Ian Domowitz
Liquidity, Transaction Costs, and Reintermediation in Electronic Markets

Comments
George Sofianos
February 23, 2001
An unbiased view?

- Goldman Sachs is a fully diversified firm
  - upstairs desk
  - NYSE floor brokers
  - NYSE specialist operations
  - investment in several electronic markets
- I have no axe to grind....
Overview

- The future of trading is indeed electronic
- But is not going to look anything like the electronic trading systems around today
  - current systems are the first step
  - a catalyst for change
- Markets are currently in transition
  - fragmentation
  - experimentation
- Where is the liquidity?
  - increased need for intermediation
- Are trading costs lower on electronic trading systems?
Electronic trading systems

- Open electronic limit order books
  - displayed priced orders, potential price discovery
  - NYSE Display Book
  - SETS (London), NSC (Paris), Xetra (Frankfurt), CATS (Toronto) and many more
  - ECNs: Instinet, Island, etc.

- Crossing networks
  - passive, no price discovery
  - by definition marginal
  - POSIT, The Crossing Network

- Other
  - AZX, Optimark (1/99 – 9/00), Primex (spring 01)
  - more to come
Three types of liquidity

Displayed liquidity at market venue
Non-displayed liquidity at market venue
  – NYSE floor
  – reserved orders in ECNs
Non-displayed liquidity off market
  – sell-side trading desks
  – buy-side trading desks

Trading in pennies reduced the amount of displayed liquidity
Is this the best system?

- Problem: most of the liquidity is not displayed

- NYSE
  - 50 percent of executed share volume represented by floor brokers on the floor

- Nasdaq
  - 70 percent of share volume is executed in the upstairs market

- Frankfurt
- London
- Paris
- Toronto
  - 40-60 percent of share volume is executed in the upstairs market*

* Often reported through the electronic book.
A myth

“Stock exchanges all over the world are closing their trading floors and going fully electronic”

Yes, they are closing their trading floors

But no, they are not going fully electronic
  - a big part of the liquidity migrates upstairs
  - not in the electronic book

If close the NYSE floor where will floor orders go?

Most likely
  - to the upstairs market
  - not in the electronic book!
Electronic search engines

- Electronic search engines can only access displayed liquidity
- If most liquidity is not displayed then search engines are not minimizing trading costs
Intermediation

As long as there is non-displayed liquidity an important role for broker-dealer intermediaries is to access this non-displayed liquidity
The problem with electronic books

- Too much transparency for large difficult trades
  - investors trading in size want to see everybody else’s orders but hide their own
A case study: the NYSE

NYSE share of trading volume in listed stocks

- NYSE 83%
- NASD dealers, ECNs, Posit 8%
- Regional exchanges 9%

Source: New York Stock Exchange. 2000 share volume, trading reported to the Tape. The Crossing Network is also included in NASD dealers; Optimark reports through PCX and is included in regional exchanges.
A better trading platform?

- The NYSE managed to maintain its dominant position in trading listed stocks
- Why?
  - Rule 390
    - eliminated May 5, 2000
    - little effect
  - ITS access restrictions
    - being eliminated
  - first mover advantage
    - counter examples: LIFFE & DTB, Mumbai SE & National
- a better trading platform?
  - the trading floor for large orders
The value of the trading floor

- NYSE provides a choice
  - electronic book
  - floor brokers
- 95% of orders choose the electronic book
- But large orders choose floor brokers
  - 50% of volume
- Why use a floor broker?
  - information
  - direct access
  - minimize market impact

Source: New York Stock Exchange; figures for 1H99.
NYSE share of block volume

Source: New York Stock Exchange. Trading volume in NYSE stocks reported to the Tape; prints 10,000 shares or more.
Trading cost comparisons

- Are trading costs lower on electronic trading systems?
  - Domowitz & Steil (1999)
  - Conrad, Johnson and Wahal (2001)
- Current research measures trading costs on electronic trading systems conditional on execution
- But what is the probability of non execution?
  - data are not available to calculate
- And what is the opportunity cost of non execution?
- The problem is worse
  - cost of non-execution is ascribed to the “liquidity supplier of the last resort”
An example

- A buy order

Case 1: slow flat market
Cost: 0 basis points

Send to electronic system A
Try again electronic system A
Re-route to liquidity supplier of last resort B

Case 2: fast up market
Cost: 400 basis points

But whose cost is it?
Current research ascribes it to market B
But it is really market A’s cost!

Fill at $50
No fill

Fill at $52
No fill
Selection bias

- Less likely to get a fill on an electronic system during fast-moving volatile periods
- Less likely to submit orders to an electronic system during fast-moving volatile periods
- Once an order is not filled in an electronic system the liquidity supplier of last resort gets penalized!
The challenge for electronic systems

- Encourage the display of liquidity
- Access non-displayed liquidity
- Mimic the subtle exchange of information that takes place on the NYSE trading floor
Copyright 2001 Goldman, Sachs & Co. All rights reserved.

This material is for your private information, and we are not soliciting any action based upon it. This report is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. Certain transactions, including those involving futures, options and high yield securities, give rise to substantial risk and are not suitable for all investors. Opinions expressed are our present opinions only. The material is based upon information that we consider reliable, but we do not represent that it is accurate or complete, and it should not be relied upon as such. We, our affiliates, or persons involved in the preparation or issuance of this material, may from time to time have long or short positions and buy or sell securities, futures or options identical with or related to those mentioned herein.

This material has been issued by Goldman, Sachs & Co. and/or one of its affiliates and has been approved by Goldman Sachs International, regulated by The Securities and Futures Authority, in connection with its distribution in the United Kingdom and by Goldman Sachs Canada in connection with its distribution in Canada. This material is distributed in Hong Kong by Goldman Sachs (Asia) L.L.C., and in Japan by Goldman Sachs (Japan) Ltd. This material is not for distribution to private customers, as defined by the rules of The Securities and Futures Authority in the United Kingdom, and any investments including any convertible bonds or derivatives mentioned in this material will not be made available by US to any such private customer. Neither Goldman, Sachs & Co. nor its representative in Seoul, Korea is licensed to engage in securities business in the Republic of Korea. Goldman Sachs International or its affiliates may have acted upon or used this research prior to or immediately following its publication. Foreign currency denominated securities are subject to fluctuations in exchange rates that could have an adverse on the value or price of or income derived from the investment. Further information on any of the securities mentioned in this material may be obtained upon request and for this purpose persons in Italy should contact Goldman Sachs S.I.M. S.p.A. in Milan, or at its London branch office at 133 Fleet Street, and persons in Hong Kong should contact Goldman Sachs (Asia) L.L.C. at 3 Garden Road. Unless governing law permits otherwise, you must contact a Goldman Sachs entity in your home jurisdiction if you want to use our services in effecting a transaction in the securities mentioned in this material.