management
 - Registration of Algo Professionals
 - Clarity on Supervision Expectations
- SEC
 - HFT Registration
 - Anti-disruptive Trading Rule
 - Enhanced Oversight of Trading Algos Use and Management

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FINRA Exam Priorities

- May see Enforcement actions coming out of these
- Abusive algos (spoofing, layering, marking the close etc.) part of focus, but FINRA's interest is much broader, will impact broker-dealer intermediaries
 - Focus on Market Access Controls
 - Focus on supervision and governance of firms' trading technology and change management

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FINRA Exam Priorities

- [2014 Exam Priorities Letter](#): Market Regulation Priorities
 - Algorithmic Trading and Trading Systems
 - High Frequency and Other Algorithmic Trading Abuses
- [2015 Exam Priorities Letter](#): Market Integrity
 - Supervision and Governance Surrounding Trading Technology
 - Abusive Algorithms
 - Market Access

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FINRA Exam Priorities: Market Access Controls

- SEC Rule 15c3-5, the Market Access Rule
 - A broker or dealer with market access, or that provides a customer or any other person with access to an exchange or alternative trading system through use of its market participant identifier or otherwise, shall establish, document, and maintain a system of risk management controls and supervisory procedures reasonably designed to manage the financial, regulatory, and other risks of this business activity. See Rule 15c3-5(b).
 - The risk management controls and supervisory procedures must include the following elements (Rule 15c3-5(c)):
 - (1) Financial risk management controls and supervisory procedures reasonably designed to systematically limit the financial exposure of the broker or dealer that could arise as a result of market access, including being reasonably designed to:
 - (i) Prevent the entry of orders that exceed appropriate pre-set credit or capital thresholds in the aggregate for each customer and the broker or dealer and, where appropriate, more finely-tuned by sector, security, or otherwise by rejecting orders if such orders would exceed the applicable credit or capital thresholds; and
 - (ii) Prevent the entry of erroneous orders, by rejecting orders that exceed appropriate price or size parameters, on an order-by-order basis or over a short period of time, or that indicate duplicative orders.
 - (2) Regulatory risk management controls and supervisory procedures reasonably designed to ensure compliance with all regulatory requirements, including being reasonably designed to:
 - (i) Prevent the entry of orders unless there has been compliance with all regulatory requirements that must be satisfied on a pre-order entry basis;
 - (ii) Prevent the entry of orders for securities for a broker or dealer, customer, or other person if such person is restricted from trading those securities;
 - (iii) Restrict access to trading systems and technology that provide market access to persons and accounts pre-approved and authorized by the broker or dealer; and
 - (iv) Assure that appropriate surveillance personnel receive immediate post-trade execution reports that result from market access.

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FINRA Exam Priorities: Market Access Controls

- Financial and regulatory management controls and supervisory procedures must be under the direct and exclusive control of the broker or dealer (*i.e.*, cannot be delegated to the market access customer). See Rule 15c3-5(d).
- With respect to regulatory risk management controls and supervisory procedures, control over specific regulatory risk management controls and supervisory procedures may be allocated to a customer that is a registered broker or dealer, by written contract, after a thorough due diligence review, provided that the broker or dealer has a reasonable basis for determining that such customer, based on its position in the transaction and relationship with an ultimate customer, has better access than the broker or dealer to that ultimate customer and its trading information such that it can more effectively implement the specified controls or procedures. See Rule 15c3-5(d)(1).
 - Any allocation of control pursuant to paragraph (d)(1) of this section does not relieve a broker or dealer from any obligation under this section, including the overall responsibility to establish, document, and maintain a system of risk management controls and supervisory procedures reasonably designed to manage the financial, regulatory, and other risks of market access. See Rule 15c3-5(d)(2).
- A broker or dealer must establish, document, and maintain a system for regularly reviewing the effectiveness of its risk management controls and supervisory procedures and for promptly addressing any issues. See Rule 15c3-5(e). Including, at a minimum:
 - Review, no less frequently than annually, the business activity of the broker or dealer in connection with market access to assure the overall effectiveness of such risk management controls and supervisory procedures.
 - The Chief Executive Officer (or equivalent officer) of the broker or dealer must on an annual basis, certify that such risk management controls and supervisory procedures comply with the Rule, and that the broker or dealer conducted a review of its procedures.

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FINRA Exam Priorities: Market Access Controls

- From 2014 Letter
 - “As in 2013, FINRA also will continue to focus on the entry of problematic HFT and algorithmic activity through sponsored participants who initiate their activity from outside of the United States. In this regard, FINRA reminds firms of their surveillance and control obligations under the SEC’s Market Access Rule and Notice to Members 04-66, as well as potential issues related to treating such accounts as customer accounts, anti-money laundering and margin levels, as highlighted in Regulatory Notice 10-18 and the SEC’s Office of Compliance Inspections and Examination’s National Exam Risk Alert dated September 29, 2011. FINRA also reminds firms of their obligations to perform appropriate due diligence when taking on new sponsored access customers, particularly those that previously accessed the markets through firms that have been the subject of regulatory action for Market Access Rule violations relating to manipulative trading schemes, so as to prevent the firm’s facilitation of the entry of manipulative trading activity from such accounts to the marketplace.”

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FINRA Exam Priorities: Market Access Controls

- From 2015 Letter
 - “FINRA views abusive trading algorithms and deficient supervision for potential manipulation as among the most significant risks to the integrity of the markets. For that reason, FINRA will continue to pursue firms whose traders or customers use algorithms to manipulate the markets, including through layering, spoofing, wash sales and marking the close, among other means. In addition, FINRA will continue to further enhance its surveillance program to detect new types of potentially manipulative trading activity brought about through the use of abusive trading algorithms. FINRA will also continue to review whether firms’ supervisory and other controls failed to appropriately detect abusive activity by the firm’s traders or its customers.”
 - “While the four years since the SEC adopted Rule 15c3-5 (the “Market Access Rule”) have seen improvements in firms’ risk management controls, we continue to find examples of firms’ inadequate market access controls in both the equities and options markets related to potential rules violations (e.g., manipulation) and erroneous activity (e.g., erroneous quotes). Similarly, we have observed confusion regarding the applicability of the Market Access Rule to the fixed income markets. We have frequently found that firms have not developed sufficient financial controls around fixed income market access with respect to principal trading activity. FINRA recognizes the control challenges firms face when customers conduct potentially manipulative activity through multiple broker-dealers. Therefore, beginning in 2015, FINRA plans to commence a pilot program to leverage the relationship trading alert activity detected in its cross-market surveillance program to provide firms with information intended to supplement firms’ supervision efforts with respect to detecting and preventing manipulative trading activity.”



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FINRA Exam Priorities: Trading Technology & Change Management

Review and Testing of Algorithms • Supervision of Algorithms • Controls over Programming Changes

- From 2014 Letter

- “In recent years, there have been a number of algorithmic trading malfunctions that caused substantial market disruptions. These malfunctions raise concern about firms’ ability to develop, implement and effectively supervise these systems. FINRA reiterates a number of comments from last year’s letter that apply with equal relevance in 2014. FINRA will continue to assess whether firms’ testing and controls related to high-frequency trading (HFT) and other algorithmic trading strategies and trading systems are adequate in light of the Market Access Rule and firms’ other supervisory obligations. This assessment may take the form of examinations and targeted investigations.

Firms subject to review should be prepared to address whether they conduct separate, independent and robust pre-implementation testing of algorithms and trading systems and whether the firm’s legal, compliance and operations staff are reviewing the design and development of the firm’s algorithms and trading systems for compliance with legal requirements. FINRA staff will want to understand whether a firm actively monitors and surveils algorithms and trading systems once they are placed into production or after they have been changed, including procedures and controls to detect potential trading abuses such as wash sales, marking, layering and momentum ignition strategies, among others. Finally, firms should expect to explain their approach to firmwide disconnect or “kill” switches, as well as procedures for responding to catastrophic system malfunctions.”

- “The use of HFT strategies has grown substantially over the past years and drives a significant portion of activity on the U.S. markets. Although many HFT strategies are legitimate, some are not and may be used for manipulative purposes. Given the scale of the potential impact these practices may have, the surveillance of abusive algorithms remains a high priority for FINRA. FINRA reminds firms using HFT strategies and other trading algorithms of their obligation to be vigilant when testing these strategies pre- and post-launch to ensure that the strategies do not result in abusive trading.”

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FINRA Exam Priorities: Trading Technology & Change Management

- From 2015 Letter
 - “Maintaining a robust technology governance framework for electronic trading is a key responsibility for broker-dealers. FINRA has identified a number of concerns in this area, and in 2015, FINRA examination teams will review firms’ technology and related controls with an emphasis on the development and ongoing supervision of algorithms. For example, FINRA examiners will review the adequacy of firms’ formal supervisory processes—and related controls—for the development and testing of technology changes. Part of this review is a heightened focus on unscheduled trading technology changes that may not have benefitted from offline testing before handling live trades. FINRA examiners also will review the segregation of duties for technology staff performing various functions, namely, developing, testing, deploying, and modifying new and existing technologies.”
 - “FINRA views abusive trading algorithms and deficient supervision for potential manipulation as among the most significant risks to the integrity of the markets. For that reason, FINRA will continue to pursue firms whose traders or customers use algorithms to manipulate the markets, including through layering, spoofing, wash sales and marking the close, among other means. In addition, FINRA will continue to further enhance its surveillance program to detect new types of potentially manipulative trading activity brought about through the use of abusive trading algorithms. FINRA will also continue to review whether firms’ supervisory and other controls failed to appropriately detect abusive activity by the firm’s traders or its customers.”

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FINRA Registration of Algo Professionals

- [FINRA Board Approves Series of Equity Trading and Fixed Income Rulemaking Items, September 19, 2014.](#)
 - **Registration of Associated Persons Involved in the Preparation of Algorithmic Strategies.** The Board authorized FINRA to issue a Regulatory Notice seeking comment on a proposal to establish a registration requirement for associated persons who are: (1) primarily responsible for the design, development or for directing the significant modification of an algorithmic strategy; or (2) responsible for supervising such functions
- “And in an important improvement to our oversight, FINRA's board last month approved a proposal to require those who design, develop or direct the significant modification of an algorithmic strategy, to register with FINRA. Those who supervise these functions would also be required to register with FINRA. We plan to seek comments on the proposal, and you should expect to hear more about it soon. We look forward to your comments and input.” FINRA CRO and Head of Strategy, Carlo di Florio, remarks at NSCP 2014 National Conference, October 20, 2014.

FINRA Enforcement Actions

- ***Citadel Securities LLC, Matter No. 20100223345, June 25, 2014***

- “Separately, in April 2010, while implementing a software upgrade, CDRG released a test version of a previously abandoned software update, causing a quoting system to send aggressively priced marketable sell limit orders to the exchanges. This release caused CDRG to erroneously sell short 2.75 million shares of PC Group, Inc. during an eleven minute period.”
- “In August 2011, CDRG released and updated version of its order sizing software for one of its proprietary trading strategies. The release caused the trading strategy to enter into an order sending and cancellation loop.”
- “On December 13, 2012, CDRG applied inaccurate market data to its order book when a CDRG data server dedicated to handling NYSE Arca market data failed to start up properly. This failure caused CDRG’s proprietary trading desk to send erroneous hyper-marketable limit orders in 16 different stock symbols to the Exchanges during a two minute period.”

- “By failing to establish, maintain, and enforce a supervisory system, including supervisory procedures and risk management controls reasonably designed to: (1) check for order accuracy; (2) reject orders that exceeded appropriate price and/or size parameters; (3) reject duplicative orders; and (4) monitor appropriate message level activity, including message activity at the desk, firm and market level, CDRG violated NYSE Arca Equities Rules 6.1 and 6.18 (for conduct occurring during the Review Period), and Exchange Act Rule 15c3-5 (for conduct occurring on or after July 14, 2011).”

- ***Cutler Group, L.P., Matter Nos. 20120321194 and 20120347438, March 28, 2014***

- “During the Review Period, the Firm failed to have adequate risk management controls to identify potential wash trades in that it lacked: (i) system parameters to prevent potential wash trades; (ii) a surveillance to detect potential wash trades; and (iii) written supervisory procedures that provided for reviews with respect to wash trades.”
- “During the Review Period, the Firm failed to have adequate written supervisory procedures and operation risk control systems that were reasonably designed with respect to the oversight and operation of algorithmic quoting and trading. For example, the Firm failed to address its overall open exposure with respect to options market making quotes and monitoring of traders’ credit and capital thresholds in that the Firm’s market maker quotes processed through AQTOR, one of its proprietary trading systems, had not been included when the Firm monitored its traders’ capital thresholds. Additionally, the Firm allowed its traders to override the Firm’s default risk parameters in its quoting systems and failed to ensure that management received timely notifications or granted timely approvals with respect to traders’ changing those parameters.”
- “Finally, the Firm failed to have systems in place to prevent its algorithms from transmitting excessive quotes and excessive message traffic (e.g., quotes and orders) to the NYSE Arca Options market.”

- “Cutler Group, LP violated Exchange Act Rule 15c3-5(b) and (c) and NYSE Arca Options Rule 11.18(b) and (c), by failing to have (i) system parameters, surveillance, and written procedures to prevent and detect potential wash sales; and (ii) adequate written supervisory procedures and operational risk control systems that were reasonably designed with respect to the oversight and operation of algorithmic quoting and trading.

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SEC – HFT Registration

- [Enhancing Our Equity Market Structure, SEC Chair Mary Jo White, Sandler O'Neill & Partners, L.P. Global Exchange and Brokerage Conference, June 5, 2014](#)
 - “We also are focused on using our core regulatory tools of registration and firm oversight. I have asked the SEC staff to prepare two recommendations for the Commission: the first, a rule to clarify the status of unregistered active proprietary traders to subject them to our rules as dealers; and second, a rule eliminating an exception from FINRA membership requirements for dealers that trade in off-exchange venues. Dealer registration and FINRA membership should significantly strengthen regulatory oversight over active proprietary trading firms and the strategies they use.”
- Subject HFTs to existing broker-dealer regulation scheme
 - Would it require legislation vs. rulemaking?
- Vs. [German model, created new regulatory regime for HFTs](#)
 - German HFT Act introduces business conduct rules and organization requirements for HTFs
 - Incorporates an anti-disruptive trading provision
 - Requires trading venues’ order data to identify the relevant trading algorithm
 - Requires trading venues to impose special fees for extensive use of their systems for transmissions, amendments, and cancellations of orders

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SEC – Anti-disruptive Trading Rule

- Enhancing Our Equity Market Structure, SEC Chair Mary Jo White, Sandler O'Neill & Partners, L.P. Global Exchange and Brokerage Conference, June 5, 2014
 - “An area of particular focus is the use of aggressive, destabilizing trading strategies in vulnerable market conditions, when they could most seriously exacerbate price volatility. While the volatility moderators already put in place impose outside limits on price moves, even moves within those limits can be damaging. Instability arising during a broad market event may simultaneously affect hundreds or thousands of stocks, triggering many trading pauses and reopenings over a short period of time.

To address this risk, I have directed the staff to develop a recommendation to the Commission for an anti-disruptive trading rule. Such a rule will need to be carefully tailored to apply to active proprietary traders in short time periods when liquidity is most vulnerable and the risk of price disruption caused by aggressive short-term trading strategies is highest.”
- What would the Rule look like?
 - What is “disruptive”?
 - ““An anti-disruption trading rule may give them the freedom to just look at the behavior of an algorithm or a trading process and say, ‘We think that this is disruptive, therefore it has to be regulated or turned off, or disciplined,’” he said. ‘If an algorithm you are using does something that they deem to be disruptive, even if maybe you didn’t intend it, this will give them opportunity to correct it and discipline the market.’” Keith Ross, CEO of PDQ Enterprises, speaking to MarketsMedia.com, [What’s SEC’s Next Move on HFT, June 13, 2014.](#)
 - Who would the rule apply to?
 - Prop traders vs. market makers?
 - Any intent requirement?
 - CFTC Model, previously discussed

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SEC – Enhanced Oversight

- Enhancing Our Equity Market Structure, SEC Chair Mary Jo White, Sandler O'Neill & Partners, L.P. Global Exchange and Brokerage Conference, June 5, 2014
 - “I have further instructed the staff to prepare recommendations for the Commission to improve firms’ risk management of trading algorithms and to enhance regulatory oversight over their use. Given the overwhelming dominance of trading algorithms, it is time that our regulatory regime is updated to take better account of the risks when they are poorly designed or operated.”
- [July 2014, according to documents obtained by Reuters, SEC targeting 10 HFT firms in trading probe](#)
 - Looking at abuse of order types, as well as layering and spoofing.
 - E.g. [Settlement with Athena Capital Research, LLC, SEC Release No. 34-73369, October 16, 2014.](#)
- But again, focus is not just on abusive algorithms
 - “it is time that our regulatory regime is updated to take better account of the *risks when they are poorly designed or operated.*”
 - E.g. [Settlement with Knight Capital, SEC Release 34-70694, October 16, 2013.](#)

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SEC Enforcement

- [Morgan Stanley & Co. LLC, SEC Release No. 34-73801, December 10, 2014.](#)
 - SEC penalized Morgan Stanley for violating Rule 15c3-5 after it failed to uphold credit limits for a DMA customer firm with a rogue trader who engaged in fraudulent trading of Apple Stock
 - The rogue trader routed to Morgan Stanley's electronic trading desk a series of orders to purchase Apple stock. The orders came steadily throughout the day, totaling approximately \$525 million, which significantly exceeded the DMA customer's pre-set aggregate daily trading limit (\$200 million). In order to execute the orders, Morgan Stanley's electronic trading desk initially increased the customer's limit to \$500 million and later to \$750 million without conducting adequate due diligence to ensure the credit increases were warranted.
 - Morgan Stanley's written supervisory procedures did not provide reasonable guidance for electronic trading desk personnel who determine whether or not to increase customer trading thresholds.
 - \$4 million penalty
- [Wedbush Securities Inc., SEC Release No. 34-73652, November 20, 2014.](#)
 - SEC penalized Wedbush for violating the market access rule by failing to have adequate risk controls in place before providing customers with access to the market, including some customer firms with thousands of essentially anonymous overseas traders. The order also finds that Wedbush committed other violations in connection with its market access business.
 - Wedbush failed to respond to deficiencies noted in OCIE Exam Deficiency Letter that put it on notice of issues with its market access controls.
 - Notably, among others, OCIE suggested that for Wedbush's largest sponsored access, non-broker dealer client, the firm needed to "identify the [customer's] ultimate traders."
 - Also included individual settlements with Wedbush's former Executive Vice President and Senior Vice President.
 - \$2.4 million penalty



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What is Adequate Supervision?

- **Needs to address algo implementation (testing and strategy review), ongoing operation (pre- and post-trade surveillance), and software updating (testing and strategy review).**
 - “Starting with the first question—are algorithms out of control—FINRA and the SEC are focused on assessing whether firms’ testing and controls related to high-frequency trading and other algorithmic trading strategies and trading systems are adequate. When we examine firms, we expect them to be prepared to address whether they conduct separate, independent, and robust pre-implementation testing of algorithms and trading systems. And we also assess whether the firm’s legal, compliance and operations staff are reviewing the design and development of the firm’s algorithms and trading systems for compliance with legal and regulatory requirements.” [FINRA CRO and Head of Strategy, Carlo di Florio, remarks at NSCP 2014 National Conference, October 20, 2014.](#)
 - “We also assess whether a firm actively monitors and surveils algorithms and trading systems once they are placed into production, or after they have been altered. This review includes procedures and controls to detect potential trading abuses such as spoofing, wash sales, marking, layering and momentum-ignition strategies, among others. In addition, we ask firms to explain their approach to firmwide disconnect or “kill” switches, as well as procedures for responding to catastrophic system malfunctions.” FINRA CRO and Head of Strategy, Carlo di Florio, remarks at NSCP 2014 National Conference, October 20, 2014.
- **Specific Guidance from FINRA, coming in 2015 (hopefully).**
 - [FINRA Board Approves Series of Equity Trading and Fixed Income Rulemaking Items, September 19, 2014.](#) **Supervision of Algorithmic Trading Strategies.** The Board authorized FINRA to publish a Regulatory Notice reminding firms of their existing supervisory obligations with regard to the development and deployment of algorithmic trading strategies.
 - “FINRA will also publish guidance reminding firms of their existing supervisory obligations with regard to the development and deployment of algorithmic trading strategies. We’ll also provide additional guidance to firms on effective controls and practices to monitor for and prevent potential adverse impacts on the market. The guidance will also cover firms’ obligations in these areas, and supervision and control practices for firms and market participants that use algorithmic trading strategies.” FINRA CRO and Head of Strategy, Carlo di Florio, remarks at NSCP 2014 National Conference, October 20, 2014.

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What is Adequate Supervision?

- [SEC Market Access Rule FAQs, published April 15, 2014.](#)
 - Reiterates Rule's requirements and guidance from the Adopting/Proposing Releases
 - Offers some technical interpretations of Rule's application
 - Rule applies to quoting activity. FAQ Question 1.
 - Broker-dealers may use risk management tools provided by third parties, including exchanges and ATS, *provided* the broker-dealer has direct and exclusive control over those tools and the broker dealer has performed appropriate diligence to determine tools are effective (the broker-dealer may not merely rely on representations of the technology provider). FAQ Question 5. Guidance on diligence, FAQ Question 14.
 - Manual controls are okay for manual orders, but if any electronic system is involved in the execution, then the broker-dealer must utilize automated pre-trade controls. FAQ Question 6.
 - Guidance on determining appropriate credit and capital thresholds. FAQ Questions 8 and 15.
 - "Prevent the entry" means prevent the entry – "scramble" or "chase and cancel" financial risk management procedures are not sufficient. FAQ Question 16.

Q&A:

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Principal
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SEGMENT 3:



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