

Restoring Financial Stability

How to Repair a Failed System

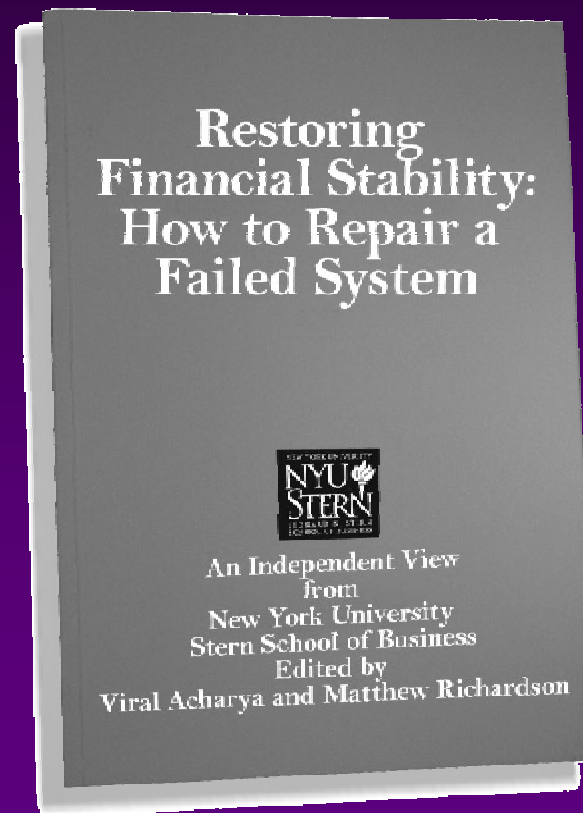
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University of Melbourne

www.stern.nyu.edu/~sbrown

The Stern White Paper project



Overview

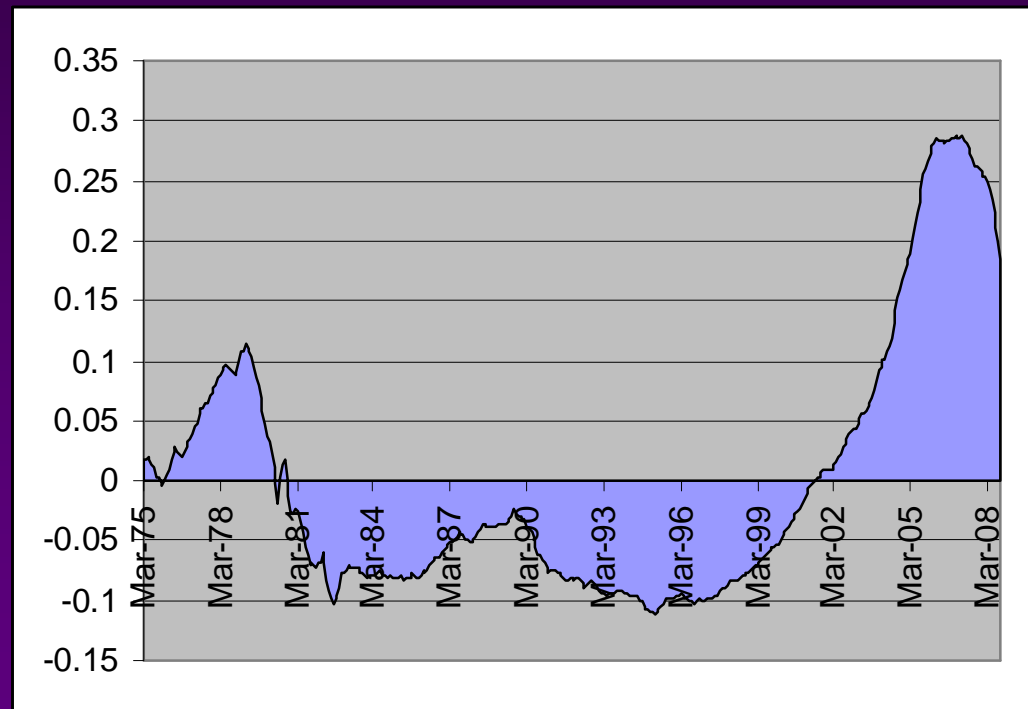
- **Brief overview of major findings**
 - **Causes and consequences of financial crisis**
 - **Policy implications**
- **Special case of hedge funds**

The Bubble: Stylized facts

- **Credit spreads at all time low**
 - **high yield bonds just 250bps above treasuries**
- **Loans of lower quality**
 - **Loans lower than B- : 30% (1993-2003) → 44% (2004-2007)**
 - **Subprime Loan/Value : 79% (2001) → 89% (2006)**
 - **Percentage low doc : 27% (2001) → 44% (2006)**
- **High Leverage**
 - **LBO Debt ratio : 4.1 (2001) → 6.3 (2007)**
- **Increased Debt**
 - **Debt/National Income : 3:1 (1992) → 3.75:1 (2002) → 4.75:1 (2007)**

Rapid rise in housing values

House price/ rent ratio (demeaned), 1975-2008



An Economic or a Financial Crisis?

- **Why was an economic crisis inevitable?**
 - House/Total Assets around 35%; Debt/House 56% in 85, 70% in 2005, 90% today.
- **What is a financial crisis?**
 - Systemic risk can be thought of as widespread failures of financial institutions or freezing up of capital markets that can substantially reduce the supply of capital to the real economy.

Major Factors in the Financial Crisis

The design of subprime mortgages.

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The rating agencies that gave AAA designations to as much of the structured products as possible.

But these aren't the reason we have a financial crisis

The Primary Factor

Contrary to the
business model of
securitization,
CREDIT TRANSFER
did not take place

Financial Institutions held the risk on their books

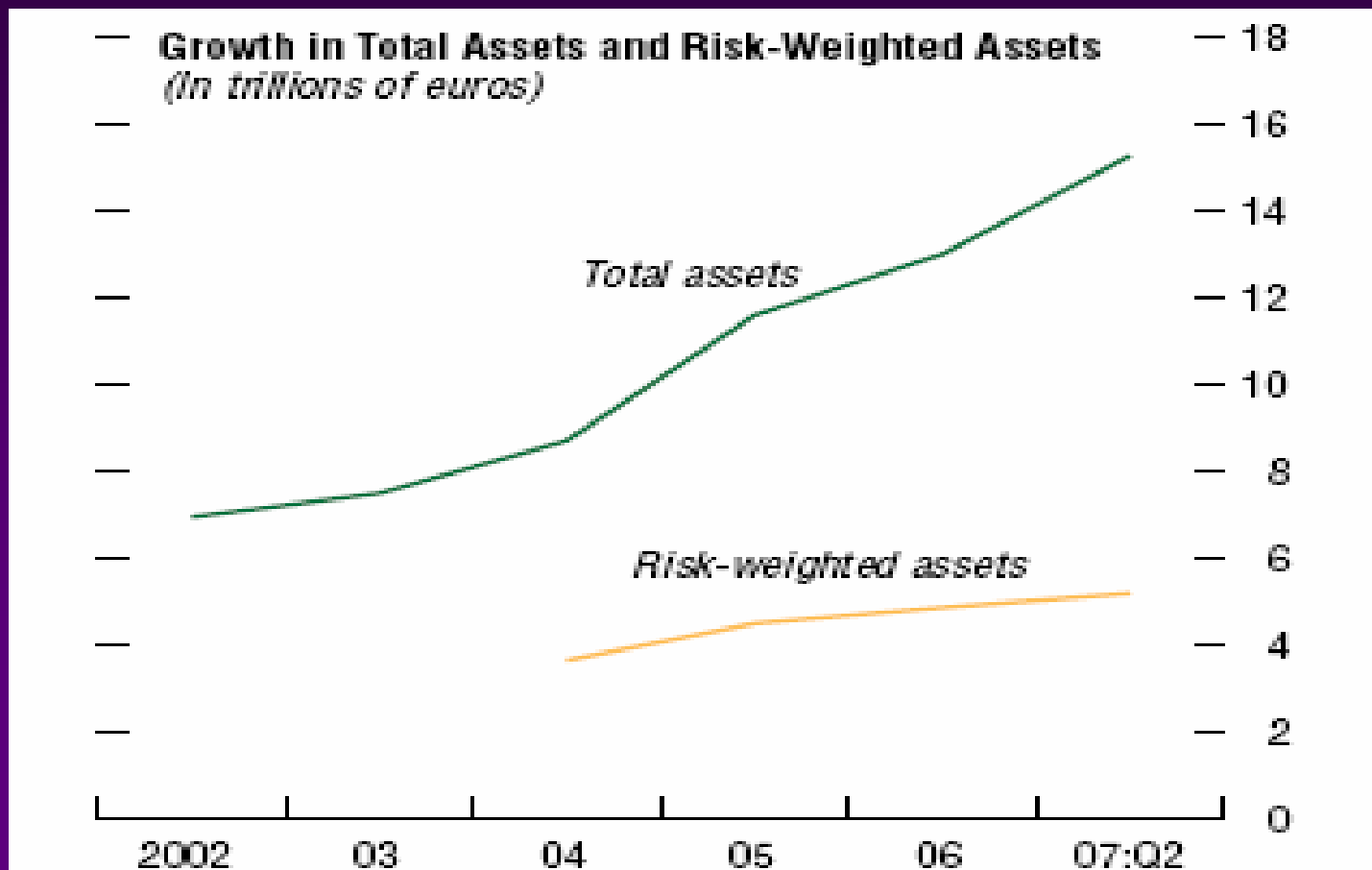
	Loans	Home equity line of credit	Agency MBS	Non-Agency AAA	CDO subordinated	Non CDO subordinated
Banks & Thrifts	2,020	869	852	383	90	
Govt. Sponsored Enterprises & FHLB	444		741	308		
Brokers/dealers			49	100	130	24
Financial Guarantors		62			100	
Insurance Companies			856	125	65	24
Overseas			689	413	45	24
Other	461	185	1,175	307	46	49

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Financial Institutions leveraged up

Assets & Leverage of Banks



Why?



Subprime AAA-tranches offered about twice the premium of other AAA-like securities.

Regulatory Principles

- **Inappropriate risk taking**
- **Mispriced government guarantees**
- **Systemic vs. individual risk**
- **Transparency**

I. Inappropriate risk taking

- Go long spread trades (e.g., AAA-tranche).
- Ignore liquidity risk and credit risk
- Book these premiums as ‘profit’
- Pay bonuses based on this ‘profit’
- Scale up the enterprise
- Big problem –
 - **Almost no idiosyncratic risk; all systemic as AAA only gets hit when everything goes down.**

II. Mispriced Government Guarantees

- **Too-big-to-fail (TBTF)**
 - Moral hazard of being a Large Complex Financial Institution (LCFI) and incentive to become one.
- **Mispriced guarantees: deposit insurance.**
- **Zero priced guarantees: GSE's**
 - Held \$1.5 trillion portfolio of long-term MBSs with 15% of it in nonprime mortgages
 - Managed to leverage up 25:1, so 4% drop in portfolio wipes out equity.

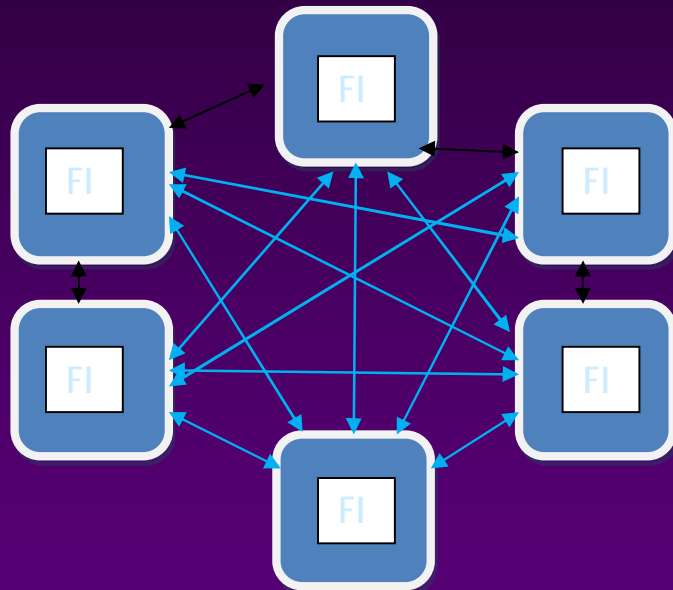
III. Systemic vs. Individual Risk

- **LCFIs produce risk as a negative externality**
 - **Large complex financial institutions regulator**
 - **Need to measure systemic risk**
 - **Need to price systemic risk**
 - **Improved capital requirement standard**
 - **Insurance requirement**

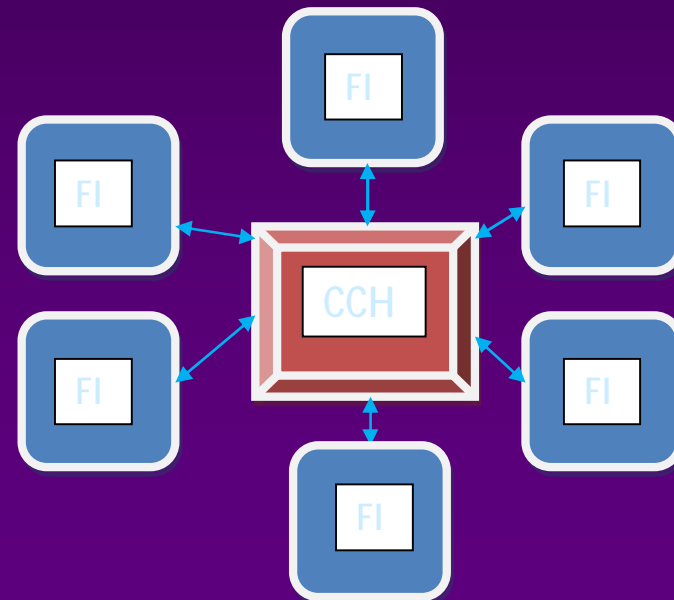
IV. Lack of Transparency

- **Large complex financial institutions**
 - Complexity, such as size, off-balance sheet items, multiple business lines.
- **Shadow banking**
 - “runs on the system” due to lack of transparency – investment banks, structured investment vehicles etc.
- **OTC derivatives**
 - Counterparty risk via bilateral trades

Managing counterparty risk



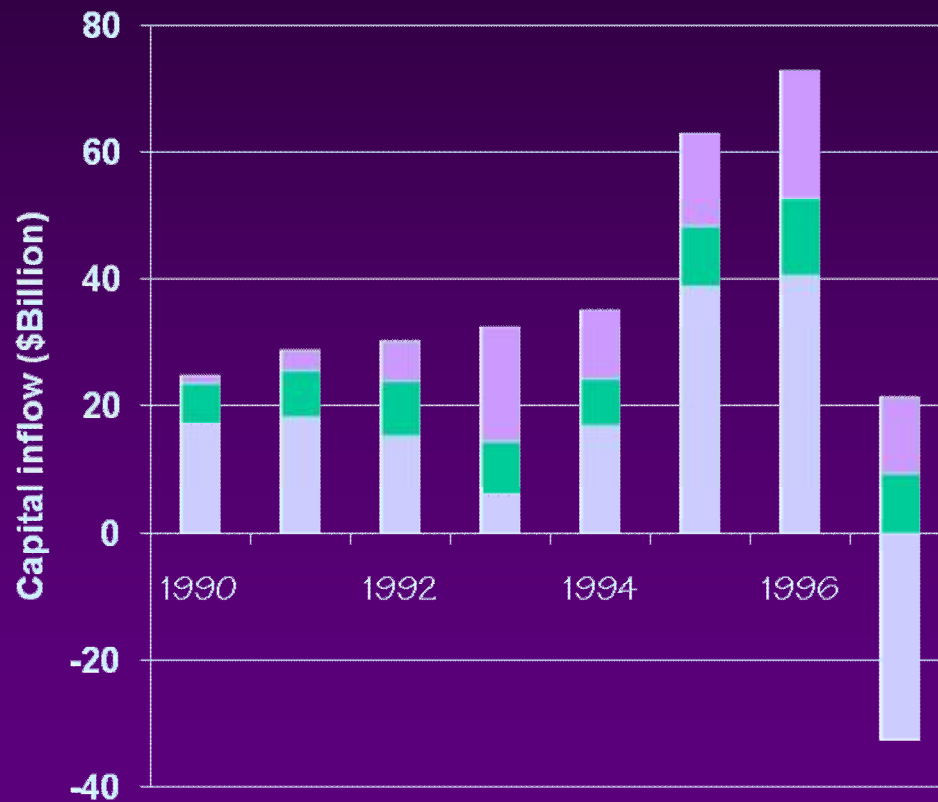
OTC derivatives versus clearing house.



Role of Hedge Funds in Crisis

- Hedge funds used significant leverage
- Took extensive short positions
- Destination of structured finance products
- Role in crisis?

South East Asia Currency Crisis



Capital Inflow into South East Asian economies

- Portfolio investment
- Direct investment
- Other

Hedge funds and systemic risk

- Hedge funds and Asian currency crisis
 - **Soros lost money through crisis**
- Quant meltdown in August 2007
 - **No market impact on day of event**
- Long Term Capital Management
 - **A large scale shadow bank pretending to be a hedge fund**

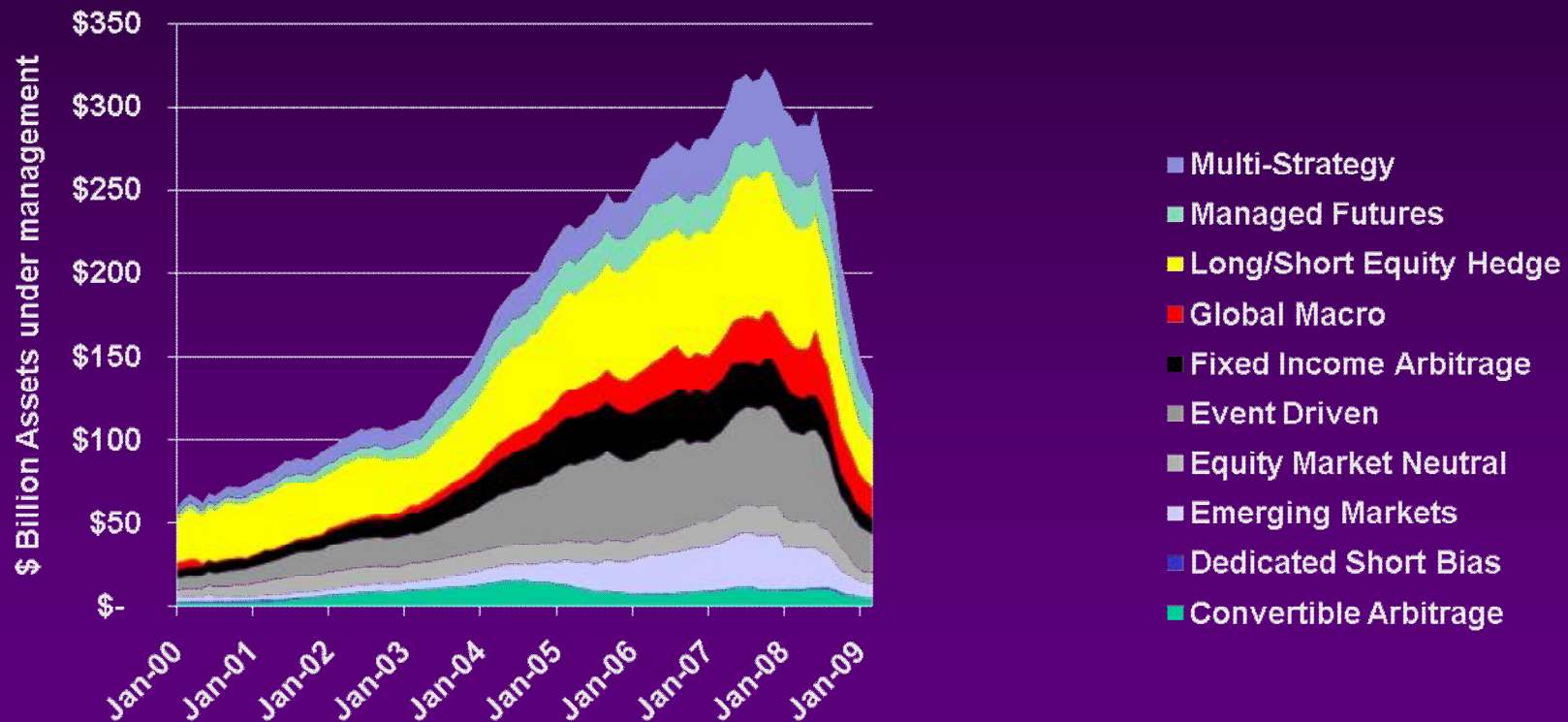
Despite favourable relative returns ...

Annualized Returns

December 31 2007 – March 31 2009

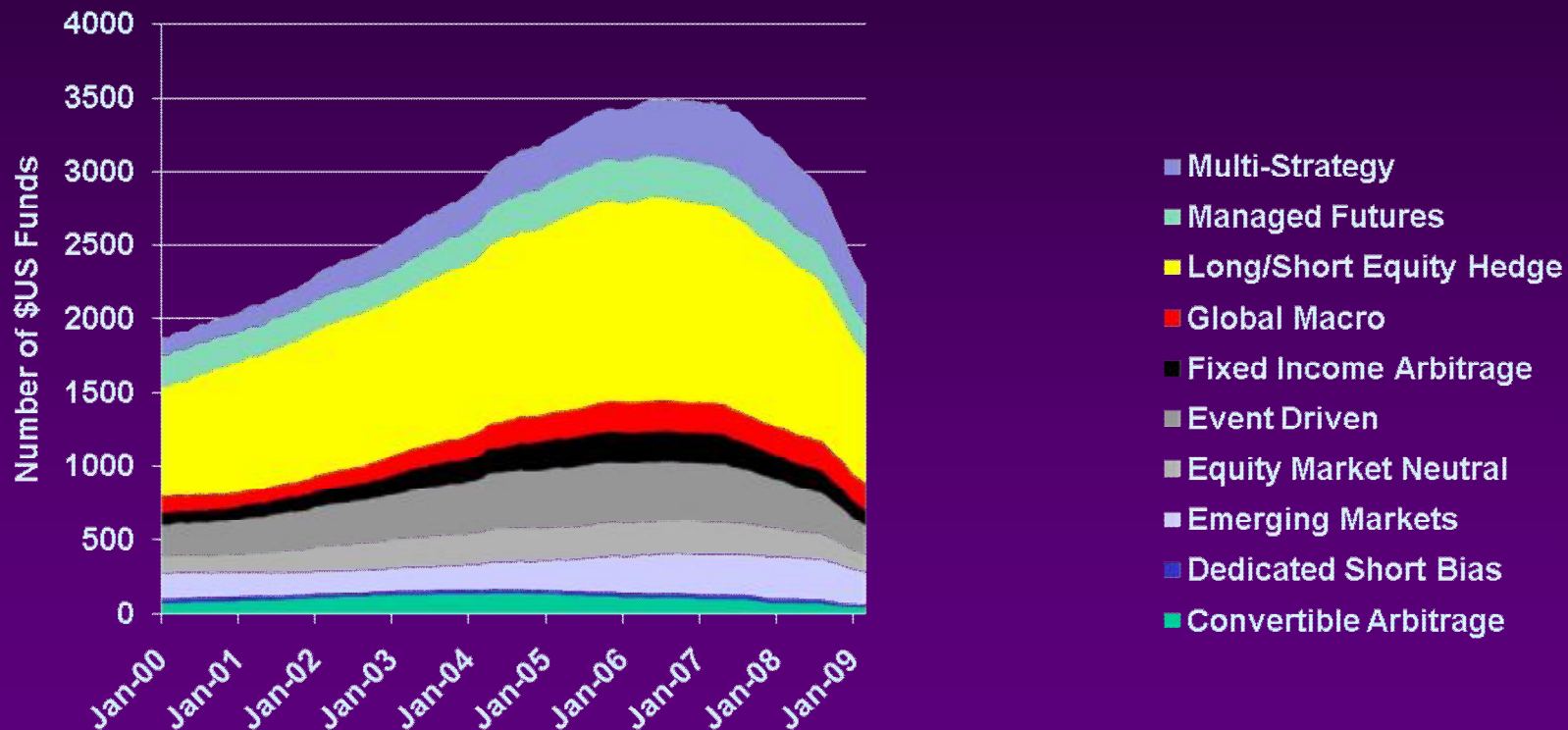
Style Category	Value weighted return on \$US funds (survivorship corrected)	Credit Suisse/Tremont index
Convertible Arbitrage	-10.0%	-21.7%
Dedicated Short Bias	47.7%	12.8%
Emerging Markets	-39.3%	-25.2%
Equity Market Neutral	-23.7%	-35.7%
Event Driven	-21.7%	-14.6%
Fixed Income Arbitrage	-21.4%	-21.8%
Fund of Funds	-19.0%	
Global Macro	-6.4%	-1.7%
Long/Short Equity Hedge	-22.0%	-15.9%
Managed Futures	5.9%	11.8%
S&P500 Index	-37.1%	

... there has been a significant drawdown of AUM



Source: Lipper TASS

Hedge fund decline a leading indicator of the GFC



Source: Lipper TASS

Hedge funds reduce financial risk

“In terms of investments in hedge funds, if we look at the pension market, we agree that pension funds should be investing in common equities. I think the reality is that common equities in most cases may be more risky than the overall hedge fund market”

**George Hall
Managed Fund Association**

**Testimony before the U.S. House Committee on Financial
Services
March 13, 2007**

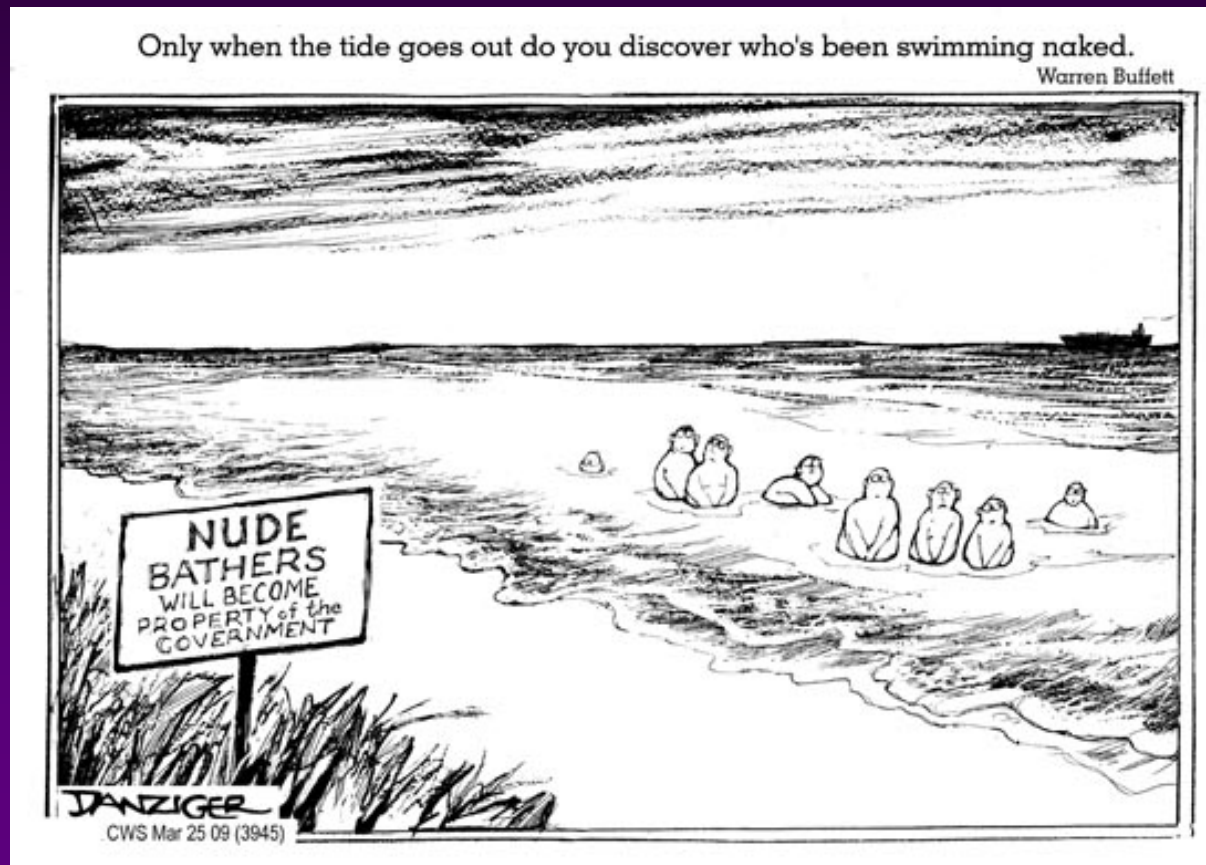
Hedge fund failures January 2008-May 2009

Style Category	Number of non reporting funds	Percent of style category (Dec 2007)
Convertible Arbitrage	57	31%
Dedicated Short Bias	12	32%
Emerging Markets	77	16%
Equity Market Neutral	121	24%
Event Driven	149	25%
Fixed Income Arbitrage	102	28%
Fund of Funds	700	22%
Global Macro	81	19%
Long/Short Equity Hedge	549	20%
Managed Futures	69	10%
Multi-Strategy	275	30%
Total	2192	21%

Hedge fund failures January 2008-May 2009

Style Category	Number of insolvencies	Percent of style category (Dec 2007)
Convertible Arbitrage	22	12%
Dedicated Short Bias	4	11%
Emerging Markets	32	7%
Equity Market Neutral	41	8%
Event Driven	71	12%
Fixed Income Arbitrage	44	12%
Fund of Funds	264	8%
Global Macro	29	7%
Long/Short Equity Hedge	264	9%
Managed Futures	22	3%
Multi-Strategy	126	14%
Total	919	9%

What went wrong?



What went wrong?

- Many marginal fund operations failed
 - **25% of \$US funds had less than \$16M AUM in Dec '07 !!!**
- Hedge fund strategies fail in liquidity crises
 - Diversification across strategies is no protection
 - **'We all fall down together'**
- Under appreciation of operational risk issues
 - **Operational due diligence can add 2.5%+ return !!!**

Hedge fund risk

- **Career concerns limit risk incentives**
- **However, limited operational transparency**
 - **Significant conflicts of interest**

External conflicts

With:	Problem funds		Non problem funds	
	N	% Yes	N	% Yes
Broker/Dealer	359	73.1	1912	23.7
Investment Comp	359	50.3	1912	15.8
Investment Advisor	359	73.9	1912	41.6
Commodities Broker	359	53.5	1912	20.3
Bank	359	40.5	1912	9.8
Insurance	359	39.8	1912	9.4
Sponsor of LLP	359	56.8	1912	21.5

External conflicts: An example Bernard L. Madoff Investment Securities

FORM ADV OMB: 3235-0049

UNIFORM APPLICATION FOR INVESTMENT ADVISER REGISTRATION

Primary Business Name: BERNARD L. MADOFF INVESTMENT SECURITIES LLC **IARD/CRD Number: 2625**
Rev. 02/2005

Item 6 Other Business Activities

In this Item, we request information about your other business activities.

A. You are actively engaged in business as a (check all that apply):

- (1) Broker-dealer
- (2) Registered representative of a broker-dealer
- (3) Futures commission merchant, commodity pool operator, or commodity trading advisor
- (4) Real estate broker, dealer, or agent
- (5) Insurance broker or agent
- (6) Bank (including a separately identifiable department or division of a bank)
- (7) Other financial product salesperson (specify):

YES NO

B. (1) Are you actively engaged in any other business not listed in Item 6.A. (other than giving investment advice)? YES NO

(2) If yes, is this other business your primary business? YES NO

If "yes," describe this other business on Section 6.B. of Schedule D.

YES NO

(3) Do you sell products or provide services other than investment advice to your advisory clients? YES NO

External Conflicts: Another example Fairfield Greenwich Group

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Hedge fund risk

- **Career concerns limit risk incentives**
- **However, limited operational transparency**
 - **Significant conflicts of interest**
- **Operational failures imply poor risk controls**
 - **Limited due diligence by funds of funds**
 - **Many marginal fund operations**

Role of Hedge Funds in Crisis

- Hedge funds used significant leverage
- Took extensive short positions
- Destination of structured finance products
- Role in crisis?



Bear Stearns

Conclusion

- **Too much poor quality debt**
- **Financial institutions did not transfer risk**
 - **Inappropriate private incentives**
 - **Misdirected government incentives**
 - **Unrealized systemic risk implications**
 - **Limited transparency**
- **Hedge funds were the canary in the mine ...**