International Consolidation of Stock and Derivatives Exchanges.

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Consolidation and Demutualization

Consolidation:

- NYSE buys Euronext.
- CME buys CBOT and NYMEX.

Demutualization: Private clubs give way to for-profit corporations.
Future competition depends on government policies:

- Intellectual property in contract listings (stock listings and futures contracts).
- Common clearing, competitive clearing, monopolistic clearing.
- Mandatory interfaces and best execution requirements.
- Intellectual property in price data and index construction.

Predictions

- 24-hour trading respects working hours and favors London over New York, with 24-hour competition.
- Demutualization converts floor trader tolls into transaction fees charged to algorithmic traders.
- Trading volume elastic with respect to fees. Higher volumes increase liquidity, which increases volume even further.
- Three-way competition among derivatives exchanges, stock exchanges, and OTC dealers.
- Monopolistic clearing (CME) provides competitive advantage common clearing (NYSE) or competitive clearing (EU?).
- Exchanges attempt to access one another's platforms to steal liquidity.
- Cash-settlement will become an increasingly important form of competition among exchanges, including VWAP and TWAP facilities and index construction.
- Exchanges will automate spread and portfolio trading.
- Exchanges will offer order handling facilities, risk management services, and even trading algorithms.

Economics of Organized Exchanges

Many products:

- Contract listings (stock listings, futures contracts): public good qualities like intellectual property. Property rights to contracts and indexes?
- Trading platforms: Network externality such that more volume implies more liquidity. Level playing field?
- Price data: provides a positive externality, equal transparency to all customers? Property rights to VWAP?
- Clearing: monopolistic, common, competitive. Implications for market stability.
- Risk Management: real-time.
- Order-handling systems (future)
- Trading algorithms (future)

Three-way Competition

Three types of competitors:

- Stock Exchanges: Small pools of liquidity, common clearing, best execution requirements, highly contestable.
- Derivatives Exchanges: Large pools of liquidity, monopolistic clearing, monopolistic access to trading platform.
- OTC Dealers: Benefit from opaqueness and illiquidity on organized exchanges.

Exchanges likely to invade each others turf.
Organized exchange business increasingly contestable, more for stock exchanges than derivatives exchanges.
Large market caps for organized exchanges are a big puzzle.
Now consider predictions of different types.

24-Hour Trading

- Trading likely to respect working hours in various time zones. Volatility mimics volume. Depth constant. (Kyle, 1985)
- Since computers do not need to sleep, computers in different time zones compete 24-hours per day.
- 24-hour competition favors consolidation, since competition dissipates rents.

Demutualization

- Exchanges as private clubs benefit members.
- Floor traders probably extract rents like toll-takers, not rewards for economically efficient market making.
- With demutualization, new owners could be buy-side, sell-side, or profit maximizers.
- Profit-maximizers replace floor trader tolls with transaction fees, possibly higher on electronic markets even though costs lower.
- Buy-side owners tilt towards low fees, more liquidity, more transparency.
- Sell-side owners would tilt towards high fees, less liquidity, more opaqueness.
- Demutualized exchanges seem to be profit driven.

Tick Size and Demutualization

- Large tick size favored by floor traders acting as toll-takers.
- Small tick size (pennies) reduces floor traders' edge.
- Small tick size with electronic trading encourages many small orders (order shredding).
- Small tick size discourages disintermediation via payment for order flow.
- Bid-ask spreads converge to zero, but depth (market impact) has a time dimension related to resiliency. Fischer Black explained how this would happen a long time ago (Black, 1971)

Exploding Volume

- Biggest puzzle in finance: Why is trading volume so high? Most traders believe they are above average, especially large institutions.
- Alphas change over time randomly. Long or short half-life.
- Trading volume responds to changes in perceived alpha.
- Lower transactions fees generate more trading volume as alphas change.
- More volume generates more liquidity, so price impact falls.
- Transactions costs have two components: fees and impact.
- As fees fall, volume rises due to direct effect of falling fees, and due to liquidity feeding upon itself.

Common Clearing, Competitive Clearing, Monopolistic Clearing

Types of clearing:

- Common clearing: single clearing entity serves all exchanges.
- Monopolistic clearing: Organized exchange uses one clearing entity. Incentives to keep out new contracts which threaten existing ones. Used effectively by CBOT to defend Treasury bond contracts.
- Competitive clearing: Buyers and sellers may choose different clearing entities. Need for an interface, mandated by regulation.

Gross margins and net margins:

- Monopolistic clearing favors gross margins.
- Competitive clearing favors net margins.

Clearing: Policy Implications

- Monopolistic clearing may exacerbate problems during stress, if interface with excluded competitors is bad. Probably has international dimension.
- Competitive clearing may favor rush to bottom in margin setting.
- Perhaps common clearing is most consistent with market stability during times of crisis.

Access to Trading Platforms

- New entrants want to lean against liquidity of established contracts.
- Established contracts want to prevent this. How do they do this? Complicated issue for future research.
- Established markets might have delayed price reporting, some opaqueness to discourage competition, limitations on customers perceived as threats.
- Regulatory response to force easy interface (best execution) may reduce exchange rents and force consolidation.
- Customers demand low transactions costs, not immediacy per se.
- Immediacy is valued when brokers cannot be trusted to execute orders honestly, so speed of execution acts as proof of honesty.

Cash Settlement versus Physical Delivery

- Physical Delivery: Buyer pays agreed upon price to take delivery of security.
- Cash Settlement: Buyer receives difference between agreed upon price and cash-settlement price observed at expiration date.
- With cash settlement, buyer can mimic taking physical delivery by placing a market order to buy at expiration. This arbitrage is almost perfect is market orders have guaranteed execution at settlement price, as in a single-price auction.

Cash Settlement: Strategic Considerations

- Cash-settled cloning allows new entrants to free-ride on the delivery mechanism of another exchange.
- Organized exchanges can use cash settlement to compete against each other, such as cash settled futures contracts on individual stocks competing with NYSE stocks.
- OTC dealers can use cash-settled OTC clones to compete with futures contracts (bucket shops).
- Organized exchanges may take steps to frustrate competitors offering cash-settled clones: Poorly organized structure for determining settlement prices discourages efficient arbitrage.

VWAP and TWAP

- VWAP = value-weighted average price
- TWAP = time-weighted average price
- Order to buy 100,000 shares or 1% of trading volume at VWAP incorporates cash settlement mechanism for making purchase.
- VWAP hedge of 100,000 shares is more difficult than hedge of 1% of volume since volume in not predictable in advance.
- TWAP hedge of 100,000 shares is much easier to hedge since trades are predictable and spaced evenly through time.

Cash Settlement and Indices

- Cash settlement underlies additions and deletions to indices like S&P 500.
- Thus, indices represent a dynamic trading strategy. For example, S&P 500 rebalances to maintain investment in large stocks by dropping small stocks and adding big stocks through time.
- Indices can be constructed to mimic many different dynamic trading strategies, including value, dividend yield, P/E ratios, etc.
- Exchanges can offer indices as a way to automate dynamic trading strategies, and as a way to brand price data.
- But competitors can use indices to avoid trading individual names on an exchange, e.g. S&P 500 futures competing with listed stock portfolios.

Cash Settlement, VWAP, and Indexes: Strategic Considerations

Competition over VWAP or TWAP works in two ways:

- Exchange can use VWAP, TWAP, or indexes to try to "brand" its prices for cash settlement purposes, especially if intellectual property is respected.
- Competitors can use VWAP, TWAP, or indexes to steal business from exchange if matching buyers and sellers are found.

Policy Issue:

- How well is intellectual property in price data and index construction protected, if at all?

New Products and Directions

Trade in portfolios and automatic legging of spreads.

- Legging of spreads allows exchanges to introduce new products and share liquidity from successful markets.
- Trade in portfolios integrates order flow for individual stocks with order flow for index construction. "Index arbitrage" as order type?

New Frontiers in Product Construction:

- Risk-management services compliment margining functioning.
- Order handling systems.
- Trading Algorithms.
- What about education? Should NYSE offer an MBA degree?

Summary

- Competition among exchanges due more to peculiar economics of the industry than to internationalization per se.
- The more competitive policy makes the environment, the more consolidation is needed to maintain profitability.
- Big puzzle: Why do exchanges have such high market capitalization?
- Market seems to think futures exchanges will be successful monopolies in the future.