

Exchanges - the end of life as they knew it?

The Evolution of Exchanges and their interaction with the OTC Markets

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Origins of Markets

- Taking example of London,
 - began with creation of joint stock companies
 - sharing of risk
 - desire to trade those shares
 - rather than do this bilaterally, gathering in a central location more efficient
 - the “coffee shop” marketplace

Emergence of differing models

- Coffee shop morphed into formal stock exchange with rules and regulations
- If there were insufficient buyers or insufficient sellers how can you trade?
- Concept of liquidity born - for an efficient market to evolve, needs to be constant liquidity. Should always be possible to buy or sell.
- In London two classes of traders emerged - Jobbers and Brokers. Brokers bought client orders to the market, Jobbers provided the liquidity.
- In New York, different model emerged. Specialists on NYSE became the liquidity providers (effectively monopoly jobbers).

Emergence of Derivative Exchanges

- Was always a need for farmers and their clients to protect against future events - bad weather, failed crops etc
- Bilateral trades (futures) to insure against these events evolved into informal marketplaces where standardised contracts could be traded
- Eventually encompassed large variety of sectors - pork bellies being the most adventurous - and Chicago became the centre of this trade
- In the second part of 20thC futures were supplemented by options. Not the *obligation* to buy a certain quantity at a certain price in the future, but the *option* to do this. And options became more sophisticated - you could take out an option to Buy (call) or to Sell (put).
- And these futures and options markets developed into exchanges where the very instruments themselves could be traded.

Liquidity on Derivative Exchanges

- Derivative Exchanges evolved different models of liquidity provision
- Locals - individuals who bought and sold on their own account, interfacing with brokers who, in addition to acting on behalf of end clients began to trade for their own account.

Big Bang

- In mid 1980s in London major change took place
- Christened Big Bang because so many changes occurred at the same time
 - abolition of fixed commissions on LSE
 - abolition of “single capacity” on LSE
 - admission of foreign players to the market
 - ability to trade electronically
 - creation of central regulator - the SIB

Consequences of Big Bang

- LSE chose to adopt a new method of generating liquidity
- Copied Nasdaq's model of competing Market Makers and Brokers
- NYSE continued with open outcry and Specialists
- Real change was move to electronic trading and abolition of fixed commissions
- US commercial banks, constrained from doing investment bank business in the US by Glass/Steagall, came to London to learn how to compete with Goldman Sachs and Morgan Stanley.

Advent of Electronic Trading

- Pioneer was Toronto Stock Exchange with CATS in 1977
- Followed by derivatives exchanges in Europe
- Leading innovators included Eurex in Germany/Switzerland and OM in Sweden
- Nasdaq/LSE initially not true electronic trading - more electronic quoting
- Other US exchanges, especially NYSE, very slow to adopt electronic trading
- Had dramatic effect upon cost of running an exchange

Competitive Consequences

- Eurex recaptured German Bund Trading from LIFFE
 - LIFFE had been home to this market, but traded by open outcry
 - Deutsche Börse (main owner of Eurex) decided to aggressively recapture this business
 - London traders discovered cost of trading Bund electronically was 5 times cheaper than trading by open outcry
 - Within 3 months of launching its strategy, Eurex had recaptured Bund.
 - LIFFE faced an existential threat

Exchange Consolidation

- As costs of running an exchange fell so it became clear that exchanges could be run for profit rather than as a simple trading facility for its members.
- The old model - of a mutually owned exchange - steadily began to give way to demutualised exchanges, run for profit and often as companies listed on their own markets
- Once exchanges had a price and a listing, they could be bought and sold like any other company
- Again, the lead came from Europe rather than the US. OM and Euronext were pathfinders.
- OM merged with Stockholm SE (in 1998) followed by Copenhagen, Helsinki, the Baltic Exchanges and finally Iceland.
- Euronext was formed in 2000 from Paris, Brussels, Amsterdam and Lisbon, and then acquired LIFFE in 2002

Different Picture in US

- In the US slightly different forces at work
- Both NYSE and Nasdaq trading systems did not allow buyers and sellers to meet directly - there was always an intermediary, Specialist or Market Maker
- SEC saw this as putting extra costs on a transaction and working to disadvantage of end customers. Therefore legislated to encourage buyers and sellers meeting directly.
- Challenge taken up not by the exchanges, but by new entities such as Instinet, Archipelago etc, who designed electronic systems that bypassed the exchanges altogether
- In Europe several exchanges (including Euronext) already allowed buyers and sellers to meet directly.

Response of US Exchanges

- US exchanges responded in time-honoured capitalist tradition - buy the competition
- Nasdaq bought Instinet. NYSE bought Archipelago
- But at the same time both Nasdaq and NYSE started to join the exchange consolidation bandwagon
- NYSE bought Euronext in 2007
- Nasdaq tried and failed to buy the LSE, and ended up buying OMX in 2008
- Back in Europe Deutsche Börse tried to buy the LSE (twice) but failed
- The LSE - after having resisted many approaches finally purchased Milan SE in 2007

Post Consolidation

- If the new multinational exchanges thought they had seen off the challenge, they were wrong
- In the US further SEC legislation made it easier than ever for new entrants to compete with the existing exchanges. Companies like BATS launched with very limited capital and soon became serious competitors to Nasdaq & NYSE
- In Europe new entrants like Chi-X (owned by that part of Instinet that was - foolishly - not purchased by Nasdaq), Turquoise (owned by the investment banks) and a European BATS, began to take serious amounts of business away from the established exchanges, especially the LSE
- European response, once again, was to buy the competition. LSE has purchased Turquoise and there are rumours that bid is being prepared by “someone” for Chi-X

New Forms of Exchange Competition

- Previously new entrants competed by providing services not available from exchanges
- Now competing on “latency” i.e speed of execution - milliseconds down to microseconds
- Small companies with low overheads can invest in very latest technology and confine trading to most liquid stocks (cherry picking).
- Large lumbering exchanges find it more difficult to make the necessary constant upgrades to technology, esp given their need to provide a market in all stocks
- Multiplicity of trading venues gave rise to liquidity paradox - led to co-location with exchanges and aggregation of price information

Electronic Trading now done by Machines

- Initial form of electronic trading involved trader sitting in front of screens entering trades (and led to “fat finger” syndrome)
- Today large and growing proportion of trades are done via sophisticated algorithms - “algo trading” - with machines entering the orders
- Regulators concerned at effects of this trend which leads to high frequency trading (HFT)
- Effects difficult to predict, but some blame the recent “flash crash” on this trend

How Fast is Fast?



Blink of an eye: 300 - 400ms



Lightning Strike: 1ms



Speed of light in Optical Fibre: 200kms/ms

Accelerated IT Improvements

Latency Example at NYSE

2000	10 sec	1
2007	350 ms	0.035
2008	100 ms	0.010
2009	5 ms	0.0005
2010	900 μ s	0.00009

Some 2010 Latency Examples

Nasdaq Inet	250 μ s
BATS Europe	270 μ s
Chi-X Europe	400 μ s
NYSE Arca	900 μ s
LSE TradElect	2700 μ s

Emergence of “Dark Pools”

- Big Institutions concerned at exposing large orders to the market
- Previously managed this by brokers “working the order”
- “Dark Pools” are mechanisms which effectively allow large orders to be matched in an anonymous marketplace.
- Some dark pools are so dark they integrate directly into buy side order management systems and provide possible matching information only to two potential counterparties who have to confirm they wish to trade.
- Dark Pools can be owned by investment banks, run as independent quasi- exchanges or owned by existing exchanges (eg Baikal - LSE)
- In US dark pools now represent 14% of volume

Where do Exchanges go from here?

- Faced with diminishing market share in conventional business, what do the established exchanges do?
- Have to compete on latency (for HFT) and for dark pool business
- Look for new business
- Two options
 - Bring Clearing in-house
 - Capture some of the huge amount of business that is being done OTC
- The financial crash of 2007/8 has given them a major opportunity to do the latter

Clearing

- Traditionally clearing done by a separate clearing house (London and US model) or by an in-house clearing house (German model)
- For several years the EU Commission promoted the idea of independent but electronically connected clearing houses to bring down cost of clearing
- In wake of financial crisis, exchanges in Europe are instead increasingly moving towards the in-house model - LIFFE and LSE
- Biggest drivers for this trend are barriers to entry for the competition and profits that can be earned from clearing
- Main US clearing house - DTCC - is now attempting to compete in the European market space.

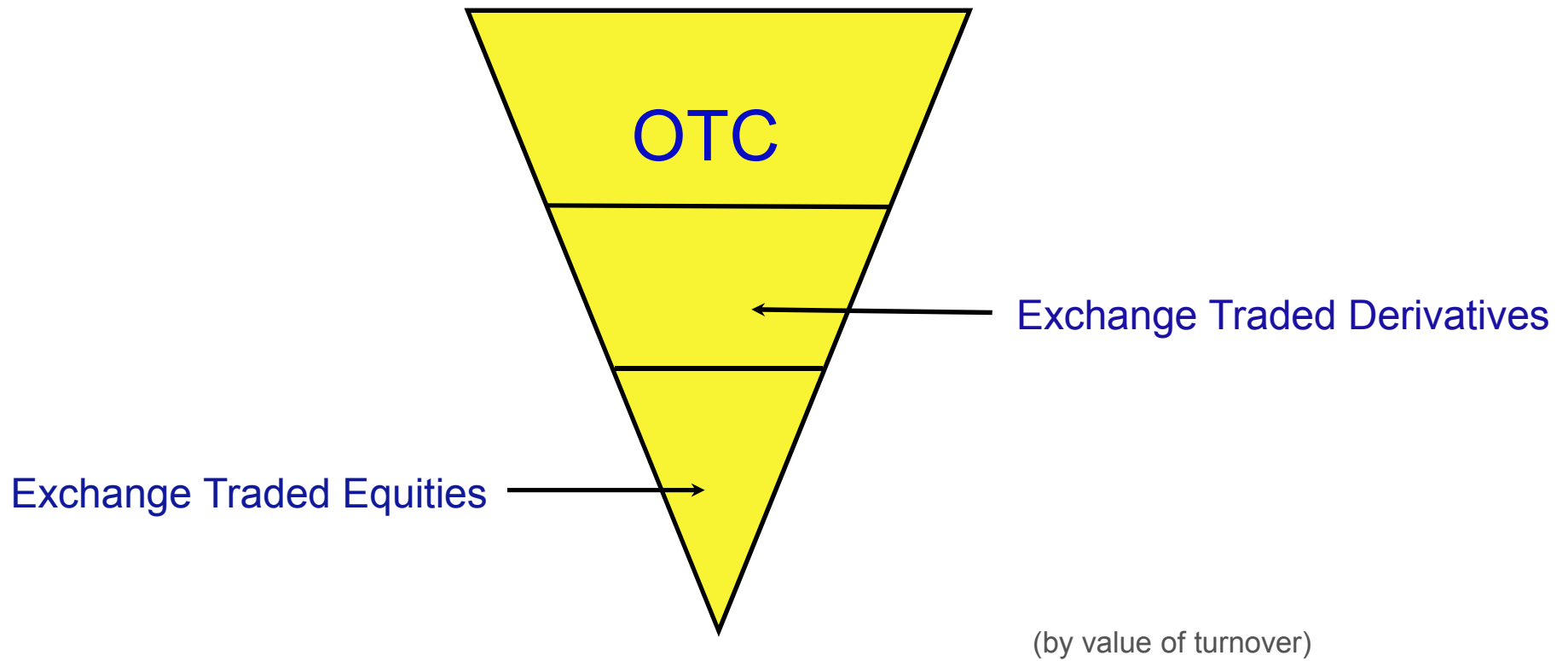
The OTC Markets - what do they comprise?

- Financial Derivatives
 - Interest Rate
 - Fixed Income
 - Credit Derivatives
- Commodity Derivatives
- Foreign Exchange

Size of the Market

- Colossal
- In 2007 BIS estimated market value at \$415 trillion
- Average daily turnover \$2,544 billion
- OTC market approximately 8 times greater than exchange traded derivatives
- Latter 25 times greater than cash equities

The Inverted Pyramid



OTC Market Share

- Interest Rate Derivatives - 70%
- FX - 10%
- Credit Default Swaps - 7%
- All others - 13%

Where were they traded?

- EU - 54%
 - of which UK - 43%, France & Germany 11%
- US - 24%
- Japan - 4%
- Rest of World - 18%
- BUT 74% of UK trades are cross border

Should OTC trades be conducted on-exchange?

- IDB industry violently against - they say it will kill the market
- Some exchanges would like to see OTC trades on-exchange - they say it will bring advantages of centralised clearing
- Near unanimous view that standardised products should be centrally cleared
- New regulations in US and EU mean that many OTC products will now be centrally cleared and that sooner or later they will become exchange traded

US & EU Regulations Converge

Spot the difference: US and EU derivatives regulations

US and EU similarities

- Mandatory clearing for 'standardised' derivatives
- Exemptions from clearing for non-financial counterparties – except where systemically important
- Significant focus on governance and risk management of CCP (central counterparty clearer)
- Reporting of cleared and OTC (over-the-counter) transactions by (nearly) all financial counterparties
- Scope for recognition of third-country equivalent regimes

Where the EU has not followed the US

- Volcker rule – restrictions on bank proprietary trading
- Swaps 'pushout' ruled – moving certain OTC business outside of banks
- Mandatory exchange trading of 'standardised' derivatives (subject to separate Brussels review)
- Restrictions on central counterparty clearer ownership

Source: Allen & Overy LLP

What does the future hold for exchanges?

- Will they continue to face challenges from new entrants like BATS and Chi-X?
- Can they face down these challenges by constantly buying the competition?
- Will they succeed in capturing at least a slice of the very large (and profitable) OTC business?
- Will the regulators help them in this task?
- Can they generate increased profits from the ownership of in-house clearing houses?
- Can they ever compete on latency and dark pools?