

The Challenge of Unwinding Systemically Important Institutions

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***Towards New European & International
Financial Architectures: Economic &
Financial Aspects***

Hellenic Banking Association, Santorini

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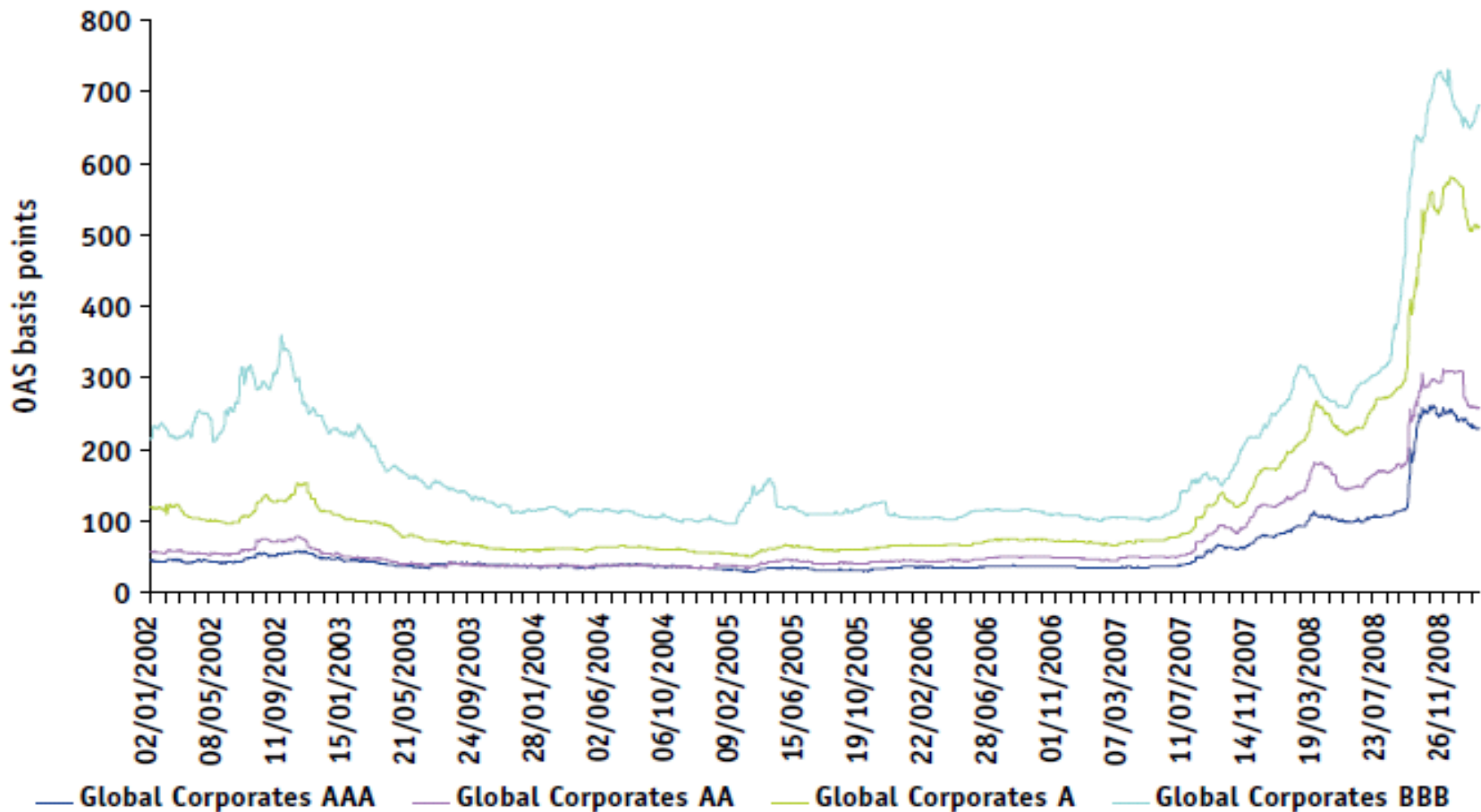
Overview

- ✓ How did we get here?
 - Macro conditions
 - Principal/Agent Problems
 - Unintended consequences of government policies
- ✓ Why break-down of subprime market proved globally contagious
- ✓ A wasted year of policy improvisation: August 2007-August 2008
- ✓ Destructive ambiguity: who will get a bailout?
- ✓ The ideal resolution policy
- ✓ What are the possibilities

The basic pattern is all too familiar

- ✓ From scores of countries over hundreds of years
 - An extended period of placid financial conditions – “The Great Moderation”
 - Massive capital inflows
 - An increase in leverage
 - A decrease in risk aversion as institutions reach for yield
 - An asset price bubble, that ultimately bursts
- ✓ History seldom repeats itself

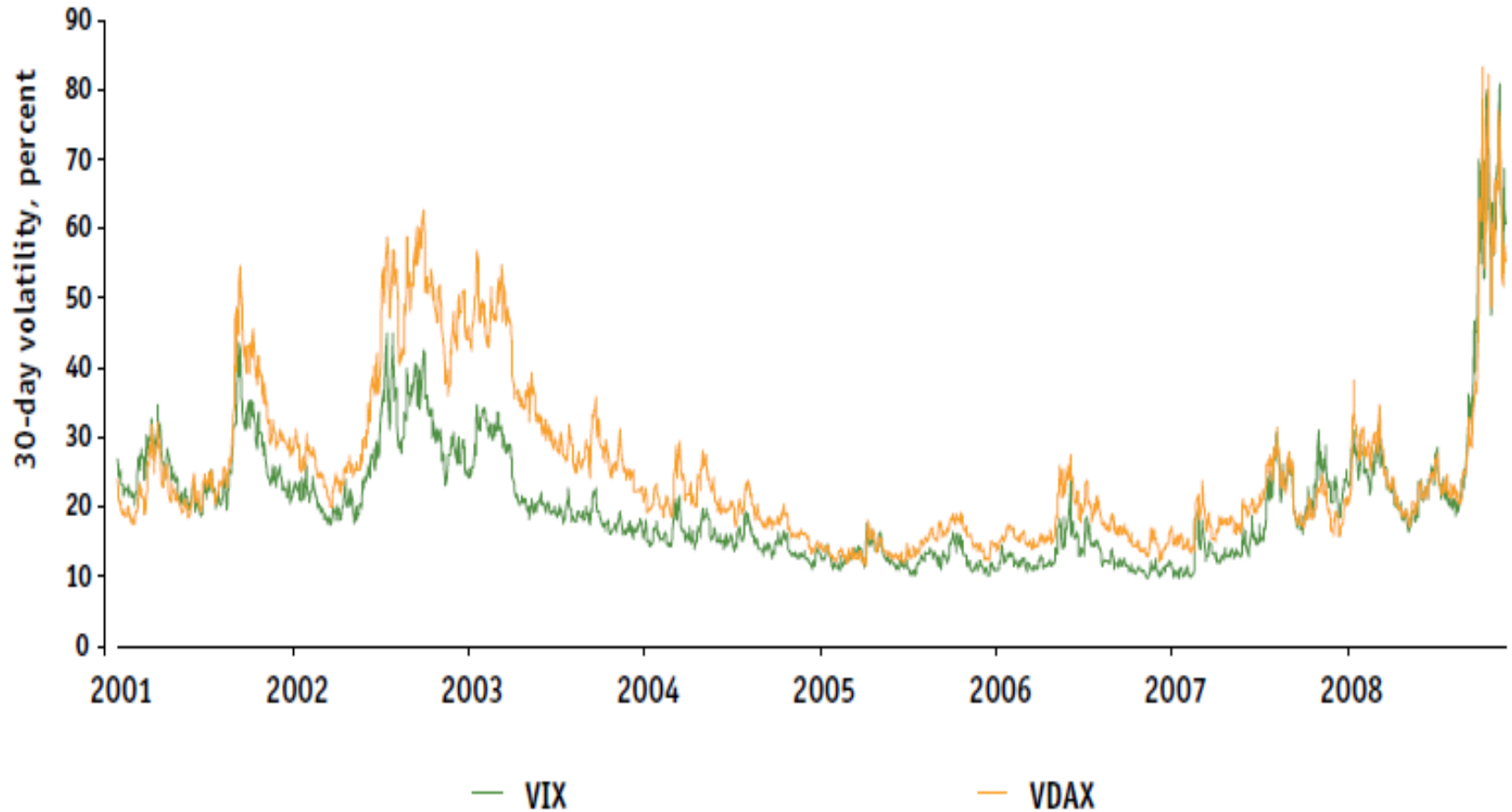
The “Great Moderation” Corporate Bond Spreads



Source: Bloomberg

The Great Moderation

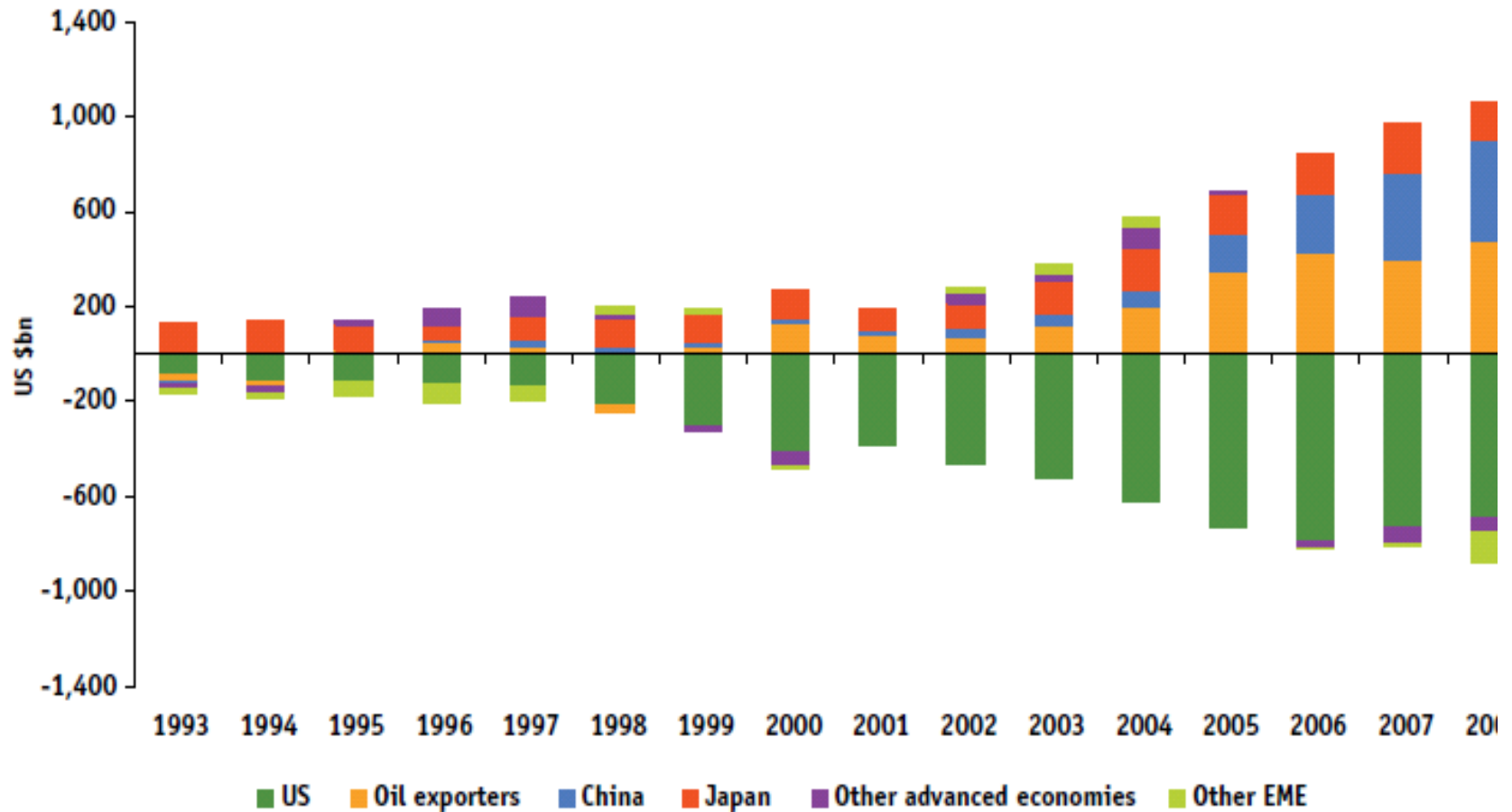
Declining Implied Volatility on S&P 500 and DAX



Note: VIX and VDAX are indices of implied volatility for stock option prices on the S&P 500 and DAX respectively.

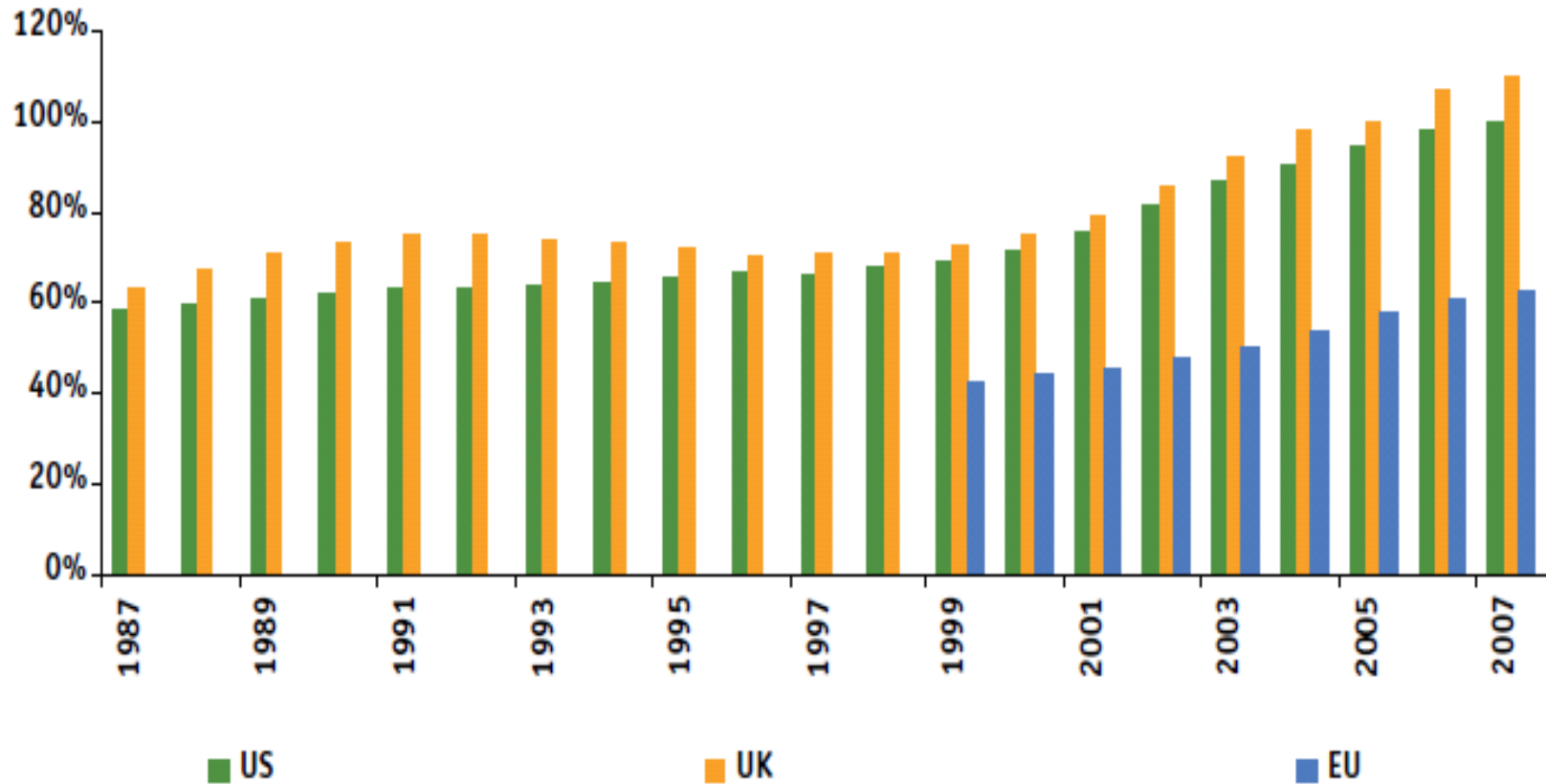
Source: CBOE and Deutsche Borse

Huge Capital Inflows to the U.S.



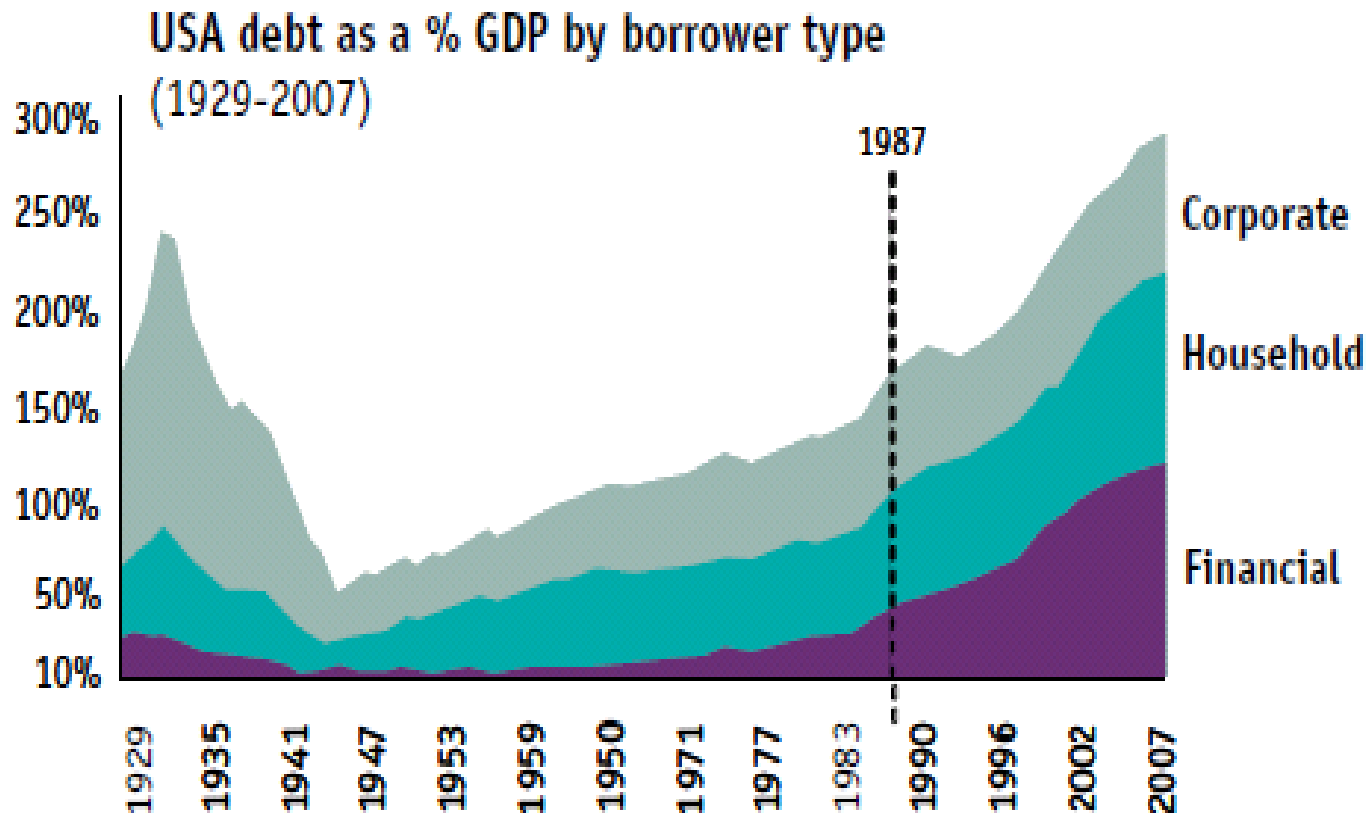
Source: IMF, FSA calculations

Rising Household Debt vs. GDP



Source: ONS, Federal Reserve, Eurodata, Bureau of Economic Analysis, FSA calculations

US Debt as a % of GDP by Borrower



What was distinctive about this crisis was...

1. The proximate cause – defaults on subprime mortgages, a relatively small component of US fixed income market
2. The remarkably rapid global reach of the crisis

Securitization introduced by government, then adapted by private sector. Depended on

- 1. Statistical ratings models**
- 2. Monoline insurance**
- 3. Ratings agencies**

Real Housing Prices, 1975-2006

Source: U.S. Office of Housing Enterprise Oversight

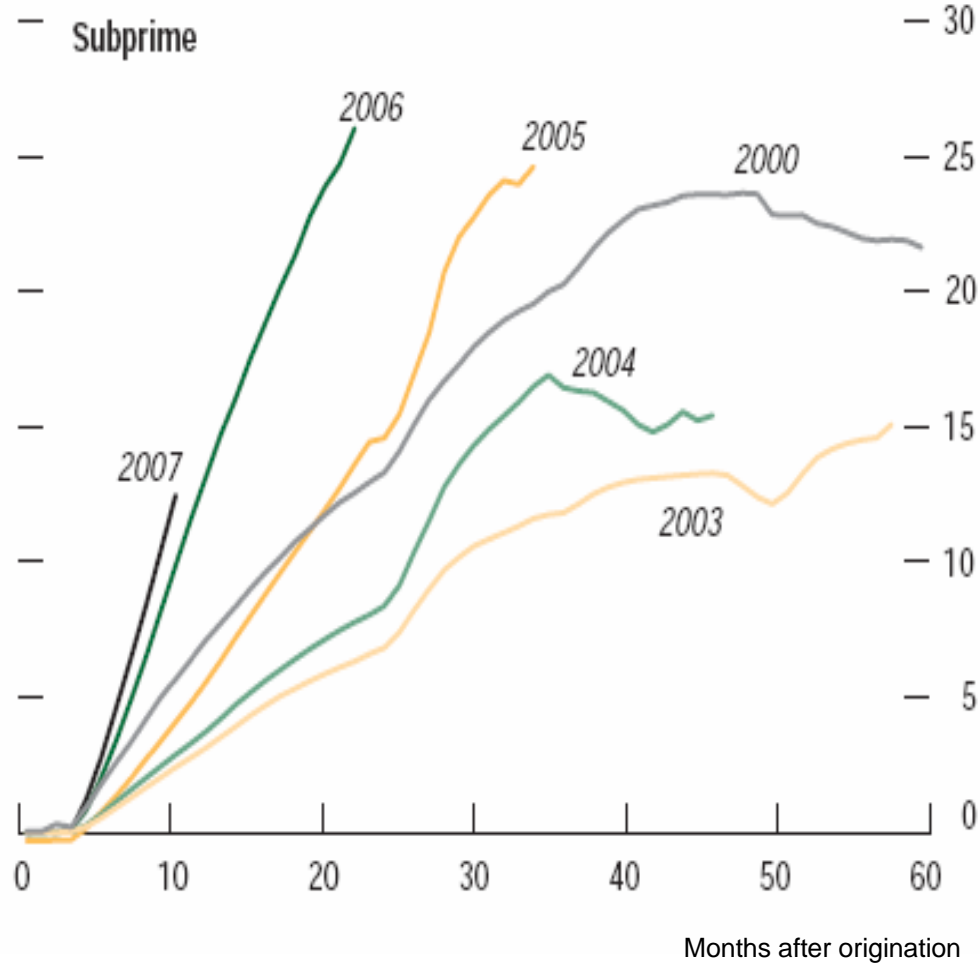


become a shadow banking system

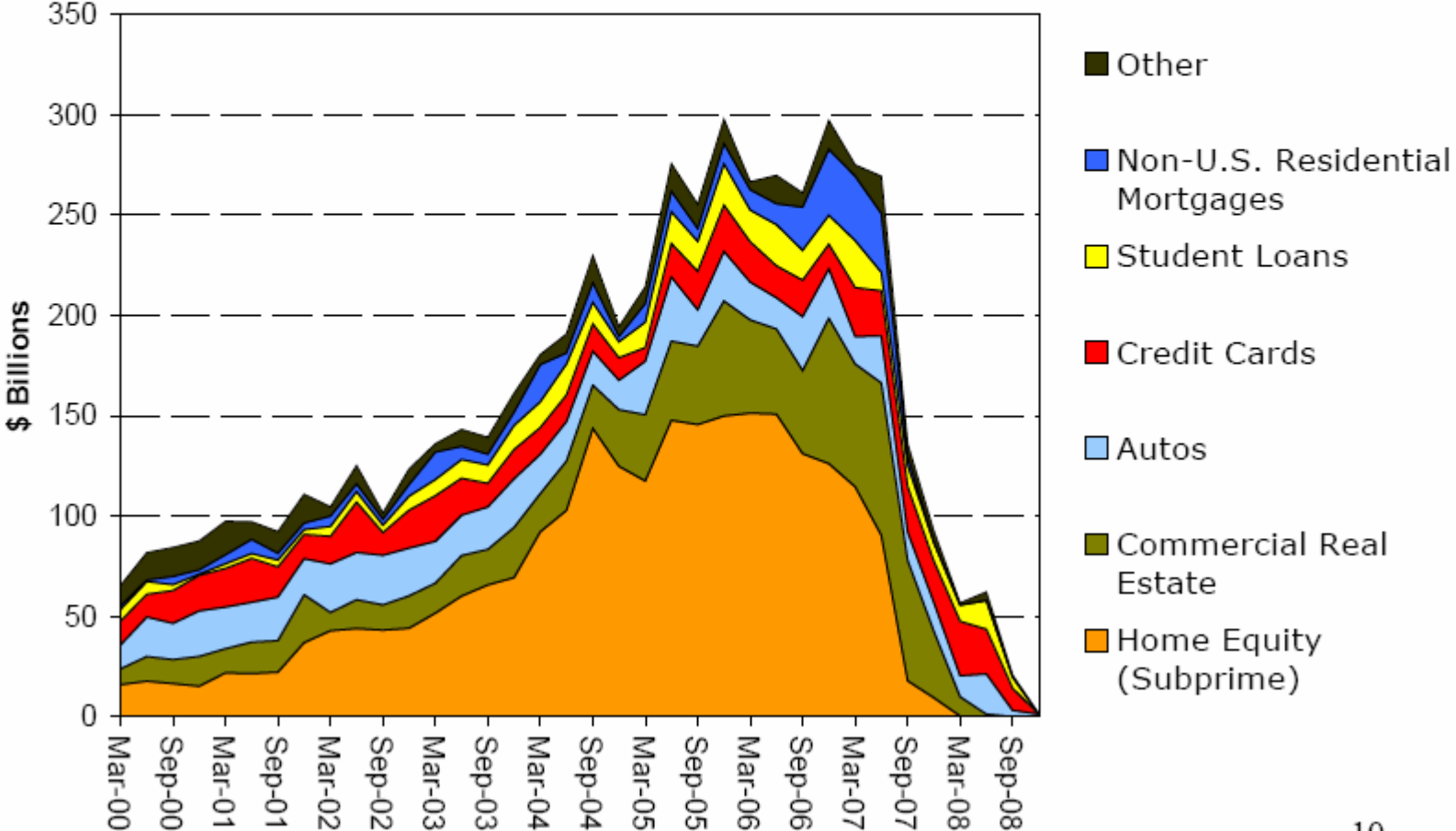
	Outstanding (in billions)
ABS	\$1,100
ABS CDOs	\$400
Prime MBS	\$3,800
Subprime MBS	\$780
CMBS	\$940
Consumer ABS	\$650
High-grade corporate debt	\$3,00
High-yield corporate debt	\$600
CLOs	\$350
Total	\$11,920

Deterioration in Performance Burst Housing Bubble

Mortgage Delinquencies by Vintage Year (60+ day delinquencies in % of balance)



New Issuance of Asset Backed Securities



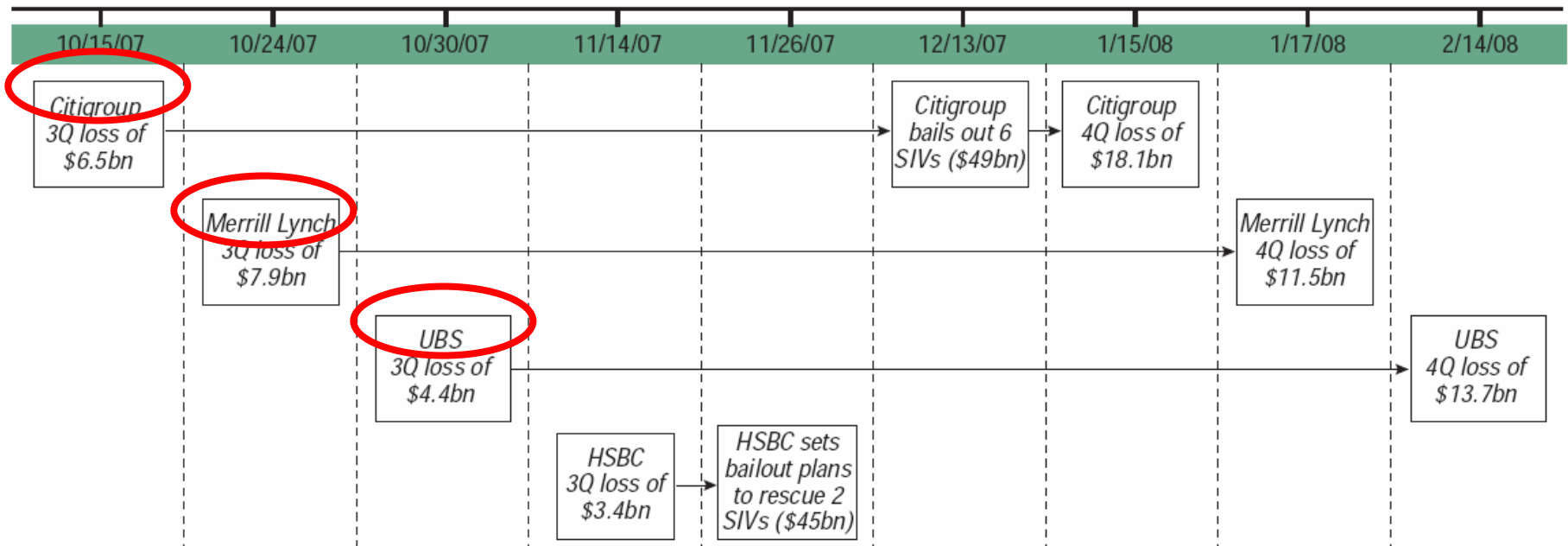
Abrupt deterioration in performance of 2005, 2006 and 2007 vintages undermine confidence in 3 pillars of private securitization

- 1. Statistical ratings models**
- 2. Monoline insurance**
- 3. Ratings agencies**

Players Cast Doubt on Validity of Models

After two Bear Stearns Hedge Funds Blew-Up in June 2007...

Writedowns of Selected Financial Institutions, October 15, 2007–February 14, 2008



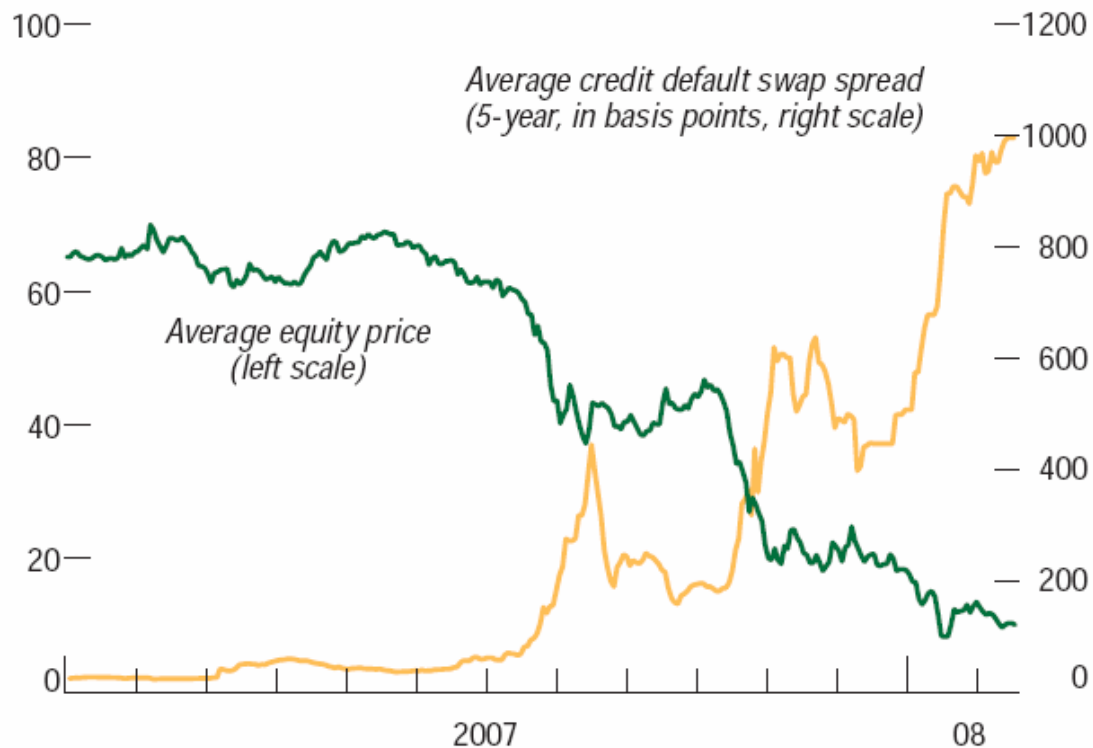
Source: Bank press releases.

Note: SIV = structured investment vehicle.

Losses Threatened Solvency of Monoline Insurers

- ✓ At yearend 2006 Monoline insurers supported about \$800 bn in structured finance obligations

Financial Guarantors



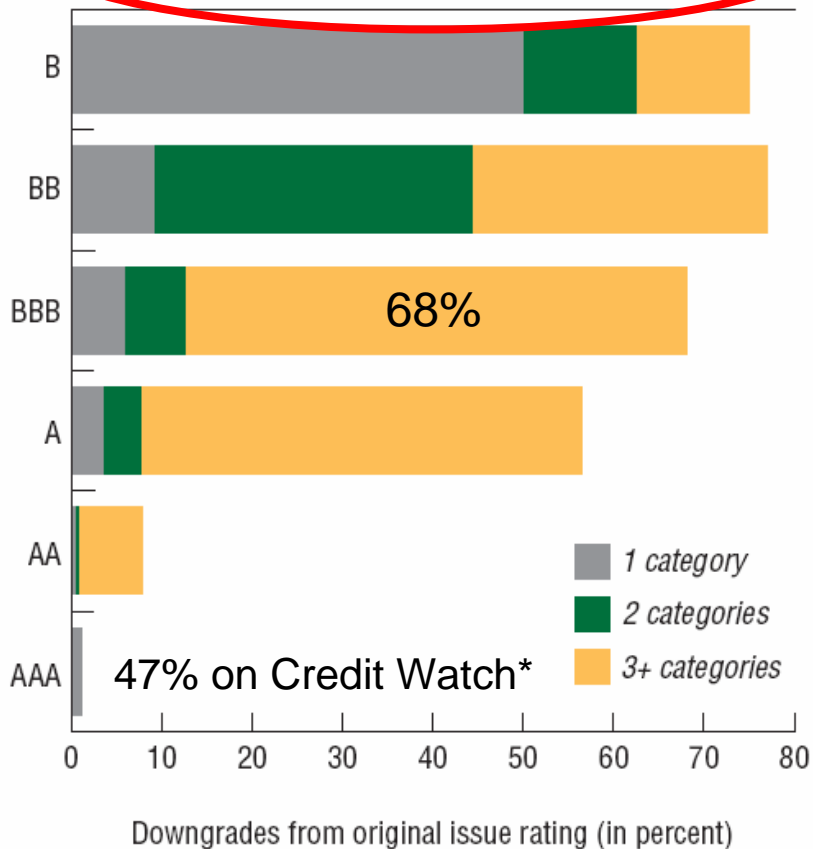
Source: Bloomberg L.P.

Source: IMFGFSR, 4/08, Figure 1.14, p.17.

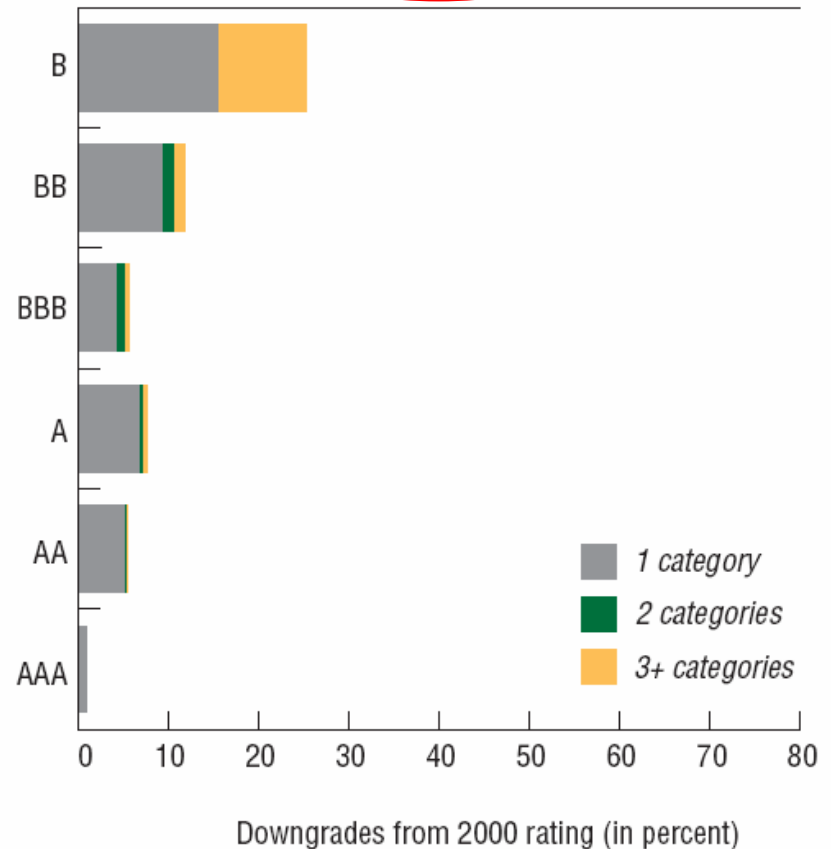
Undermined Confidence in Ratings

One-Year Cohort Rating Downgrades

2007-08 Subprime Residential Mortgage-Backed Securities



2001 Corporates

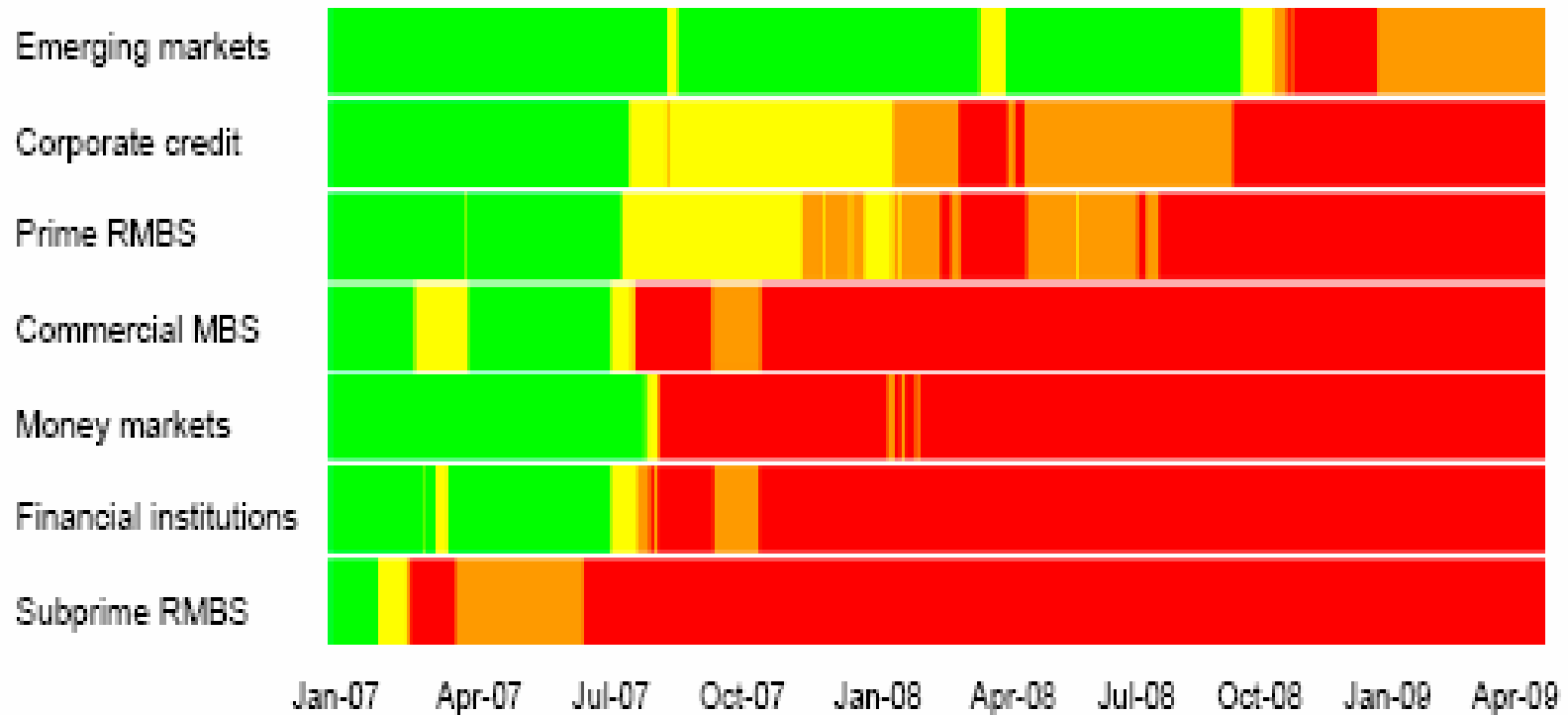


Source: Standard & Poor's.

*As of 1/31/08

Source: IMFGFSR, 4/08, Box 2.3, p. 61.

Contagion was remarkably rapid and international



Source: IMF staff estimates.

Note: The heat map measures both the level and 1-month volatility of the spreads, prices, and total returns of each asset class relative to the average during 2004-06 (i.e., wider spreads, lower prices and total returns, and higher volatility). The deviation is expressed in terms of standard deviations. Green signifies a standard deviation under 1, yellow 1-4 standard deviations, orange 4-7, and red greater than 7. MBS = mortgage-backed security; RMBS = residential mortgage-backed security.

Principal/Agent Problems Are Usually Blamed for Crisis

- ✓ Sloppy due diligence
- ✓ Poorly designed incentives
- ✓ Inadequate monitoring
- ✓ Weak analysis
- ✓ Fraud

Principal/agent problems at every stage of the securitization process

1. Predatory lending: Subprime borrowers can be financially unsophisticated – either unaware of all options available or unable to make the best choice between options.

2. Mortgage fraud: The originator, who sells a pool of mortgages to the arranger, has an information advantage over the arranger regarding quality of the borrower. An originator, collaborating with the borrower, may misrepresent the information on the application.

3. Adverse selection: The arranger has more information about the quality of the mortgage loans – so, the arranger can choose to securitize the bad loans and retain the good ones.

6. Principal-agent: While the investor provides funding for the mortgage-backed security, the asset manager conducts the due diligence on the investments and finds the best price for the trades – the asset manager may not take sufficient effort on behalf of the investor.

MORTGAGOR

ORIGINATOR

ARRANGER

WAREHOUSE LENDER

CREDIT RATING AGENCY

ASSET MANAGER

INVESTOR

4. Moral hazard: In order to maintain the value of the underlying asset (the house), the mortgagor has to pay insurance and maintain the property. In, or approaching delinquency, there is little incentive to do this.

SERVICER

5. Moral hazard: Given that the servicer's income increases the longer the loan is serviced, keeping the loan on its books for as long as possible is preferred – therefore, it has a preference to modify the terms of a delinquent loan to delay foreclosure.

7. Model error: The rating agencies are paid by the arranger and not investors for their opinion. Their rating relies on models, which are susceptible to errors.

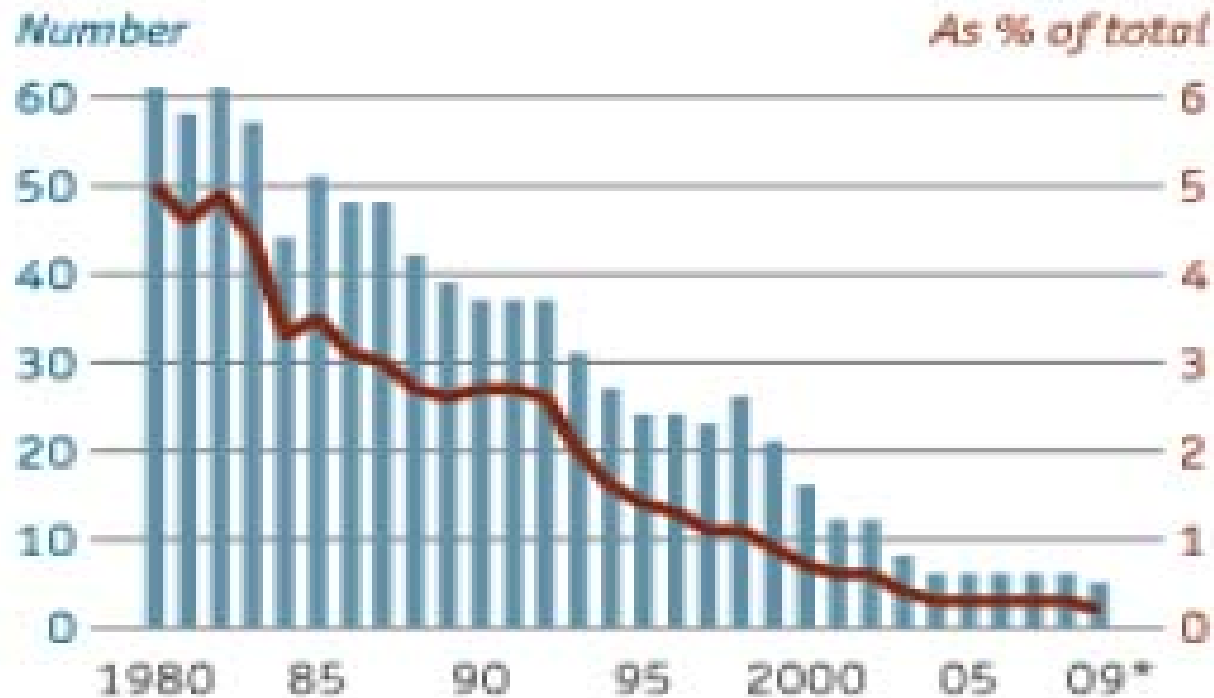
But Regulation & Supervision
Contributed as well...

4 policies in particular

1. Regulations in the US fed the demand for highly-rated assets so that demand for AAA assets, was much higher than supply from AAA issuers
 - Portfolio regulations insurers, pensions funds and some mutual funds establish minimum acceptable ratings
 - Basel II meant banks could reduce capital requirements by holding higher-rated debt
 - ✓ Ability to synthesize investment grade securities helped fill the gap between the supply offered by AAA-rated issuers and the

Dwindling Supply of AAA Issuers

US non-financial companies rated "AAA"



Source: Standard & Poor's
Global Fixed Income Research

*Year to date

The Role of the Government Sponsored Entities (GSEs)

2. Congress placed substantial pressure on the GSEs to increase the supply of financing to low-income households
 - The GSEs struck a bargain with their regulator that they could meet this goal by buying AAA-rated tranches of sub-prime securitizations
 - They ended up holding >50% of these securitizations
 - Represented an enormous, less-than-discriminating demand which encouraged enormous, increasingly shoddy supply

Pressure on Investment Banks to Form Holding Companies Subject to Basel II Style Regulation

3. In response to pressure from the EU, 5 dominant investment banks formed Voluntary Consolidated Supervised Entities to be overseen by SEC
 - SEC, which had previously focused mainly on investor protection and regulated only the broker/dealer and the primary dealer, no tradition of consolidated supervision
 - Applied Basel II capital requirements, which permitted investment banks to more than double their leverage
 - The housing market appeared to offer enticing opportunities for profit
 - Accounted for more than half the profits of most

Basel I

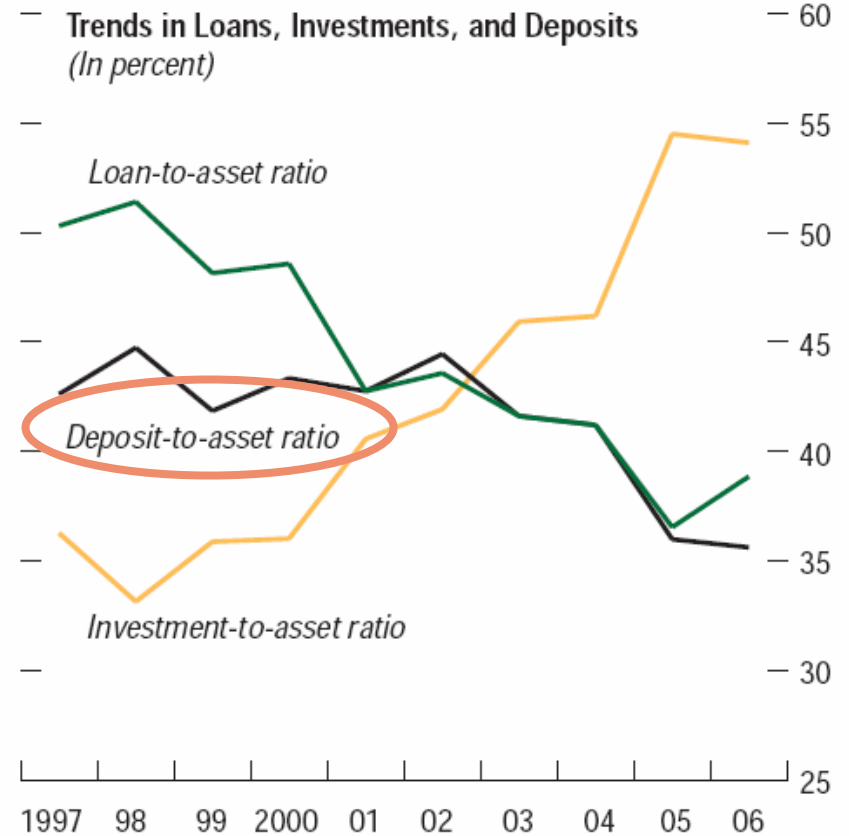
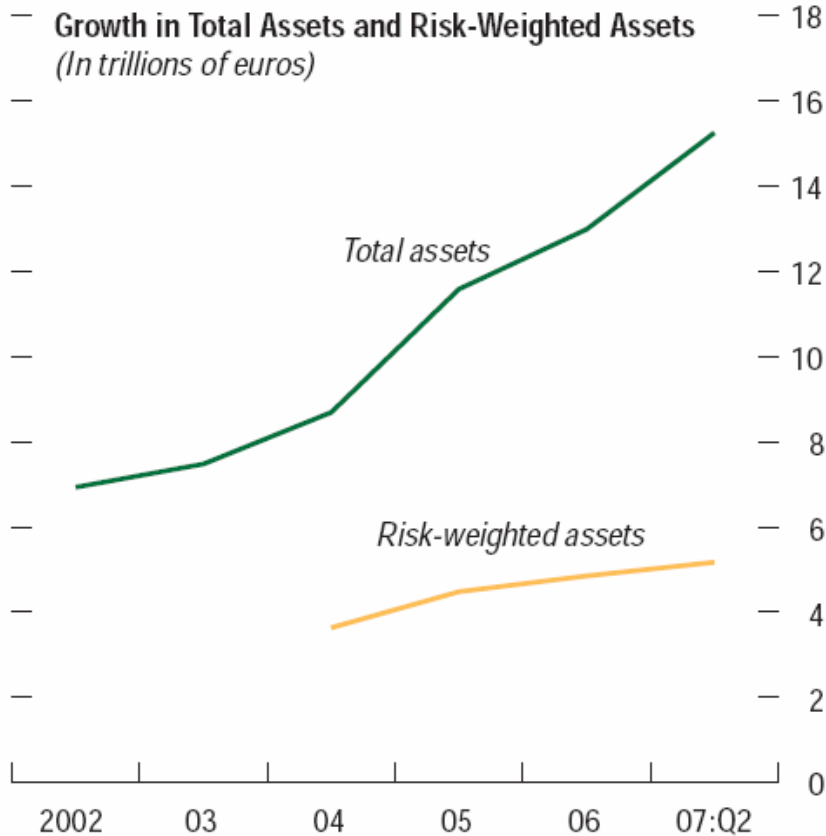
4. Created Strong Incentives to Securitize

- On b/s prime mortgage had 50% risk weight
- On b/s subprime mortgage had 100% risk weight
- Off b/s line of credit had 0% risk weight if less than 1 year
- Following post-Enron reforms, could easily create SPE to remove assets from b/s and largely from scrutiny of

Regulation and supervision is a continual contest between regulatees and less-well-paid & less-well informed regulators

in Assets or Address Liquidity Risk

Balance Sheet Profiles for 10 Large Publicly Listed Banks



Sources: Thomson Financial; and IMF staff estimates.

Source: IMFGFSR, 4/08, Box 1.3, p.31.

Would Basel II have prevented the problem?

The IMF April 2009 estimate was

1. \$2.7 trillion of write-downs of US-originated assets

2. \$4 trillion of write-downs for assets originated in other mature markets

Optimists argue...

- ✓ Pillar 1 will require some capital for back-up facilities of 364 days or less
 - But US had already implemented such a rule in 2004 and did not restrain Citi which sponsored 7 SIVs
- ✓ Pillar 2 enhances scope for regulators to require capital above the minimum
 - But FSA authorized Northern Rock to adopt IRB approach which reduced its capital requirement by 30% to be paid to shareholders a few weeks before its collapse
- ✓ Pillar 3 would enhance disclosure and market discipline
 - But would not have dealt with most SPEs
 - Creditors and counterparties were bailed out a IKB, Northern Rock, Bear Stearns and almost every other

But Highlighted Problems in Basel II

Pillar 1 defects

- ✓ Standardized Approach relies heavily on external ratings
 - Adds to officially induced-pressures for institutions to demand high ratings
 - If agencies get it wrong for entire categories of securities, a new source of systemic risk
- ✓ Internal Ratings Based Approaches rely on internal models
 - But even the most sophisticated players have found their internal models unreliable
- ✓ More risk sensitive capital requirements exacerbate business cycles
- ✓ Internal VaR-like models proved inadequate to deal with credit events in trading book

Pillar 2 defects

- ✓ Largely qualitative treatment of liquidity risk
- ✓ No attention to reputational risk
- ✓ No attention to business risk
 - Yet business risk has accounted for 18% of US bank failures and was surely implicated in problems at Northern Rock, UBS, Citi, Bear Stearns, Lehman Brothers & AIG
- ✓ No disclosure of discretionary

Pillar 3 defects

- ✓ Inadequate disclosure to help external investors understand exposure to structured debt or SPEs
- ✓ Increased difficulty in comparing capital adequacy across countries
 - Differences in permissible implementation choices
 - Differences in risk management systems,
 - Differences in accounting standards
 - In January 2006 Deutsche Bank had trading assets under US GAAP of €448 vs. €1,010 under IFRS
 - Similar assets will be treated differently depending on where a bank is located
 - Undermines transparency of interbank markets

Presumably all will be corrected with another 300 pages of Basel II.1.

Definition of Capital not credible

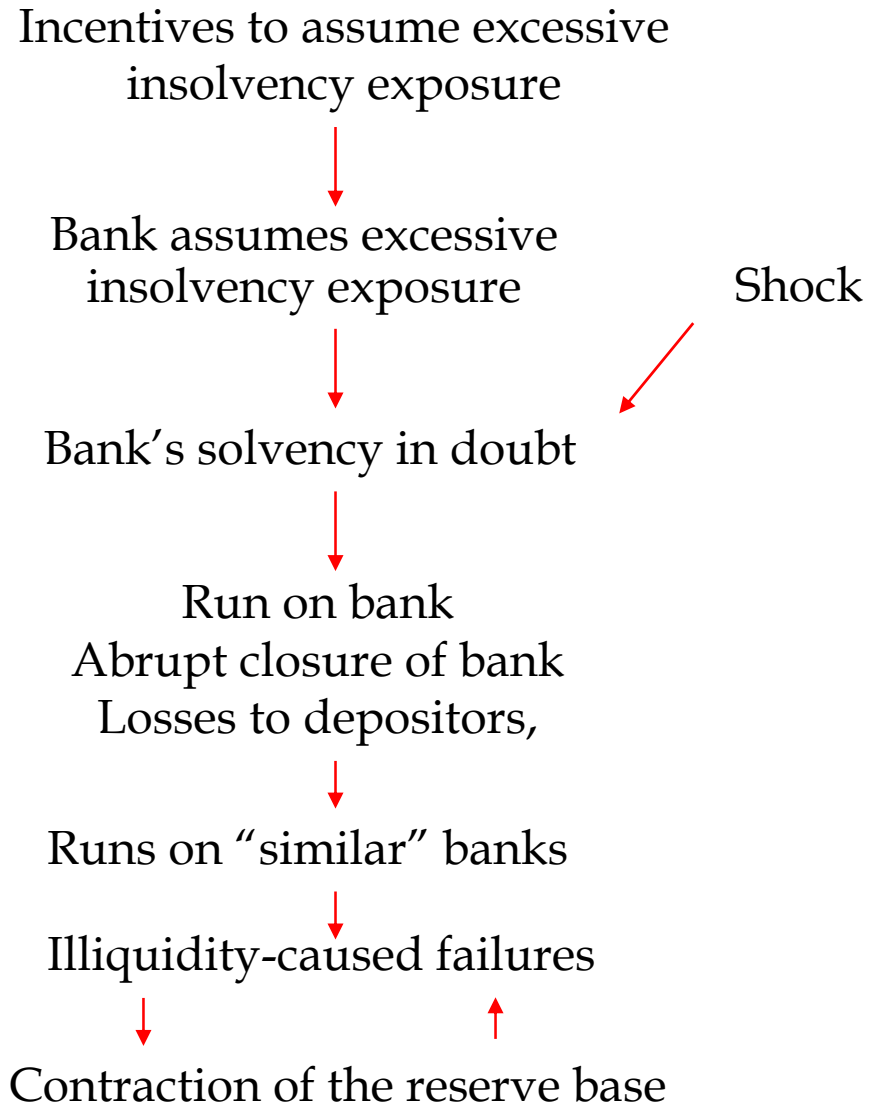
- ✓ In most cases supervisors announced that firm greatly exceeded capital requirements just a week before the firm failed.
- ✓ Tier 2 was regarded as irrelevant
- ✓ The market chose to disregard most hybrid capital
- ✓ In the end focused on tangible equity
 - Astonishment at leverage some firms had attained based on simple equity/asset ratios

From September 2007- September 2008, Regulators Treated the Problem Like a Traditional Liquidity Crisis

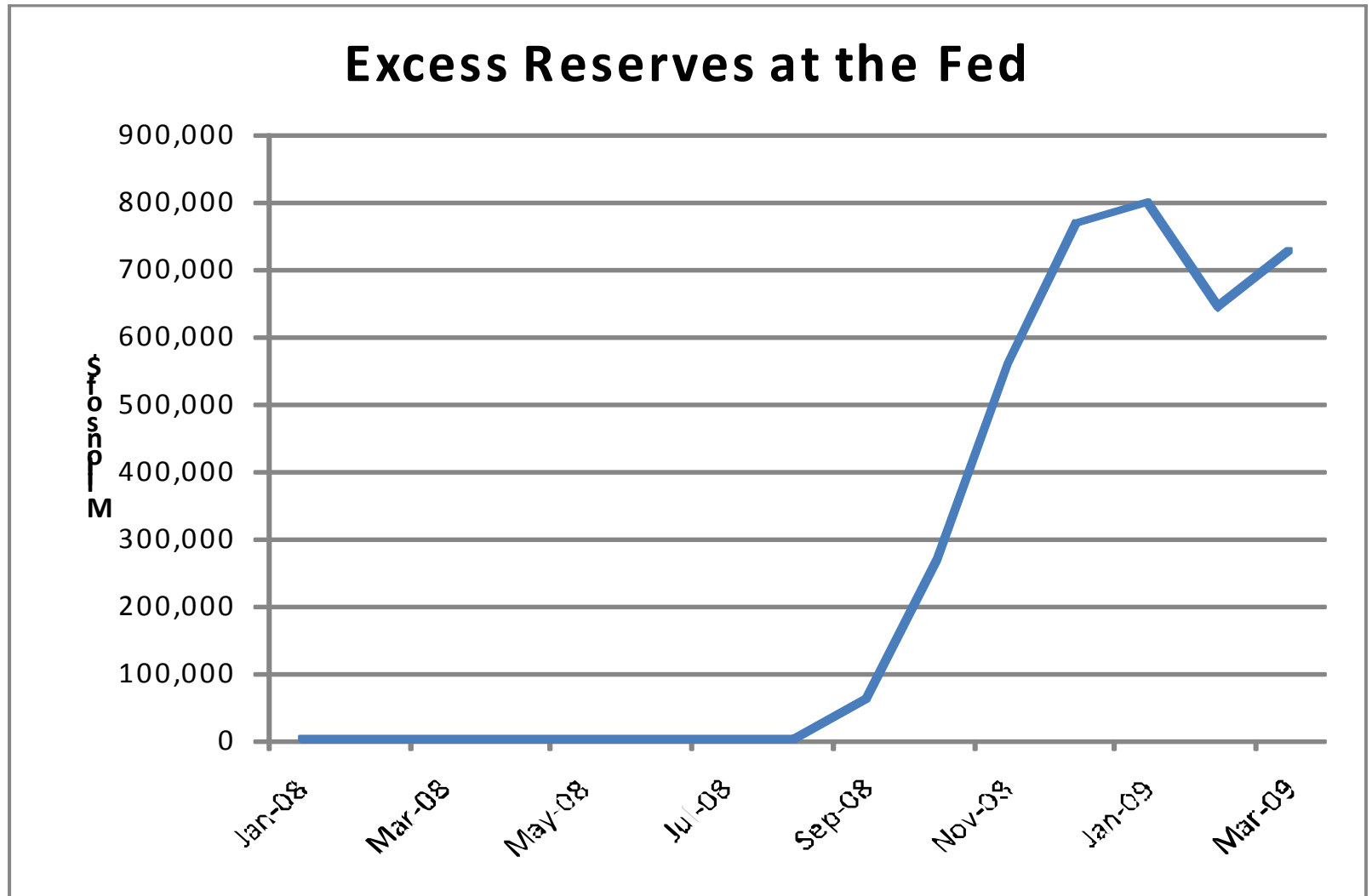
But it wasn't. It should have been apparent from September 2007, that we confronted a solvency crisis

1. Direct losses from holding securities
2. Indirect losses from propping up SPVs
3. Direct losses from funding pipeline of loans that could no longer be securitized
4. Loss of important stream of future profits

Traditional Systemic Nightmare: Traditional Version



Excess Reserves at Record Highs



Variations in disclosure within and across countries rendered distribution of losses uncertain

- ✓ SEC requires quarterly disclosure, but losses depended on whether assets classified as trading, held for sale or in banking book
- ✓ Europe less prescriptive
 - CFO can exercise “professional judgment” about scale and timing of loss recognitions
- ✓ Thus same asset may be valued differently in different institutions
- ✓ Piecemeal release of increasingly larger losses raises concerns about
 - Integrity of financial reporting
 - Managements’ grasp of its risk exposures
 - Quality of supervisory oversight

But Not a Traditional Bank Run

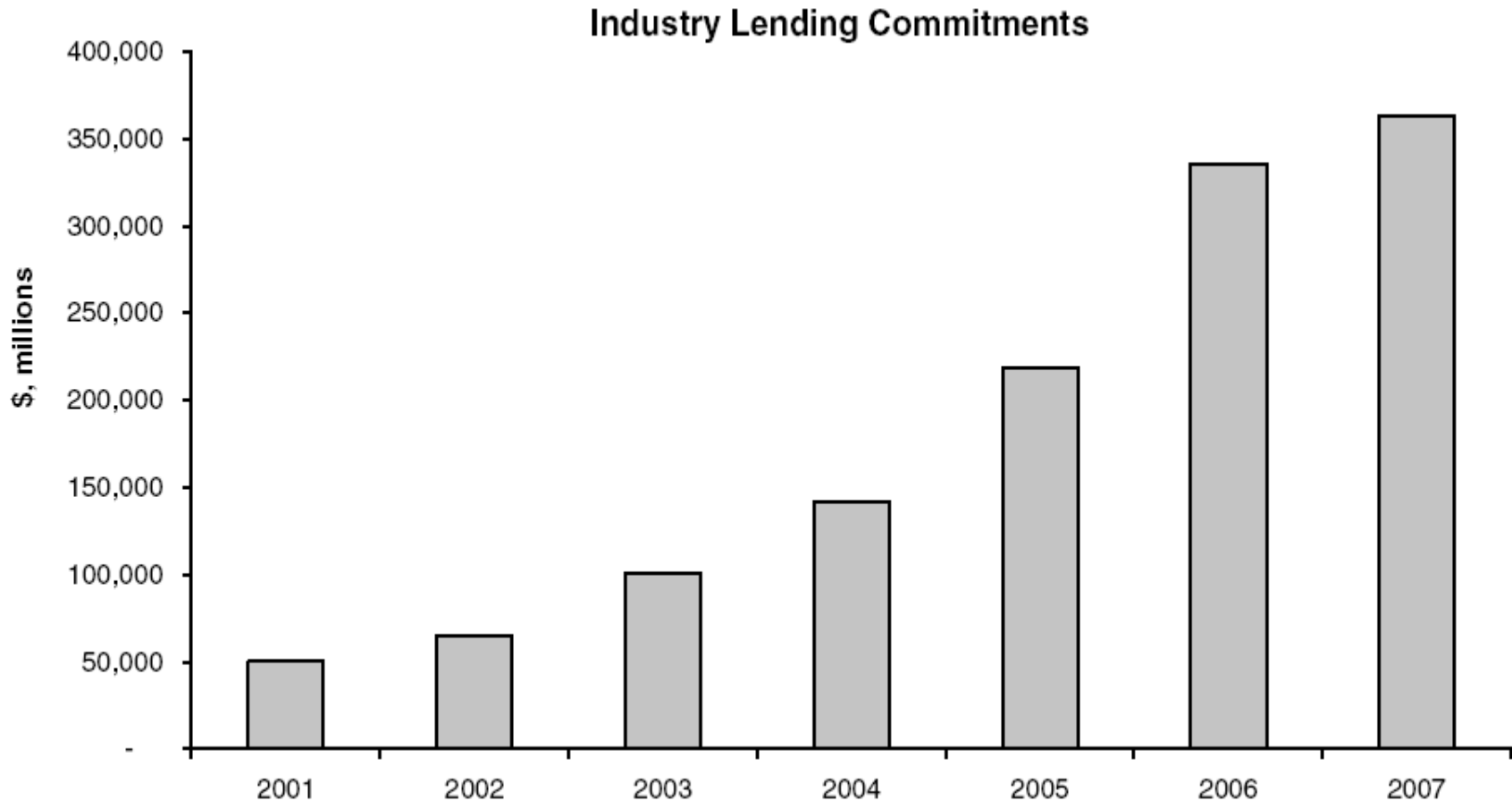
The illiquidity problem was not because of a drain of cash into the hands of public (or mattresses), but because intermediaries no longer trusted each other. No one knew how several trillion dollars of losses would be ultimately allocated.

✓ Weakness broke out in capital markets and investment banks

○ What happened to investment banks?

Portfolios have shifted in favor of lower quality, less liquid assets

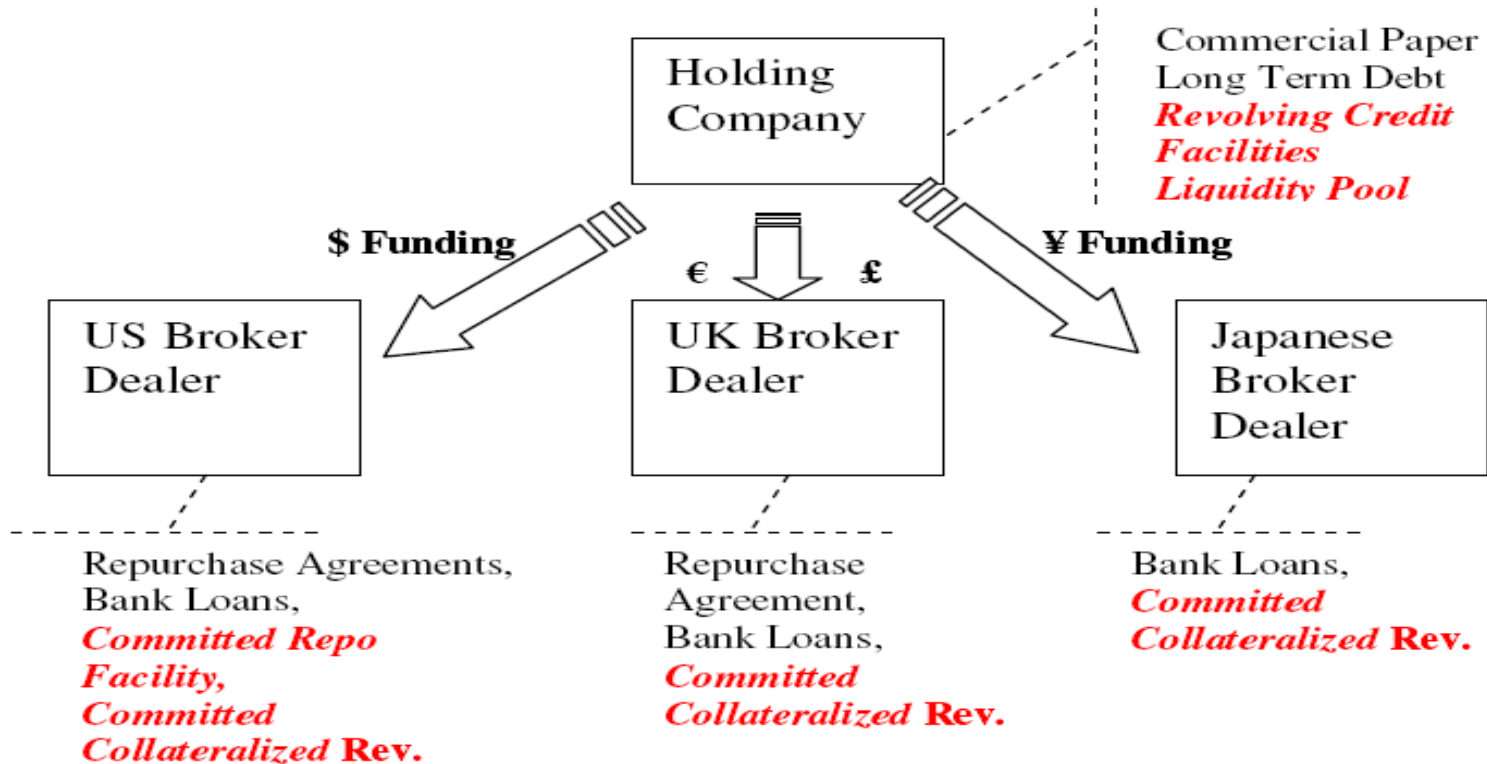
- ✓ More difficult to deleverage when funding shock



Growing internationalization

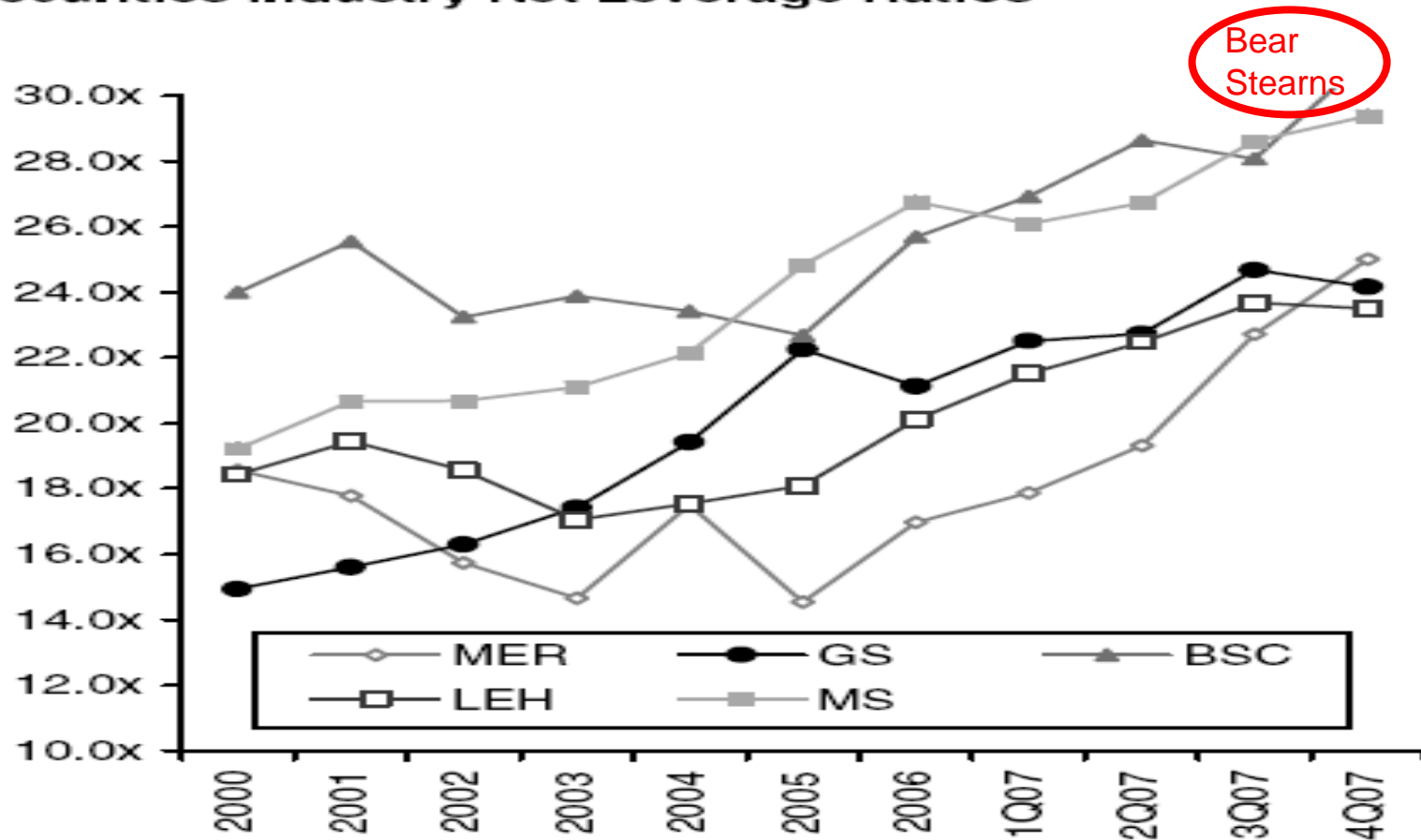
- ✓ Diversifies funding
- ✓ But increases coordination costs in event of a

Simplified Securities Industry Funding Diagram



Increasing Net leverage

Securities Industry Net Leverage Ratios



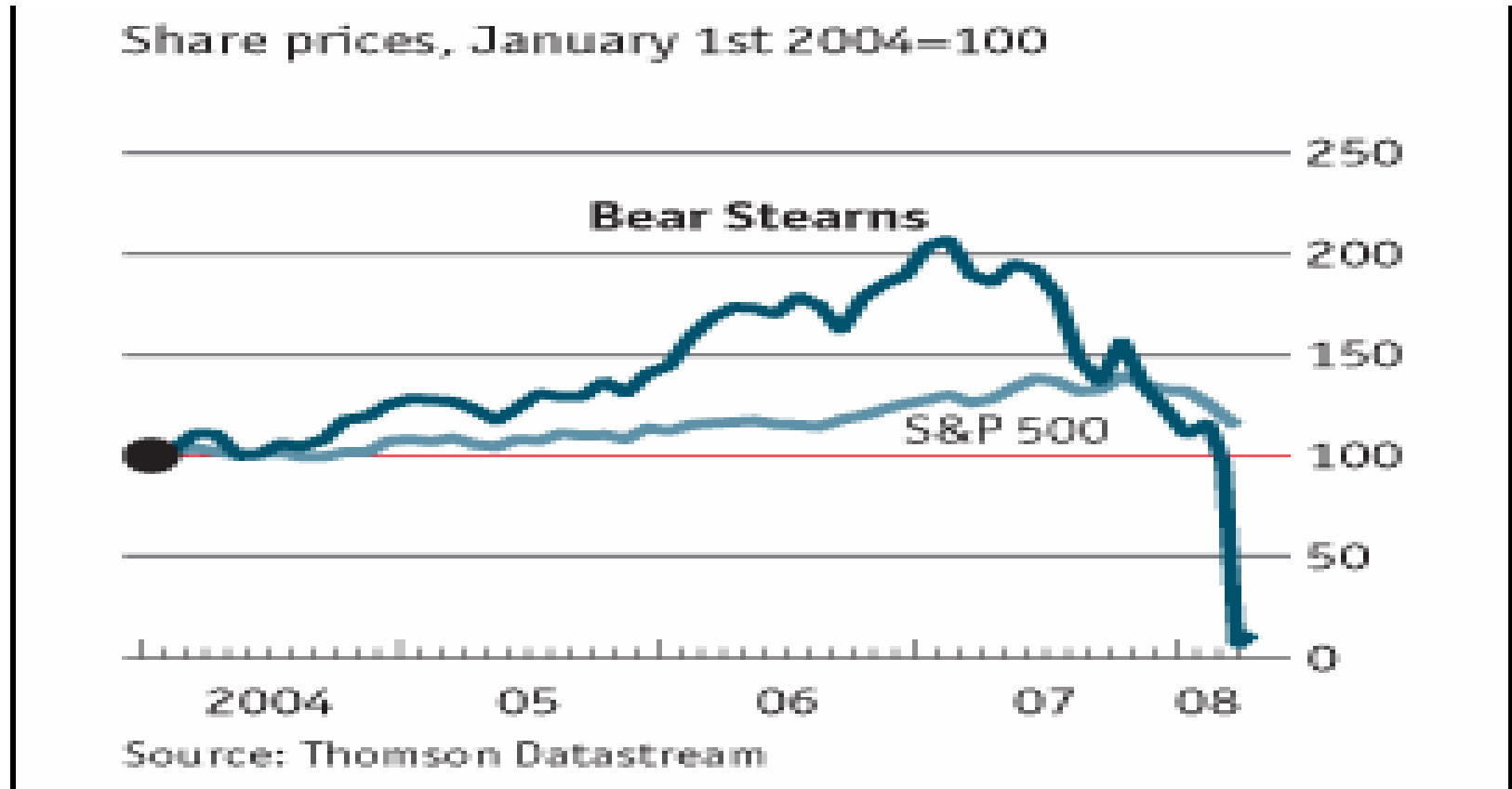
Source: Company Disclosure, Bernstein Analysis

Growing reliance on 3rd party repos to fund b/s

- ✓ Remarkable growth in repo market since 1990
 - In 1990 secured repo credit was 13% of federally insured deposits
 - In 2007, secured repo credit was 60% of federally insured deposits
 - 2/3rd s of repos mature or must be rolled over o/n
- ✓ For 3rd Party term repos in broader range of securities must have confidence counterparty can provide additional margin when necessary

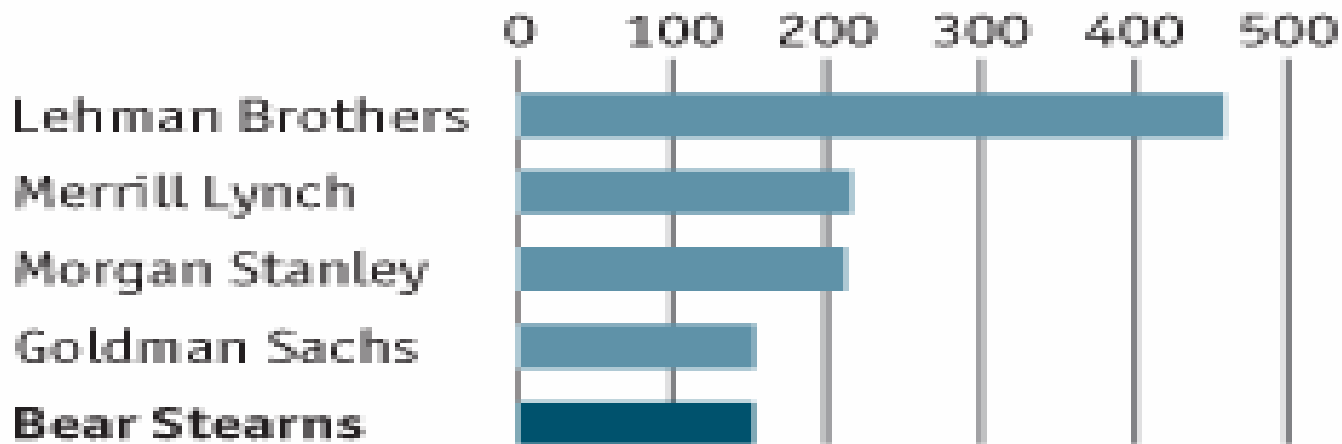
Bear was in a precarious position after HF blow up

Bear's share price plummeted



Bear Stearns relatively low on liquidity yearend 2007

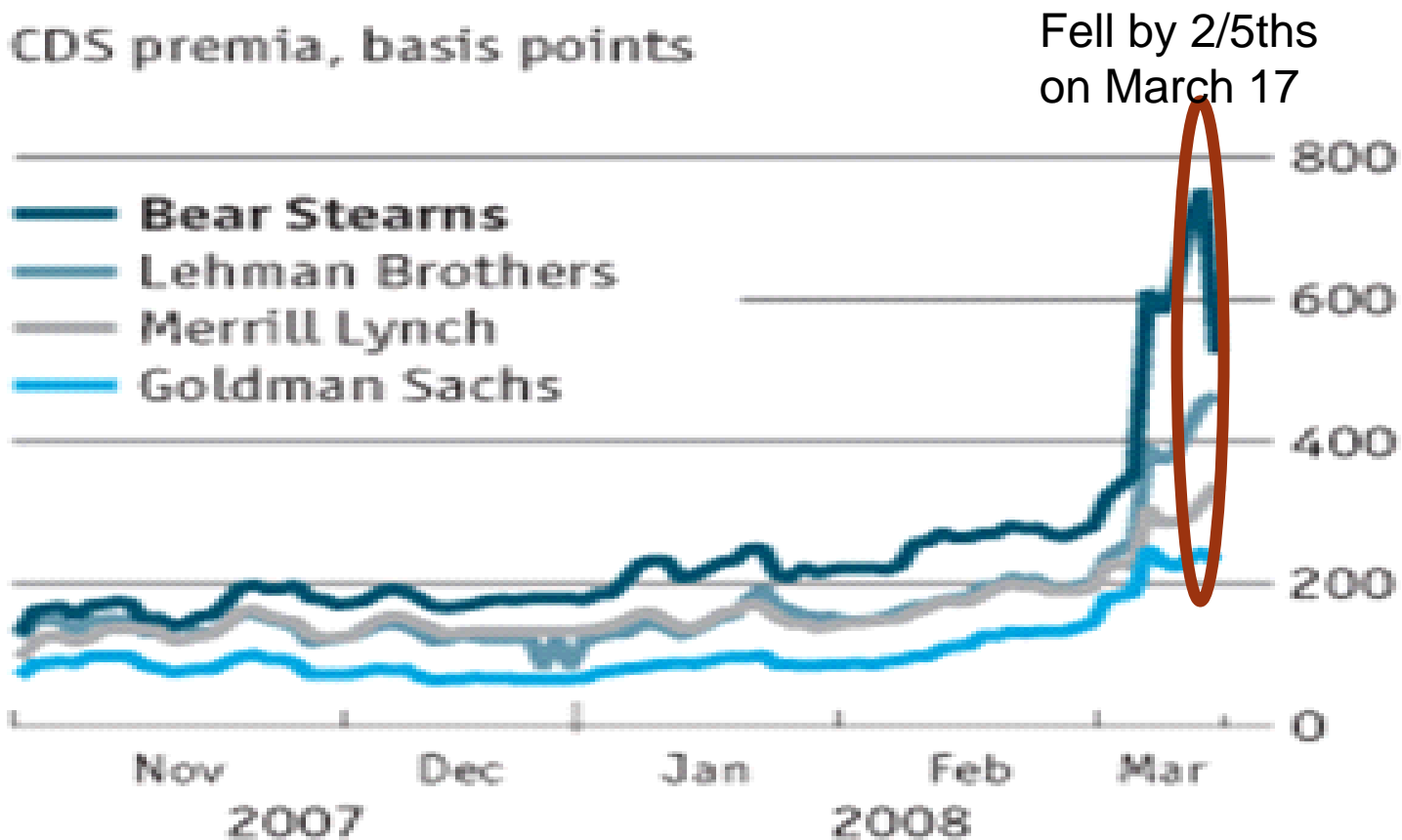
Parent company liquidity pool, as % of equity
Q4 2007



Source: Alliance Bernstein

Anxieties about Bear Stearns were apparent in CDS market

CDS premia, basis points



Fell by 2/5ths
on March 17

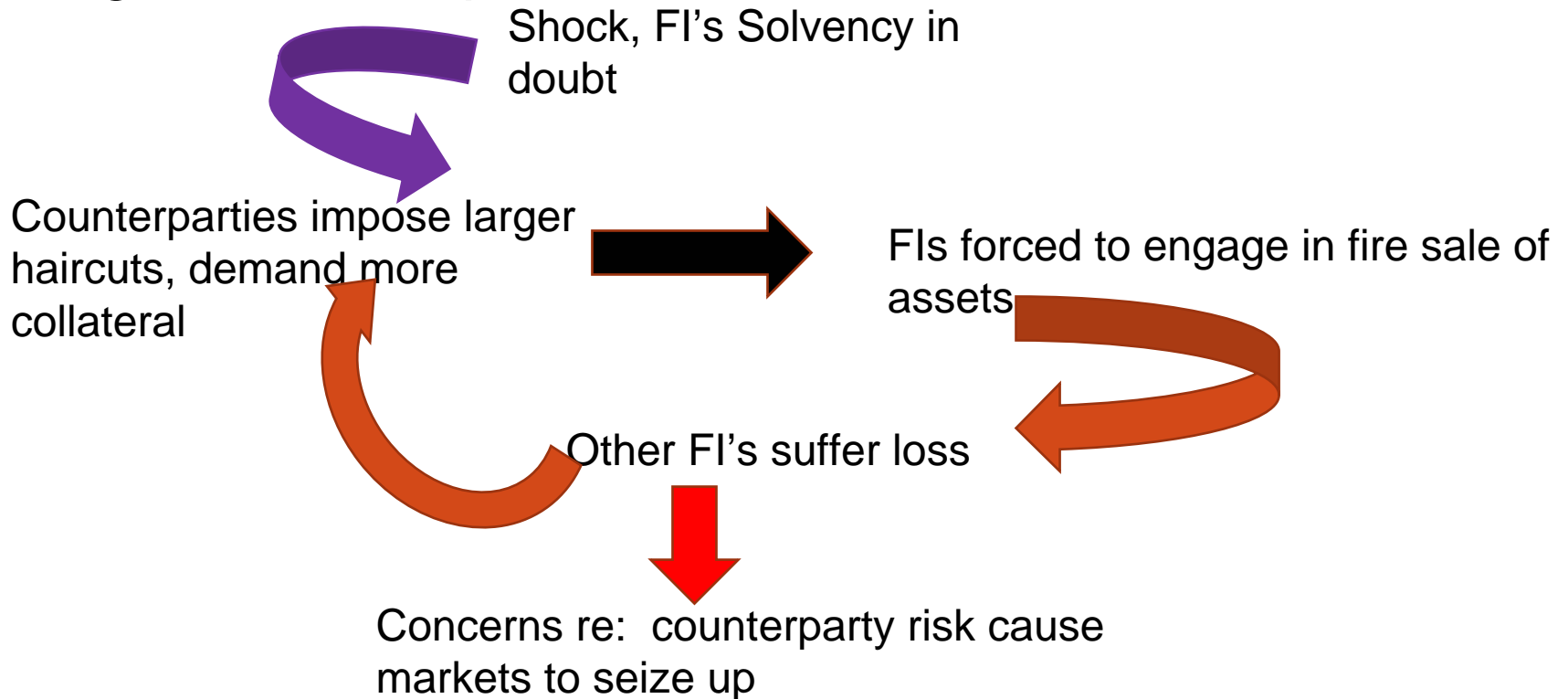
Sources: Deutsche Bank; Bloomberg

Systemic Nightmare Updated

Destruction of Endogenous Liquidity

- Margin/Haircut Spiral

- Loss Spiral



Fed & Treasury feared systemic consequences of Bear bankruptcy

- ✓ **Subsidized a shot-gun wedding with JP Morgan Chase for \$29 billion**
- ✓ **Clearly lacked tools to deal with insolvency of a major nonbank institution**

July 11th (Friday) IndyMac Closed

- ✓ Monday, July 14th, new IndyMac Federal Bank opened as a newly chartered bridge bank
 - All insured depositors had immediate access to funds
 - Uninsured depositors were paid %50, a conservative estimate of losses and received remainder from final settlement
 - Separated credit loss, from liquidity loss
- ✓ IndyMac is the the most expensive closing in FDIC history -- \$10.7 billion -- so far
 - Reluctance of primary supervisor(OTC) to follow prompt corrective action rules or share information
 - Accountability among supervisors remains a major problem

After assertions that Fannie & Freddie were fundamentally sound, both were put in conservatorship

Bailout logic worked for Bear, but Lehman sent to bankruptcy courts

9/15/09

- ✓ Substantial spillovers in international financial markets
 - Credit spreads rose to record highs
 - Equity prices fell by 4% worldwide
 - Government bond yields fell sharply – T-bill rate actually negative
- ✓ Least complex of LCFIs but managed on an integrated basis with regard to cash and IT
 - Administrator in London is still trying to verify assets of 4 subsidiaries
- ✓ Irony
 - OTC derivatives settled with only minor difficulty
 - Most devastating in spillover in US to money market

Reserve Primary Fund “broke the buck” on 9/16/09

- ✓ First MM Fund to do so in 14 years
- ✓ Triggered \$184 billion run from money market funds
- ✓ CP dumped at firesale prices jeopardizing flows of credit to corporate America & European banks
- ✓ Treasury responded with a guarantee of all money market balances held on September 17
- ✓ Competitive pressures from banks led to

9/17/09 AIG on the brink of bankruptcy

- ✓ Faced with collateral calls in response to a downgrade from Moody's
- ✓ Largest insurance company in America with \$1 trillion b/s and offices in 130 countries
- ✓ Losses concentrated in unregulated financial products unit in London
- ✓ Original plea was for \$20 billion, soon rose to \$85 billion, which was granted by Treasury
- ✓ By March government had lent \$180 billion to AIG

WaMu Closed on 9/25/09

- ✓ 6th largest bank in US.
 - Largest failure ever
- ✓ Closed by OTS
- ✓ Placed into receivership in hands of FDIC
- ✓ Immediately sold to JP Morgan Chase
 - Only depositors were protected
 - Shareholders, preferred shareholders and subordinated debt holders suffered complete loss
- ✓ FDIC suffered no loss

bank sale of Wachovia to Citibank

- ✓ After experiencing a run, Wachovia was pressured by OCC to sell
- ✓ Would have resulted in no (immediate) cost to FDIC
- ✓ In 3 line tax ruling the following Monday, IRS reinterpreted 1986 tax law making it possible for Wells Fargo to save \$26 billion in taxes by assuming Wachovia's tax losses
 - Wells Fargo outbid Citibank
 - Litigation continues

Inconsistency in Policy Interventions Heightened Uncertainty

- ✓ In Bear Stearns, all creditors rescued and shareholders subsidized in shot-gun marriage
- ✓ In Fannie Mae and Freddie Mac conservatorship, both common and preferred shareholders wiped out, but creditors spared
- ✓ In Lehman Brothers, everyone lost
- ✓ AIG bailout diluted common shareholders, but protected all other obligations
- ✓ Washington Mutual bailout hit both shareholders & subordinated debt-holders
- ✓ In Wachovia only shareholders lost
- ❑ Inconsistency created fear among potential lenders & encouraged weak firms to petition for help—increased uncertainty

Policy interventions appeared *ad hoc* and increasingly desperate

Central banks pride themselves on “constructive ambiguity,” but the lack of predictable framework for intervention added to market panic

Destructive ambiguity

A loss of confidence in the financial system

Which began to show signs of panic

And banks became increasingly
desperate for liquidity

Investors lost confidence in financial
advisors & financial institutions

Crisis has created major dislocations in the financial services industry

And has hit Main Street

Page Proposal to Restore Liquidity to Sub-Prime Market by Buying Assets

**TARP 1– after a week of
frantic lobbying by
administration it failed to
pass**

Congress reacted by passing TARP 2

- ✓ What emerged was a 451 page bill that includes some surprising elements (in addition for protection for makers of wooden arrows, rum and a monthly subsidy to bicyclists)
- ✓ Treasury can invest \$250b in bank preferred shares
 - \$125 to 9 banks now explicitly too big to fail
 - \$125 to be distributed among smaller banks that have until the middle of next month to apply
- ✓ Fed can purchase commercial paper from October 27th
- ✓ And will buy commercial paper from money

**TARP 2 mysteriously morphed from
plan to restore liquidity to sub-
prime related debt to capital
injections**

Deep Government Involvement with no exit strategy or vision for the future

- ✓ Quasi-bank ownership with few protections for taxpayers because 3 of original 9 didn't want the injection
 - Paulson had odd notion of “convoy approach”
 - Preferred stock is put in but with no costs to existing equity holders or push to write down losses & thus no enhanced clarity
 - Tiered bank system with largest like de facto GSE
 - Will disadvantage firms without perceived guarantees
 - Liquidity programs are nothing but forbearance
 - Little progress in reducing leverage

requesting a piece of the TARP fund

- ✓ A very slippery slope, particularly when virtually no strings were attached to first round of government subsidies
 - Pornographer Larry Flynt has applied
 - The Chrysler & GM have applied successfully, in the first round
 - Administration is taking a firmer stand in subsequent rounds

Moral Hazard is Rampant

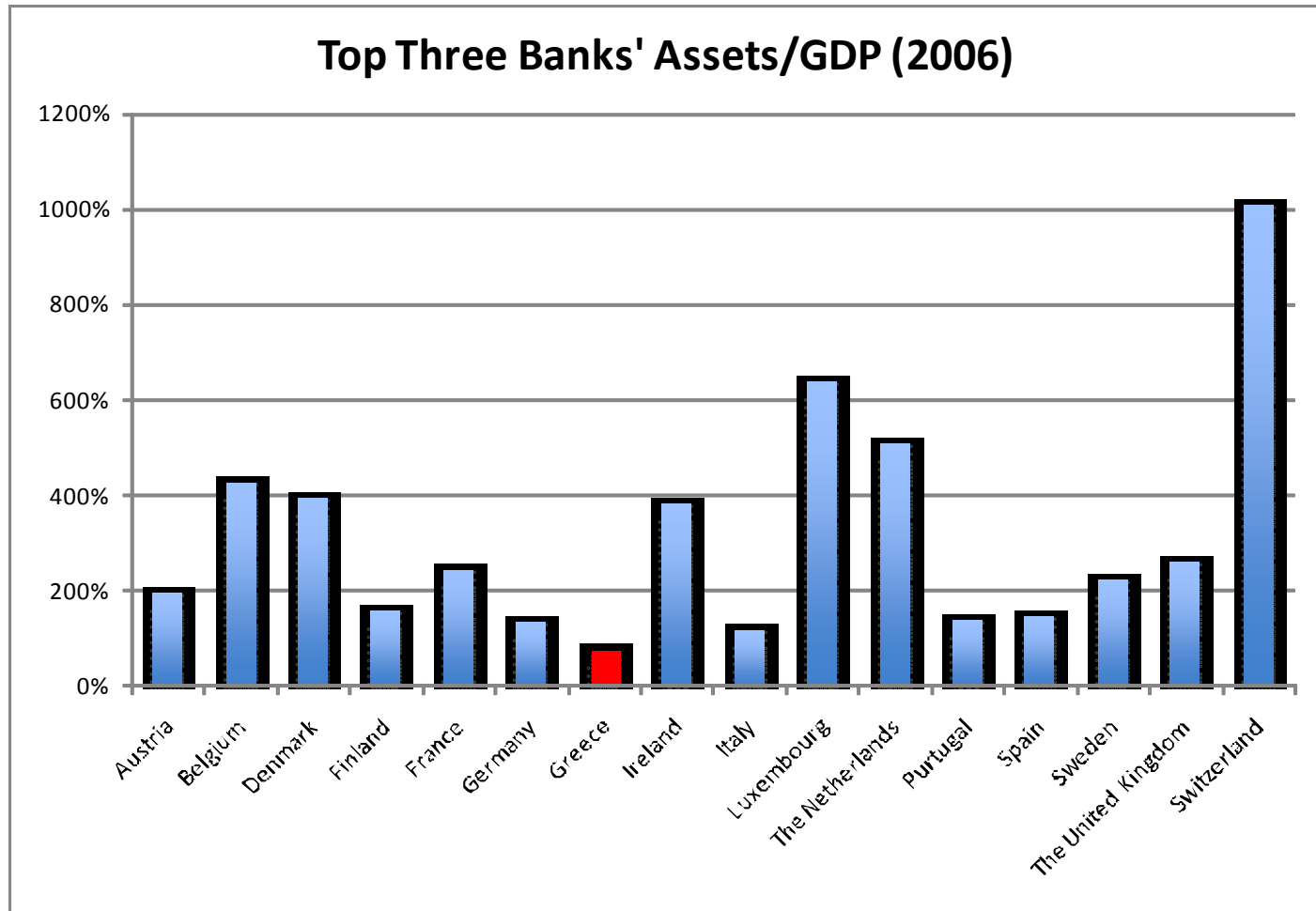
The Obama Administration's Answer is a new Resolution Authority for Systemically Important Financial Institutions

So far a quick rewrite of US bridge bank authority.

- Has failed to confront the problem of cross-border complexity

- This is a key issue for Europe as well

Greece Appears Less Vulnerable than EU Peers



Why any international corporation might want to adopt a degree of corporate complexity

- ✓ Reduce costs of asymmetric information and transactions costs
- ✓ Reduce costs of financial distress
- ✓ Legacy of growth through mergers and acquisitions
- ✓ Tax frictions

Proxy for complexity: Majority-Owned Subsidiaries

- ✓ Arbitrary at best
 - Fed counts control at 25% under BHC Act
 - Would like to identify shell corporations, know size, purpose, interrelationships, etc.
 - But this is all that can be gleaned from Bankscope or SEC filings
 - Banks tend to regard such information as proprietary
- ✓ Take % of international majority-owned subsidiaries as proxy for international complexity
- Nonetheless, a crude measure of the legal challenge that the authorities would face in

LCFI S

Criteria: 1 Of 100 largest participants in: book runners of international bond issues, international equity issues, or global syndicated loans or in top 10 in notional interest rate derivatives outstanding, FX revenues or world-wide assets under custody

1	2	3	4	5
LCFIs	Total assets (billions of \$, yearend 2006) ¹	Total subsidiaries ¹	% of foreign subsidiaries	% of foreign net income before taxes(2006) ²
UBS AG	1,964	417	96%	62%
Barclays Plc	1,957	1,003	43%	44%
BNP Paribas	1,897	1,170	61%	51%
Citi	1,884	2,435	50%	44%
HSBC Holdings Plc	1,861	1,234	61%	78%
The Royal Bank of Scotland Group Plc	1,711	1,161	11%	34%
Deutsche Bank AG	1,483	1,954	77%	80%
Bank of America Corporation	1,460	1,407	28%	12%
JP Morgan Chase & Co.	1,352	804	51%	26%
ABN-AMRO Holding NV**	1,300	670	63%	77%
Société Générale	1,260	844	56%	46%
Morgan Stanley	1,121	1,052	47%	42%
Credit Suisse Group	1,029	290	93%	71%
Merrill Lynch & Co., Inc.	841	267	64%	35%
Goldman Sachs Group, Inc.	838	371	51%	48%
Lehman Brothers Holdings Inc.	504	433	45%	37%

* Yearend 2007 (unless otherwise specified). **After the most recent list of LCFIs (Bank of England 2007b) was published, a consortium of three banks (RBS, Fortis and Santander) acquired ABN AMRO.

Note: List did not include Bear Stearns or AIG. Only Lehman did not rank among the 25 largest financial institutions

Corporate Complexity of Leading Greek Banks

Big 4 in Greece	Total Assets \$billions End 2006	Total Majority-Owned Subs	% of Majority-Owned Subs Foreign	% of foreign net income before taxes
National Bank of Greece SA	\$101	81	58%	24%
EFG Eurobank Ergasias SA	\$71	133	41%	14%
Alpha Bank AE	\$66	61	57%	11%
Piraeus Bank SA	\$41	105	42%	9%

Tax Frictions

- ✓ Influence location and organizational form for conducting leasing, real estate investment trusts, investment management, private equity and other businesses
- ✓ Especially important for multinational financial institutions
 - Most taxed on world-wide income by home country, while also being taxed by local authorities.
 - Can use transfer pricing more flexibly than most manufacturing firms
 - To minimize costs of double-taxation book transactions in tax havens
 - Citi inadvertently provided a textbook on transfer pricing when commissioned Shearman & Sterling to document “transactions undertaken in order to comply with local law.”

% Subs in Tax-Haven Centers

LCFIs	Subsidiaries in OFCs, %⁵
UBS AG	9%
Barclays Plc	14%
BNP Paribas	5%
Citi	13%
HSBC Holdings Plc	13%
The Royal Bank of Scotland	6%
Deutsche Bank AG	20%
Bank of America Corporation	8%
JP Morgan Chase & Co.	7%
ABN AMRO Holding NV^{**}	6%
Société Générale	8%
Morgan Stanley	19%
Credit Suisse Group	18%
Merrill Lynch & Co., Inc.	9%
Goldman Sachs Group, Inc.	8%
Lehman Brothers Holdings	9%

% Greek Subs in Tax Haven Centers

Greek Bank	% of Subsidiaries in Off-Shore Centers
National Bank of Greece SA	19%
EFG Eurobank Ergasias SA	8%
Alpha Bank AE	15%
Piraeus Bank SA	7%

All Preceding Factors Apply to Non-Financial Institutions Also

- ✓ But on average 16 LCFIs have nearly 2.5 times as many majority-owned subsidiaries as 16 larges non-financial corporations.
 - Is this likely to be true for Greece as well?
- ✓ Why? LCFIs are among the most heavily regulated institutions in the world
 - Some subsidiaries are required by home or host countries.
 - Some subsidiaries are formed to minimize regulatory burdens

The Problem Arises in the Event of Insolvency

Mervyn King: These institutions live as an integrated, single corporate entity, but die as many separate national entities that must be taken through separate resolution processes.

Resolution objectives in general

- ✓ Procedures differ across countries, but broad agreement on objectives*
- 1. ***Ex ante*** efficient outcomes
 - Penalize shareholders and managers adequately
- 2. ***Ex post*** efficient outcomes
 - Maximize value of assets that can be distributed to creditors
- 3. Maintenance of the absolute priority of claims in the bankruptcy state
 - Protect incentives of senior creditors to lend
- ✓ These objectives apply to resolution of all kinds of firms

Hart, Oliver, 2002, "Different Approaches to Bankruptcy," Harvard Institute of
of

Economic Research Discussion Paper no. 1903.

In the Case of Systemically Important FIs, a 4th Objective

- ✓ Failure of a systemically important FI is likely to be more damaging to the economy than the failure of other kinds of firms of comparable size and generate particularly significant negative externalities. Thus a good resolution process should
- 4. Limit the costs of systemic risk
 - This often conflicts with objective of ex ante efficiency.
 - What you do to maintain financial stability in the short run may exacerbate financial crises in the long run because of moral hazard
 - A very contemporary dilemma

Concerns about Systemic Risk are Why Normal Bankruptcy Procedures are Considered Inappropriate for FIs

✓ Stays are Central to Resolution Process for Nonbanks

- Provide time for resolution authority to
 - Collect & validate claims
 - Discover and value assets
 - Clarify priorities to treat all creditors equitably
 - Determine best way to resolve claims
 - Reorganization and restructuring
 - Piecemeal liquidation and merger
 - Full liquidation

Delays in Resolution Increase the Risk of Systemic Spillovers

- ✓ Depositors and other short-term creditors lose access to funds
- ✓ Viable borrowers lose access to collateral and undrawn credit lines
- ✓ Lack of clarity regarding positions vis-à-vis the insolvent FI may transmit problems to counterparties
 - Counterparties unable to hedge because lack knowledge of
 - How much they will ultimately receive (credit risk)
 - When they will receive it (liquidity risk)
 - Dislocations in wholesale markets as traders attempt to assess ultimate damage to

To Reduce Risk of Crises

- ✓ Must have tools that make it possible to resolve any systemically important FI with negligible systemic consequences
 - Ideally should have a detailed contingency plan in place for resolution including
 - Press releases
 - Plans to take control of all crucial systems
 - Plans to maintain all systemically important functions

Presence Make Bankruptcy Unworkable

- ✓ The problem an LCFI is likely to be managed in an integrated fashion along lines of business without regard for
 - Legal entities (perhaps several 100)
 - National borders (perhaps several dozen)
 - Functional regulatory domains (perhaps 3 or more per country)
 - With substantial intra-group transactions that are difficult to disentangle

Will face conflicting approaches to bankruptcy

- ✓ Across regulators within countries
 - Objectives
 - Obligations
 - Powers
- ✓ Across countries, differences re:
 - Objectives
 - Who initiates the process
 - Treatment of foreign creditors
 - Which law applies
 - Carve-outs

The Bankruptcy of Lehman Brothers (LB) Highlighted Some of the Problems

- ✓ The smallest of the LCFIs (\$700 bn) & one of the least complex – 433 majority-owned subsidiaries in 20 countries
 - Twice as large as Bear Stearns
 - 6th largest dealer in OTC market
 - Key prime broker
- ✓ Private deal made difficult by expectation by potential bidders that LB would be treated at least as generously as Bear
 - Incentive to hold out until the last moment

LB (cont'd)

- ✓ Centrally managed with minimal regard for legal entities that must be resolved in the event of bankruptcy
 - Treasury operations centralized in LB Holdings International (LBHI)
 - Followed zero cash balance policy. At end of local business day all cash swept into LBHI. At beginning of local business day returned to subsidiaries
 - Huge intra-firm transactions
 - Data operations centralized – 2,300 servers, 6,700 programs, many proprietary
 - Sold broker dealer and asset manager rapidly because bleeding human capital, but acquiring firms now own data
 - London administrator can still not verify assets

LB (cont'd)

- ✓ Bankruptcy led to thousands of failed trades and civil proceedings on 3 continents
 - London administrator has reported that 4 London subs have 42,000 unresolved trades that will each have to be renegotiated
- ✓ OTC derivatives handled reasonably quickly under ISDA auction
- ✓ Fed's willingness to broaden acceptable collateral sustained repo market
- ✓ But Lehman exposure led Prime Reserve Fund to break the buck & and run on money market funds
 - Led to fire sale of prime Commercial Paper (CP) & collapse of CP market

LB (cont'd)

- ✓ London administrator, who is continuing to unwind Enron, says LB is at least 10x more complicated
 - Predicts creditors will not be repaid for years & the amount they will recover is entirely unclear
- ✓ Mingling of hedge fund collateral with LB's own funds led to collapse of several hedge funds.
 - FSA permitted mingling of client funds and firm's own funds
- ✓ US Liquidator says as much as \$75 bn of value was lost because of ill-prepared

Lessons?

- ✓ After collapse of Bear a bridge-bank like framework should have been authorized for systemically important institutions
- ✓ LB demonstrated that international corporate complexity is itself a source of systemic risk
 - At a minimum, supervisors should require that each institution have a bankruptcy plan that is updated regularly, just as it has a business continuation plan
 - If an institution is deemed too- big or too- complex or too- interconnected to fail, it will need to divest until it can be unwound without creating intolerable spillovers
- ✓ Regulators, supervisors, accountants & tax authorities should reexamine rules that lead LCFIs to adopt such complex structures

What are the alternatives?

- ✓ Require each systemically important financial institution to undergo a stress test that would be a simulation of its own corporate death
 - Regulators should evaluate
 - If it looks likely to create intolerable spillovers, then require alterations in size, scope, location or corporate structure
- ✓ Reach agreement among at least the G-20 about how to unwind a systemically important institution without intolerable spillovers
 - Like the Esperanto solution to a common language
- ✓ Try to avoid bankruptcy by requiring such firms to hold convertible debt that will be triggered by an official determination of systemic fragility and the firm's own condition

It is unsustainable to socialize losses from private risk-taking

But that will continue to happen so long as we lack credible resolution policies & the will to use them