

# Governments as Shadow Banks: The Looming Threat to Financial Stability

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# Governments and Financial Stability

Traditionally, financial regulation has focused on containing the risk-taking and leveraging incentives of the financial sector (bank owners)

Regulation has also primarily focused on private-sector firms

Economies in the Western countries are thought to have private financial sectors for most part

But this does not seem an accurate description of the “effective” government presence in the financial sector of the Western economies

- Direct presence: Government-sponsored enterprises, state-owned banks (GSEs in the US, *Cajas* in Spain, *Landesbanken* in Germany, ...)
- Indirect presence: Control over key aspects governing regulation of the private financial sector

# Are Governments the Largest “Shadow Banks”?

## Shadow Banking

- Weakly regulated or un-regulated
- Regulatory arbitrage
- Lack of resolution authority, so implicit guarantees
- High leverage
- Competition with regulated sector

## Government presence in the financial sector

- Weakly regulated or un-regulated
- Missions and mandates
- Explicit or implicit guarantees
- High leverage
- Competition with private sector

# Why do governments want large presence in or simply large financial centers?

## Government myopia

Excessive focus on *current level* of economic activity

Horizon often limited to next mid-term or end-term election

Balance-sheets are opaque; lots of off-balance sheet liabilities

- Voters rely on current indicators of activity (recent growth, jobs, ...)
- Governments, in turn, attempt to “game” the inference

Lack of correspondence between voter base and income distribution, within and across generations

## This paper

Take a particular form of government myopia as given, in particular, maximizing *current level* of economic activity

Analyze a myopic government's financial sector regulation and outcomes, and contrast with a long-term prudential regulator's choices

- Encourages or endorses excessive competition
- Offers guarantees to the financial sector
- Lowers risk standards for lending

Government moral hazard can be more severe than that of financial sector

Discusses as a leading example Fannie Mae, Freddie Mac and Housing Finance regulation in the United States

# Model

Financial center with  $n$  firms

Each firm

- takes a unit of credit (no equity, for simplicity) at cost  $r_D$
- transforms it into  $y$  levels of *current* economic activity
- with  $p(y)$  probability,  $y$  is the long-run or stable economic output and the risk of no output otherwise
- faces Cournot competition for business: earns  $f(n).y$  of rents

Assumptions:

All agents are risk-neutral

Creditors require a reservation rate of return  $r$

$p(y)$  and  $f(n)$  are decreasing and concave functions

## First-best outcomes

Each firm chooses  $y$  to maximize *expected economic output*  $p(y).y$

The first-best activity of each firm is given by

$$p(y) + yp'(y) = 0,$$

Each firm chooses an efficient level of economic activity

Full competition to expand expected economic output is desirable

In particular, competition can be enhanced to invest all available investment capital of the economy (assume relatively large...)

## Second-best outcomes

Each firm chooses  $y$  to maximize *expected bank equity value*

$$p(y) \cdot [f(n) \cdot y - r_D]$$

The second-best activity of each firm is given by

$$f(n)p(y) + [f(n)y - r_D]p'(y) = 0.$$

Each firm chooses an inefficiently high level of economic activity

“Franchise values” play a key role in determining the extent of inefficiency

$$\frac{dy^*(n)}{dn} > 0 \quad \frac{dy^*(n)}{dr_D} > 0.$$



# Policy choices of a long-term prudential regulator

Competition policy: Limit competition to less than full competition

Choose  $n$  to maximize  $n p(y)$ .  $y$  where  $y$  is the second-best choice  $y^*(n)$

Let  $V_n^*$  denote per firm output

Then optimal competition policy chooses  $n^*$  to satisfy

$$V_n^* + n \frac{dV_n^*}{dn} = 0.$$

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Then optimal competition policy chooses  $n^*$  to satisfy

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Government guarantee policy: Guarantees ( $r_D = r$ ) can enhance franchise values, but the cost of guarantees must be taken into account

Social gain from guarantees, if any, per financial firm is given by

$$V_n^*(r) - V_n^*(r_D) - [1 - p(y^*(n, r))]r$$

When  $n$  is large, guarantees may not in general be cost-effective

## Policy choices of a myopic government

Competition policy:

Choose  $n$  to maximize  $ny$  where  $y$  is the second-best choice  $y^*(n)$

Then its optimal competition policy  $n^*$  is to fully de-regulate

$$\frac{d(ny^*(n))}{dn} = y_n^* + n \frac{dy^*(n)}{dn} > 0.$$

In equilibrium, there will be entry till franchise values are fully eroded

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In equilibrium, there will be entry till franchise values are fully eroded

Government guarantee policy: Guarantees ( $r_D = r$ ) enhance franchise values, but with full de-regulation, there can now be greater entry

Choose to accord guarantees and set competition to  $\bar{n} > n^*$  such that

$$\left[ f(\bar{n})y^*(\bar{n}, r) - r \right] = 0 \text{ since (in many cases) } \bar{n} \cdot y^*(\bar{n}, r) > n^* \cdot y^*(n^*, r_D)$$

Cost of guarantees  $[1 - p(y^*(n))]$  is rising, but that is “someone else’s problem”

# Risk controls and capital requirements

Prudential regulator may deploy other known tools

1. Restrict  $p(y)$  to some feasible level
2. Require a part of investment be in form of capital rather than all credit to increase firm owners' liability

These would restrain the level of current economic activity in efficient way

A myopic government would employ these tools exactly in opposite way

1. Require that  $p(y)$  be in fact below some threshold level
  - Affordable housing, investment and job targets, priority sector norms
2. Relax capital requirements to encourage greater current activity

Such distortions may be more severely employed for populist asset classes (housing, farming, job-intensive industries, etc.)

**GUARANTEED  
TO  
FAIL**



**FANNIE MAE, FREDDIE MAC  
and the Debacle of Mortgage Finance**

**VIRAL ACHARYA  
MATTHEW RICHARDSON  
STIJN VAN NIEUWERBURGH  
LAWRENCE J. WHITE**

## What Do They Do?

Fannie Mae & Freddie Mac are simple institutions with \$5.2T of exposure

- GSE mortgage securitization (\$3.5T)
- Residential mortgage investment (\$1.7T)

1970: Together owned 4.4% of the mortgage market

1991: 28.4%

2007: 41.3%

Aug 2010: > 50% (taxpayer cost of > \$150B)

# Historical Perspective

- A brief tour through their history

- The Great Depression

- Privatization in 1968



- Creation of Freddie Mac

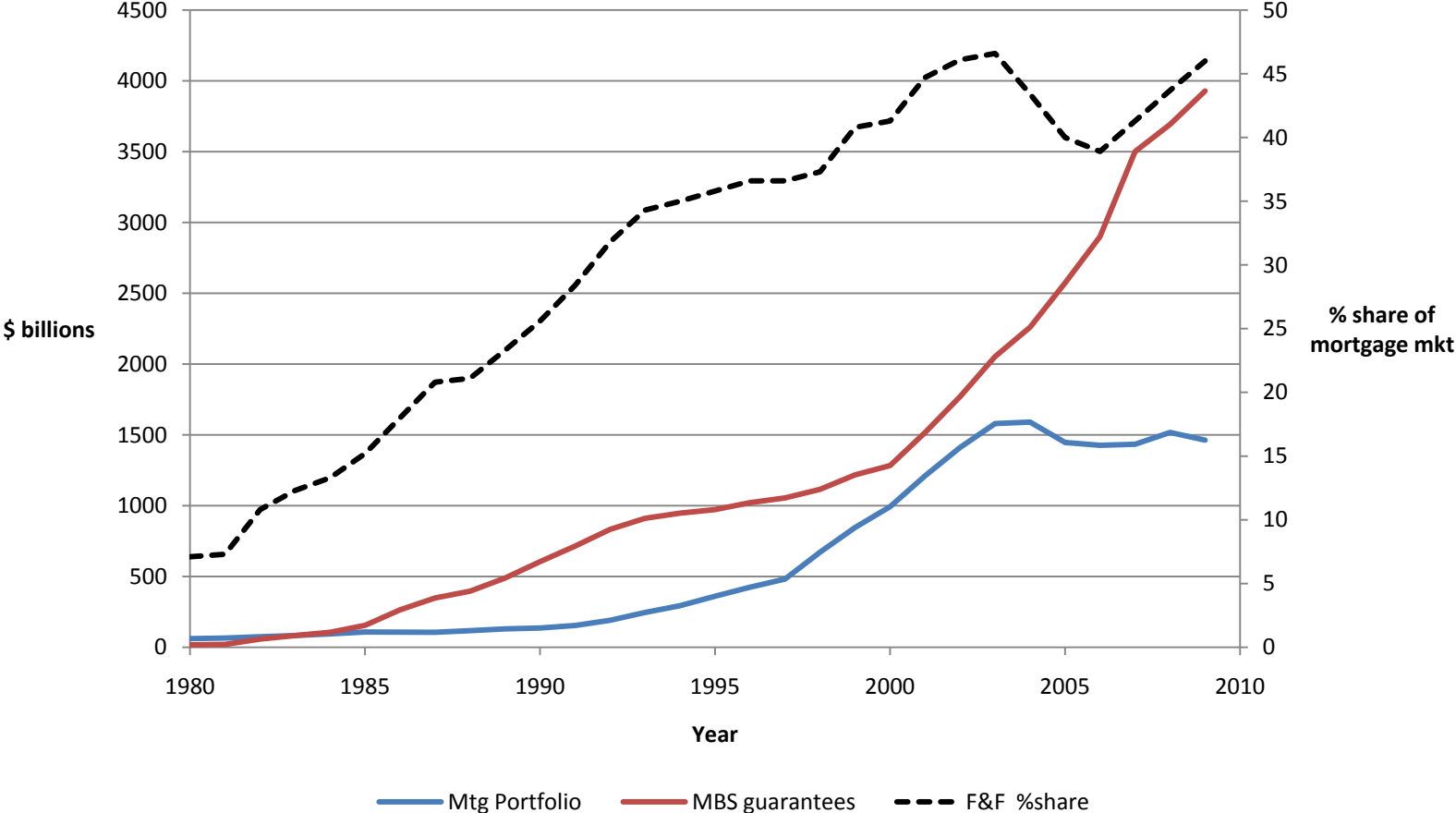
- Securitization and deregulation of mortgage markets in the early '80s

- FHEFSSA of 1992

Note: FHEFSSA = Federal Housing Enterprises Financial Safety and Soundness Act



# GSE Growth – How?



Source: FHFA and Federal Reserve

## Two Main Reasons

- Government “guarantee” of GSE debt and MBS guarantees
  - > Lowered agency GSE funding costs by 0.7%
  - > Lowered MBS issuing costs by 0.4% [CBO Study]
  - > Resulting subsidies of \$7B in 1996, \$13.5B in 2000
- Regulatory capital arbitrage
  - > GSE capital advantage (2.05% - 2.50%) vs. banking industry’s (4%)

Why?

- Enhance the level of housing credit in the economy?
- Because tail risk of housing unaccounted for in government balance-sheet?
- Since no government wants to bring GSE debt back under the debt ceiling?
- Pursue populist housing policies?

# The “Mission” Goals

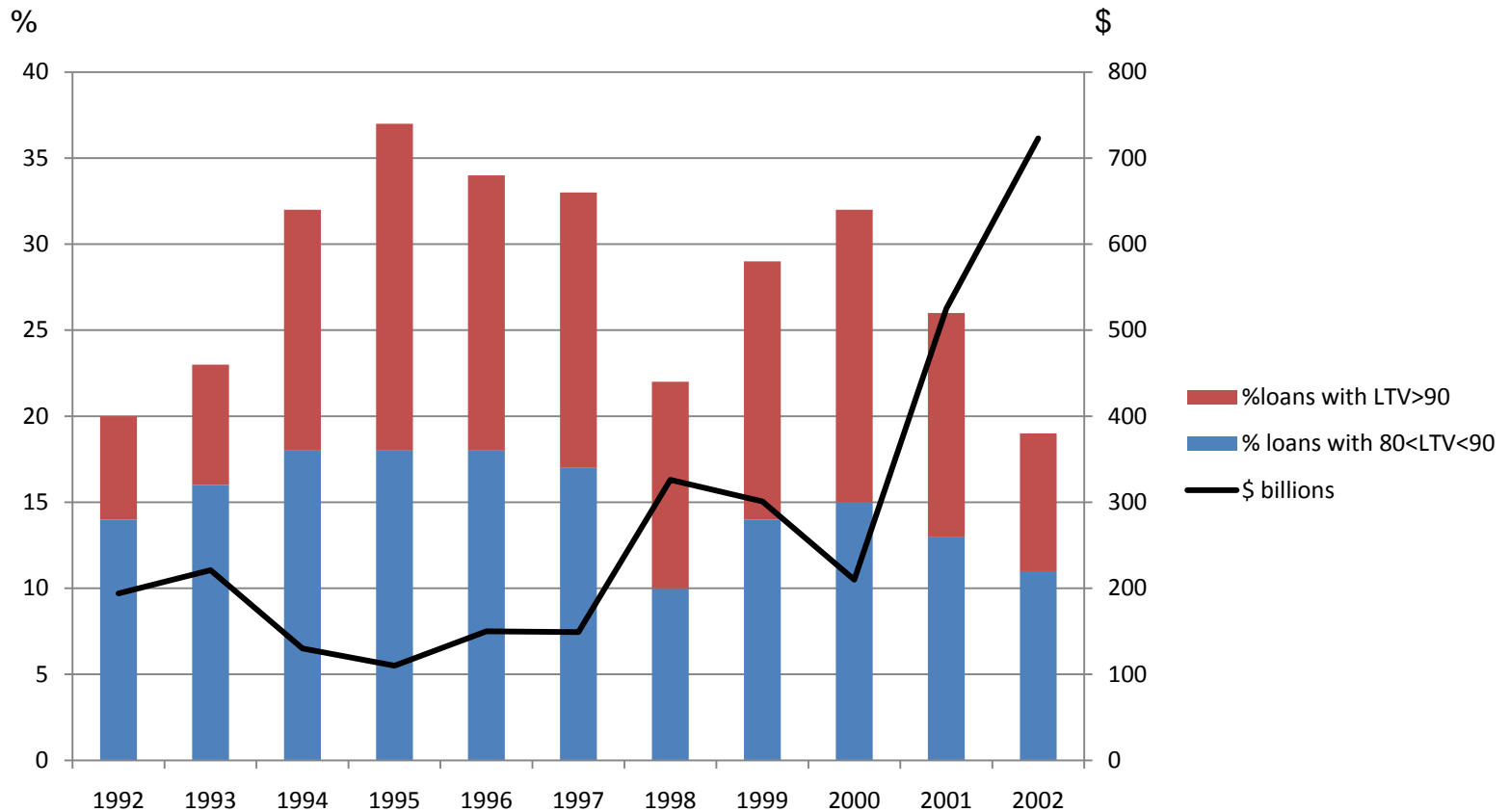
GSE Affordable Housing Goals Since 1993 (Share of mortgage purchases)

	1993- 1995	1996	1997- 2000	2001- 2004	2005	2006	2007	2008
Low- and Moderate- Income Goal	30%	40%	42%	50%	52%	53%	55%	56%
Underserved Areas Goal	30%	21%	24%	31%	37%	38%	38%	39%
Special Affordable Goal	NA*	12%	14%	20%	22%	23%	25%	27%

Source: FHFA;

\*NA – Not Applicable: goals set in dollar amounts for each GSE rather than percentages.

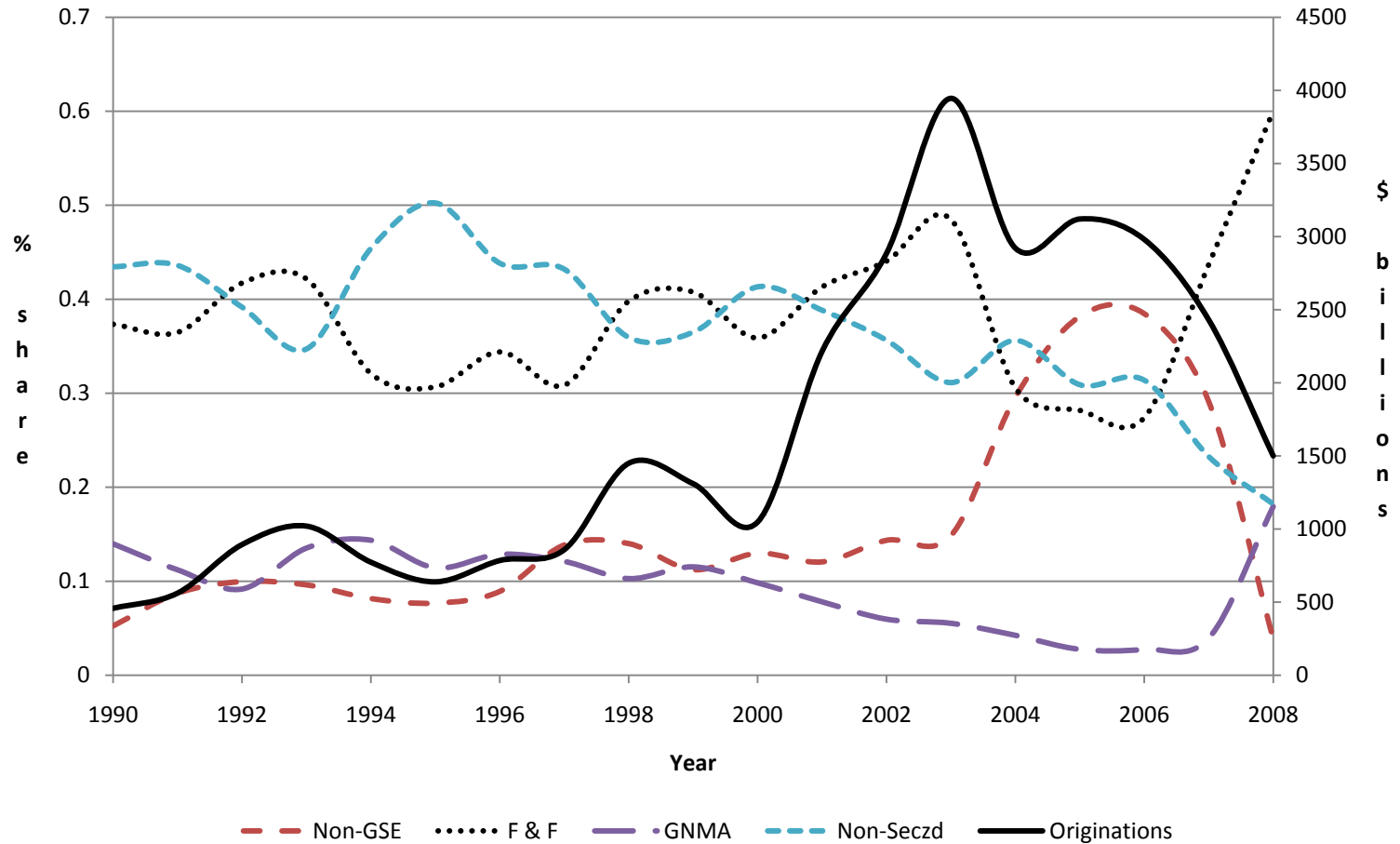
# When Did the GSEs Start Taking on “Risky” Mortgages?



Source: Annual reports of Fannie Mae, Inside Mortgage Finance

Note: % on LHS, \$ on RHS

# The Subprime Securitization Market Took Off



Source: Inside Mortgage Finance

# Competitive Race to the Bottom

Total Asset Growth and Equally-weighted Leverage of the Top Five U.S. Commercial Banks, Top Five U.S. Investment Banks, and GSEs

Year	Asset Growth relative to 2003			Leverage		
	Commercial banks	Investment banks	Fannie-Freddie	Commercial banks	Investment banks	Fannie-Freddie
2003	1.0	1.0	1.0	13.4	23.0	28.2
2004	1.3	1.3	1.0	11.8	24.0	25.8
2005	1.4	1.5	0.9	11.9	24.5	25.3
2006	1.7	1.8	0.9	11.8	27.3	24.2
2007	1.9	2.1	0.9	12.6	30.9	23.8

Source: *Acharya, Nieuwerburgh, Richardson and White (2011)*. 2003 assets are normalized to 1.0 in all sectors. Leverage is defined as book assets to shareholder equity.

## Race to the Bottom (cont'd)

Equally-weighted Return on Assets and Return on Equity of the Top Five U.S. Commercial Banks, Top Five U.S. Investment Banks, and GSEs

Year	Return on Assets (ROA)			Return on Equity (ROE)		
	Commercial banks	Investment banks	Fannie-Freddie	Commercial banks	Investment banks	Fannie-Freddie
2003	1.3%	0.7%	0.7%	17.5%	14.7%	20.3%
2004	1.1%	0.7%	0.5%	12.7%	15.8%	11.1%
2005	1.3%	0.7%	0.6%	15.7%	16.8%	12.2%
2006	1.3%	0.8%	0.4%	15.1%	22.1%	9.2%
2007	0.8%	0.2%	-0.3%	10.2%	6.6%	-8.2%

Source: Acharya, Nieuwerburgh, Richardson and White (2011).

## Race to the Bottom (cont'd)

“Our business model – investing in and guaranteeing home mortgages – is a good one, so good that others want to ‘take us out’...Under our new strategy, we will take and manage more credit risk, moving deeper into the credit pool to serve a large and growing part of the mortgage market.”

– Fannie Mae confidential strategic plan document, 2006

\$ Billions	GSE New Business		Nonagency New Business	GSE High Risk %	GSE Share in High Risk Activity
	High Risk	Total	High Risk		
2003	\$466	\$1,839	\$625	25%	43%
2004	262	898	1,060	29%	20%
2005	236	899	1,370	26%	15%
2006	245	877	1,430	28%	15%
2007	363	1,012	815	36%	31%

Sources: FHFA, OFHEO Annual Report, Inside Mortgage Finance

Notes: GSE new business represents originated guaranteed MBS plus non-private label MBS portfolio purchases; the private market new business represents all MBS financed through private label securitization.



# Fannie and Freddie were (are) the most systemic financial firms

- **Economy's Plumbing**
  - > Mortgage finance had become reliant on GSEs for financing
- **Counterparty Risk Threats**
  - > **GSEs** guaranteed riskier mtgs. (\$3.5T), >6x **AIG's** AAA-CDS sold protection (\$550B)
  - > **GSEs** had large derivatives books with IR swaps (\$1.38T) and OTC derivatives (\$523B)
  - > Similar to **LTCM's** derivatives book threat in 1998
- **Bank Run Threats**
  - > **GSEs'** large concentration to ST funding, \$520B due in < 1Y out of \$1.73T debt profile
  - > **Banking sector** had material holdings of GSE debt (17% of total)
  - > **Foreigners** had material holdings of GSE debt (\$1.46T (~21% of total) in 2008) and almost triple 2002 \$ levels and double the percentage
  - > **Rollover risk of U.S. Treasury funding** (\$5.2T incl. ~\$1.5T in ST funding)
    - “They wanted to know if the U.S. would stand behind the implicit guarantee – and what this would imply for other U.S. obligations, such as Treasury bonds.”
    - Henry Paulson (“On the Brink”)
- **Fire Sale Threats**
  - > **GSEs** were largest holders of relatively illiquid mortgage loans and MBS (\$1.52T @ 9/2008); included large exposure to ratings-inflated non-prime AAA MBS (\$308B)

# Conclusion

Governments can be highly myopic in objectives

- The issue of “when” is crucial and requires further thought

They can distort financial sector regulation to enhance current economic activity, creating tail risk left for future governments and generations

- The problem is not limited to the United States or emerging markets

What should prudential regulators do?

- Recognize the risks to financial stability from short-term governments
- Attempt to bring GSEs and state-owned banks under common perimeter
- International harmonization of financial sector rules can get sabotaged
  - Will Basel ever revise to reasonable levels RMBS capital charges?
  - Will levels of capital regulation get diluted as countries seek “growth”?
- Provide transparent assessment of government balance-sheets/programs