

# Liquidity and Asset Management

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What?

Microstructure?

Reg NMS  
Fragmentation

Execution  
Management

Implications

- ▶ A university endowment is unique in the landscape of money management because of the fact that its cash needs are entirely predictable. This fact should affect the investment policy.
- ▶ Investors value liquidity as it allows them to respond to unexpected cash needs.
- ▶ An endowment should never accept a lower expected rate of return in exchange for liquidity.
- ▶ Endowments might consider selling liquidity.

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- ▶ For example, Harvard's \$37 billion endowment has only 11% in US equities.
- ▶ **Warning:** This maxim does not imply that the funds should be handed over to outside managers with multi-year lock up periods.
- ▶ –Why?
- ▶ –Subject to coordination problem (i.e., bank runs), which highlights an aspect of liquidity risk.
- ▶ What it does mean: *Diversified, Direct Investment* in traditionally illiquid assets.

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- ▶ Drilling down into what liquidity means in relatively liquid financial securities brings us into the realm of market microstructure —the study of how transactions take place.
- ▶ It has descriptive and prescriptive aspects.
- ▶ An asset manager should manage and minimize execution costs.
  - ▶ Bid-Ask Spread
  - ▶ Price impact / front-running (bagging)
  - ▶ Commissions
- ▶ And maximize collateral value (Securities lending: repo specials).

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- ▶ Reg NMS promulgated in 2007.
- ▶ Desire was to prevent old physical exchanges from holding back US markets from innovating and competing globally.
- ▶ Creates the concept of National Best Bid and Offer (NBBO) and the requirement that a small market order execute immediately at NBBO.

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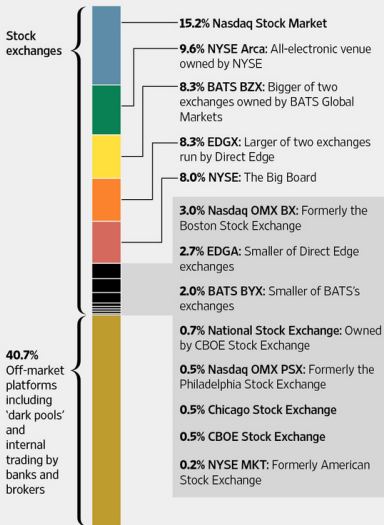
Management

Implications

## Trading Places

The business of filling U.S. stock orders has grown increasingly dispersed in the recent years.

Share of the market among U.S. stock trading venues in January\*



\*As of Jan. 27. Note: Numbers don't add up to 100% due to rounding.

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- ▶ Technology :: High Frequency Trading (Really: High Frequency Quoting – fishing.)
  - ▶ Algorithmic Trading (now > 70%) of total volume.
- ▶ Fragmentation:
  - ▶ Dark Pools (13.5% of US volume).
  - ▶ Electronic Trading Networks.
- ▶ Competition amongst Exchanges: Maker-Taker: rebate to liquidity providers / charge access fee to liquidity takers.

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Example from Jan 27, 2014 *WSJ*: T. Rowe Price asked a broker to buy 2.5 million shares of an actively traded stock, and they tracked the broker's actions. "To hide the purchase from fast-moving traders, the broker placed and canceled many smaller orders all across the stock market, creating a dense smoke screen of phantom interest in the security. In total, the broker offered to buy 750 million shares of the stock while actually purchasing just 2.5 million."



Similar experiment by Invesco for a 1,000 share order: This order "traversed 10 separate exchanges and dark pools before it was filled. The order had also been sent to eight other venues where ultimately no shares were bought but where other traders may have had a chance to catch wind of Invesco's strategy."



# VWAP: NOC 4/8/2015

NOC US \$ ↓ 164.09 -.12  P164.05 / 164.13T 1x3  
 At 13:15 d Vol 361,074 0 163.76P H 165.2099D L 163.08N Val 59.192M

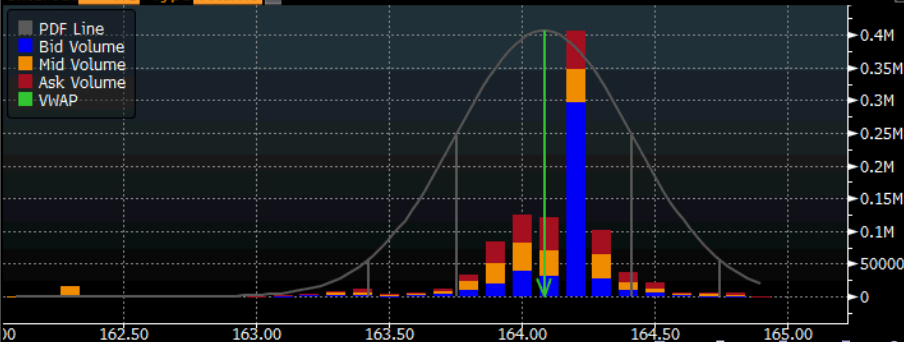
NOC US Equity		98 Time Ranges		99 Actions		VWAP	
09:31	04/08/15	-	Price Filter	-	Calculation	Bloomberg Definition	
<input checked="" type="checkbox"/>	16:32	04/08/15	Vol Filter	-	Amount	@ Part%	

Calculation		VWAP	VWAP	Volume	Value Traded	Trades	Avg Size	Std Dev
Bloomberg	 d	164.0844		1,017,189	166.905MLN	9,072	112	0.330904
Custom	 d	164.0844		1,017,189	166.905MLN	9,072	112	0.330904

1) Summary 2) Top Trades (AQR) 3) Price Chart (VAP) 4) Price Table (TSM)

11) By Trade Side 12) By Exchange

Interval 0.1 Type Volume 



Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 5204 1210 Hong Kong 852 2977 6000

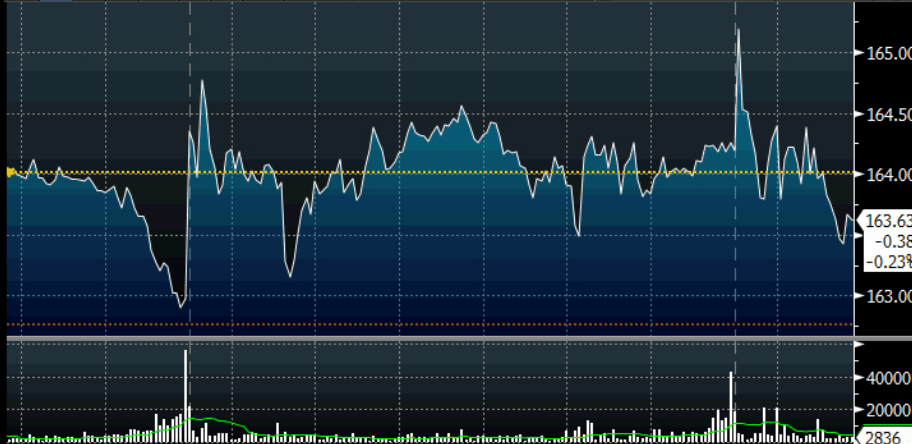
# Execution Management

NOC US \$ ↓ 164.23 +.02 P164.17 / 164.24Z 2x1  
At 13:29 d Vol 384,664 0 163.76P H 165.2099D L 163.08N Val 63.014M

NOC US Equity 95 Save As... 96 Actions 97 Edit 98 Table Line Chart

Period 3 Range 3 Overnight 09:30 - 16:00 Line 1) Compare MAvg. Volume

1D 3D 1M 6M YTD 1Y 5Y Max 3 Min Security/Study Event



07 Apr 2015 10:00 11:00 12:00 13:00 14:00 15:00 08 Apr 2015 09 Apr 2015  
Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 1210 Hong Kong 852 2877 6000

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- ▶ Understand where you are on the liquidity spectrum:
  - ▶ Mutual Fund is one extreme – it needs liquidity as funds may be withdrawn at random.
  - ▶ University Endowment is other extreme.
- ▶ **And maximize accordingly!**
- ▶ Make trading costs *and execution* a point of distinction.
  - ▶ *Measure* both—and benchmark.
  - ▶ Don't give away order flow information.
  - ▶ Possible value in relationships.
- ▶ Recognize the effects of the new environment:
  - ▶ Heightened volatility :: **Reconsider** Limit / Stop Orders.
  - ▶ Black Pools *seem* an ideal venue—but are they subject to manipulation?