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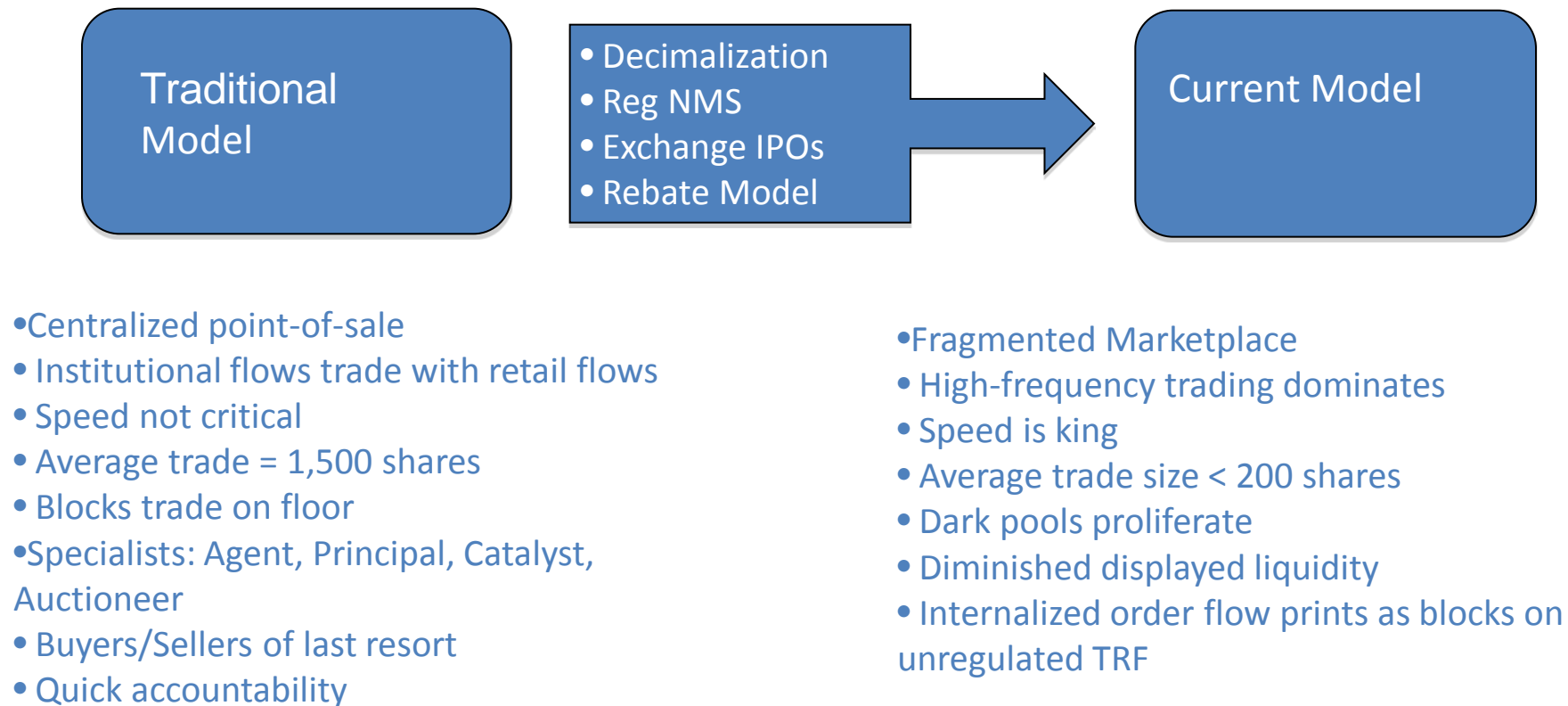


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The Evolution of Global Market Structure

The Model: How the U.S. Transformed



Dark Pools and the Trade Reporting Facility (TRF).

- Broker-dealers internalize order-flow, do not display quotations to the consolidated quotation book, yet rely on the exchanges' publicly displayed market price as a reference price off of which to trade away from the exchange.
- When a trade is executed on a dark pool, the broker reports the trade to a Trade Reporting Facility, (TRF), owned by the Financial Industry Regulatory Authority.
- The TRF reports the print to the consolidated tape within 90 seconds, but does not disclose the dark pool the order was traded on.
- There is no pre-trade disclosure on dark pools and post-trade disclosure is limited to the price and size of the trade executed, ONLY.

The NYSE Model-Adjusting to Structural Change

Designated Market Makers (DMMs)

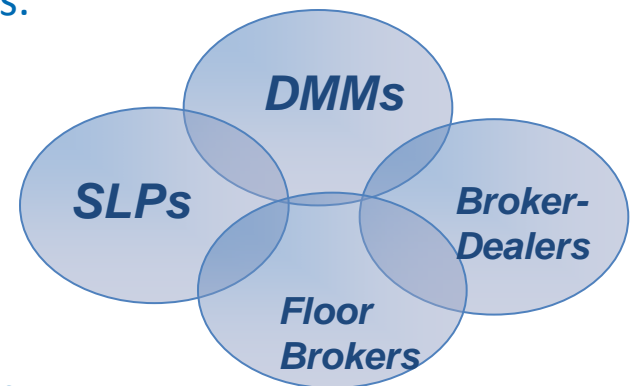
- The only market maker under any model with obligations to dampen volatility and meet depth guidelines.
- Approx 90% of their activity adds liquidity to our books.
- DMM algorithms are required to quote at the NBBO a certain percentage of the time.

Supplemental Liquidity Providers

- Also incented to provide liquidity at the best price
- Approx 89% of their activity adds liquidity to our books

Floor Brokers

- Independent electronically connected agents with access to advanced algorithms
- Expert at interacting in NYSE's market leading opening and closing auctions



Liquidity Replenishment Points (LRP's)

LRPs protects NYSE investors from severe and sudden price moves in an electronic / algorithmic world before significant damage is done

	NYSE LRPs
History	In place since 2006 in NYSE-listed securities on the NYSE; since 2008 in NYSE Amex-listed securities on NYSE Amex
Activation	LRPs act as a first line of defense, triggering with rapid 1%-3% move before the damage is done. NYSE may go into slow mode on a quote before the trade occurs. LRPs are early warning signals and other markets/users can ignore them, but if they do, they risk tripping the 10% SEC circuit breaker
Frequency	Triggering prices recalculated every 2 seconds based on NYSE last sale
Limits	NYSE LRPs do not permit a trade to occur outside the LRP price bands. NYSE LRPs do not even permit quoting outside the LRP bands, however, trading can still occur within the LRP bands
Duration	Floor auction provides more flexibility and length of trading pause will depend on what the particular situation warrants, be it 1 second or 1 minute. LRPs rarely approach 60 seconds
Human Oversight	NYSE LRPs allow for intelligent human intervention during times of extreme volatility. Floor auction allows DMMs, Floor Brokers, SLPs and other electronic orders to add liquidity

What happened on May 6, 2010 “Flash Crash”?

- News in Europe triggers heavy volatility in world markets and Dow falls 300 points
- Around 2:40, Dow quickly falls another 700 points, then bounced right back
- Extreme volatility triggers NYSE LRPs
- DMM participation and NYSE share was high
- Other fully electronic markets continue trading and some stocks fell to abnormal valuation levels given speed at which market reacted to information.
- Many busted trades on other markets, none on NYSE
- System capacity held to record breaking jump in message traffic and 2nd biggest volume day in history (19B shares)



Post-“Flash Crash” Market Structure Changes

- SEC recognizes need for market-wide and possibly universal circuit breakers
- Circuit breakers triggered when stock moves 10% with 5 minutes
- Stock halted for 5 minutes where cause or reason is determined and contra side is solicited
- All S&P 500 and Russell 1000 stocks and some ETF to be tested for the remainder of 2010
- To date circuit breakers have been triggered 15 times across all markets
- Deterrents for “quote stuffing” and other forms of potential manipulation need to be added
- Creation of affirmative action obligation in the HFT community (e.g. capital requirements, regulatory oversight, market-making obligations) needed

Differentiating Dark Pools and High Frequency Trading

Dark Pools

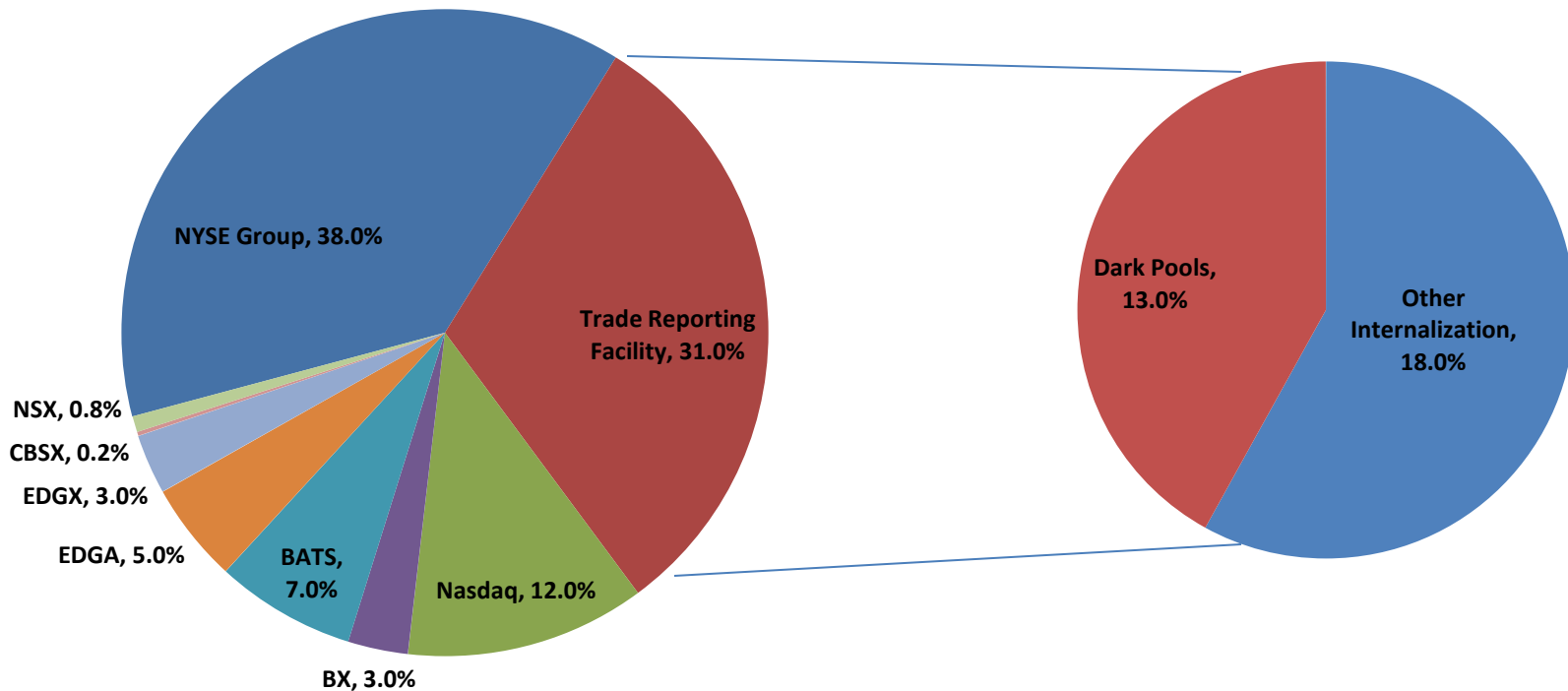
- Off-exchange trading venues
- Utilized by hedge funds, brokers and traditional investment managers (i.e. mutual funds)
- More than 40 dark venues each with negligible market share

HFT

- Technology driven short-term trading strategy
- Dominated by brokerage firms and specialist trading outfits
- Utilize exchange and off-exchange trading venues
- Has HFT peaked?

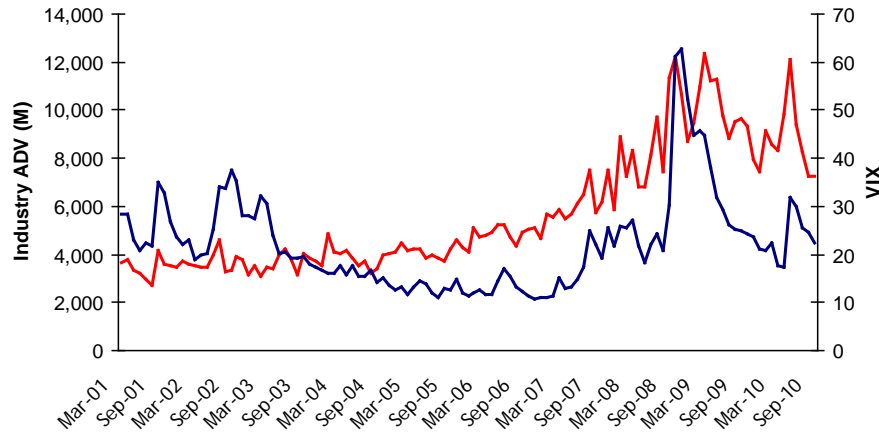
The Fragmented State of Today's Market

Market Share in NYSE-listed Stocks
September 2010



Volumes, Volatility and Block Trading

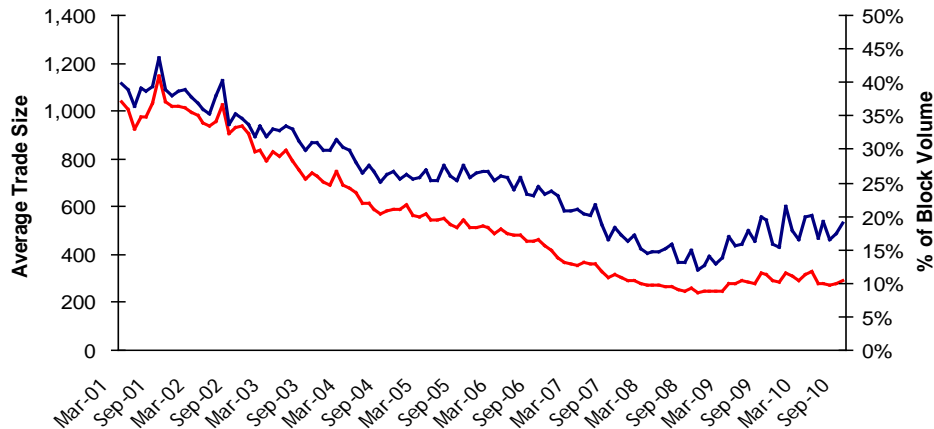
Volumes and volatility (Q1 2001- Q3 2010)



Developments and Implications

- Volume and volatility highly correlated
- Volumes ranging between 7-10 billion shares per day, with volatility spikes

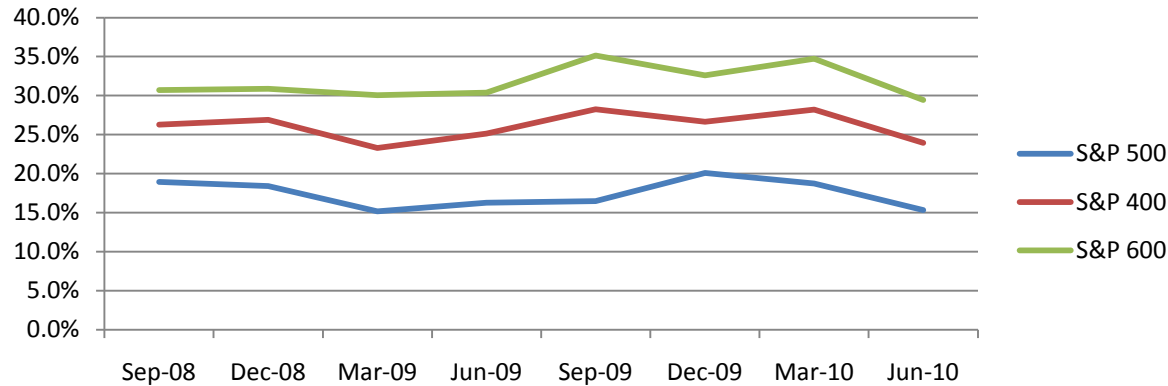
Average trade size and % block volume (Q1 2001- Q3 2010)



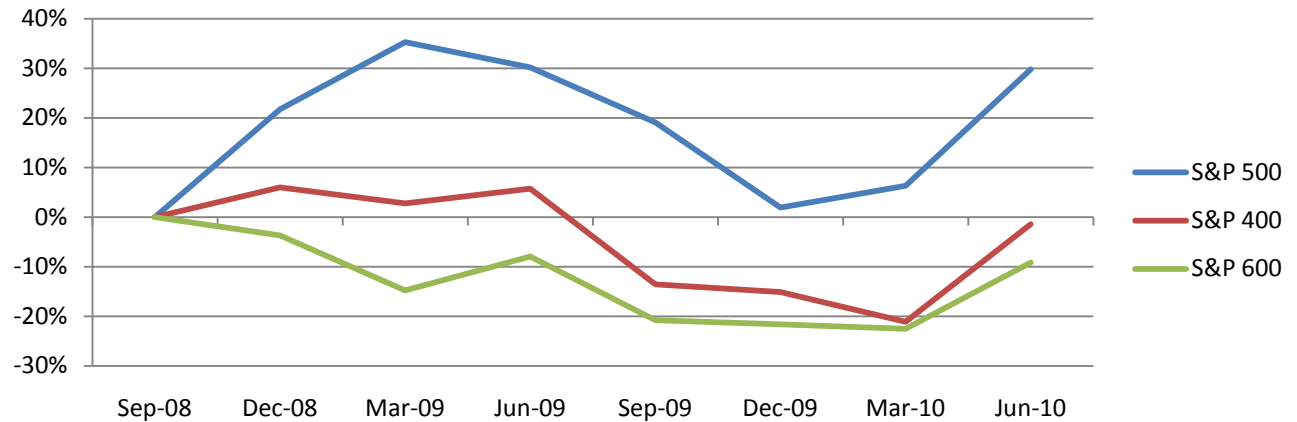
- 70% decline in avg. trade size
- Blocks only 15%-20% today
- Factors contributing to block decline:
 - Decimalization
 - Algorithms
 - High frequency trading

Measuring HFT in Your Stock – Institutional Capture Rate

Institutional Capture Rate



Volume



Institutional Capture Rate By Sector

