



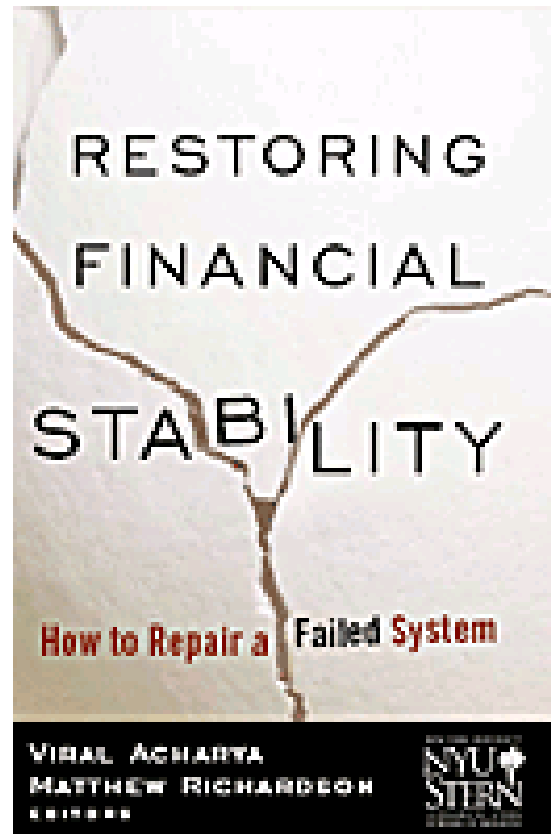
FIXING THE OTC MARKET: CENTRALIZED COUNTERPARTY AND TRANSPARENCY

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Chapter 11: “Centralized clearing for credit derivatives”
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<http://whitepapers.stern.nyu.edu/>

Banks did not transfer credit risk

	Loans	HELOC	Agency MBS	Non-Agency AAA	CDO Subord	Non CDO Subord	Total	
Banks & Thrifts	2,020	869	852	383	90		4,212	39%
GSEs & FHLB	444		741	308			1,493	14%
Brokers/dealers			49	100	130	24	303	3%
Financial Guarantors		62			100		162	2%
Insurance Companies			856	125	65	24	1,070	10%
Overseas			689	413	45	24	1,172	11%
Other	461	185	1,175	307	46	49	2,268	21%
Total	2,925	1,116	4,362	1,636	476	121	10,680	
	27%	10%	41%	15%	4%	1%		

Four Principles for Future Regulation

1. Long-term incentives
 - Clawbacks (bonus/malus)
 - Avoid compensation of “fake alpha” trades
2. Efficient pricing of government guarantees
 - Deposit insurance
 - TBTF, GSEs
 - Loan guarantees, LOLR
3. Systemic risk “tax” (Chapter 13 of Restoring Financial Stability)
4. Transparency
 - Centralized clearing
 - Accounting of off-balance-sheet transactions

Transparency recommendations

1. Centralized clearing be mandated for standardized products.
2. Customized products can remain OTC (e.g., hedging by corporations).
3. Mandated transparency in OTC can aid BOTH market pricing of risk AND capital requirements; centralized registry is a must.
4. Fight the next war, not just the last one:

Move large (thus, commoditized) OTC markets to CCP/exchanges over time as these markets get deeper.

TOXIC ASSETS PURCHASED OTC

- The vast quantities of assets that are now considered “toxic”, were all purchased over the counter or OTC (or created to be held).
- We still do not know the volume of many of these assets.
- We still do not know the guarantees that have been written on assets that will soon be binding.

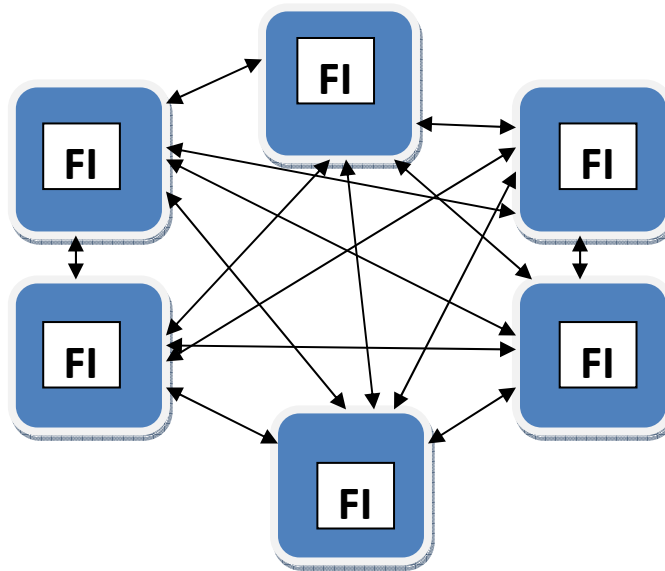
IS THIS AN OTC PROBLEM?

- Simply, the financial crisis can be described in two complementary ways
 - Failures to accurately assess risks
 - Incentives to ignore risks
- The OTC market contributes to both problems. We have some suggestions to improve the functioning of this market and reduce some of the risks.

Major Issues with OTC Trading in Derivatives

- Counterparty risk
- Transparency
 - risk exposure
 - prices, volumes, and open interest

OTC Trading



But any other structure may also arise

No one knows (knew!) the structure...

EXAMPLE: CREDIT DEFAULT SWAPS (CDS)

- CDS used to hedge exposure to the reference securities
- CDS are also used to take a view on the probability of bankruptcy. By selling protection, the investor earns a spread over treasuries without supplying capital (until default).
- CDS are used in capital market arbitrage to reflect the negative relation between equity prices and CDS spreads.
- Risks of CDS positions are likely to be treated as zero by traditional risk measures like VaR.
 - Buy a bond: you pay upfront, then get paid or face default
 - Sell a CDS: receive premium and only pay in case of default

RISK ANALYSIS

- The main risk of a CDS is the risk of default of the reference entity. It is this risk that buyers of protection are hedging.
- There is also the risk that upon a default, the seller of protection will be unable to meet its obligations.
- In OTC markets, there is a collateral system that attempts to protect against this counterparty risk, however it is far from perfect protection.
- In fact, given current levels of transparency, the collateral system CANNOT be particularly effective

COUNTERPARTY RISK EXTERNALITY

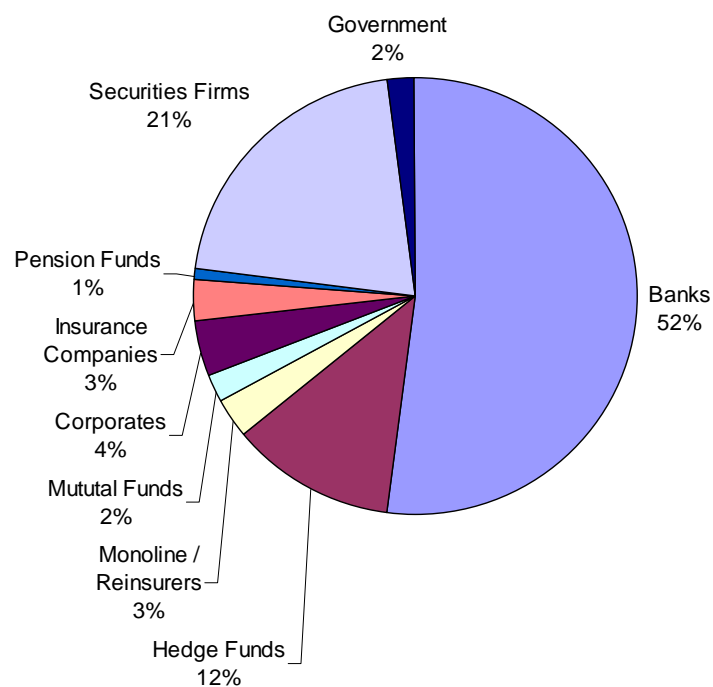
- The risk of a CDS contract therefore depends partly on the probability that the counterparty will be solvent in the event of default.
- CDS spreads could differ across counterparties, however generally they do not.
- The risk of a CDS contract will depend upon what else the counterparty has done. This information is not generally available to investors.

TAKING ADVANTAGE

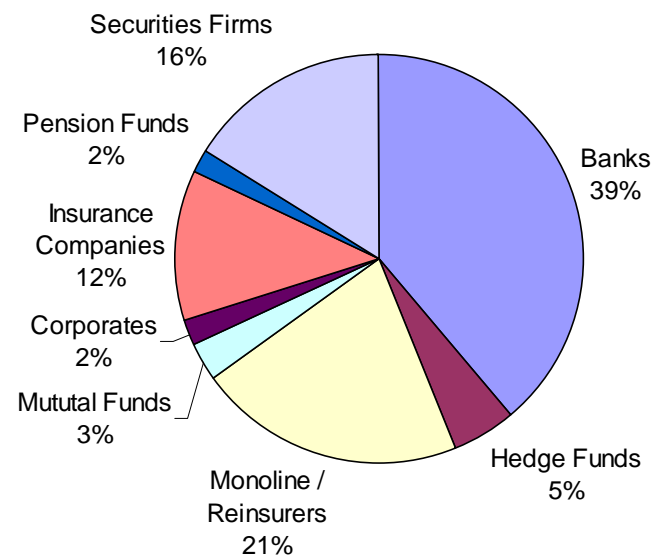
- In full information settings, the spread from selling the second CDS will be slightly less than the first. Without full information, the spread would not decline and hence an entity might write a large amount of CDS and earn large returns until a default occurs and then ...?
- How do we solve this problem?
 - Regulation to contain the resulting risks and misallocations
 - Transparency to help market price counterparty risk better

Who uses credit derivatives?

Buyers of Protection



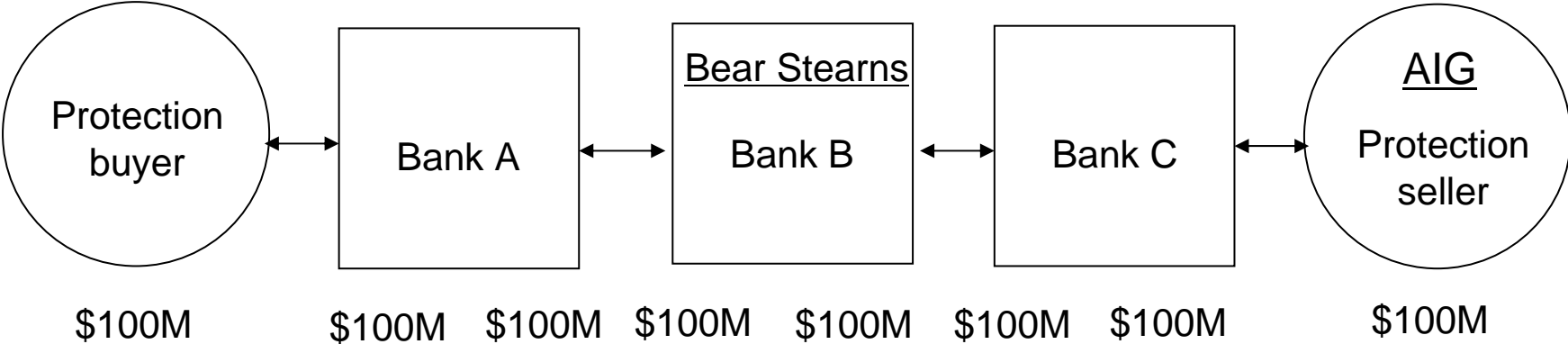
Sellers of Protection



Source: British Bankers Association

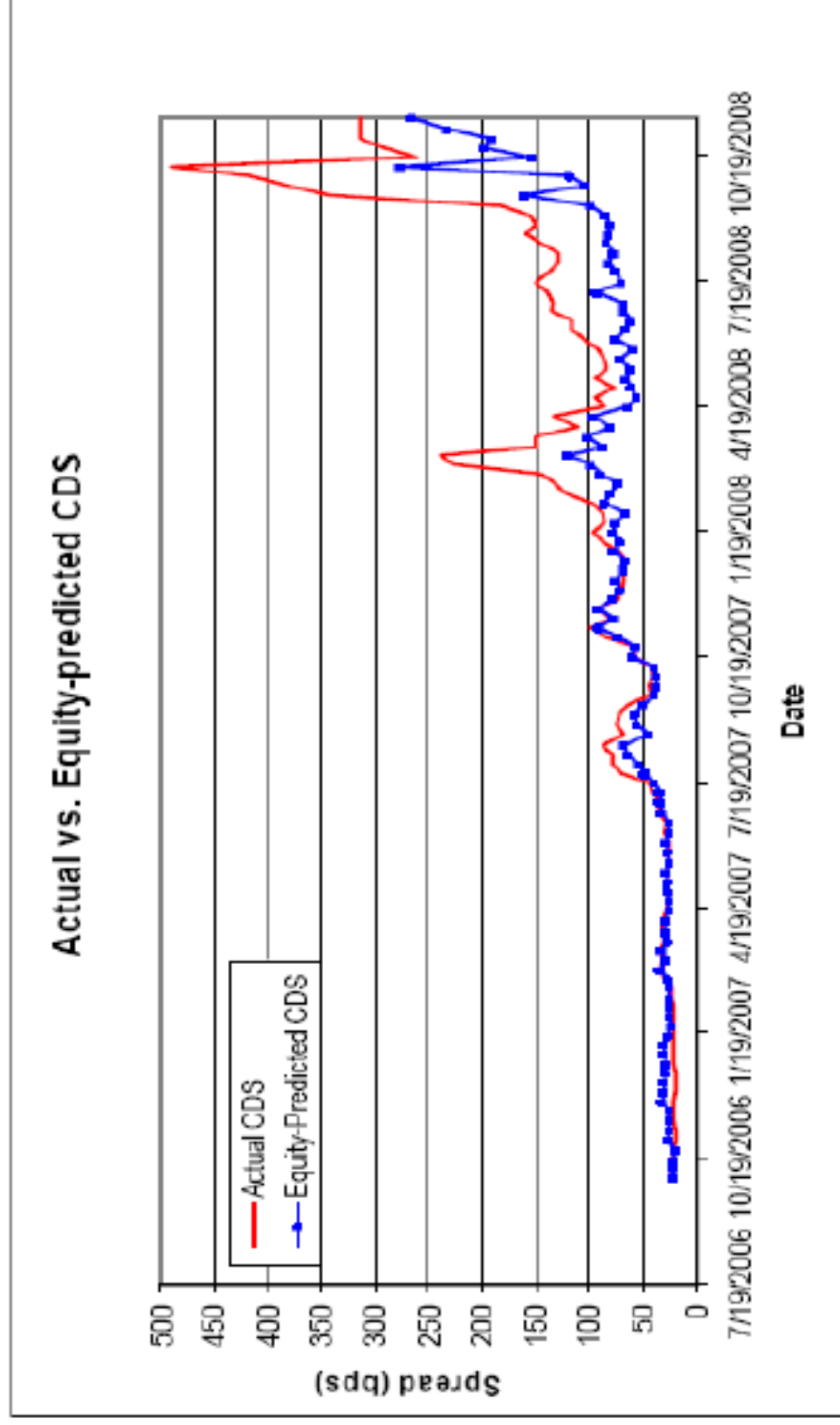
THE ISSUE AROUND BEAR STEARNS

Typical Situation



CDS Notional Principal = \$800M

Exhibit I: The relative behavior of CDS spread and equity-implied CDS spread for Goldman Sachs during the sub-prime crisis (Leland, 2008)



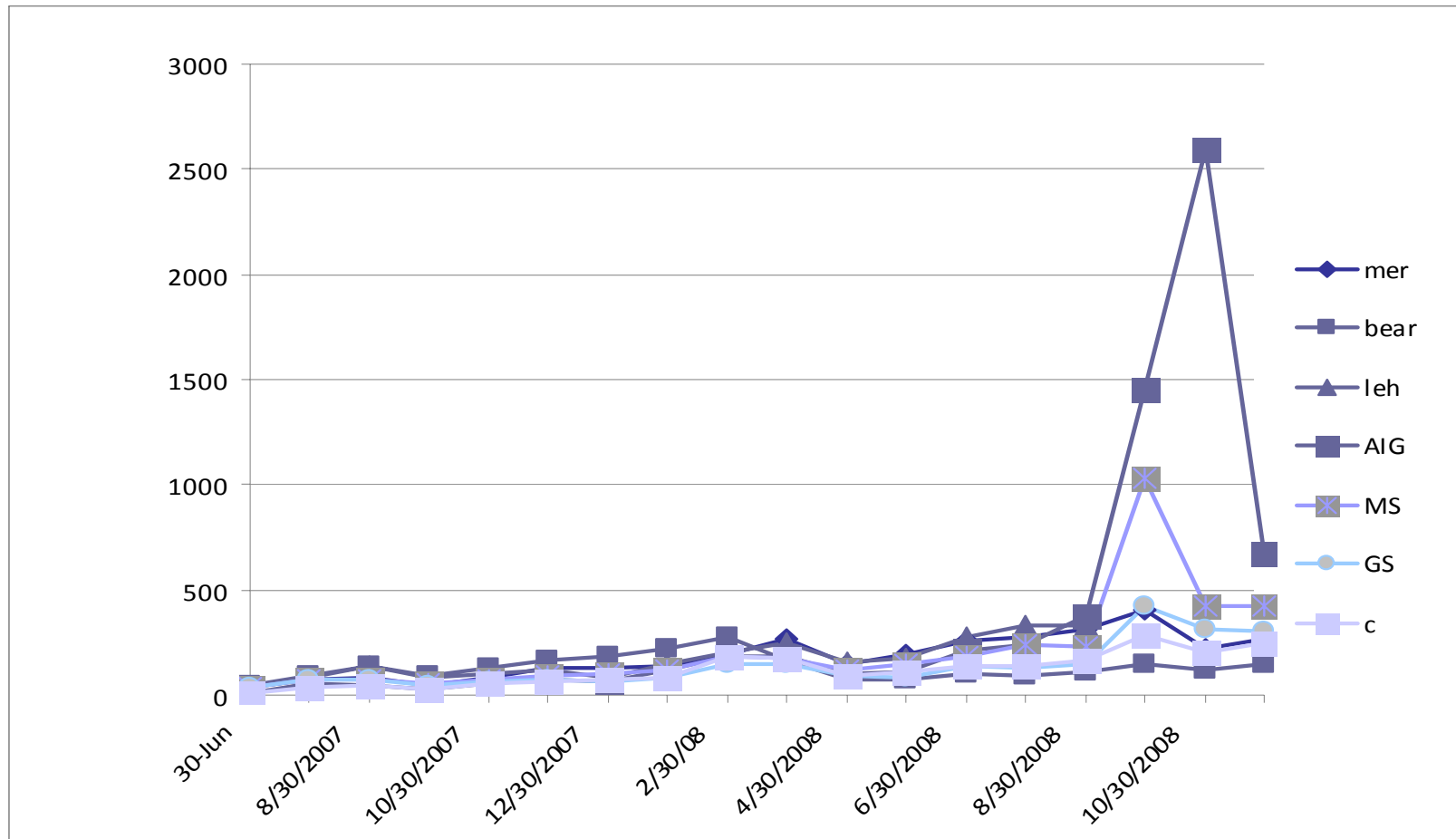
LEHMAN SETTLEMENT

- In August 2008, the total notional principal on outstanding CDS was reported to be \$62 trillion. How much was it really?
- \$400 of CDS were written on Lehman as obligor
- When these were settled out in October 2008 (with payoffs of \$0.08 per \$1 of principal), only about \$6 billion actually changed hands.

A.I.G.

- In September, it was discovered that AIG had written an enormous volume of CDS on many names but in particular on Mortgage Backed CDO tranches.
- When AIG's rating fell, it was forced to post more collateral and when it could not do this, both the company and its liabilities were taken over by the government.

CDS SPREADS



TAKING ADVANTAGE

- In full information settings, the spread from selling the second CDS will be slightly less than the first. Without full information, the spread would not decline and hence an entity might write a large amount of CDS and earn large returns until a default occurs and then ...?
- How do we solve this problem?
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FOUR MODELS

- OTC
- REGISTRY - Data warehouse with some transparency
- CLEARING HOUSE - Centralized counterparty for all trades
- EXCHANGE – Centralized counterparty with greater price transparency, possibly position limits, surveillance (insider trading, for example), hedger/speculator distinction, ...

•Exhibit II: Three possible solutions to centralized clearing and their relative merits

Market Characteristics	OTC	Registry (Solution I)	Clearing House (Solution II)	Exchange (Solution III)
trading style	bilateral negotiation	bilateral negotiation	bilateral negotiation	continuous auction
market participants	large well-capitalized firms	large well-capitalized firms	well-capitalized counterparties only	retail trade possible; largest trades in upstairs market
flexibility/standardization of contracts	maximum flexibility	maximum flexibility	flexible terms; standardized credit enhancement	largely standardized contracts

•Exhibit II: Three possible solutions to centralized clearing and their relative merits

Market Characteristic	OTC	Registry (Solution I)	Clearing House (Solution II)	Exchange (Solution III)
counterparty credit risk	substantial	substantial	little to none	little to none
collateral/ margin requirements	bilateral negotiation and management	consistent mark to market valuation of positions and collateral; required amounts set bilaterally by counterparties	consistent mark to market valuation of positions and collateral; required amounts standardized and set by Clearing House	consistent mark to market valuation of positions and collateral; required amounts standardized and set by Clearing House

Market Characteristic	OTC	Registry (Solution I)	Clearing House (Solution II)	Exchange (Solution III)
price information	largely opaque; daily quotes available	largely opaque; daily quotes available	more transparent; daily settlement prices publicly available	transparent to all
volume and open interest information	opaque	largely opaque	more transparent	transparent to all
information on large trader positions	opaque	available only to regulators	available only to regulators	available only to regulators
netting of cash flows	bilateral only	yes	yes	yes
netting of offsetting positions	bilateral only	bilateral only	yes	yes
secondary market	only by mutual agreement between counterparties	only by mutual agreement between counterparties	yes	yes

Implication for Transparency

- Trading in credit derivatives requires much more transparency, both for regulators and for counterparties
- More important for OTC than for trading on more centralized platform
 - Proposal to require regular reporting of net exposures on, say, the 1000 largest obligors
 - Can be calculated readily provided registration of trades (e.g., to DTCC warehouse) is mandated

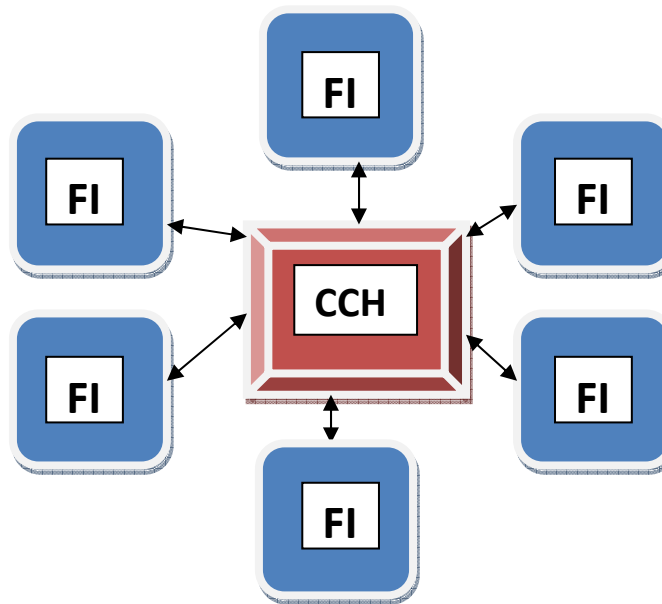
A TRANSPARENCY PROPOSAL FOR OTC MARKET

- Every trade and the associated contract should be posted in a standard form on the Internet within some time frame.
 - Required by FINRA/SEC in the US (“TRACE”) for corporate bond trades by dealer community
- Counterparties could verify the accuracy
- Third party vendors could aggregate this data and help investors assess counterparty risk
- DTCC could today publish this on many popular contracts. Data are available to regulators already and some on the web. Check it out.

CENTRALIZED COUNTERPARTY

- Even better solution to counterparty risk is to have a centralized counterparty (CC).
- After a bilateral contract is agreed to, the parties each specify the centralized counterparty as their counterparty.
- The centralized counterparty sets margins and collects payments in advance to insure its positions.
 - Can potentially also capture systemic risk of players (see Chapter 13 of *Restoring Financial Stability*)
- Failure to post margins leads to contract termination without loss to CC (if margins are calculated well).

CENTRALIZED COUNTERPARTY



Now, the CCH knows exactly, at least locally
in that market, **WHAT ELSE IS BEING DONE!**

EXCHANGE

- On an exchange there is a centralized counterparty that does all the financial clearing and payments. For long horizon contracts, margins are posted.
- Often position limits are imposed too.
- In addition, on an exchange, you do not know the counterparty and the process of price discovery leads to potentially better pricing.

WHY NOT MOVE ALL OTC TO CC or EXCHANGES?

- Only highly standardized contracts can be moved to CC or Exchanges.
- Only high volume contracts are suitable.
- We will surely have many OTC contracts.
 - Newer products
 - Smaller markets
 - Institutional markets
 - Up to a size, OTC ok; Large size -> CCP or Exchange

“Unfunded” advantage of CDS reducing?

Goals of proposed changes under way

- Central clearing and central counterparty – Mandatory?
- Exchange trading also on the table for CDS – Depth?
- Portfolio compression and fungibility – Good outcomes!

Key features:

- Standard dates & coupons (100/500 bp) recommended
- Contracts can trade on upfront premium/discount
- Along with better margining requirements, can reduce the unfunded nature of credit derivatives

BUT, How will we deal with OTC? Transparency?

Alternative to OTC Transparency?

Suggestion: Require higher capital requirements for OTC

Problems:

1. How will regulators know the exact OTC positions? – Mandatory disclosure necessary
2. Will regulators know better than markets to price counterparty risk suitably?
3. Many participants, e.g., hedge funds, are NOT under current capital requirements regime

Summary of Our Recommendations

1. Centralized clearing be mandated for standardized products.
2. Customized products, e.g., with corporations, can remain OTC.
3. Mandated transparency in OTC can aid BOTH market pricing of risk AND capital requirements; centralized registry is a must.
4. Move large (thus, commoditized) OTC to CCP/exchanges over time as these markets get deeper.

NOTE:

1. Proposed reforms will reduce leverage and limit some amount of financial innovation.
2. These may be good outcomes for the overarching objective of systemic risk containment and financial stability!
3. This is precisely how we approach innovation in other spheres of life, e.g., aircraft design, drugs, ...