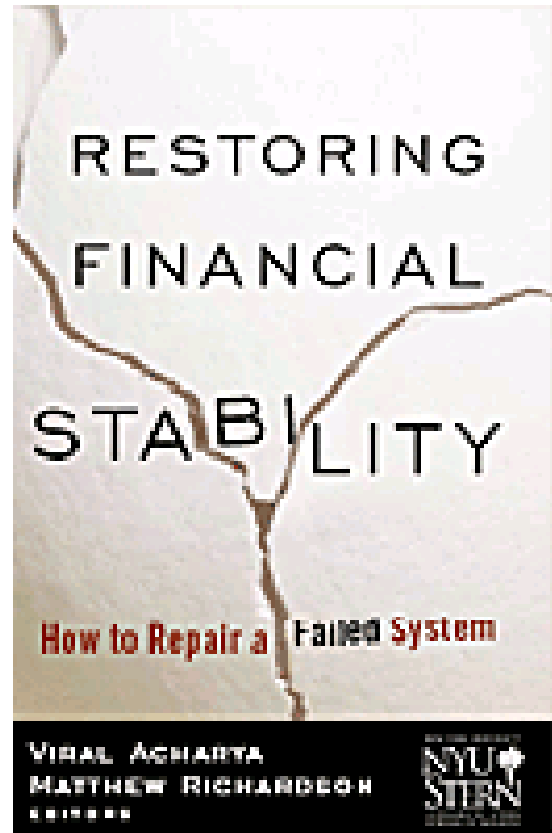




FIXING THE OTC MARKET: CENTRALIZED COUNTERPARTY AND TRANSPARENCY

Viral V Acharya and Robert Engle
Presentation at ICRIER (Delhi)
14 September 2009

Policy Proposal Part of NYU Stern Project



Chapter 11: “Centralized clearing for credit derivatives”
(Viral V Acharya, Rob Engle, Steve Figlewski, Anthony Lynch,
Marti Subrahmanyam)

<http://whitepapers.stern.nyu.edu/>

Causes of the Financial Crisis

- Popular explanations
 - Design of subprime mortgages
 - Growth and (lack of) quality mortgages due to securitization
 - Rating agencies rubber stamp of AAA
- But banks did not transfer credit risk down the line
 - Chapter 2 (Acharya-Schnabl: How Banks Played the Leverage “Game”) provides evidence of carry-trade style, tail-risk seeking behavior in banks
 1. ABCP conduits and SIV’s
(Acharya-Schnabl-Suarez, 2009 – Securitization *without* Risk Transfer)
 2. AAA tranches of subprime mortgages

Old Model: Banks as Delegated Monitors

Bank Balance Sheet

Assets	Liabilities
Loans	

Old Model: Banks as Delegated Monitors

Bank Balance Sheet

Assets	Liabilities
Loans	Deposits
	Capital/Equity

New Model: Securitization

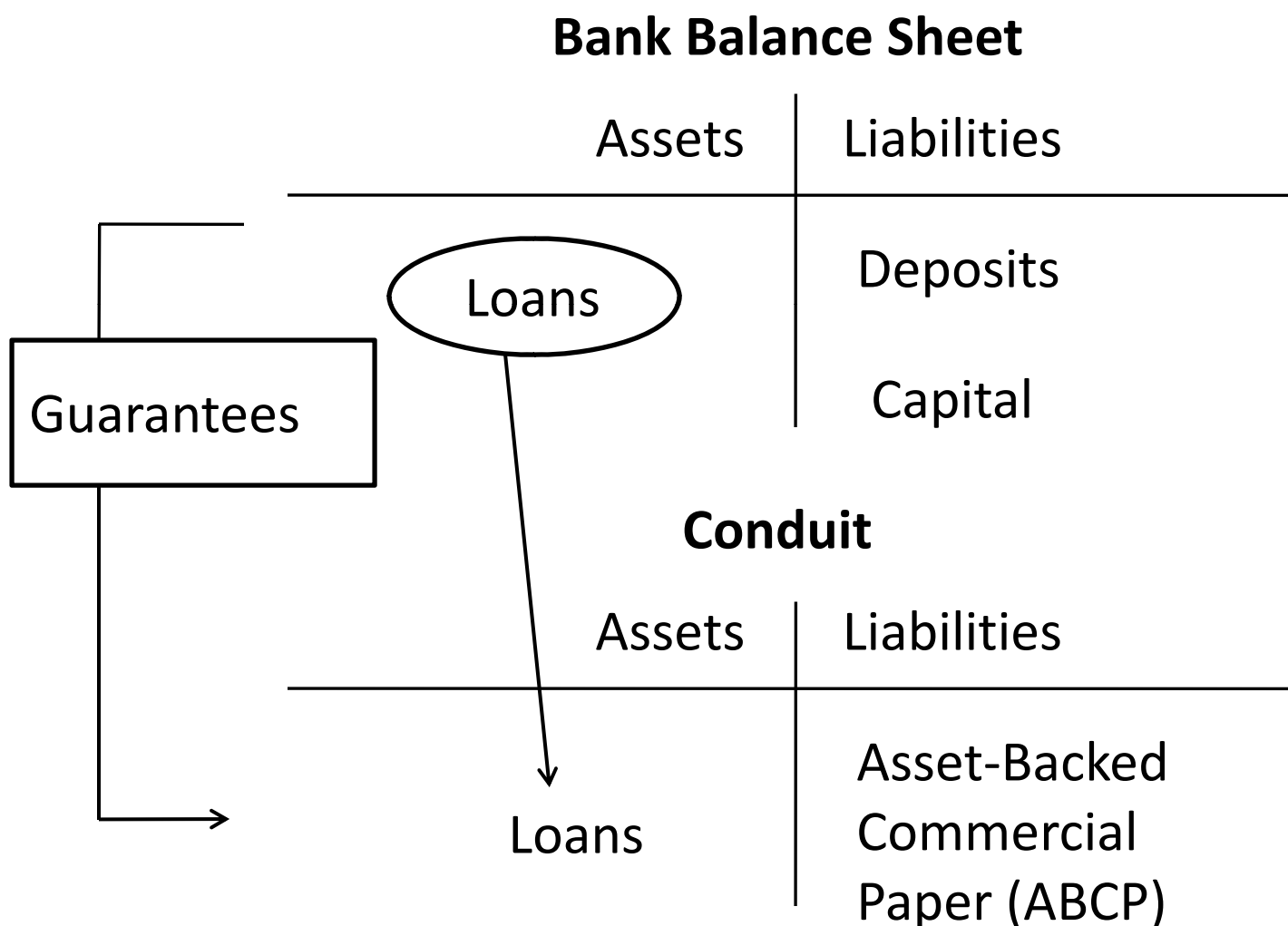
Bank Balance Sheet

Assets	Liabilities
Loans	Deposits
	Capital

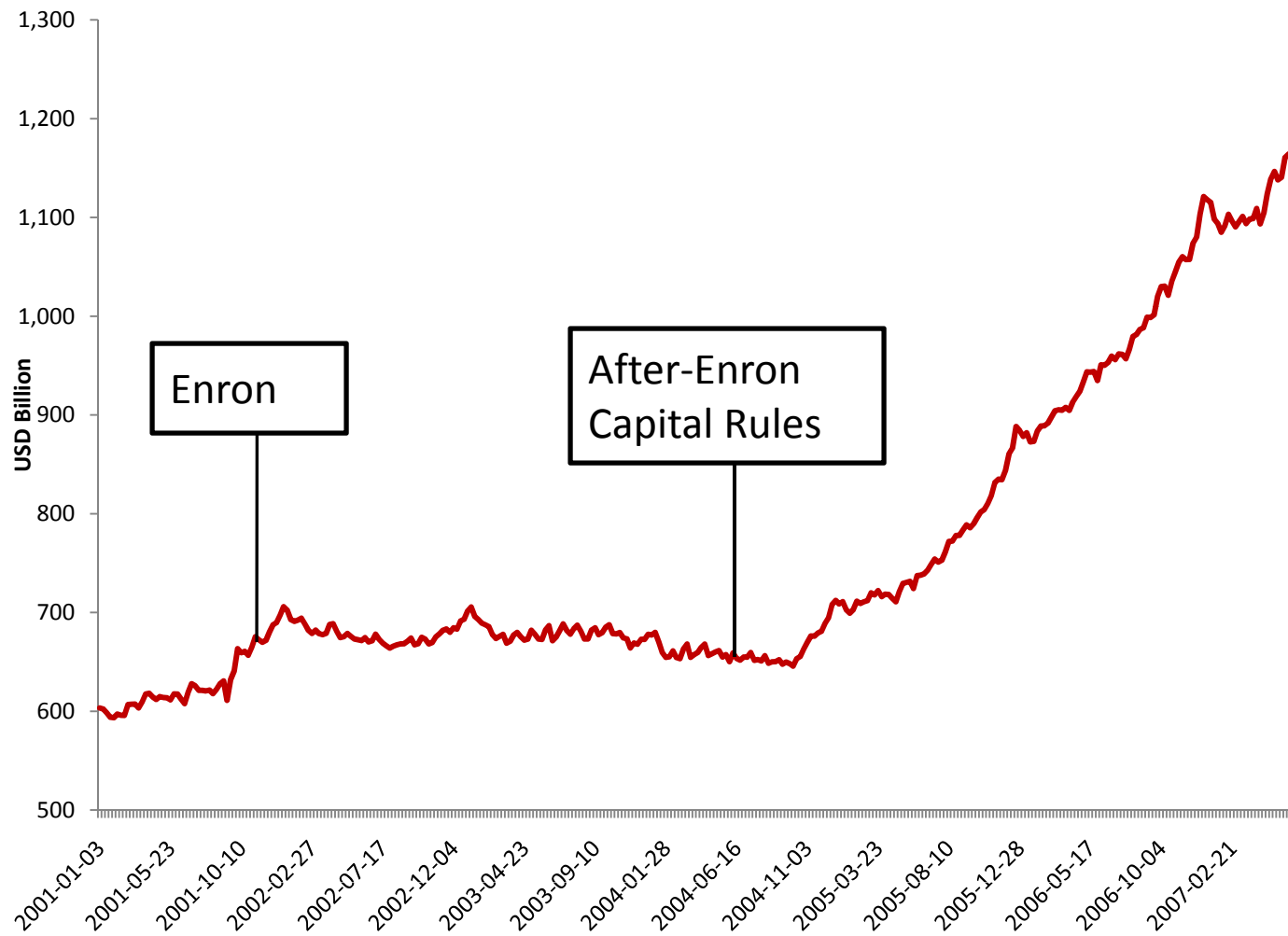
Structured Purpose Vehicle

Assets	Liabilities
Loans	Asset-Backed Securities (ABS)
	Investors

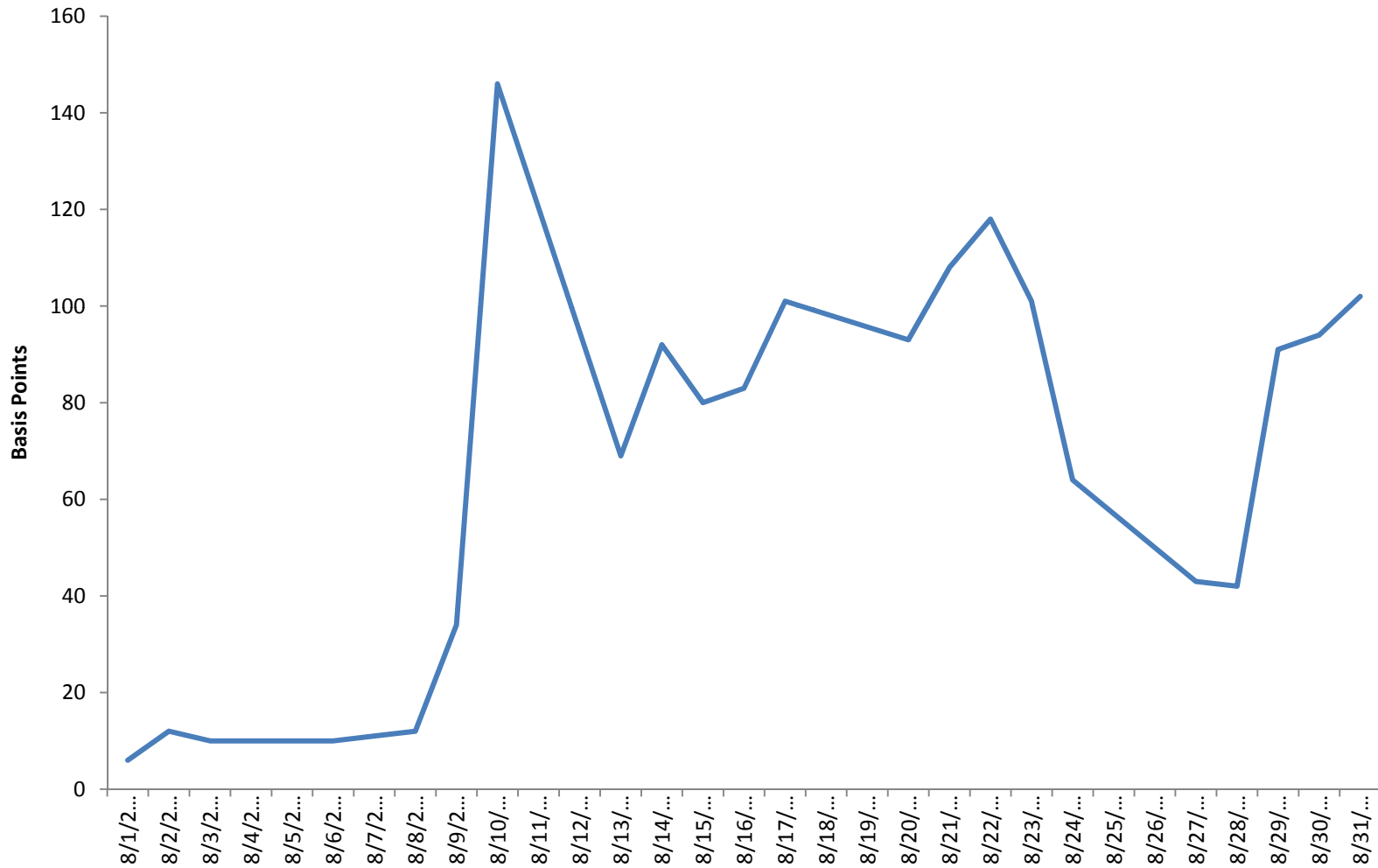
New Model+: Securitization w/o Risk Transfer



ABCP Growth: Jan 2001 - June 2007



ABCP spread as the crisis broke out...



Investors return loans to bank

Bank Balance Sheet

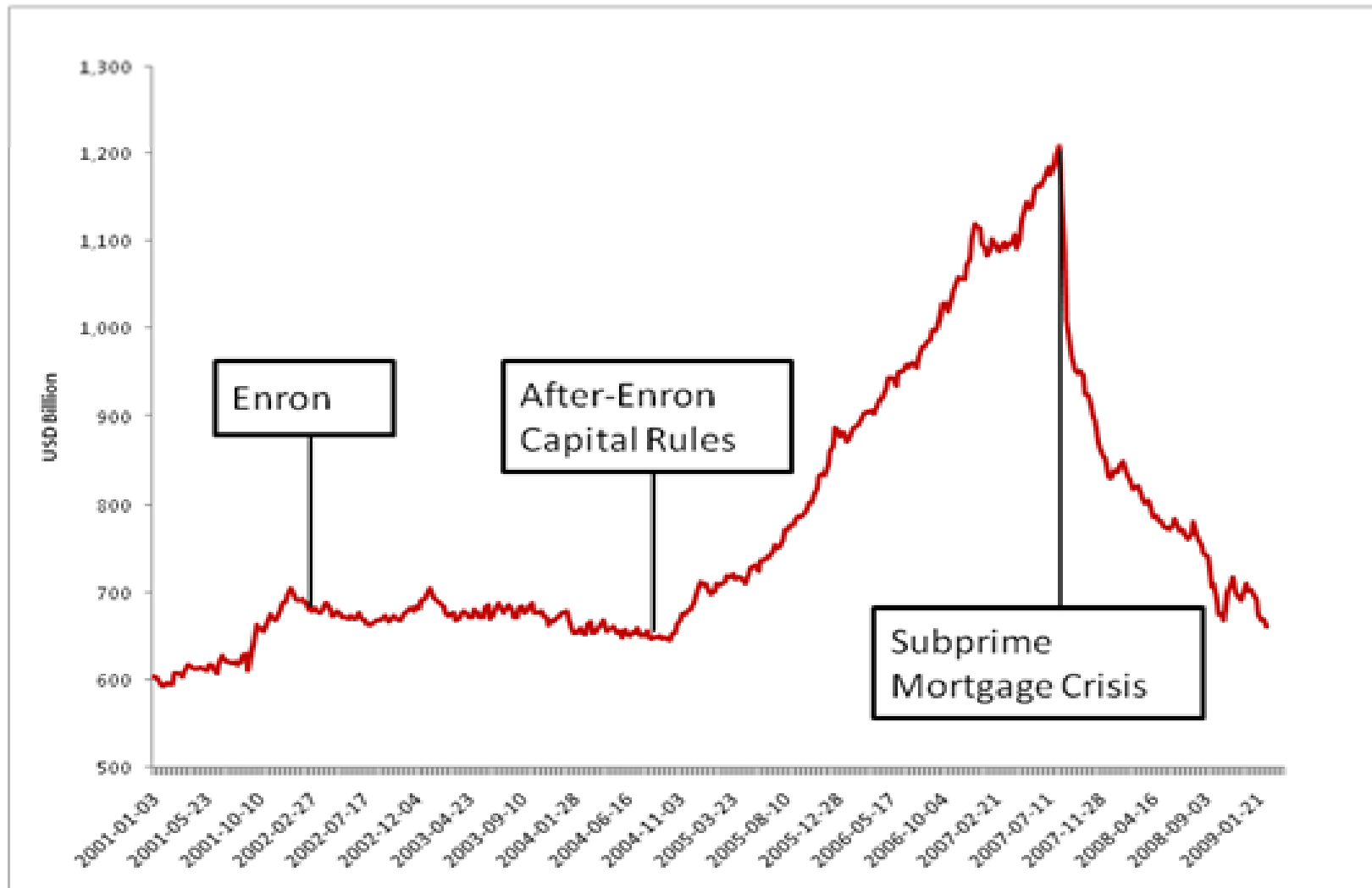
Assets	Liabilities
Loans	Deposits
	Capital

Conduit

Assets	Liabilities
Loans	ABCP

Investors

ABCP Growth: Jan 2001 - Feb 2009



Alternative New Model+: Asset Buy Back

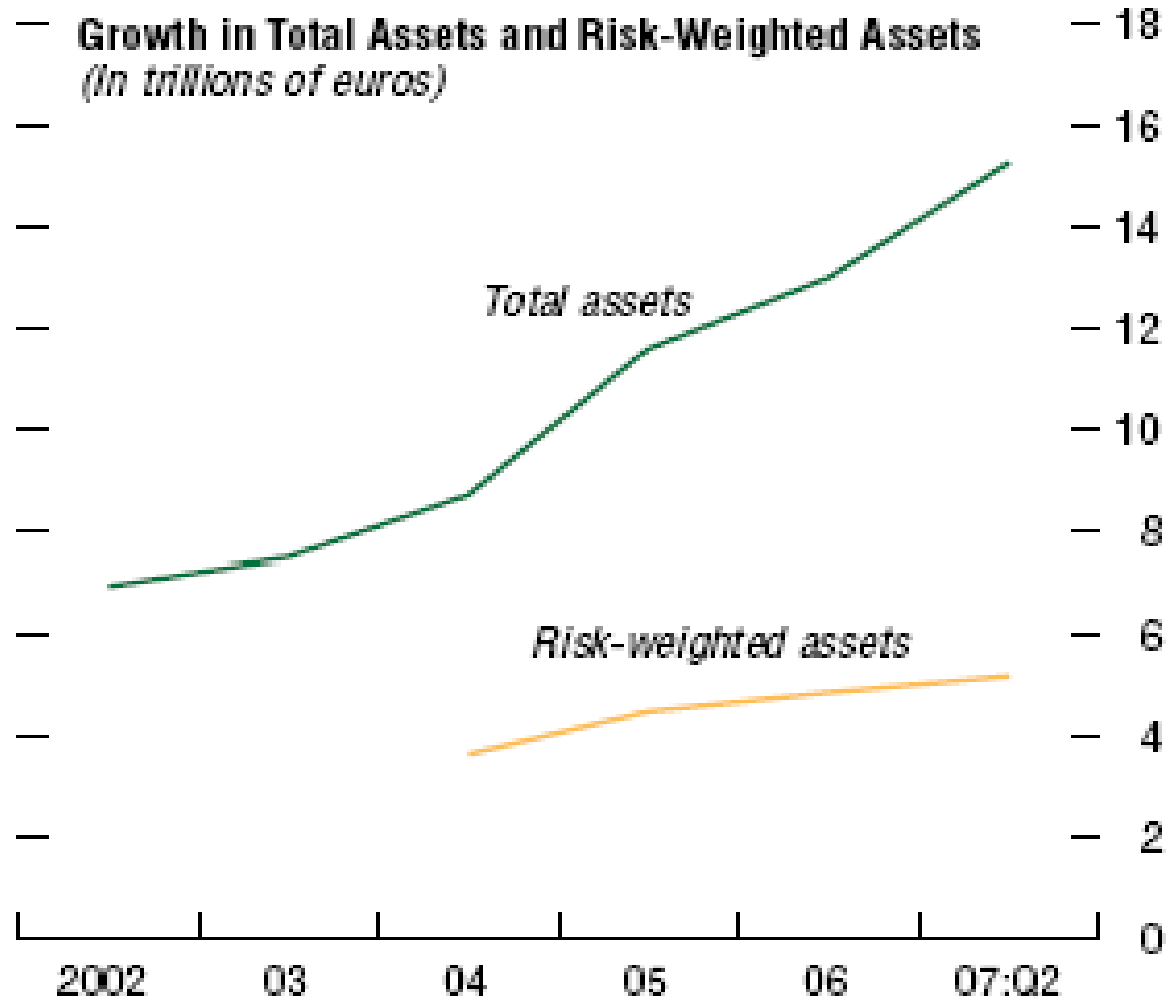
Bank Balance Sheet

Assets	Liabilities
Loans	Deposits
	Capital

Structured Purpose Vehicle

Assets	Liabilities
Loans	Asset-Backed Securities (ABS)

Low Growth in Risk-Weighted Assets



Banks did not transfer “toxic” assets

	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%		

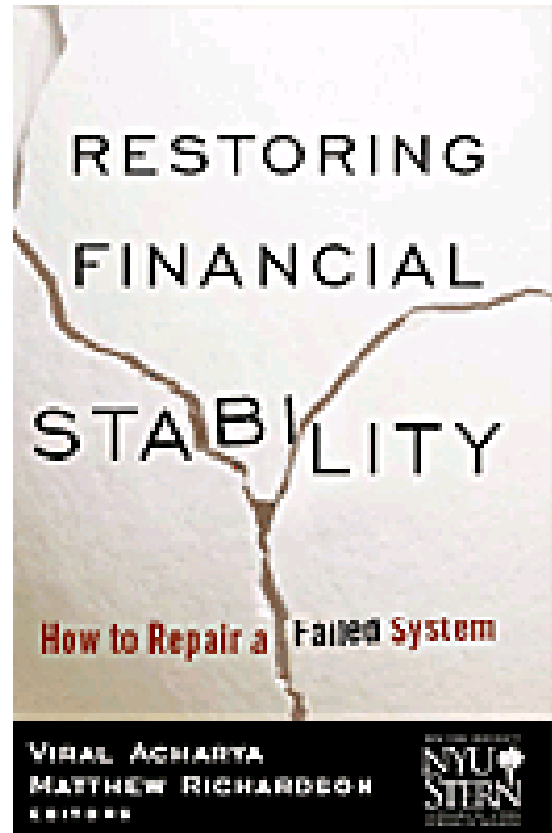
Summary: Causes of Financial Crisis

- Popular explanations
 - Design of subprime mortgages
 - Growth and (lack of) quality mortgages due to securitization
 - Rating agencies rubber stamp of AAA
- Banks effectively maintained credit risk and increased leverage
- It seems important to understand what caused bank/bankers' incentives to take on
 - Highly-levered
 - Tail risks
 - Systemic in nature

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. “Tax” for systemic risk
4. Transparency
 - Centralized clearing
 - Accounting of off-balance-sheet transactions

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Alan Greenspan on Credit Derivatives

“The new instruments of risk dispersion have enabled the largest and most sophisticated banks in their credit-granting role to divest themselves of much credit risk by passing it to institutions with far less leverage. ***These increasingly complex financial instruments have contributed, especially over the recent stressful period, to the development of a far more flexible, efficient, and hence resilient financial system than existed just a quarter-century ago.***”

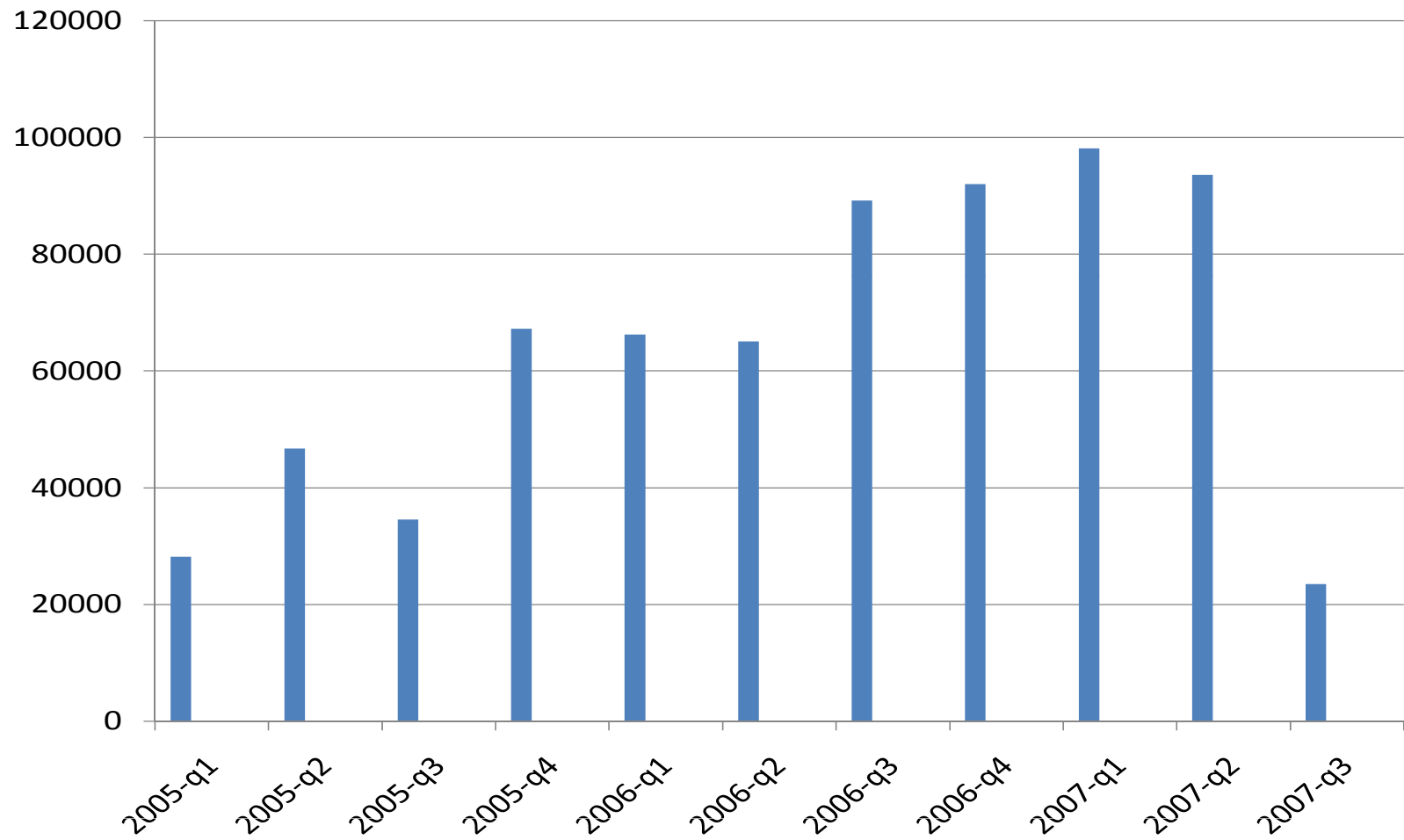
- Alan Greenspan's speech "Economic Flexibility" before Her Majesty's Treasury Enterprise Conference (London, 26 January 2004).

Warren Buffet on Derivatives – March 2003

- I view derivatives as ***time bombs***, both for the parties that deal in them and the economic system.
- I believe, however, that the macro picture is dangerous and getting more so. ***Large amounts of risk, particularly credit risk, have become concentrated in the hands of relatively few derivatives dealers***, who in addition trade extensively with one other. The troubles of one could quickly infect the others.
- In my view, ***derivatives are financial weapons of mass destruction***, carrying dangers that, while now latent, are potentially lethal.

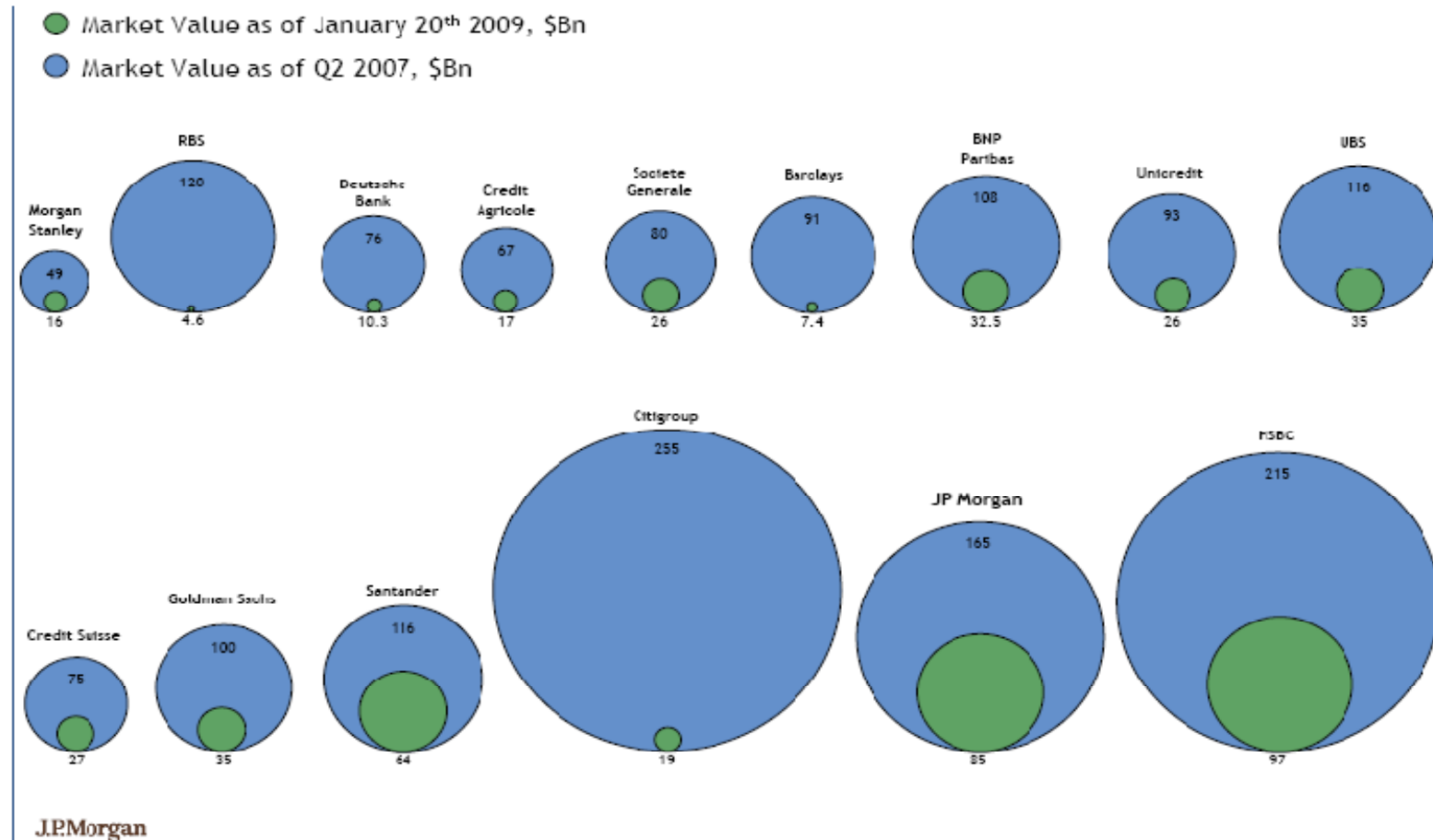
Berkshire Hathaway annual report for 2002

SIZE of Mortgage-backed CDO Issuance (\$mm), Source: SIFMA



Thriving banks may be needed for credit derivatives to thrive again... How soon will that be?

Banks: Market Cap



While JPMorgan considers this information to be reliable, we cannot guarantee its accuracy or completeness

Source: Bloomberg, Jan 20th 2009

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.

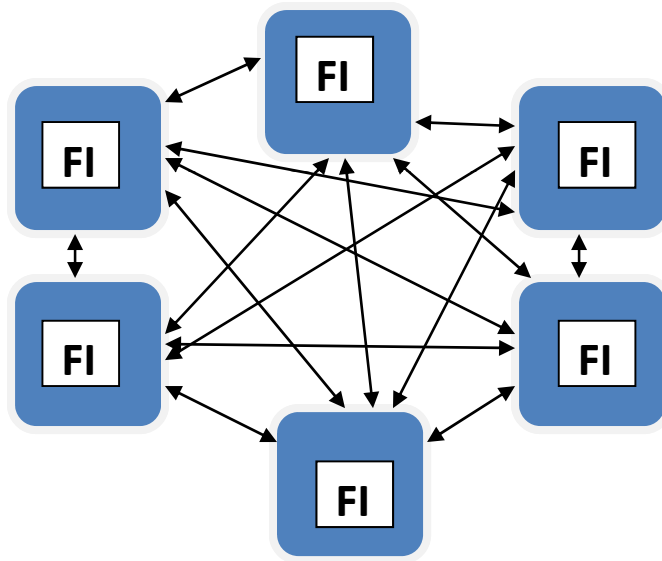
IS THIS AN OTC PROBLEM?

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

OTC Trading

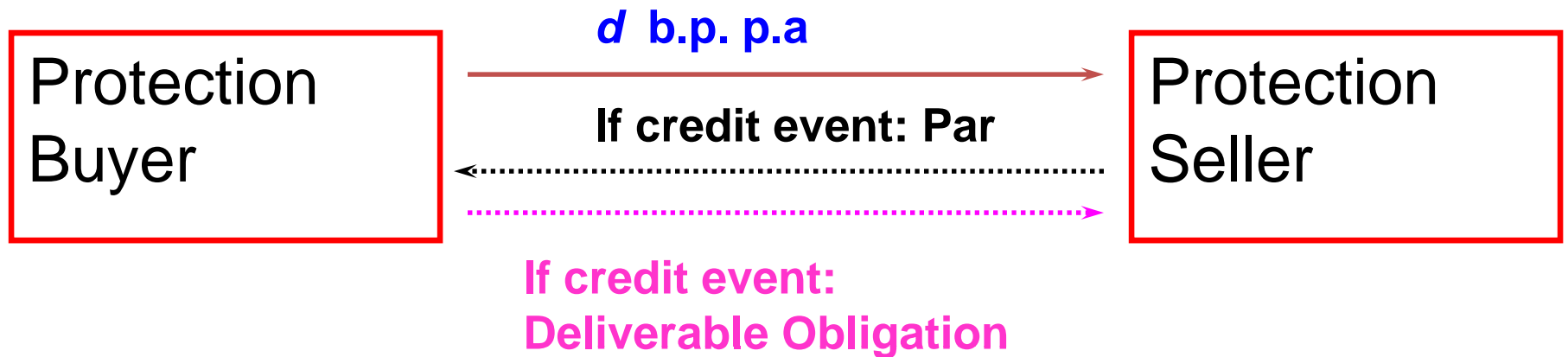


But any other structure may also arise

AN EXAMPLE, CDS

- Credit Default Swaps (CDS) are derivative contracts between two counterparties with reference to a third entity (obligor).
- One party (the buyer of protection) agrees to pay a fixed interest rate to the seller until either the maturity of the swap is reached or the obligor defaults by any of a series of definitions.
- Upon default, the seller pays the buyer the face value and delivers the bond (can be either physical or cash settlement)

Credit Default Swap: Mechanics



- if **no default**: only cash flow is premium of d b.p. p.a
- if **default**: transaction stops and transaction settled either physically or in cash:
 - **physical**: buyer delivers defaulted obligation to seller and seller delivers 100% of nominal to buyer. (Physical is market standard)
 - **cash**: Mechanism to establish (“final price”) and seller delivers notional of transaction \times (100 – Final Price) to buyer

USES

- 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.

RISK EXTERNALITY

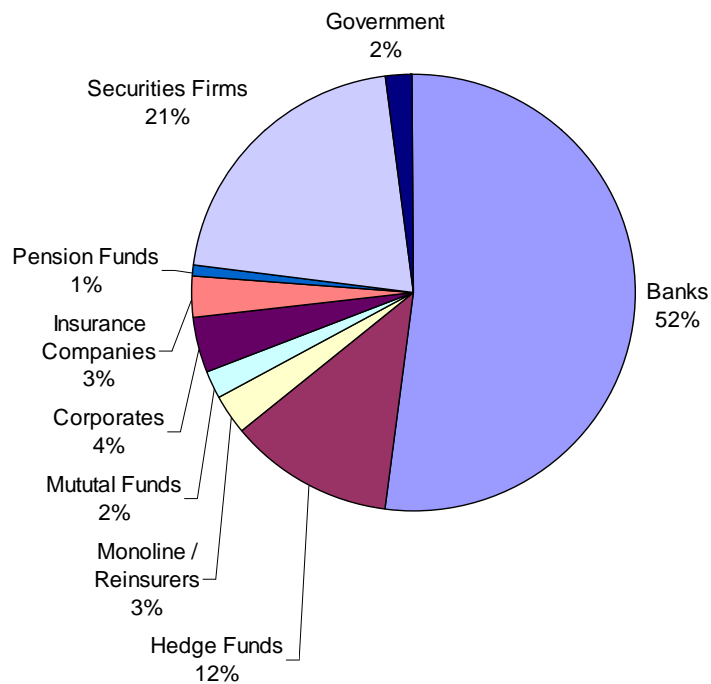
- The risk of a CDS contract therefore depends partly on the probability that the counterparty will be solvent in the event of default.
- CDS spreads could differ across counterparties, however generally they do not.
- The risk of a CDS contract will depend upon what else the counterparty has done. This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

TAKING ADVANTAGE

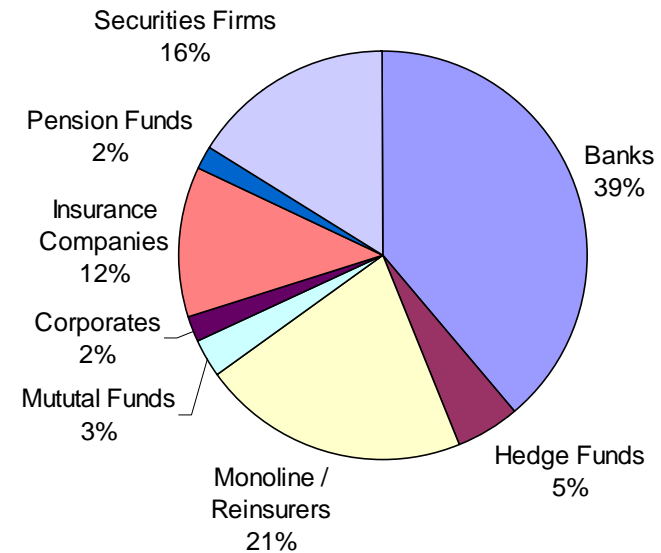
- In full information settings, the spread from selling the second CDS will be slightly less than the first. Without full information, the spread would not decline and hence an entity might write a large amount of CDS and earn large returns until a default occurs and then ...?

Who uses credit derivatives?

Buyers of Protection



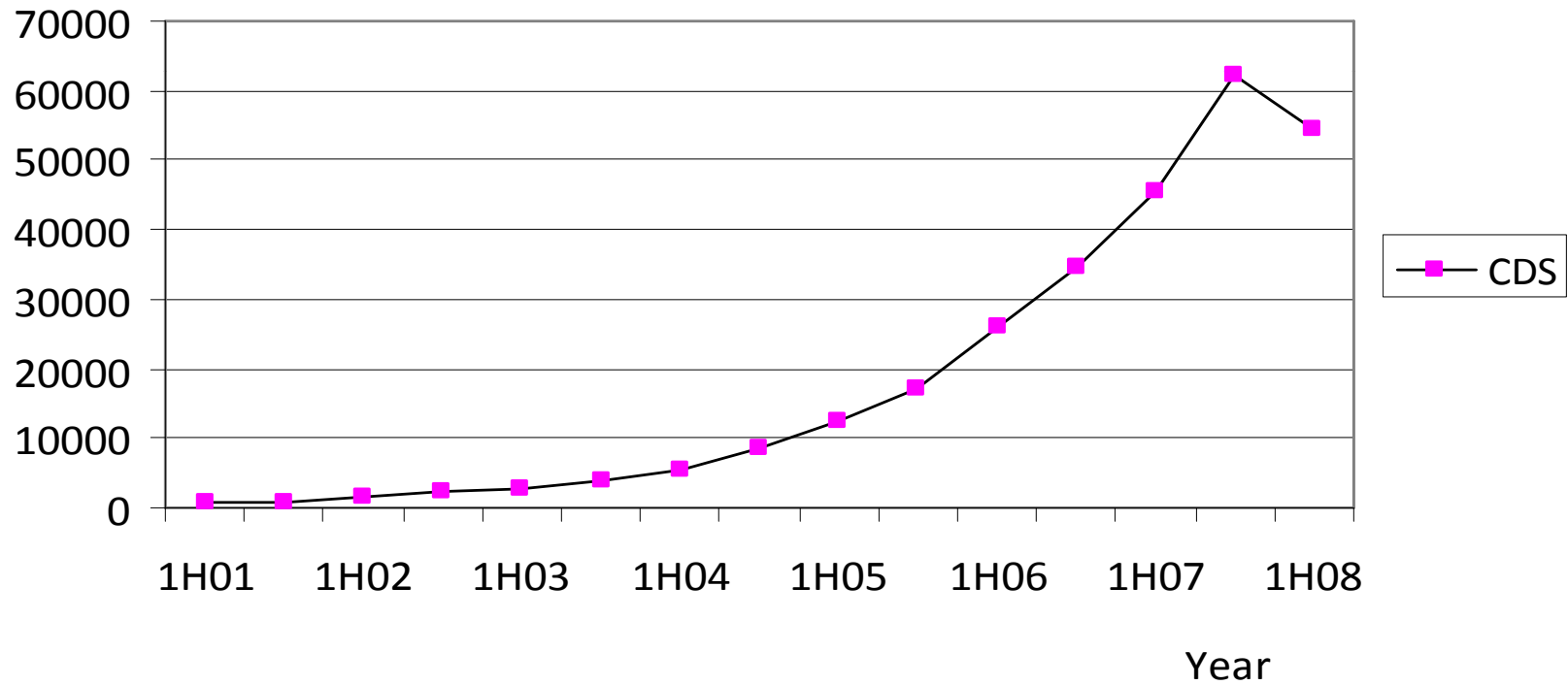
Sellers of Protection



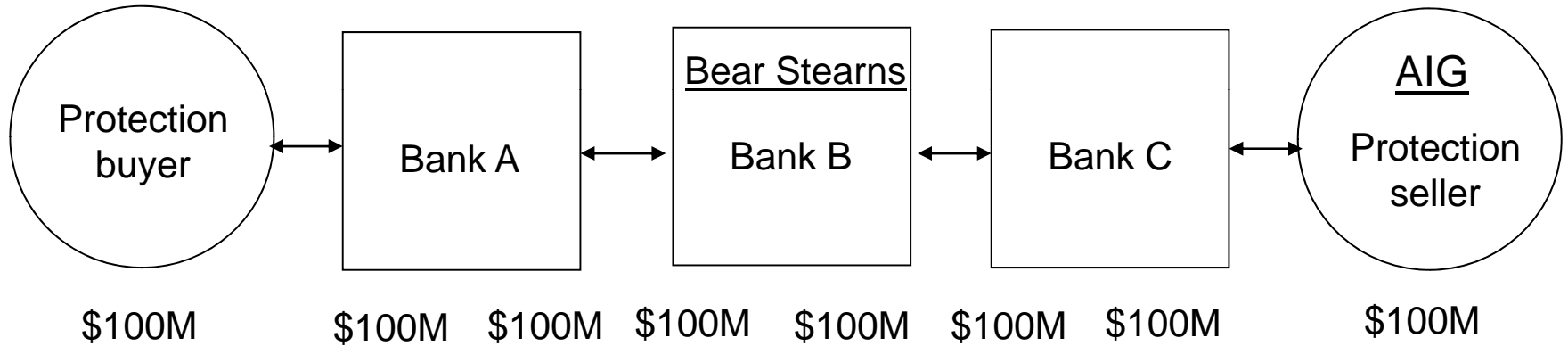
Source: British Bankers Association

OUTSTANDING NOTIONAL CDS

\$Billions

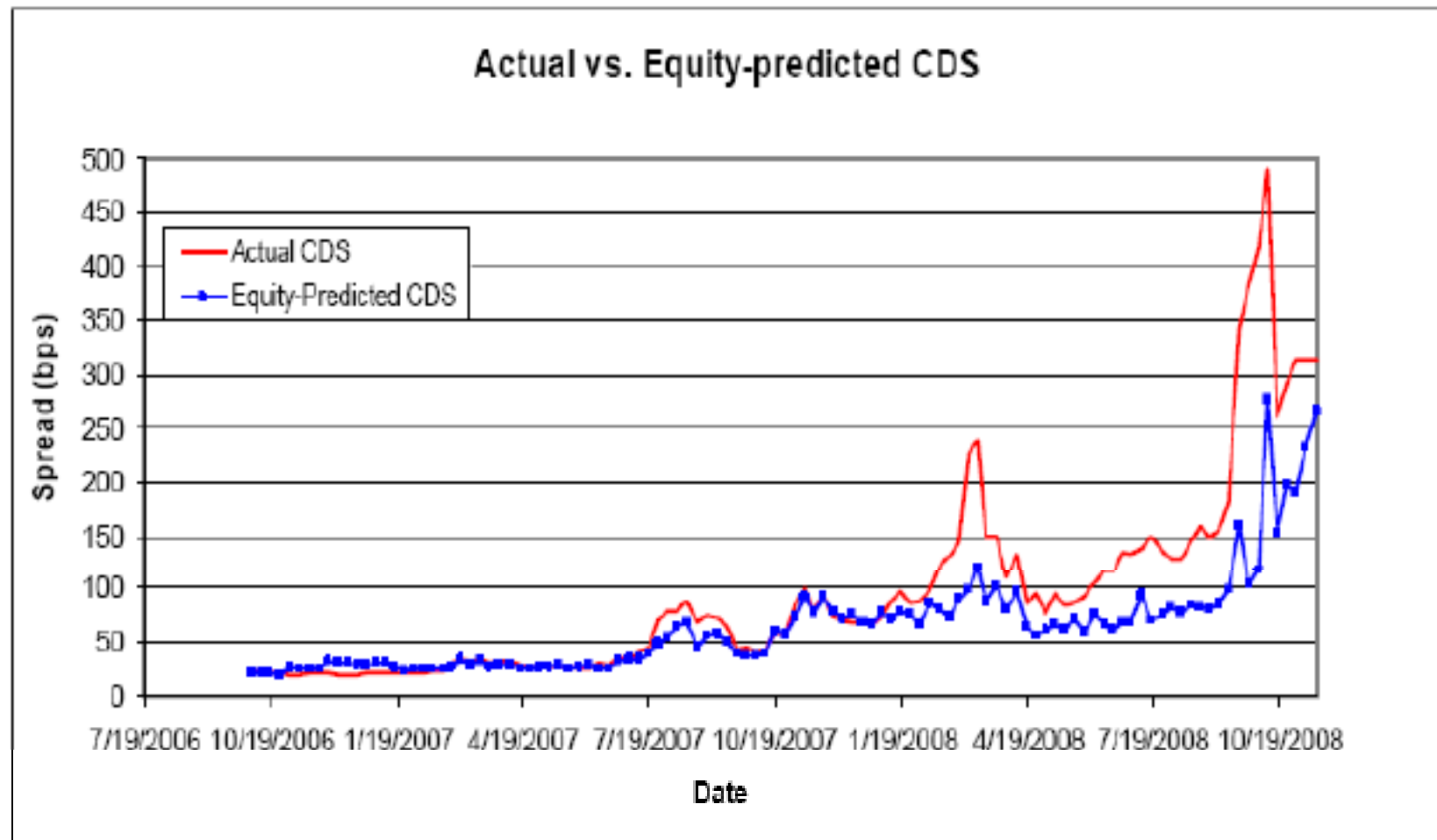


Typical Situation



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)



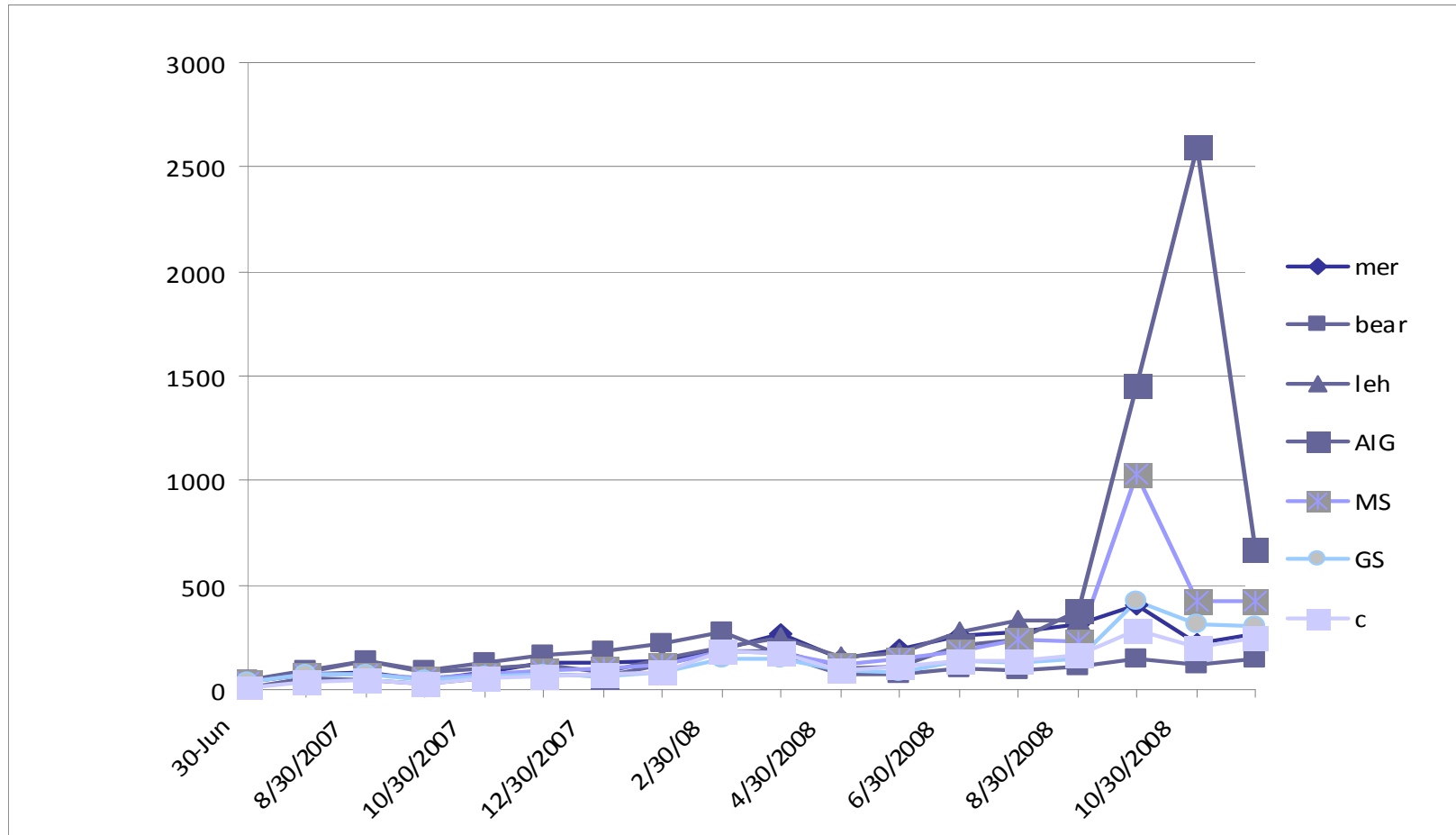
LEHMAN SETTLEMENT

- 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



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

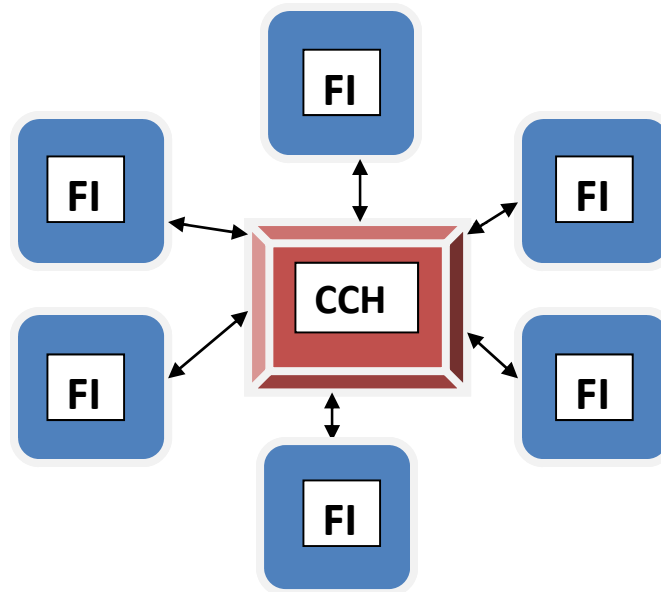
A TRANSPARENCY PROPOSAL FOR OTC MARKET

- Every trade and the associated contract should be posted in a standard form on the Internet within some time frame.
- 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. Failure to post margins leads to contract termination without loss to CC (if margins are calculated well).

CENTRALIZED COUNTERPARTY



EXCHANGE

- On an exchange there is a centralized counterparty that does all the financial clearing and payments. For long horizon contracts, margins are posted.
- 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

FOUR MODELS

- OTC
- REGISTRY - Data warehouse with some transparency
- CLEARING HOUSE - Centralized counterparty for all trades
- EXCHANGE

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

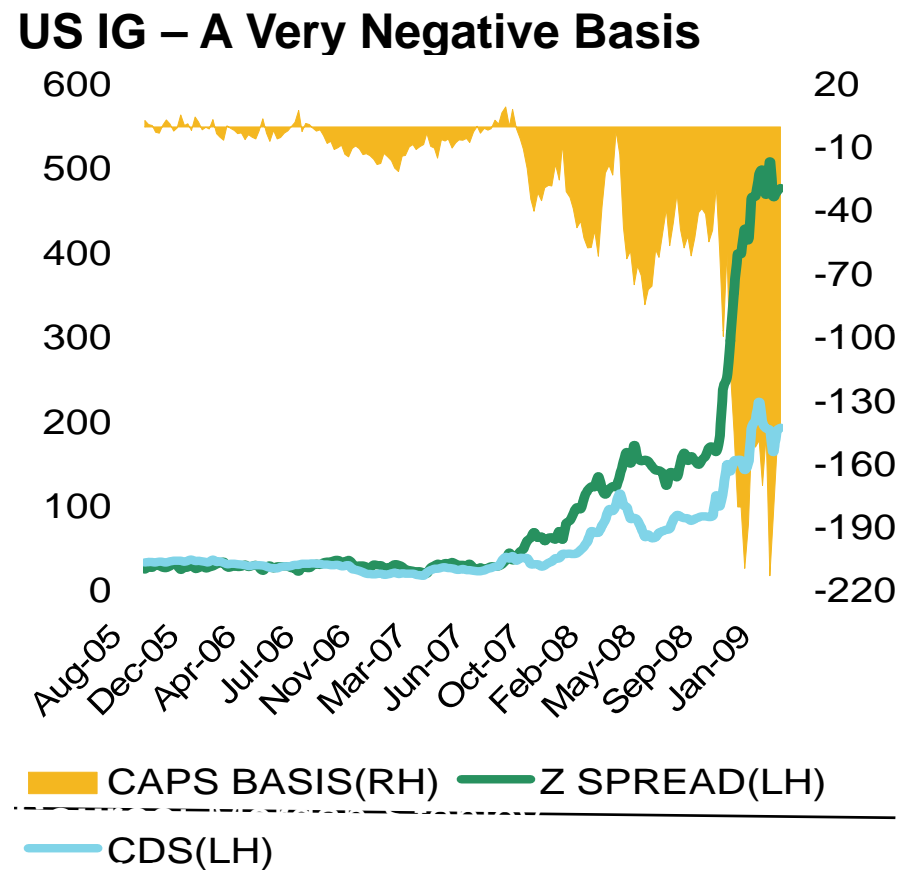
Market Characteristics	OTC	Registry (Solution I)	Clearing House (Solution II)	Exchange (Solution III)
trading style	bilateral negotiation	bilateral negotiation	bilateral negotiation	continuous auction
market participants	large well-capitalized firms	large well-capitalized firms	well-capitalized counterparties 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

The US IG basis during the turmoil



CDS unfunded or “capital efficient” relative to bonds

“Unfunded” advantage of CDS reducing

Goals of proposed changes under way

- Central clearing and central counterparty
- Exchange trading also on the table for CDS
- Portfolio compression and fungibility

Key features:

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

How will we deal with OTC? Transparency?