

# Modern Market Structure: *A Survey of the US Stock Market*



**ModernIR**

Market Structure Analytics™

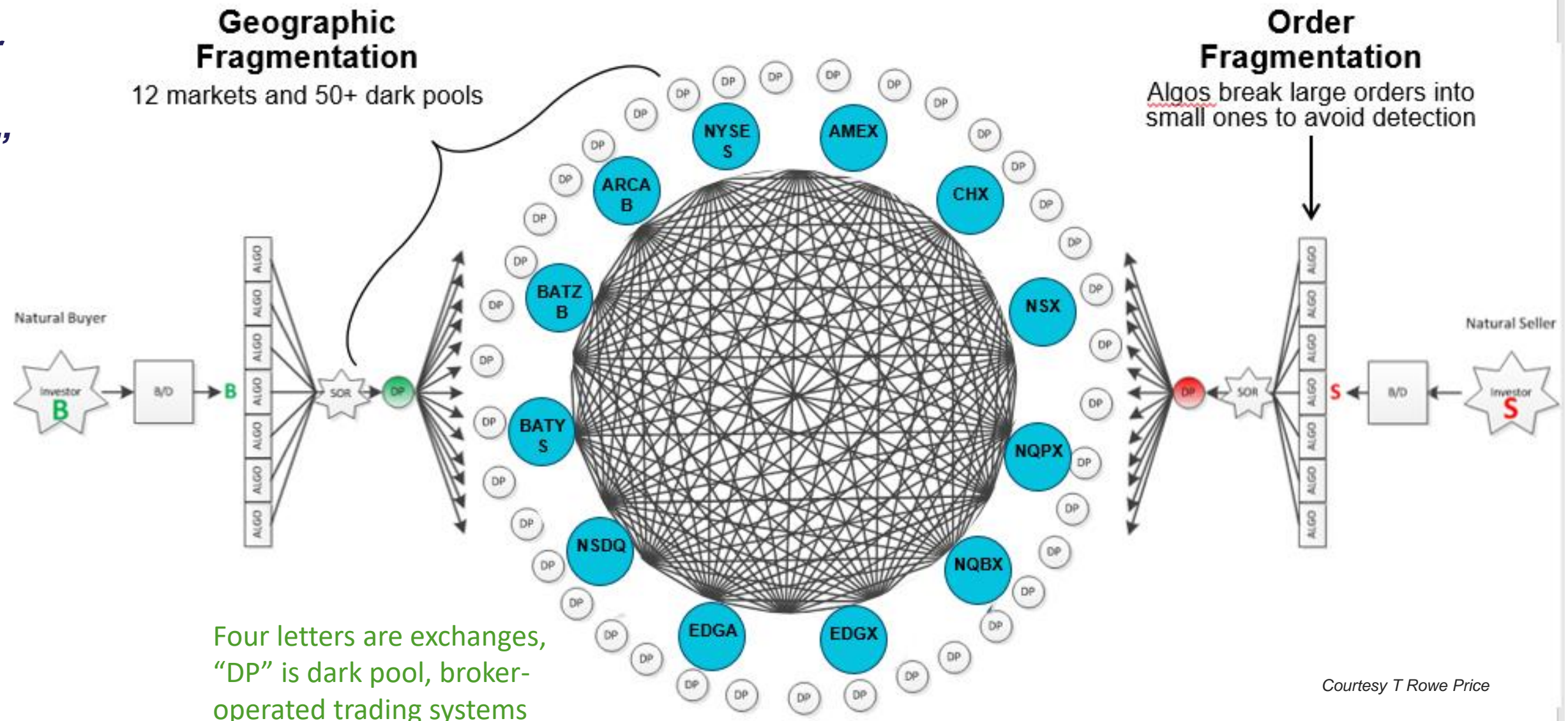


# The Stock Market Actually Looks Like This – PROCESS Affects PURPOSE



*For an Active “Natural” Buyer (left) to find an Active “Natural” Seller (right), orders must navigate the “Death Star” and compete with other behaviors.*

*Note: 2020 figures differ some versus these 2017 data from T Rowe Price: 15 Exchanges, 34 dark pools*




Courtesy T Rowe Price

**= Complexity and Excessive Intermediation**

# Stock Market Daily: \$500B / 12B shares

Data month-to-date June 2020



Notional Value Summary		Volume Summary		<input type="checkbox"/> Combine		
Today		5 Day Avg.		MTD Avg.		
	Jun 18, 2020	Tape A NYSE	Tape B Regional	Tape C Nasdaq	Total	% of Mkt
Matched Volume					Exchanges	
NASDAQ (Q)		\$32,116,263,489.93	\$18,050,907,589.55	\$57,884,738,960.59	\$108,051,910,040.06	21.04%
NYSE Arca (P)		\$11,981,967,190.70	\$23,702,484,206.87	\$16,990,356,191.09	\$52,674,807,588.66	10.26%
NYSE (N)		\$42,396,190,921.45	\$3,315,739,106.79	\$2,517,262,303.98	\$48,229,192,332.22	9.39%
BZX Equities (Z)		\$11,658,924,533.40	\$12,407,404,175.58	\$12,359,425,124.29	\$36,425,753,833.28	7.09%
EDGX Equities (K)		\$9,134,310,303.07	\$8,468,937,879.39	\$9,576,733,695.32	\$27,179,981,877.78	5.29%
IEX (V)		\$5,887,981,307.19	\$1,627,597,746.15	\$4,172,580,850.08	\$11,688,159,903.42	2.28%
EDGA Equities (J)		\$4,200,747,348.54	\$2,286,745,963.25	\$3,311,443,982.13	\$9,798,937,293.92	1.91%
BYX Equities (Y)		\$2,625,652,957.27	\$2,751,480,163.53	\$2,312,803,622.37	\$7,689,936,743.17	1.50%
NYSE National (C)		\$1,887,302,741.22	\$1,808,165,592.04	\$1,054,677,343.52	\$4,750,145,676.78	0.92%
NASDAQ BX (B)		\$1,618,860,030.60	\$1,417,233,275.25	\$1,421,415,952.40	\$4,457,509,258.25	0.87%
NYSE Chicago (M)		\$1,191,661,903.43	\$1,594,484,857.12	\$744,999,380.96	\$3,531,146,141.51	0.69%
NASDAQ PSX (X)		\$790,173,474.83	\$1,457,008,936.51	\$1,031,752,148.91	\$3,278,934,560.26	0.64%
NYSE American (A)		\$384,603,181.03	\$411,084,735.31	\$321,372,278.47	\$1,117,060,194.81	0.22%
FINRA & TRF Volume					Dark Pools	
FINRA / Nasdaq TRF Carteret (DQ)		\$59,316,883,218.60	\$36,909,484,921.20	\$57,913,167,981.57	\$154,139,536,121.37	30.01%
FINRA / NYSE TRF (DN)		\$14,320,384,467.60	\$6,485,623,565.22	\$18,715,037,721.43	\$39,521,045,754.25	7.69%
FINRA / Nasdaq TRF Chicago (DB)		\$381,107,529.00	\$154,285,091.61	\$563,729,991.32	\$1,099,122,611.94	0.21%
Total Consolidated Volume						
Total		\$199,893,014,597.86	\$122,848,667,805.38	\$190,891,497,528.44	\$513,633,179,931.68	100.00%

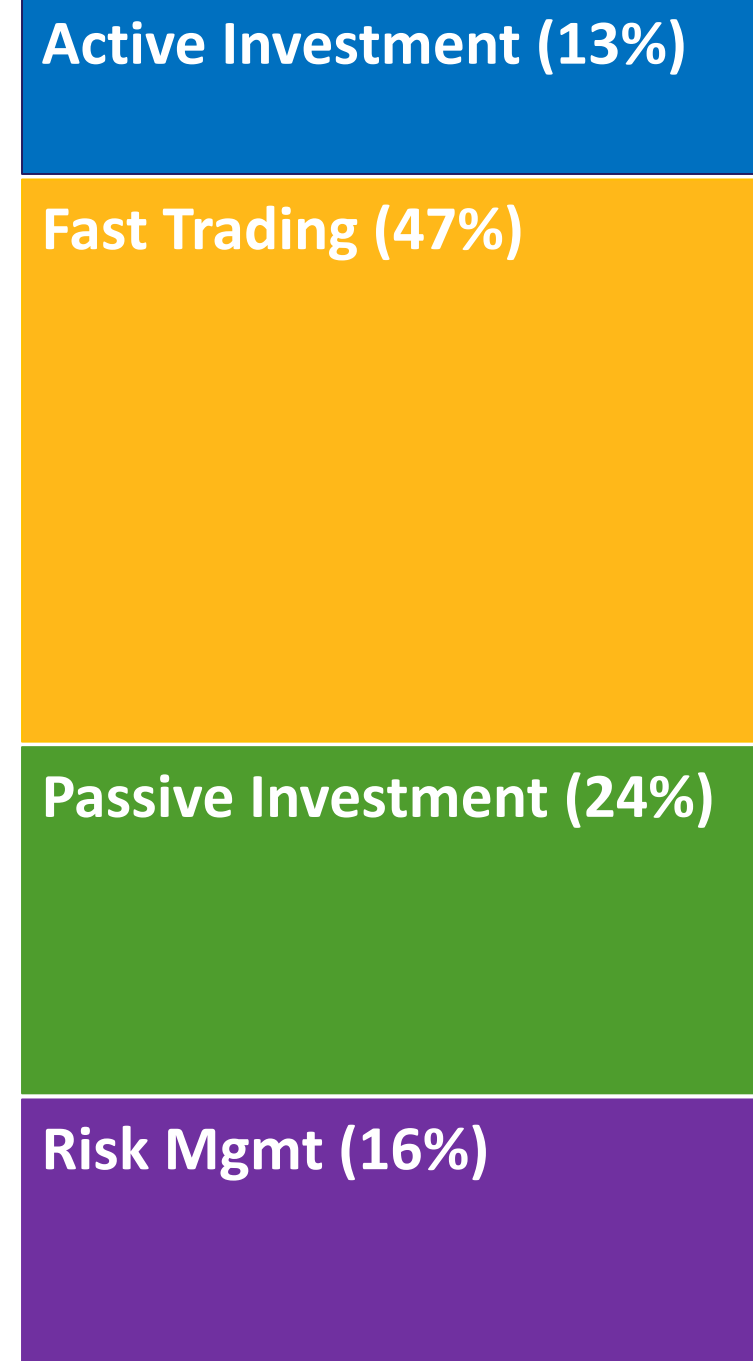
# Changing Composition of Market Volume



- ← **c. 1995:**
- ETFs just 3 years old
  - Modest speculation
  - Pre-Decimalization
  - Markets not connected

- 2020:** →
- ETFs dominate
  - High-speed trading
  - Reg Natl Market System
  - Markets interconnected

*Sources: 1995 data are estimated based on firms making markets at the time, Investment Co Institute data on fund assets. 2020 data from ModernIR models.*

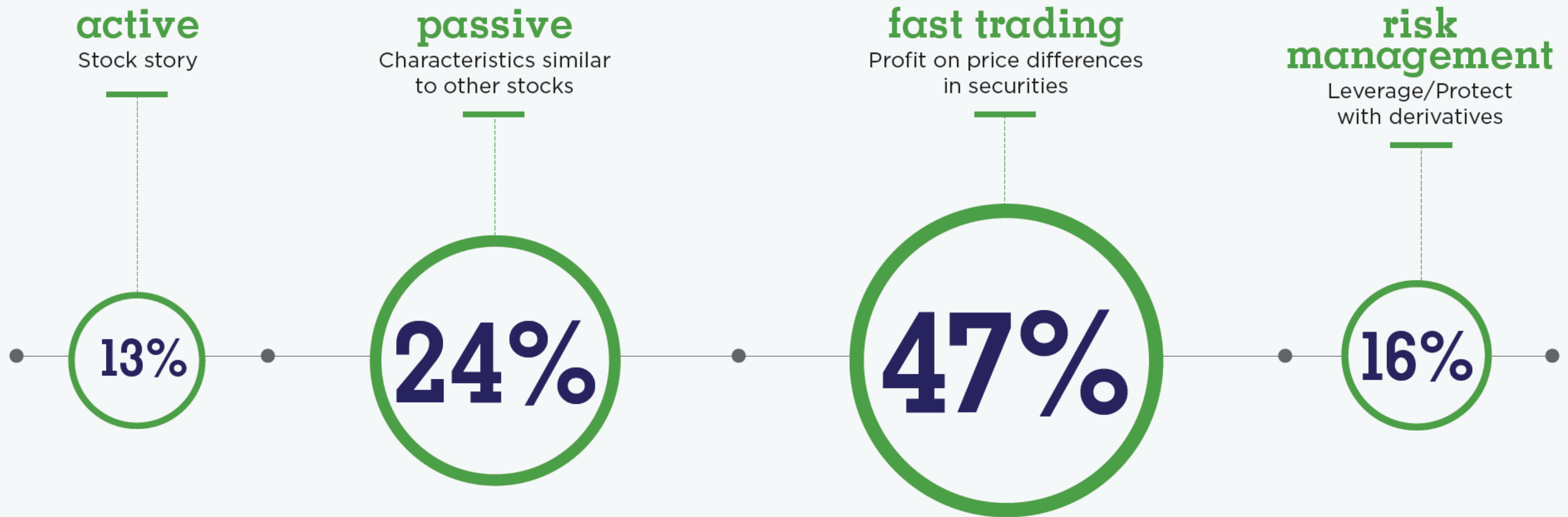




# Four Behaviors, No Longer Just “Investment”

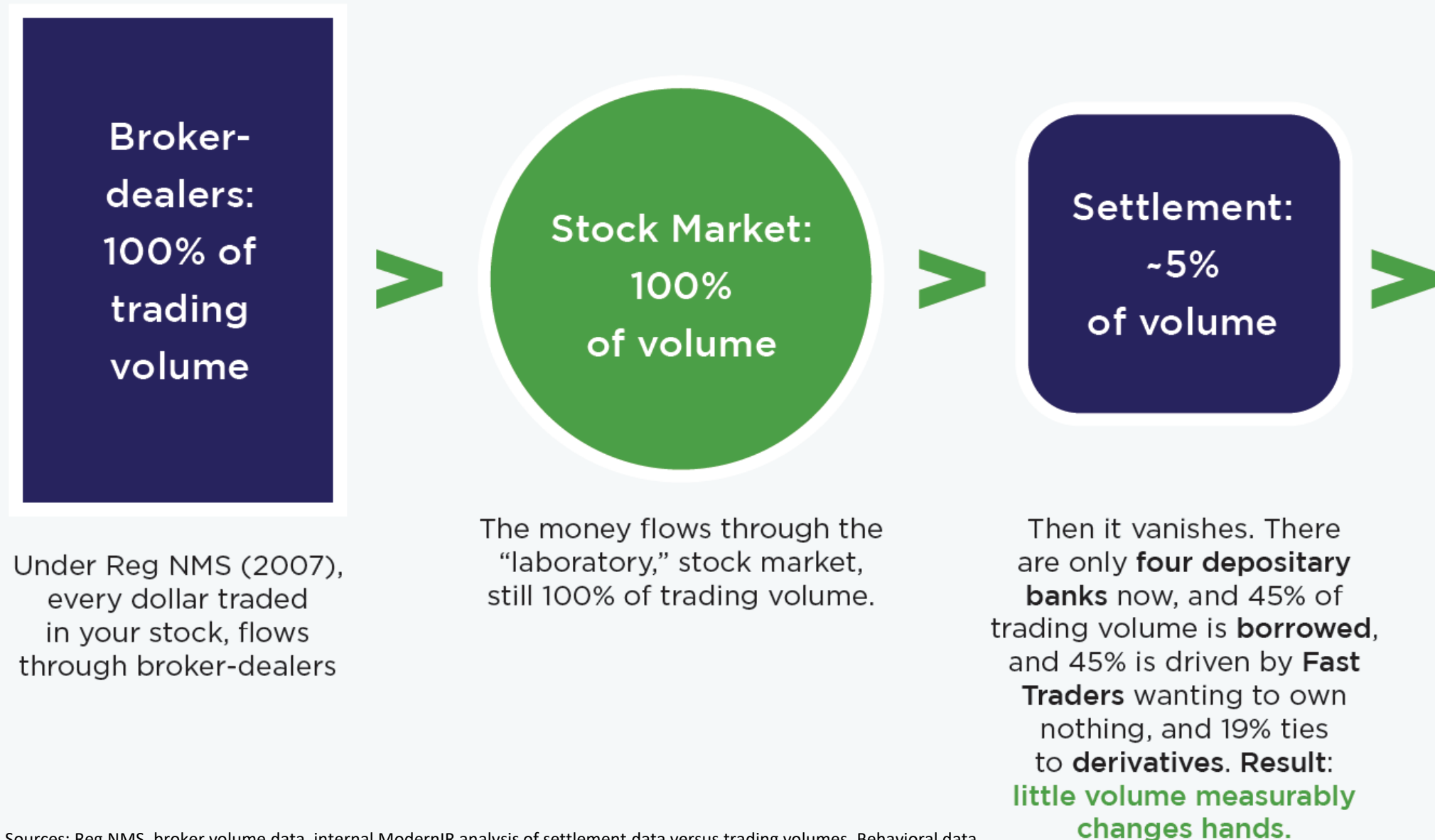


## 4 REASONS INVESTORS AND TRADERS BUY/SELL



\*Source: 200-day averages at Jan 31 2020, ModernIR

# “Why Don’t I See My Trading Volume in DTC Data?”



Sources: Reg NMS, broker volume data, internal ModernIR analysis of settlement data versus trading volumes. Behavioral data here are 200-day averages at Dec 2019 and vary slightly from current data.



## The Root Cause of Behavioral Change: Reg NMS

### Regulation National Market System (2007):

- Forced stocks to trade at a single best price marketwide: Nat'l Best Bid/Offer (NBBO)
  - Eliminated exchange customer-preference
  - Forced exchanges to share prices, customers
  - Imposed rules that spawned a focus on selling data, and changing stock quotes, prices
- 
- Consequences:
    - Average prices rule markets, pushing volume toward opening and closing auctions
    - Traders owning nothing set most prices
    - Arbitrage, or profiting on price-differences, abounds

# Market Structure Rules Encourage Averages



Reg NMS requires  
stocks to trade  
between the best Bid  
and Offer

- The Average



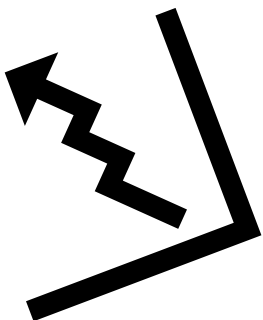
Passive Investment  
tries to track  
averages, which is the  
price between the Bid  
and the Offer

- The Average



A few big brokers  
execute trades and  
are fined if they aren't  
consistently between  
the Bid and Offer

- The Average



Stock-pickers  
seek **OUTLIERS**,  
but if stocks rise,  
diverge from  
broad measures,  
indexes sell.

## Tracking the Mean

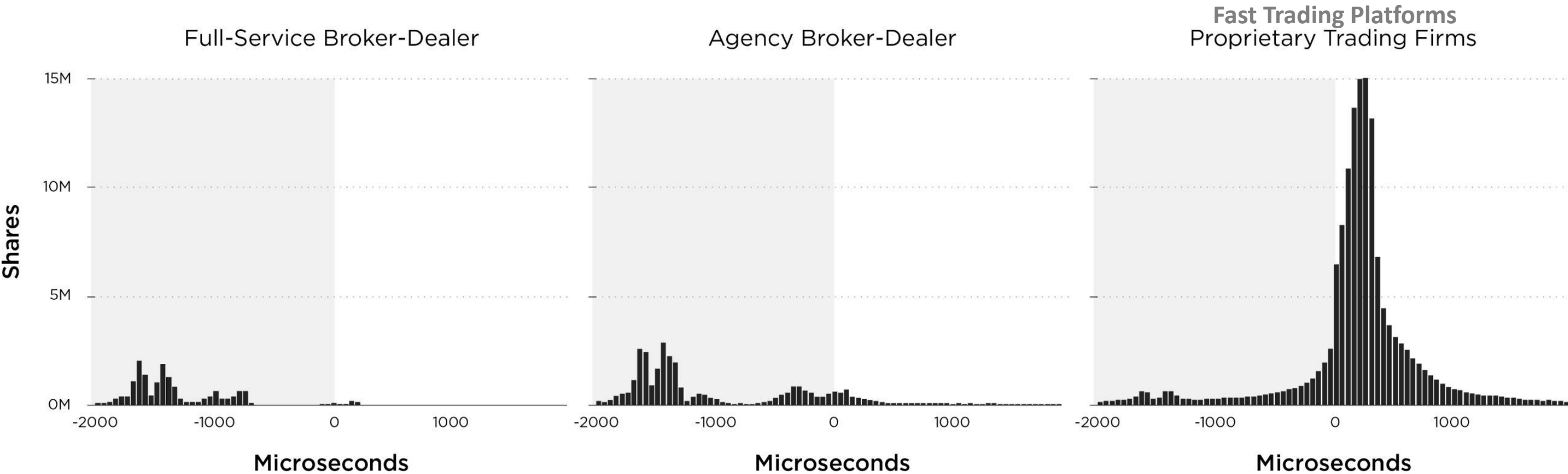




# Fast Traders Are Vastly More Responsive to Price Changes Than Brokers with Customers



## Aggressive Shares Within 2 Milliseconds of Signal Prediction



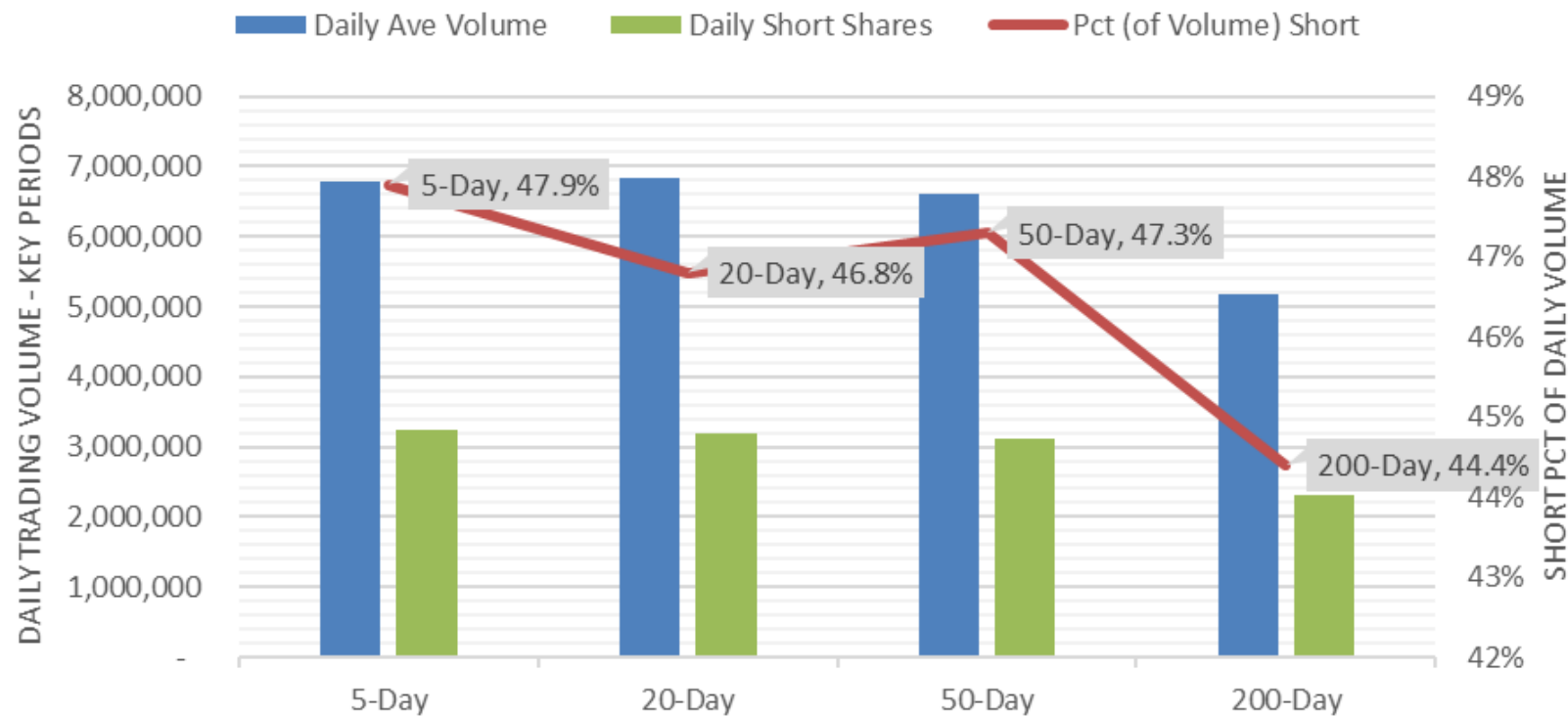
### What does this means to the IR practitioner?

Surges in volume, volatility, statistically far more likely to be Fast Trading than investment.

Source: IEXTrading.com, Spring 2020

# Shorting is Rampant, Short INTEREST Doesn't Show it

## S&P 500 Components - June 2020



### Short VOLUME:

- Percentage of trading from borrowed shares.
- **S&P 500 averages about 45%.**
- Short Volume is measured daily, nearly realtime.
- About 1% from “short attacks,” hedge funds routinely run 50/50 long/short.
- Market-makers exempt from locate rules, can short in size, directionally.

### Short INTEREST:

- Percentage of shares borrowed, sold, not yet covered, measured as days of trading volume to cover, percentage of float or shares out.
- **S&P 500 averages about 3%.**
- Created in 1975 – before electronic markets and microsecond-trading – by the Federal Reserve to measure margining in the money supply.
- Not reflective of vast daily electronic shorting.
- Backward-looking.

### What Short Volume Communicates:

45% Market average – balanced short structure  
60% “Net short,” a drag on stock-performance  
70% Shares may be under a short attack  
30% Aggressive short covering; May signal deal-arbitrage, Activism

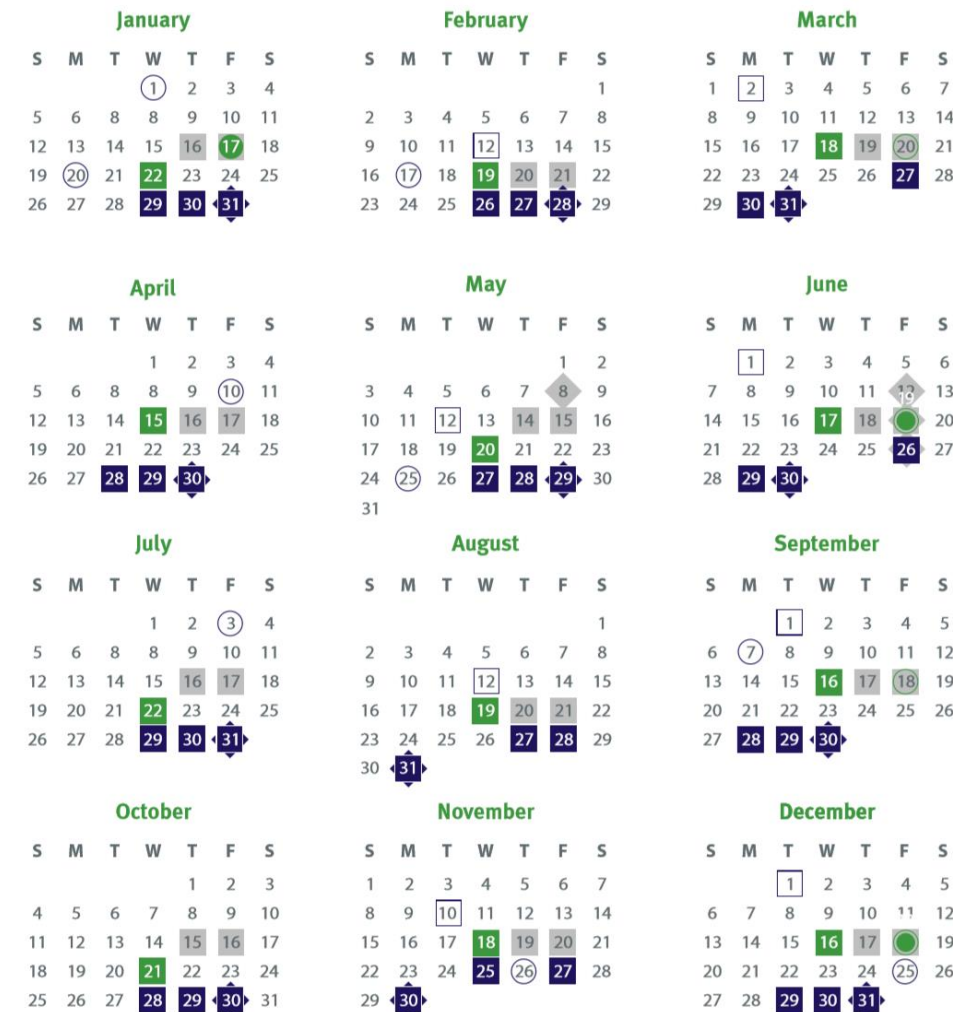
# Risk Management: “Leverage or Protect with Derivatives”

## \$Trillions in notional value reset monthly (16% of volume)



**Caution, IR professionals!** Avoid when possible reporting results, key news, during dates highlighted at right. *Don't try to speak over a leaf blower.*

- 1. Reporting results during options-expirations** magnifies options strategies or hedges. Values of puts, calls, forwards, etc., before expirations that can swing wildly, are imputed to your shares.
- 2. Index rebalances cause artificial ebbs and flows** in volume and can distort prices for reasons unrelated to your results - leading management and investors to incorrect conclusions.
- 3. Indexes true up tracking** with futures the last trading day each month, triggering volatility.



**2020  
options  
expirations  
and index  
rebalances  
calendar**

available at  
**ModernIR.com**  
/Resources

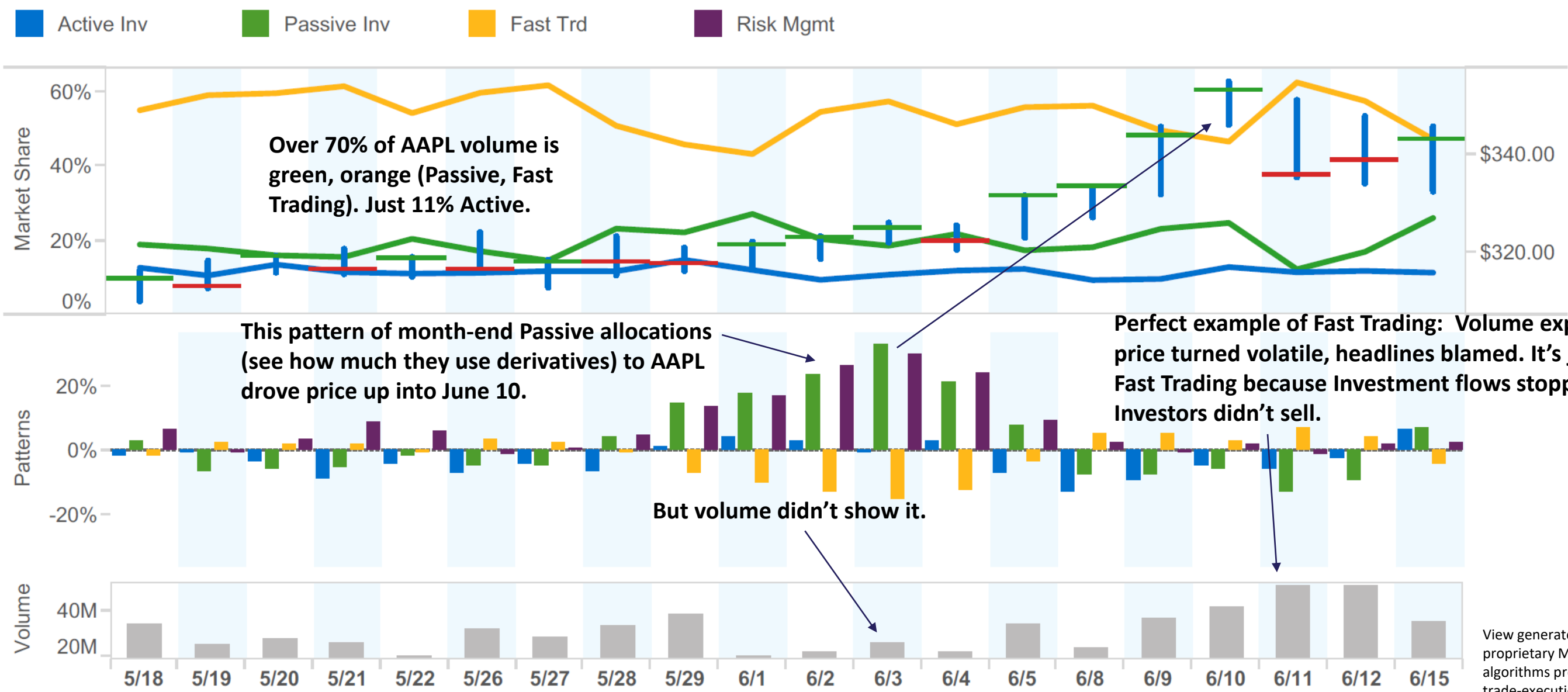
- Exchange holiday: markets closed
- Options expirations: stocks, indexes, currencies, interest rates, treasuries
- VIX (Volatility Index) options expirations
- S&P quarterly rebalances: quarterly share updates to S&P 500, Mid-cap 400, Small-cap 600, Total Market
- MSCI Barra Rebalances: announcement and effective date of quarterly changes to Morgan Stanley/Barra quantitative theme and strategy indexes
- ◆ Russell Rebalances: annual reconstitution of Russell indexes; rankings May, estimates early June, final late June
- Month-end portfolio balancing: poor time for good news/good time for bad news
- LEAPS expirations: S&P futures for long term portfolio hedges
- ◆ S&P 500 End of Month (EOM) options expire

Data from the Options Clearing Corp, CBOE, Dow Jones S&P, FTSE Russell, MSCI

# Effects: How Trading Looks Now (Using AAPL)



## TRENDS



View generated by  
proprietary ModernIR  
algorithms predicated on  
trade-execution data.



# ***“Why is it so hard to understand how my stock trades?”***



## **Now you know! Let's summarize:**

- The Stock Market is the Death Star.
- Buyers and Sellers have to navigate a complex maze to find each other.
- The Stock Market is an interconnected network of exchanges and “dark pools” - \$500 billion of volume (June 2020) and 12 billion shares traded - Daily; 60% on exchanges, 40% in the dark.
- There are four behaviors, not one; the biggest, Fast Trading, has the shortest time horizon.
- Reg NMS leads traders to chase prices and quotes and data as ends unto themselves.
- Fast Traders surge your price and volume when prices change direction.
- Short-selling and Risk Management are relentless, manic and rampant.
- Patterns of behavior wax and wane with mathematical precision, not headlines, fundamentals.

***And all this stuff sets your price. It's not just your story.***