

Trading Equities: Market Structures and Costs

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1 Overview

1.1 How the market places have changed

1.1.1 Year 2000

US

- NYSE dominant, floor based
- Nasdaq, more electronic, but still humans in the loop
- ECN/Crossing Networks: Various types of off-exchange trading. Limited in scope.
- Trading in sixteenths (spreads down from eights in 1997)

Europe

- National exchanges (LSE, Paris, Deutsche Börs....) dominant.

Norway

- Trading in Norwegian Stocks: Oslo Stock Exchange

1.1.2 Now (ca 2016)

USA:

- Reg NMS: Monopolies disappeared
- Almost all trading electronic.
 - Big markets (NYSE, Nasdaq, BATS, etc): Limit order markets
 - Numerous alternative market places (Dark Pools) Not necessarily independent price discovery
- All trading fragmented.
- For traders: Importance of NBBO (National Best Bid and Offer) as baseline
- Uniform spread: One cent

Europe

- MiFiD: Mandate Competition

- Result: Fragmentation of trading
 - Major markets: Electronic limit order markets, little manual trading
 - Sattelite markets (Dark Pools)
- No Europe-wide reporting of single price (ie. no NBBO)
- Spread schedules with ticks below US one cent

Norway

- MiFiD: Apply also for Norway (even if not in EU).
- Result: Fragmentation of trading
 - Oslo Stock Exchange about a third of total trading in Norwegian Stocks.
 - Other market places for Norwegian Shares
 - * Other Exchanges (Stockholm, BATS, Chi-X...)
 - * Satellite markets (Dark Pools/OTC trading)

1.2 How methods of trading have changed

Year 2000: Default: Human interaction, either on a floor (NYSE), or by human entering of traders into the limit order book.

Now (ca 2016): Mainly computerized trading – High Frequency Trading (HFT).

1.2.1 High Frequency Trading

- What it is
- Why it is dominant
- Good or bad?
 - HFM – High Frequency Market Making
 - HFB – High Frequency Bandits
- Crash testing market structures

Do we just have to live with the potential for events like

 - Flash Crash

Systemic fragility of an automated market?

1.2.2 Consequences of HFT: Colocation

Getting as close as possible to the exchange's computers.

Example: NYSE's New Jersey facility

1.2.3 Consequences of HFT: The Race for Speed

Example: Microwave towers

- between New York and Chicago.
- in Kent, UK (Linking London and Frankfurt)

1.3 How exchanges' methods of making money has changed

Historically:

- Listing fee (from issuers)
- Fee per trade

Now

- Listing fee (still)
- Fee structure much more creative (and important for traders to be aware of)
 - Maker / Taker pricing
 - Payment for Order Flow
- Selling colocation
- Selling (Fast) Market Data major source of revenue.

1.4 Measuring the cost of trading

Generally, two costs of trading

- Direct (fees)
- Indirect (market impact)

Second source of costs the most important

To measure: Implementation Shortfall

Show estimates, US, Norway, recent and longer term

Essentially show that estimates of trading costs for small trades have fallen everywhere

1.4.1 But what about larger traders/institutions?

Problem: Institutional traders trade larger quantities.

Worry more about price impact.

Also worry about frontrunning by other traders: If you want to fill a large quantity, and other traders become aware of this, incentives for others to “get in ahead of you” (pinging).

So the cumulated market impact may be larger for institutions. (Main worry).

Active (and unsolved) research Issue. To what extent is this something that institutions should worry about?

Academics are actively looking for a smoking gun here, still haven't found it.

Still, this effect does need to be rather large to offset the generally lower transaction costs in the current market place(s).

1.4.2 But larger trades have always been hard

Old Days: Most Exchanges had special facilities for dealing with “blocks.”

(Upstairs Market)

NYSE: Block Desk a separate mediated market, brokers using phones to trusted counterparties (which should not use the information about the block in the downstairs market).

Final price of a block usually contain a premium/discount relative to market price.

Block trading replaced with algorithms trickling the block into the continuous limit order book.
If we want to make comparisons need to ask what is the aggregated price impact, and how does this compare to the typical premium/discount for the same sized block in the “old days”

1.5 What should investors do?

Be aware that transaction costs is a very important concern.
So, should be very concerned about strategies for submitting trades.
Aware of

- Available venues
- Fee structures in a given venue (e.g. make/take fees)
- Liquidity (availability of quantity) in a given venue.
- Tradeoff pre-trade price information (public venue) and hiding quantities (dark pools)
- The importance of asking pointed questions to brokers and intermediaries about their trade choices.

1.6 Regulators to the rescue?

Financial Regulation a growth industry
Prone to over-regulating (Dodd-Frank-2300-pages)
But some regulation important for traders: The emphasis on trade reporting, also on statistical reporting by trade venues of actual transaction costs.
So for example, for the US, any exchange need to report estimates of the cost of trading at that venue.
Securities And Exchange Commission: Rule – Disclosure of Order Execution and Routing Practices – Better known as Rule 605 Reports.
Regulation cares about the concept of “best execution”, both MiFiD and Reg-NMS. But usually ambiguous.

1.7 Gazing into the Crystal Ball

What can we expect to happen?

- We are not going to go away from electronic trading.
- Expect continued process of
 - mergers of trade venues,
 - new trade venues
 - innovation in ways of trading
- But:
 - There *are* economics of scale in the trading industry.
 - At some point we should see concentration of trading in larger venues.
- Regulation is a driver of change in this industry
 - Much regulation it is the outcome of political processes.
 - Have you looked at US/UK/European politics lately? (Brexit, the Donald, ...)