

# Government's Response to the Market Crash of 2008

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Opinions expressed in this paper are those of the authors  
and not necessarily those of the FDIC.

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# Outline

- What happened and how did it happen?
- Provide an estimate about the magnitude of the “hole” in the financial sector.
- Examine the US government’s response
  - Federal Reserve
  - Treasury
  - FDIC
- How bad is it?

# What was the trigger?

- In June 2007
  - Bear Sterns attempted to bail out two hedge funds with sub-prime losses
  - Merrill Lynch attempted to liquidate some of the funds' assets
    - revealed how illiquid the market for sub-prime securities has become.
- In July 2007
  - First bailout by German regulators of IKB.
  - BNP Paribas froze three investment funds with assets of 2 billion euros because the bank could not value the sub-prime assets
- All of a sudden the market realized that MBSs, CDOs of ABS and other structured products were mispriced  
*(M. Crouhy, R. Jarrow and S. Turnbull, 2008)*

# What happened?

- According to Crouhy (a risk manager at Natixis Bank)
  - Information Problems
    - Inadequate knowledge about NINJA loans
    - Loss of confidence in ratings
    - Market prices became unavailable even for AAA securities
    - Lack of knowledge of the role of the major banks
  - Liquidity Problems
    - Home buyers could not refinance or pay mortgages at the new reset rates
    - Hedge funds could not roll over; investors tried to pull capital and primary dealers asked for more collateral
    - Money market funds were forced to sell downgraded AAA securities

# What happened?

- As more securities were downgraded, banks experienced large losses far in excess of what:
  - pricing models, rating models, and risk models would have predicted.
- “Risk Measurement models totally underestimated the risks and Risk Managers didn’t see it coming.” (Crouhy 2008)

# How much are we in the hole?

- Current insurance liability of FDIC is \$4.2 trillion.
- During the last month we have added \$3 trillion of liability to the “insurance fund” (Merrill, Morgan, Goldman).
- Add to this \$3.5 trillion from Fannie, Freddie, AIG, and Bear Stearns.

Hence, estimated explicit insurance liability of the government (US taxpayers) is \$11 trillion.

- If loss on assets backing these liabilities is 28% (the expected loss rate for recent failure of IndyMac) then we are \$3.1 trillion in the hole.
- “Hence, the \$700 billion Paulson is asking is tip of the iceberg!” (September 27, 2008 statement).

# New plan

- \$700 billion Paulson plan (\$250 billion of it to be used as capital injection. The rest may be used for purchase of toxic mortgage asset).
- \$1.5 trillion guarantee for new senior debt issued by banks
- \$500 billion guarantee for business accounts
- Total approximately \$2.7 trillion!

# Government's Response

- Federal Reserve

- Liquidity

## Treasury

- Explicit-Implicit Capital / Confidence

- FDIC

- Implicit Capital / Confidence

# Fed's Response (Policy Tools)

Policy Tool	Date of Enactment	Purpose
Open Market Operations (OMOs)	1913	Lending to primary dealers –overnight
Discount Window	1913	Lending directly to eligible inst.
System Open Market Account (SOMA) Securities Lending	Regular operations	Bonds-for-bonds lending to primary dealers
Term Auction Facility (TAF)	December 17, 2007	Lending facility by the regional Feds for institutions – 28 days
Single Tranche OMOs	March 7, 2008	Lending to primary dealers – 28 days
Term Securities Lending Facility (TSLF)	March 11, 2008	Treasury general collateral for primary dealers – 28 days
Primary Dealer Credit Facility (PDCF)	March 16, 2008	Overnight lending to primary dealers
TSLF Options Program (TOP)	July 30, 2008	Options on s-term fixed-rate TSLF loans at a future date
Transitional Credit Extensions	September 21, 2008	Lending for GS and MS- overnight
Asset Backed Commercial Paper (ABCP) Money Market Mutual Fund Liquidity Facility (AMLF)	September 19, 2008	Lending to institutions that have purchases ABCP from MMFs
Commercial Paper Funding Facility (CPFF)	October 27, 2008	Purchase of commercial paper from US issuers

# Primary Dealers

BNP Paribas Securities Corp.  
Banc of America Securities LLC  
Barclays Capital Inc.  
Cantor Fitzgerald & Co.  
Citigroup Global Markets Inc.  
Credit Suisse Securities (USA) LLC  
Daiwa Securities America Inc.  
Deutsche Bank Securities Inc.  
Dresdner Kleinwort Securities LLC  
Goldman, Sachs & Co.  
Greenwich Capital Markets, Inc.  
HSBC Securities (USA) Inc.  
J. P. Morgan Securities Inc.  
Merrill Lynch Government Securities Inc.  
Mizuho Securities USA Inc.  
Morgan Stanley & Co. Incorporated  
UBS Securities LLC.

# Federal Funds Rate

<b>2007</b>	
October 29	1
October 8	1.5
April 30	2
March 18	2.25
January 30	3
January 22	3.5
<b>2007</b>	
December 11	4.25
October 31	4.50
September 18	4.75

Source: <http://www.federalreserve.gov/fomc/fundsrate.htm>

# Déjà vu?

<b>2003</b>	
June 25	1
<b>2002</b>	
November 6	1.25
<b>2001</b>	
December 11	1.75
November 6	2
October 2	2.5
September 17	3
August 21	3.5
June 27	3.75
May 15	4
April 18	4.5
March 20	5

# Discount Rate

Primary	Secondary	Date
1.25%	1.75%	29-Oct-08
1.75%	2.25%	08-Oct-08
2.25%	2.75%	01-May-08
2.50%	3.00%	18-Mar-08
3.25%	3.75%	17-Mar-08
3.50%	4.00%	30-Jan-08
4.00%	4.50%	22-Jan-08
4.75%	5.25%	12-Dec-07
5.00%	5.50%	01-Nov-07
5.25%	5.75%	18-Sep-07

# Average daily borrowing from the Fed (Two-weeks ending billion \$)

Aug 27	168
Sept 10	170
Sept 24	268
Oct 8	543
Oct 22	691

Source: <http://www.federalreserve.gov/releases/h3/Current/>

# Congress' response

- Emergency Economic Stabilization Act (EESA) of October 3, 2008
- Division A
  - Create Troubled Assets Relief Program (TARP)
  - Temporary increase in federal deposit insurance coverage
- Division B
  - Energy Improvement and Extension Act of 2008
    - Numerous Tax provisions related to energy production, transportation, and energy conservation
- Division C
  - Extends various expiring tax provisions, including AMT relief

# Treasury

- Troubled Asset Relief Program (TARP)
  - Secretary of Treasury would be authorized to purchase, insure, hold, and sell a wide variety of financial instruments related to residential or commercial mortgages issued prior to March 14, 2008.
- Revolving \$700 billion (250 billion immediately available. \$100 billion upon Presidential certification of need)
- Institutions who participate in the program in sizes of \$300mm and above will be subject to standards on executive compensation.
- Authorizes SEC to suspend mark-to-market accounting.

# Treasury

- Capital Purchase Program (part of TARP)
  - Treasury to purchase up to \$250bn of senior preferred shares. (5% dividend for 5 years and 9% thereafter)
  - Executive Compensation
    - Incentive compensation does not encourage excessive risk taking to threaten the value of the financial institution.
    - Bonus and incentive compensation to be returned if they are based on inaccurate earnings
    - No golden parachute and no tax deduction of compensation in excess of \$500K
  - \$125 billion allocated to 9 banks (Citigroup, JP Morgan, BOA, Wells Fargo, Merrill Lynch, Goldman Sachs, Morgan Stanley, Bank of New York Mellon, and State Street)
  - Treasury will receive ten-year warrants

# Treasury

- Troubled Asset Auction Program (part of TARP)
  - Treasury to purchase “toxic” assets via auctions and reverse auctions
- Money Market Insurance Program
  - US Treasury will guarantee the share price of any publicly offered money market mutual fund (institutional/retail, taxable and tax exempt)
  - Guarantee is triggered if fund NAV falls below \$0.995
- GSE MBS Purchase Program
  - Direct purchases of GSE MBS in the open market to be held to maturity

# FDIC

- Federal deposit insurance coverage per depositor from \$100K to \$250K
  - Limit to return \$100K after December 31, 2009
- Temporary Liquidity Guarantee Program (TLGP)
  - Guarantee for newly issues senior unsecured debt and non-interest bearing transaction deposit accounts before June 30, 2009
  - 125% of debt outstanding as of September 30, 2008
- Guarantee distressed home loans??

# Who is in line?

- Foreign banks
- Developing countries
- US auto companies
  - GMAC is becoming a bank holding company!
- States, municipalities
- Washington Metro
- Sewage plants across the country
  - Build a sewage plant and sell it to a bank. Bank depreciates gets tax-break. Agency leases back and AIG insures the arrangement. Now that AIG is gone, pretty soon, we won't be able to go to the loo or ride the metro!

## 2008 Failures

FAIL DATE	NAME	BIDNAME	QBF ASSET	RES COST	RATIO	RES TYPE
1/25/2008	DOUGLASS NATIONAL BANK	LIBERTY BANK AND TRUST COMPANY	52,824	5,997	0.11	PA
3/7/2008	HUME BANK	SECURITY BANK	18,682	2,618	0.14	PI
5/9/2008	ANB FINANCIAL NA	PULASKI BANK AND TRUST CO	1,895,545	213,985	0.11	PI
5/30/2008	FIRST INTEGRITY BANK, N.A.	FIRST INTERNATIONAL BANK AND TRUST	52,916	2,346	0.04	PA
7/11/2008	INDYMAC BANK F.S.B		30,698,512			
7/25/2008	FIRST NATIONAL BANK OF NEVADA	MUTUAL OF OMAHA BANK	3,411,145	819,843	0.24	PA
7/25/2008	FIRST HERITAGE BANK N.A.	MUTUAL OF OMAHA BANK	255,376	41,773	0.16	PA
8/1/2008	FIRST PRIORITY BANK	SUNTRUST BANK	258,610	72,001	0.28	PI
8/22/2008	THE COLUMBIAN BANK AND TRUST CO.	CITIZENS BANK AND TRUST CO	735,071	61,556	0.08	PI
8/29/2008	INTEGRITY BANK	REGIONS BANK	1,107,514	295,063	0.27	PA
9/5/2008	SILVER STATE BANK	NEVADA STATE BANK	1,957,120	505,153	0.26	PI
9/19/2008	AMERIBANK, INC.	THE CITIZENS SAVINGS BANK	103,965	41,742	0.40	PA
9/25/2008	WASHINGTON MUTUAL BANK	JPMORGAN CHASE BANK, NA	307,021,614	0		PA
9/29/2008	WACHOVIA MORTGAGE, FSB	WELLS FARGO	76,795,109	0		
9/29/2008	WACHOVIA BANK	WELLS FARGO	670,639,000	0		
9/29/2008	WACHOVIA BANK OF DELAWARE	WELLS FARGO	3,972,624	0		
9/29/2008	WACHOVIA BANK, FSB	WELLS FARGO	27,992,417	0		
9/29/2008	WACHOVIA CARD SERVICES	WELLS FARGO	2,484,328	0		
10/10/2008	MAIN STREET BANK	MONROE BANK & TRUST	112,368	36,015	0.32	PA
10/10/2008	MERIDIAN BANK	NATIONAL BANK	44,217	9,128	0.21	PA
10/24/2008	ALPHA BANK & TRUST	STEARNS BANK, NA	383,235	158,116	0.41	PI

## Largest 10 Consolidated Failures, 1986 to 2007

	Date of Failure	Name	Book Value of Assets at Failure
1	7/29/1988	First Republic (41 Institutions)	\$32.9
2	1/6/1991	Bank of New England (3 Institutions)	21.7
3	3/28/1989	MCorp (20 Institutions)	15.4
4	9/19/1991	Southeast Bank (2 Institutions)	10.8
5	5/31/1991	Goldome	9.2
6	10/30/1992	First City (20 institutions)	8.7
7	1/24/1992	Crossland Savings Bank, FSB	7.3
8	7/20/1989	Texas American Bancshares (24 Institutions)	4.7
9	10/10/1991	New Hampshire Banks (7 Institutions)	4.3
10	2/21/1992	Dollar Dry Dock Bank	3.8

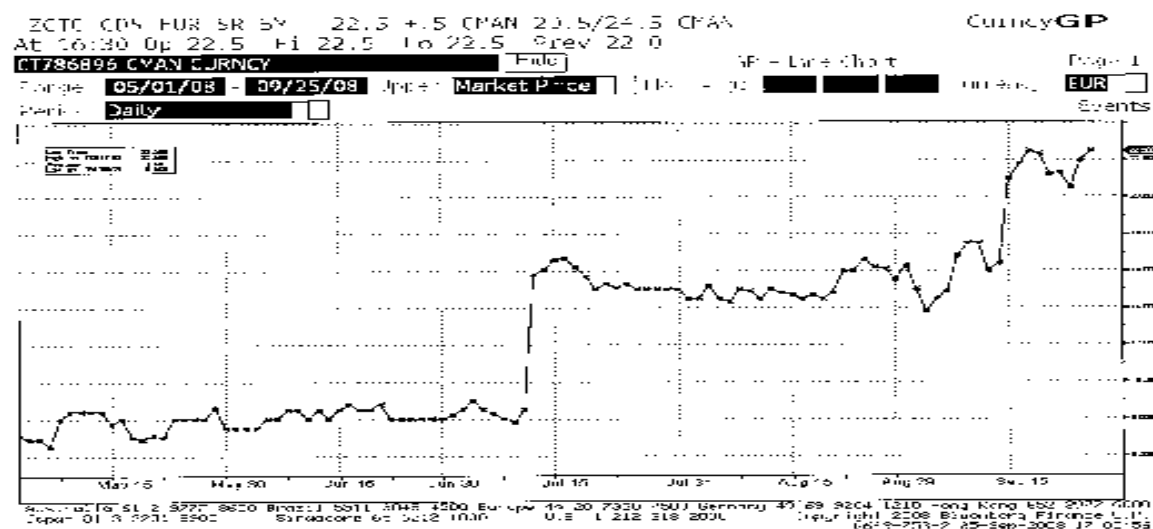
# Bank failure resolution methods

- A failed bank is resolved in one of four ways: deposit payoff, purchase and assumption (P&A), bridge bank, or open bank assistance.
- Resolution of a failed bank includes marketing the assets and liabilities (franchise value). If the liabilities cannot be sold, then the FDIC pays off the depositors. This feature differentiates resolutions of bank and non-bank failures.
- Deposit payoff. Receivership liquidates the assets of the failed bank and pays off the depositors directly. The franchise value of the failed bank is destroyed.
- P&A. An approved acquiring bank purchases all or part of the failed-bank's assets and simultaneously assumes all (PA) or only insured (PI) deposits.
- Failed bank is converted into a bridge bank and FDIC operates it until a permanent resolution is arranged..
- Open bank assistance. Benefits the shareholders. FDICIA prohibits such resolution unless the failure poses a systemic risk.
- Analogy between deposit payoff and Chapter 7 bankruptcy
- Analogy between P&A and Chapter 11 bankruptcy

# How bad is it?

Credit default swap premium on US Treasury debt was 8bps in May. Today it is 22.5. This means, in the last five months the default probability of the US Treasury debt increased by 181%.

Credit Default Swap (CDS) spread on 5-year US Treasury debt between May 2008 and September 27, 2008



Source: Bloomberg, September 27, 2008

A 22.5 bps means one pays 22,500 euros to insure 10 million euro Treasury debt against default. On September 27, 2008 CDS spread on German government debt was 9 bps.

# Credit Default Swap spreads and implied default probability

	CDS Spread (bps)	5-year Default Probability	10 year default Probability
City of New York	176	0.37	0.65
New Jersey	136	0.31	0.48
California	144	0.32	0.67
US	42.3	0.04	0.08

Source: Bloomberg, October 29, 2008

# Credit Default Swap spreads and implied default probability

	CDS Spread (bps)	5-year Default Probability	10 year default probability
US	42.3	0.04	0.08
France	57.5	0.05	0.10
Germany	42.3	0.04	0.08
Japan	68	0.05	0.10
Russia	1155	0.55	0.81

# Crash of 2008 in perspective

Crash Date	Crash Magnitude	Source
October 28, 1929	11.5% in one day; 39.6% off its high	Great Crash
October 19, 1987	Dow dropped 23% in a single day; 36.7% off its high (August 25, 1987)	Program Trading
October 27, 1997	Dow lost 7%	Asian Financial Crisis
October 2002	NASDAQ fell to 1100 losing 78.4% from its March 2000 level of 5132. It is now around 1700.	Tech-bubble burst
October 2008	In 10 days (Sept 26 to Oct 10) S&P 500 lost 26% of its value	Sub-prime burst
<b>Not to forget</b>		
Oil shock	1972-1974 slump	
Japan!	Nikkei 40,000 in 1989 In 2008 it is barely 9000!	