Transparency: Audit Trail and Tailored Derivatives

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Two Transparency Proposals

- Make "audit trail" data publicly available with a time lag long enough to give traders time to execute large bets. Let academic researchers (e.g., people like me) and market participants know a lot about identities of traders and all orders, trades, positions.
- Break "complex derivatives" or "tailored derivatives" into two components: (1) A "best hedge" based on exchange-traded liquid instruments; (2) a "basis trade" equal to the difference. Report both pieces as separate transactions. Require open market execution of the liquid component.

Transparency and Timing of Trades

- Pre-Trade Transparency: bids, offers, sizes, order book depth, timing of changes, type of trade (e.g., "index arbitrage basket" trade in old NYSE), millisecond time stamps, reporting lag
- Post-Trade Transparency: Quantities traded, time stamps, information about sides (dealer? hedger? institution?)
- Audit Trail: History of "messages" and "transactions" with information about parties, such as order number, account number, broker ID, access type, clearing firm, legal entity identifier (LEI). Could also include foreign or domestic, individual or institution, trading desk, human authorizing the trade, strategy ID.
- Audit trail is usually confidential. How much of this information should be made public? When?

Data Collection Varies Across Countries

- Korea: Centralized market run by the government. Account numbers on every order. Audit trail for stocks, futures, options integrated.
- Sweden: Extensive disclosure concerning individual's ownership or trades of stocks.
- U.S.: Requirements to keep data on trades confidential.

Electronic Trading Increases Opaqueness.

- Human Trading: Humans know identities of counterparty brokers, probably have an idea of who the brokers' customers might be from manner of trade. Parties exchange information about clearing firm, convey even more information about possible identity of counterparty.
- Electronic Trading: Trades are matched anonymously. The exchange knows who is trading with whom, but the parties to the trade may not know at the time the trade is made.
- To whom does the data on trades belong to? Legally mandated "ticker data" becomes public with a lag. Do customers or exchanges "own" other data?
- Trade data may "leak" as it is cleared because back-office employees see it overnight.

Timing and Aggregation of Reports Affects Value of Data.

- "Real-time reporting": Time lag affects value of pre-trade and post-trade data reports: 1 microsecond? 1 millisecond? One second? 15 minutes?
- Aggregation: "Open interest" is important aggregate of futures data. Sum of largest 5-10 positions on long and short side are economically important.

"Real-Time" Opaqueness Benefits Dealers at Expense of Customers.

- A trader benefits when others' trades are disclosed promptly to him but loses when his own trades are disclosed to others.
- In aggregate, fully transparent disclosure benefits customers, at the expense of dealers.
- Therefore, dealers favor opaque markets, and customers favor keeping their own trades secret while complaining about dealers being better informed.

Proposal 1: Make Audit Trail Data Public, with a Time Lag.

- Disclose complete historical data on all messages (orders, cancellations), trades, positions, including identities of buyer and seller.
- Delay disclosure of identities of traders long enough so that identities of traders building large positions not disclosed while positions are being built.
- Make data available to researchers, market participants, regulators.
- Include legal entity identifiers (LEI) and account numbers on all messages so that identities of traders can be matched across different markets (stocks, bonds, derivatives, foreign exchange, commodities)

Equities versus Derivatives

In equities markets, customer account numbers or LEIs not traditionally included on all orders. Broker-dealers keep track of customer positions in customer accounts. Makes audit trail operate in "lawyer time," not in "computer (economist) time."

- Futures markets have better historical practices, with account numbers on all orders

In equities markets, confidentiality is not protected perfectly: SEC requires disclosure of positions of institutional asset managers on a quarterly basis. Right to confidentiality is not sacrosanct, but rather subject to definitions.

- Futures markets tend to disclose aggregates (open interest) but not positions of individual traders.

Why Make Audit Trail Data Public?

Many abuses can be detected in electronic audit trail data, if enough detail is preserved in the data.

- Customers complain about profits of high frequency traders, but these profits may not be large and may be falling. Not as big a problem as customers think.
- Customers complain about front-running, but detection is a statistical exercise involving audit trail data across many customers and dealers. Research can quantify this problem.
- Effective bid-ask spreads customers pay may larger than customers think. Easier to estimate price impact costs, especially when large bets destabilize markets.
- Easier to detect insider trading, window dressing.

Relationship to Financial Crisis

- Build-up of risks leading up to financial crisis would have been more easily observable.
  - AIG derivatives positions would have been known publicly.
- Facilitates monitoring of compliance with Volcker Rule. If dealers hold positions for a long time, is this proprietary trading?
  - London Whale: Assuming UK and US both disclose positions, how long could London whale trades have been hidden from JPMorgan CEO, Board, shareholders, risk managers if all JPMorgan trades were disclosed publicly? Could this have occurred at all? (Note: Market participants did seem to know.)

Historical Examples

- Flash Crash: Extremely large size of bet and likelihood of mechanics of its propagation could have been quickly determined from public data by researchers in or outside government.
- Hunt Silver Corner: Could not have occurred if positions were revealed to public. (Note: There may have been elements of undisclosed collusion difficult to infer from audit trail data.)

Arguments Against Audit Trail Disclosure Probably Not Convincing.

Dealers and hedge funds may argue that disclosure will allow secret formulas for trading to become public.

- Researchers will certainly be able to reverse engineer overall risk exposure patterns of various strategies. This should be disclosed to customers anyway.
  - Example: Warren Buffett is a value investor.
- In practice, the "secrets" which make strategies valuable are almost impossible to reverse engineer, unless they are obvious and perhaps illegal. Depend on many details in data. Implementation of models is history dependent. Models change.
  - Why did Warren Buffett buy value stock A and not value stock B? Maybe his assessment of management quality of company A is better than B. Cannot reverse engineer this from data.

Compromise if Confidentiality not Relaxed

If not possible to make audit trail data publicly available, then:

- Allow researchers to work with confidential data subject to Non-Disclosure Agreements. This happens all the time with litigation data.
- Allow researchers to work with agencies like CFTC or OFR to help monitor and understand markets while satisfying confidentiality requirements. Make research results generally available so that users of markets have increased understanding as well.

Proposal 2: Break Tailored Derivatives into Two Pieces, "Best Hedge" and "Basis Trade"

Require a "tailored derivative" contract, which may have opaque terms and conditions, into two pieces:

- A "best hedge" using liquid instruments traded in transparent markets, easily marked to market on daily basis.
- A "basis trade" consisting of the difference between the best hedge and the opaque tailored derivative. Harder to value from public data.
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Execute and report both pieces of the trade separately.

Advantages for Customer

- Customers can see how value of both pieces fluctuates over time. Basis trade may have large built-in dealer spread, which becomes apparent quickly.
- Easier for customer to model its own internal risks when trade is conveniently broken into pieces.
- Stimulates discussion between dealer and customer concerning valuation of basis trade.
- Basis trade and best hedge may have different credit support arrangements, e.g., best hedge market to market daily while basis trade not marked to market at all.
- Reduces incentives for dealers to create complex instruments to avoid reporting requirements or hide positions from market.

Advantages for Market

- Disclosure of best hedge as a regular trade keeps other market participants aware of what is going on in the market.
- Pricing of best hedge should be the same as for other liquid derivatives. Should require exposure of both bid and offer to the entire market. Might get price improvement for customer. Might increase liquidity of market.
- Easier for market observers to quantify risks in the market. Addresses problem of how to aggregate risks of tailored derivatives.
- Easier for market to evaluate disclosures of risk exposures by publicly traded firms. Should encourage simplified, homogeneous derivatives products.

Disadvantages: None

- Costly to dealers? No. Dealers hedge trades already.
- Puts secret risk management techniques into public domain? Not a problem. Risk management techniques must be public in order to qualify as risk management techniques.
- What if trading desk uses a different hedge from risk manager? Then disclosure of two pieces stimulates healthy internal debate between traders and risk managers.
- What if other side of tailored derivative is taken by customer of another firm, which hedges it differently? Then differences become obvious. Proposal encourages consistency of marking derivatives to market in different firms.

Other Topics I am Happy to Talk About

- Putting repos on organized exchanges to facilitate both transparency and price discovery of the underlying.
- Consistency of mark-to-market prices of OTC derivatives positions. Firms should not manufacture capital and profits out of disagreements.
- How to make "terms and conditions" understandable to regulators and researchers? Databases of terms and conditions? Complex Waterfalls.
- Reporting and registering of derivatives trades. Handshakes in repositories. What should be stored in a repository.