Book Chapter on Exchanges, Clearance and Settlement Institutions

The Governance of Financial Market Infrastructure

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Exchange

“an institution operates a trading system, and through this provides a market. Two core functions delivered by a trading system are data dissemination and order execution”

Central Counter-parties (CCP):

“it is an entity that interposes itself between counterparties to contracts in one or more financial markets, becoming the seller to every buyer and the buyer to every seller”

Central Securities Depositories (CSD)

“is an entity that holds securities centrally either in certificated or dematerialized form. Second it is an entity that enables the central transfer of ownership of securities, typically by means of book entry transfer usually on an electronic accounting system.”
CCPs

Determinations concerning

» Collateral

» Default

» Remuneration in event of default

Capital requirements of the CCP

Typical act as counter-party to “clearing brokers”
U.S. CCP

» National Securities Clearing Corporation (NSCC) established in 1976

• Merger of NASD, NYSE and AMEX

» All regionals have joined NSCC
» First clearance and settlement was 1870 by Philadelphia Stock Exchange

Followed by NYSE in 1892. 1918 separate subsidiary
Economies of scale & scope in clearance

» Sunk costs: Operating scale economies (IT).
  • Could go to contestability of the market
  • Low variable costs typically

» Economies in bearing default risk, i.e. capital requirements of the clearing house
  - This is because the risk of a combined portfolio is less than the sum of the risks of the individual components of the portfolio.

» Effect of netting on collateral requirements

» Effecting of netting on volume of transactions that need to be settled

» Costs of transactions between clearinghouses
  • Secure linkages
  • Adding another layer of transaction
  • CCP agreements tend to be quite complex
  • Exposure to risk of the other exchange
» Informational Asymmetries

» Partial substitutes

• Insurance
• Bilateral clearance.

» Switching costs: UK Competition Commission:
  could represent “quite a large proportion of the trading firms’ annual trading fees”, and concluded that “any switching between clearing providers would be likely to be constrained to some degree by the switching costs that would be faced by trading firms”

One case where there was competition was 2003 Eurex Clearing wanted to clear LSE and replace LCH.Clearnet switching costs were cited as the reason
Europe more competition in CCP

- Virt-x, London-based exchange, offers members two choices
- Project Turquoise
- Italian bond market: CC&G versus LCH.Clearnet
- However, no instances of dominant CCP being replaced by an entrant CCP

U.S.: last regional (Philadelphia) merged into DTC and NSCC in 1997

Nasdaq OMX indicated its intent to provide CCP services in the US via its NASDAQ Clearing Corporation (NCC), dropped plans
CSD

» Actual discharge of contractual obligations

» Book-entry

» Operate central register with owners
  • but lots of variation on this on two dimensions
Large sunk costs in settlement and small marginal costs

-- Schmiedel (2009), other studies as well

CDS links

Network Externality: One system can net trades out, less cash required of participants

Intermediary transfers as a substitute

- Size of intermediaries, omnibus account
- OTC market, international clients
- But will sometimes need to put it on the central register
  - Is this also CDS? Not so in UK for instance
- EU seems to be used but conflicting information
Most countries have one CSD

- Grew dramatically after 1989 G3O Report on CSDs
- If more than one, then different securities/asset classes

Depositary Trust Company, among other things, responsible for book entry transfers of ownership

Depositary Trust and Clearing Corporation (DTCC) owns both DTC and NSCC

Owned in turn by clearing brokers and exchanges

DTCC also has Fixed Income Clearing Corporation
  - Evidence for economies of scale in clearance and settlement?
EU CSD Competition

- 1970s from German CSD to Euroclear for German Government securities
- Internalization of settlement activities
- Euroclear versus CEDEL for settlement of Eurobonds
Exchanges

Order flow externality

- Evidence: Lots of papers

Adverse selection

- Dominant Exchange
- Cream-skimming; Easley et al, JF (2001)

Coordination and switching costs

Sunk Costs
- Asset-specific human capital

Listing Decision Network Externalities
» Rise of concentrated trading firms – reduces coordination costs

» Regulation
  • Primary dealer status determined by trades on dominant exchange in bond market
  • Cross-border trading
  • Property rights in derivatives

» Automation has different effects
  • IT/need for asset-specific human capital
  • Finding best price
  • Very low marginal costs, more fixed costs and perhaps more sunk costs
  • Fewer clientele effects
  • Routing technology/algorithmic trading
  • Dominant exchange gaming

» Costs of trade studies. Schaper (2009)

» Examples of successful competition for order flow
  • DTB competition for the Bund contract
  • National Stock Exchange against the Bombay Stock Exchange
  • ISE against CBOE
Fragmentation of Trading in Four Major European Indices

Index
- FTSE 100
- CAC40
- DAX
- AEX

Source: http://fragmentation.fidessa.com
Market Shares of Exchanges & MTFs in Trading Different European Indices
Week ending 18/9/2009

Trading Venues
- Primary Venue
- Chi-X
- Turquoise
- NEURO
- BATS
- Burgundy
- Euronext Amst.
- Euronext Paris
- DBAG
- Stockholm SE

Source: http://fragmentation.fidessa.com
Multi-marginalization problem

» Complements: exchanges, clearance and settlement

» Market solutions

• Contracts
• Vertical integration
  – Very common around the world
• Customer/end-user ownership
  – Depends on assumptions in the model
Vertical Foreclosure

» Assumption about the execution market

» Competitive execution market but natural monopoly in clearance

» Imperfect competition in execution market and natural monopoly in clearance

• Marginal cost pricing of clearance could induce inefficient entry
• See relatively little by way of direct regulation of pricing around the world
• Separation of clearance and execution could result in double marginalization
Worth noting

» Some form of vertical integration very common