



Credit and Finance: Leverage and Risk of Financial Institutions

PRESENTATION BY GLENN YAGO

AT THE FORUM:

**"MARKET LEADERS AND SCENARIOS
FOR THE 21ST CENTURY"**

March 13, 14 and 15, 2009
"Villa d'Este" – Cernobbio (Como)

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Credit and Finance: Leverage and Risk of Financial Institutions

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The European House-Ambrosetti
Market Leaders and Scenarios for the 21st Century
Cernobbio (Como), Italy
March 14, 2009

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Overview

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Subprime mortgage meltdown timeline

December 2006–October 2008

Dow Jones U.S. Financial Index



Sources: BusinessWeek, S&P, Global Insight, Milken Institute.

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Federal Government Comes to the Rescue of Main Street and Wall Street

Federal Reserve	5,365
Congress and White House	2,436
Federal Deposit Insurance Corporation	1,465
Treasury, Federal Deposit Insurance Corporation and Federal Reserve	362
Total amount committed (US\$ billions)	9,628

Upper limit to total funds provided/cost under these programs...\$9.6 trillion plus ?

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Conservatorship of Fannie Mae and Freddie Mac...



Bailing Out AIG...



Capital Purchase Program under the TARP...



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Automotive Industry Financing Program...



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Targeted Investment Program and Asset Guaranty Program...

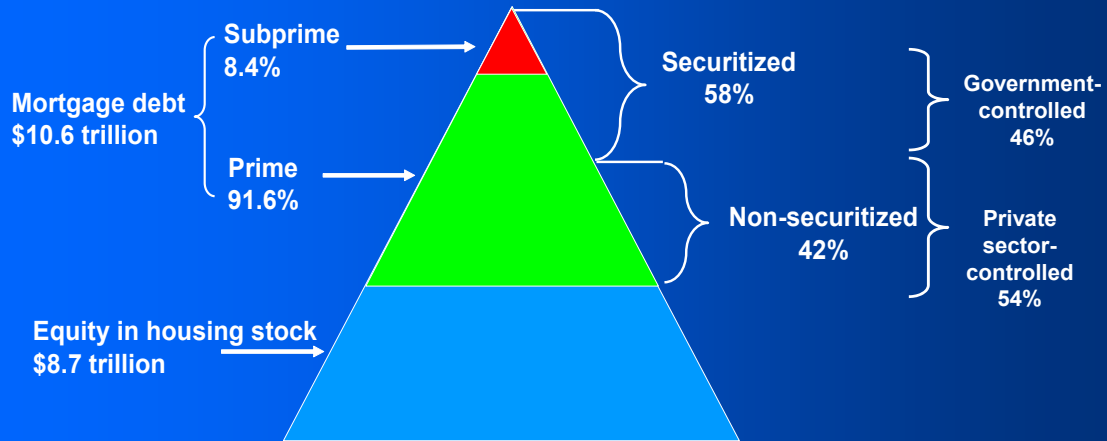


And Still.....



Home mortgages: Who borrows, how much has been borrowed, and who funds them?

Total value of housing stock = \$19.3 trillion

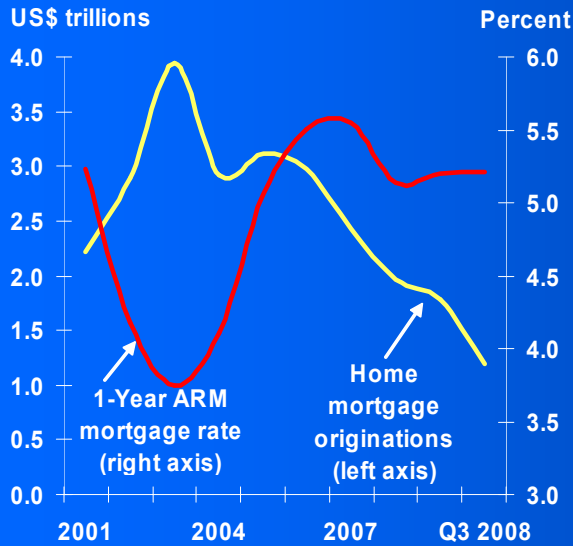


Note: total residential and commercial mortgages = \$14.7 trillion; 5 percent = \$700 billion

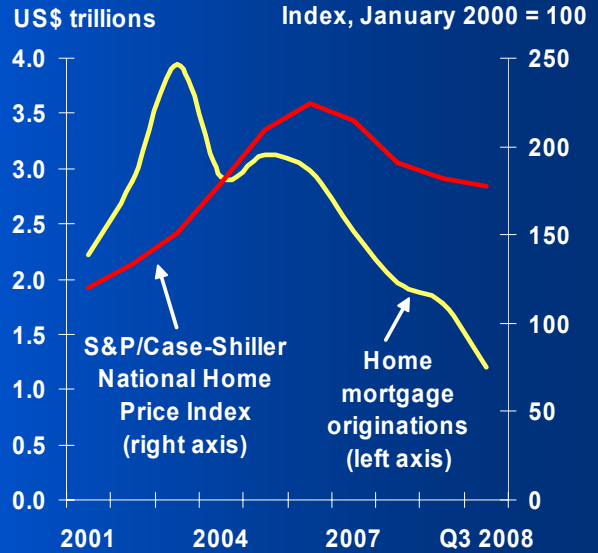
Sources: Federal Reserve, Milken Institute.

Low Interest and Lending Boom

Low interest rates and credit boom



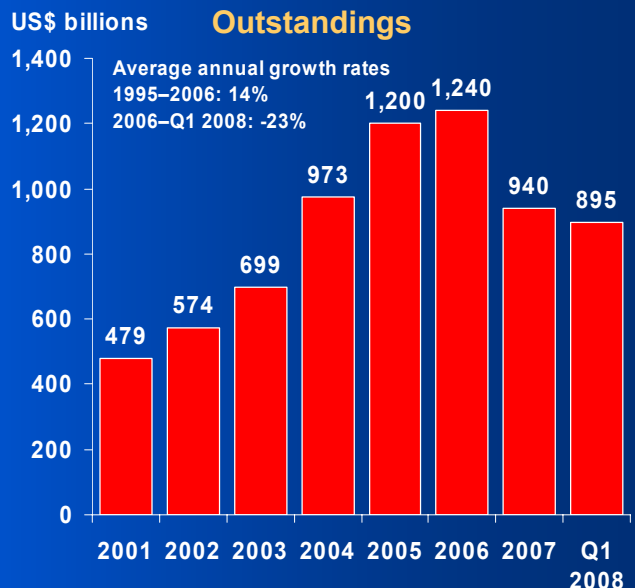
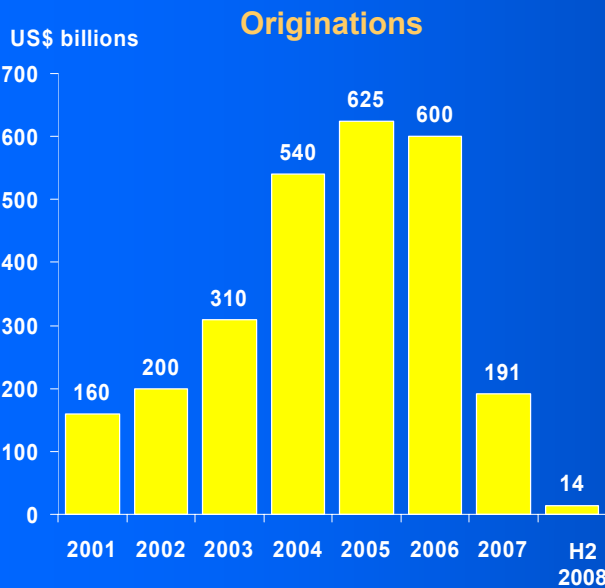
Home price bubble and credit boom



Note: Data for Q1-Q3 2008 are annualized.

Sources: Inside Mortgage Finance, Mortgage Bankers Association, Moody's Economy.com, S&P/Case-Shiller, Milken Institute **MILKEN INSTITUTE 13**

Subprime mortgages increase rapidly before big decline



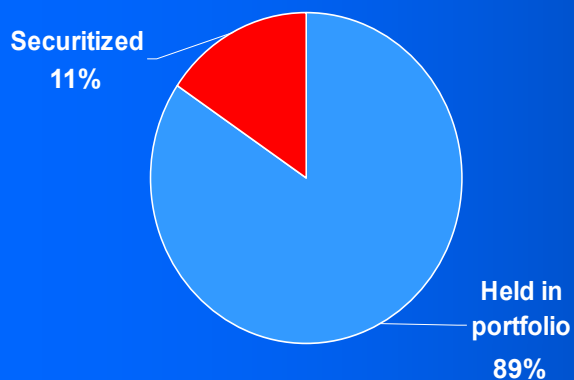
Sources: Inside Mortgage Finance, Milken Institute.

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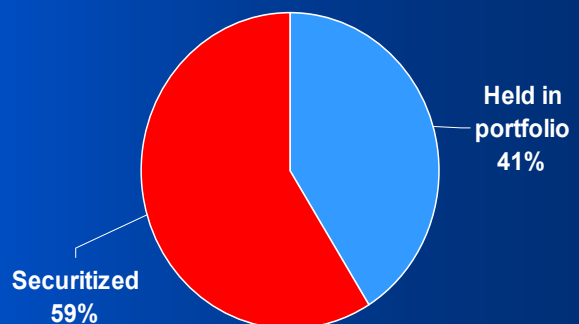
Financial products: Complexity is not innovation; Leverage is not credit

The mortgage model switches from originate-to-hold to originate-to-distribute

Residential mortgage loans
1980: Total = \$958 billion

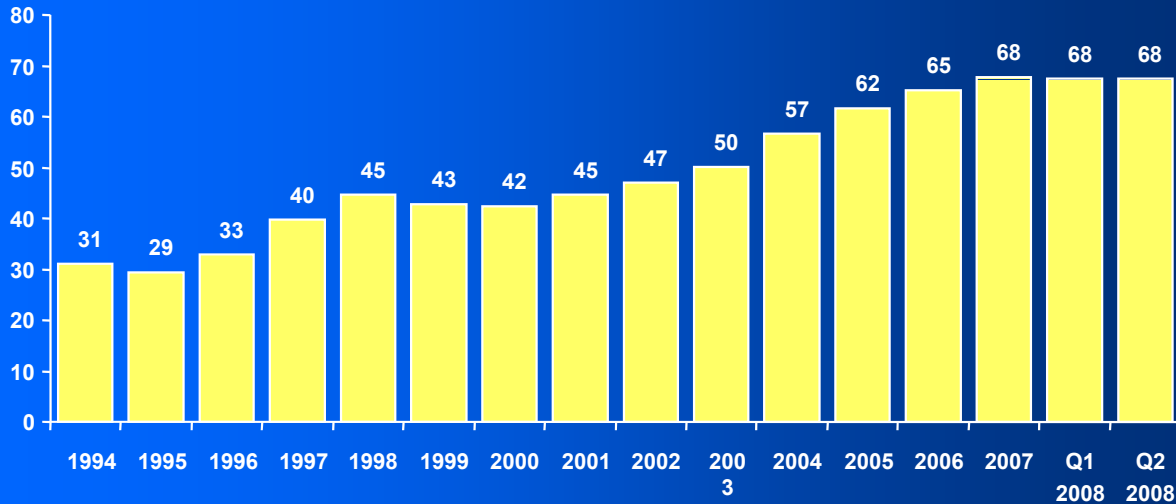


Residential mortgage loans
Q3 2008: Total = \$11.3 trillion



Securitization becomes the dominant funding source for subprime mortgages

Percent of all subprime mortgages securitized since 1994

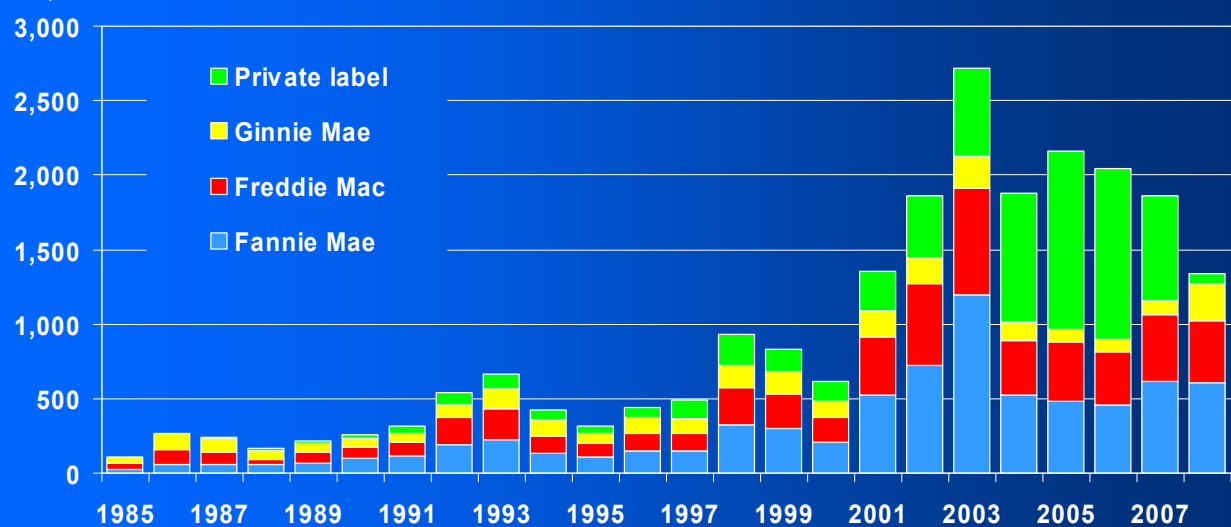


Sources: Inside Mortgage Finance, Milken Institute.

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Mortgage-backed securities issued by issuer

US\$ billions



Sources: Inside Mortgage Finance, Milken Institute.

Note: 2008 data are annualized.

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56 percent of MBS issued from 2005 to 2007 were eventually downgraded

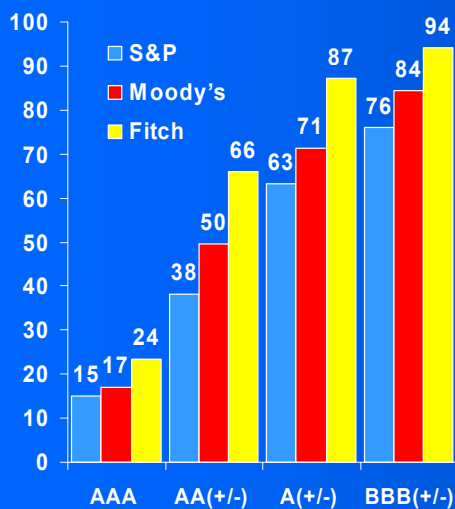
S&P	Total	Downgraded	Downgraded as a percentage of total
AAA	1,032	156	15.1%
AA(+/-)	3,495	1,330	38.1%
A(+/-)	2,983	1,886	63.2%
BBB(+/-)	2,954	2,248	76.1%
BB(+/-)	789	683	86.6%
B(+/-)	8	7	87.5%
Total	11,261	6,310	56.0%

Sources: Inside Mortgage Finance, Milken Institute.

Note: A bond is considered investment grade if its credit rating is BBB- or higher by S&P.

Subprime mortgage-backed securities downgrades 2005–2007 issuance

Percent downgraded



Sources: S&P, Datastream, Milken Institute.

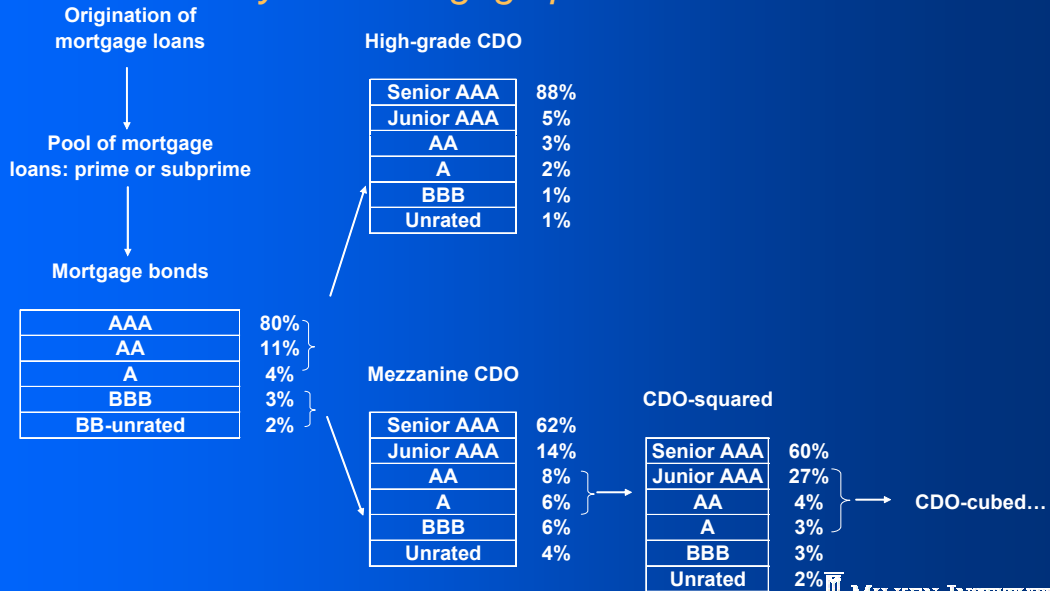
Investment grade S&P 500 companies' credit ratings and associated CDS spreads

S&P Rating	Number of companies	CDS spread		
		Highest	Lowest	Average
AAA	3	56	15	41
AA+	1	95	95	95
AA	5	86	49	74
AA-	9	265	54	118
A+	17	2,999	12	346
A	36	1,040	38	151
A-	34	2,557	51	427
BBB+	43	1,114	38	222
BBB	41	1,210	61	271
BBB-	17	1,235	89	359

Note: As of October 17, 2008.

When is a AAA not a AAA?

Multilayered mortgage products

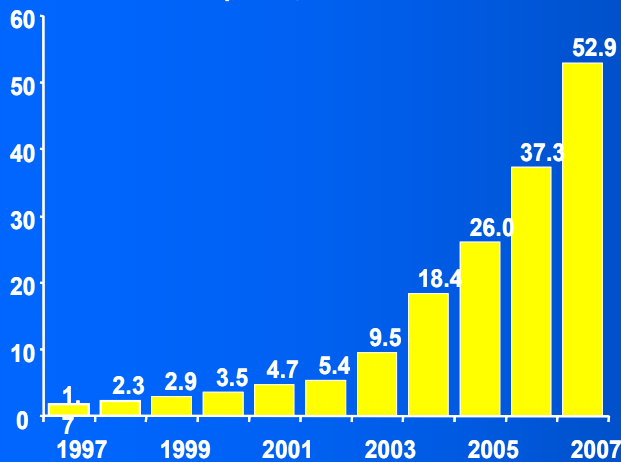


Sources: International Monetary Fund, Milken Institute.

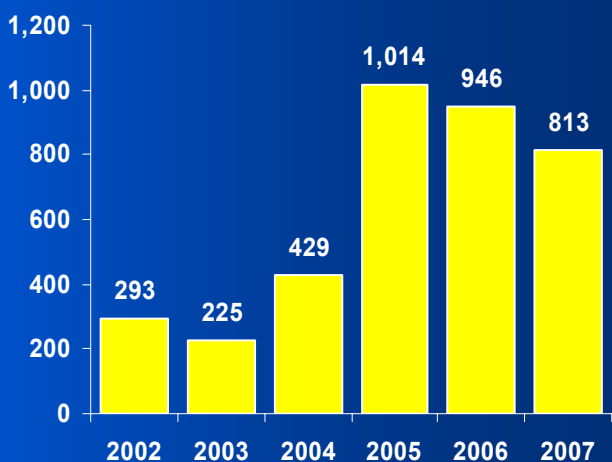
Mortgage loan fraud surges

Dollar losses in reported cases of mortgage fraud

Number of cases reported, thousands

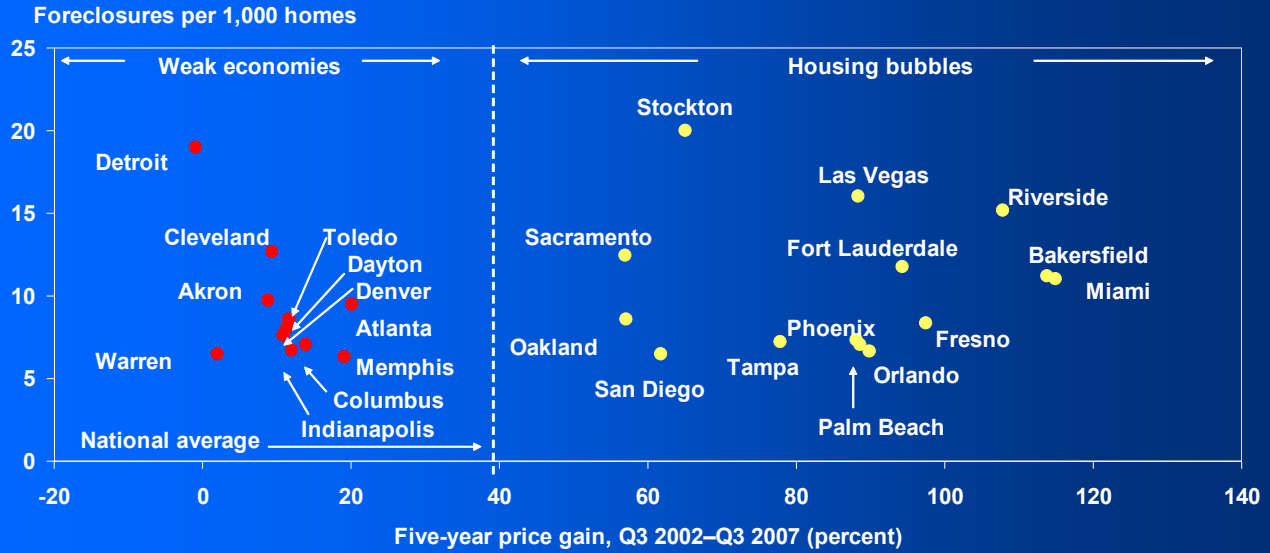


US\$ millions



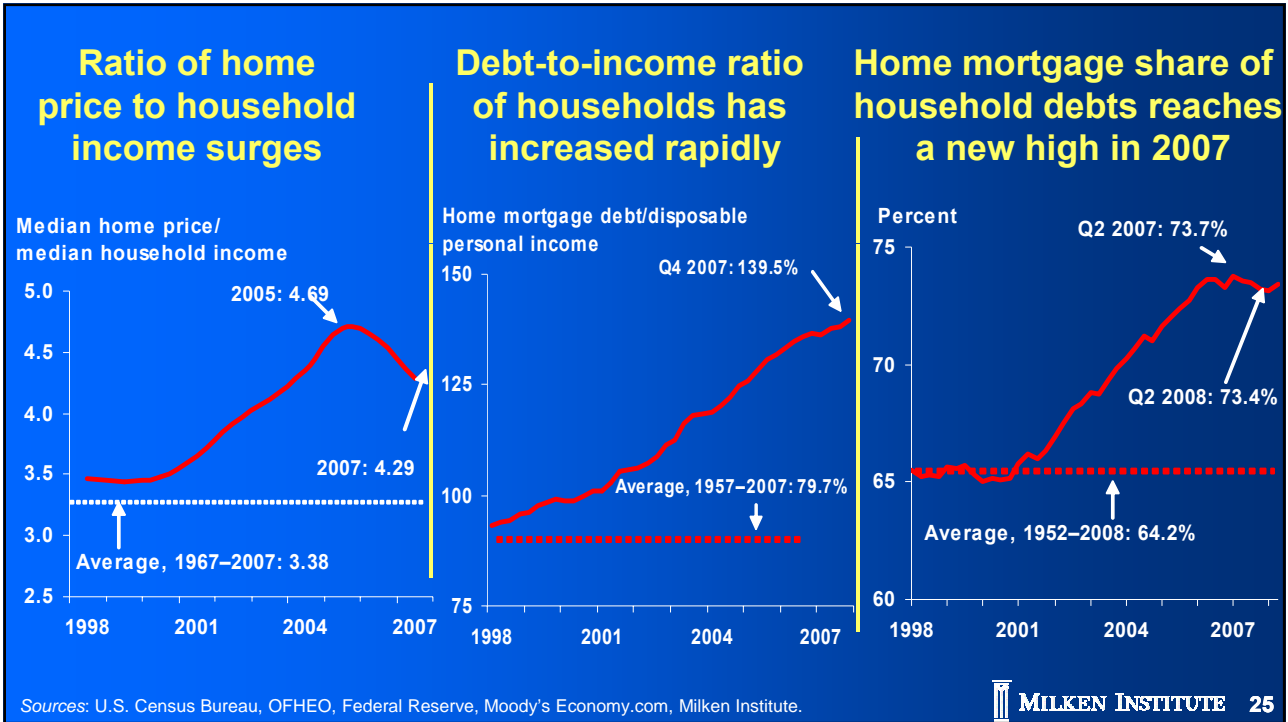
Sources: Financial Crimes Enforcement Network, Federal Bureau of Investigation, Milken Institute.

Drivers of foreclosures: Strong appreciation or weak economies?



Sources: U.S. Treasury Department, RealtyTrac, Office of Federal Housing Enterprise Oversight, Milken Institute.

Affordability

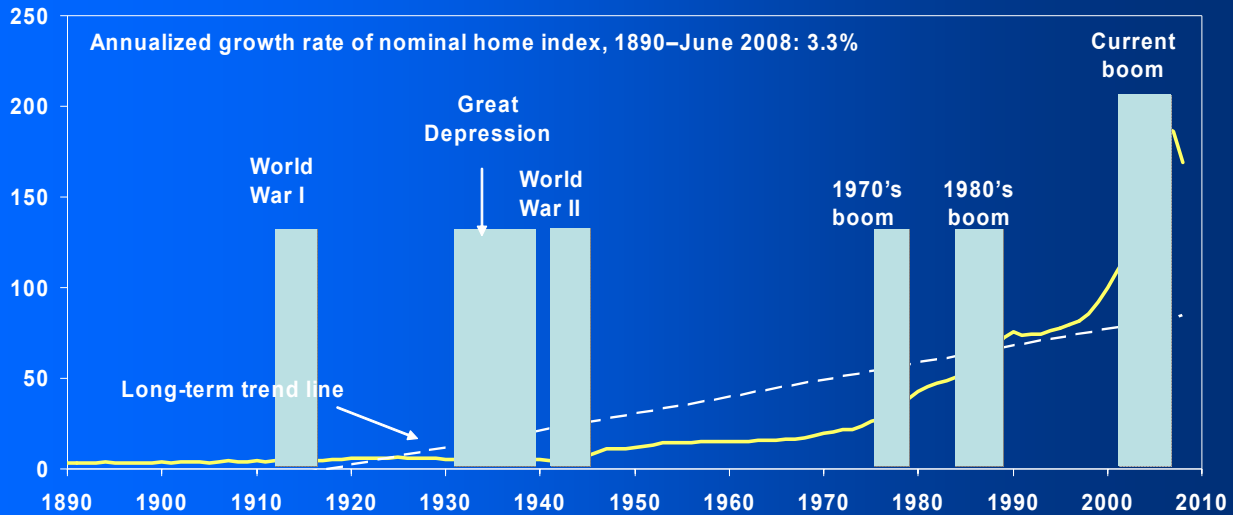


What went wrong?

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The recent run-up of home prices was extraordinary

Index, 2000 = 100

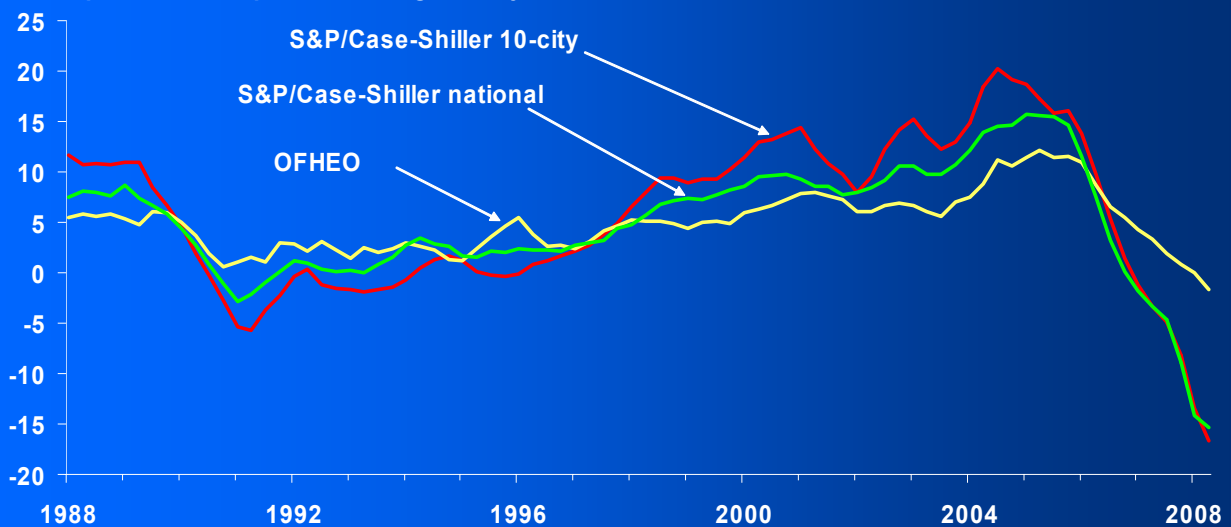


Sources: Robert Shiller, Milken Institute.

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2005: The collapse begins

Home price indices, percent change on a year earlier

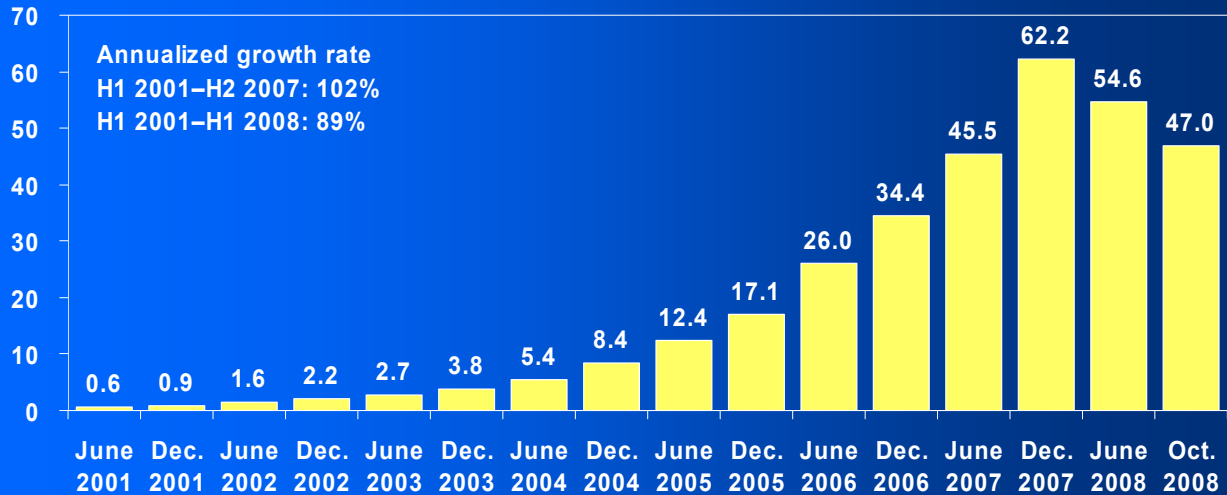


Sources: S&P/Case-Shiller, OFHEO, Moody's Economy.com, Milken Institute.

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Rising risk: The credit default swap market nearly doubled each year from June 2001 through October 2008

Notional amount of credit default swaps outstanding, US\$ trillions

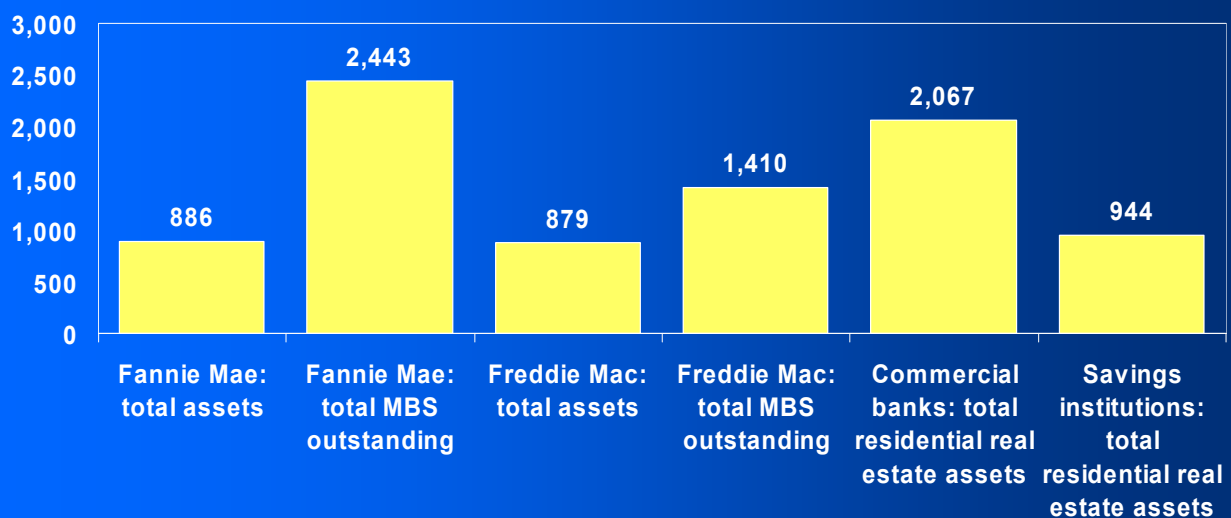


Sources: International Swaps and Derivatives Association, Milken Institute.

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The importance of Fannie Mae and Freddie Mac

US\$ billions

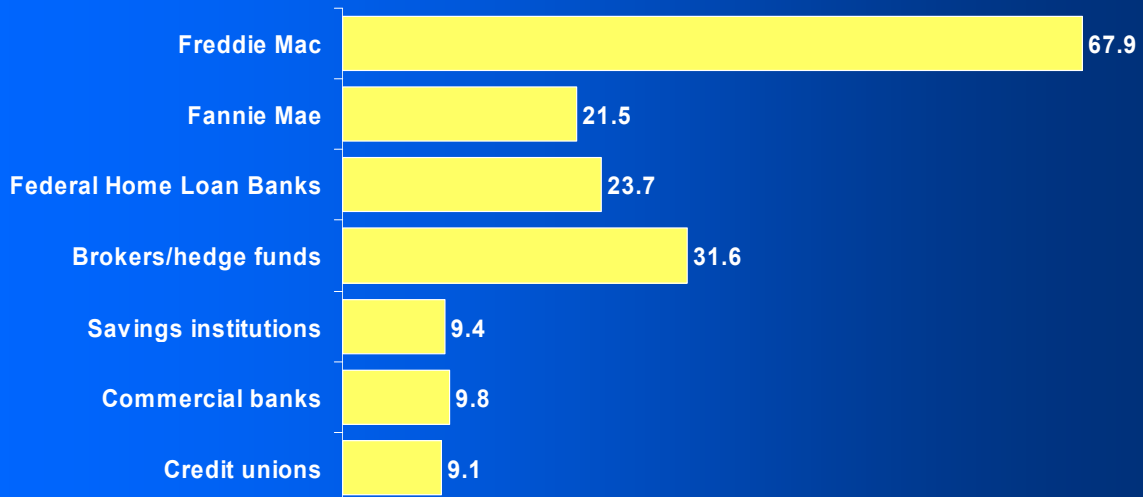


Sources: Freddie Mac, Fannie Mae, FDIC, Milken Institute.

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Leverage ratios of different types of financial firms (June 2008)

Leverage ratio, total assets/common equity



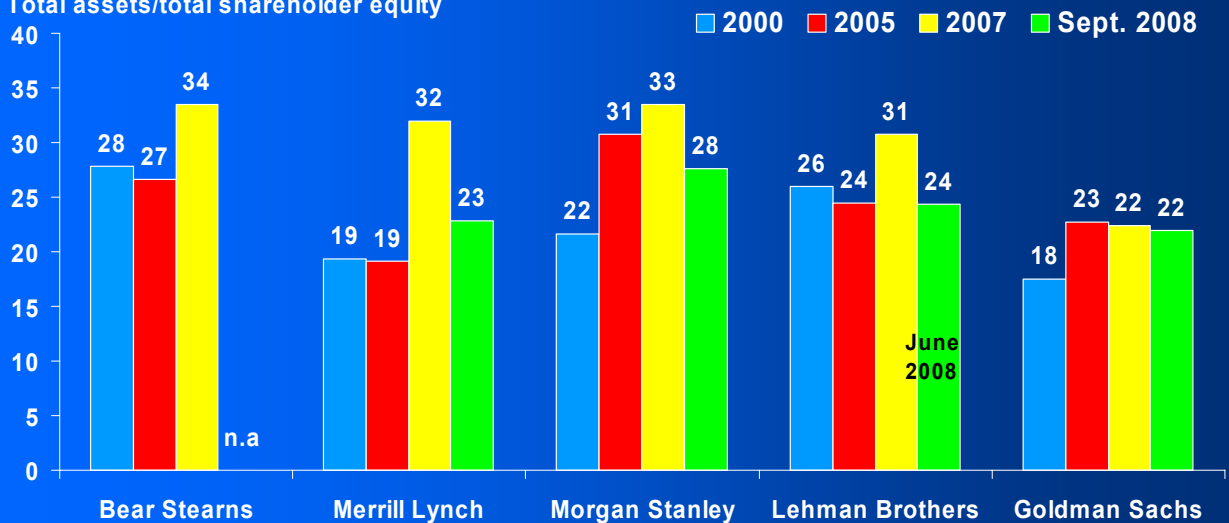
Sources: Federal Deposit Insurance Corporation, Office of Federal Housing Enterprise Oversight, National Credit Union Administration, Bloomberg, Google Finance, Milken Institute.

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Too much dependence on debt?

Leverage ratios at biggest investment banks

Total assets/total shareholder equity



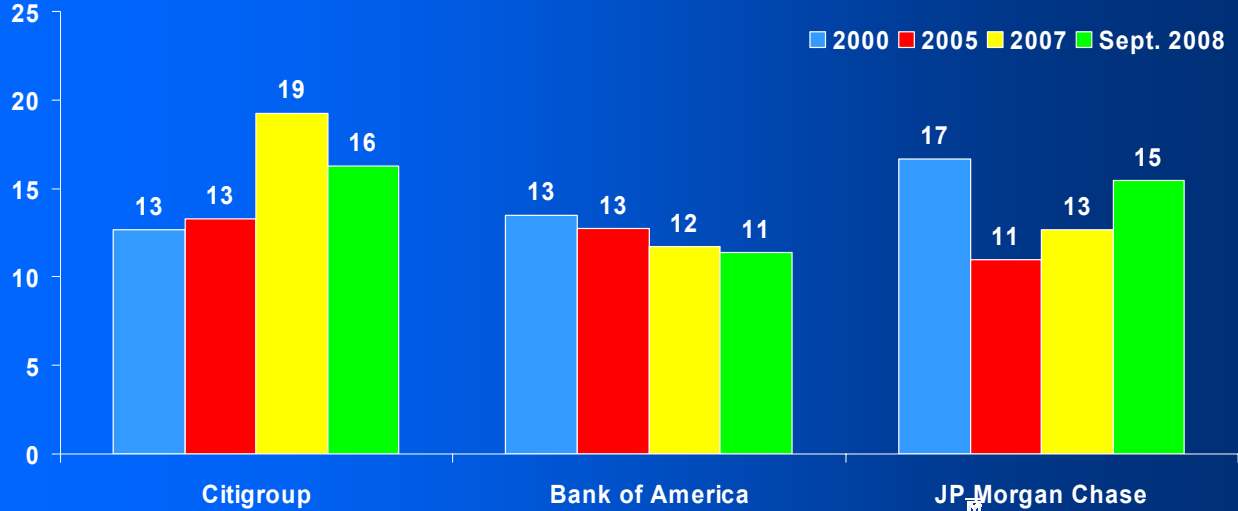
Sources: Bloomberg, Milken Institute.

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Debt dependence

Leverage ratios at bank holding companies

Total assets/total shareholder equity



Sources: Bloomberg, Milken Institute.

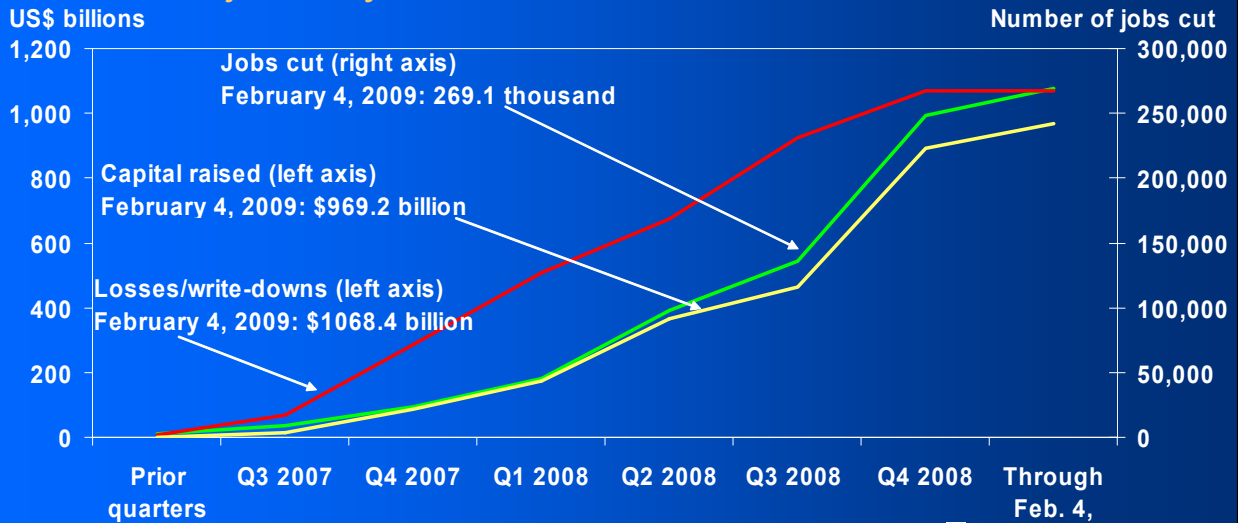
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Damages scorecard

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What is the cumulative damage?

Cumulative losses/write-downs, capital raised, and jobs cut by financial institutions worldwide



Sources: Bloomberg, Milken Institute.

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Recent losses/write-downs and capital raised by selected financial institutions

US\$ billions, through February 4, 2009	Losses /write-downs	Capital raised
Wachovia, United States	97.9	11
Citigroup, United States	85.4	109.3
AIG, United States	60.9	65.7
Freddie Mac, United States	58.4	20.8
Fannie Mae, United States	56.0	15.6
Merrill Lynch, United States	55.9	29.9
UBS, Switzerland	48.6	32.0
Washington Mutual, United States	45.6	12.1
Bank of America, United States	40.2	78.5
HSBC, United Kingdom	33.1	4.9
Others	486.4	589.4
Grand total (US\$ billions)	1,068.40	969.2

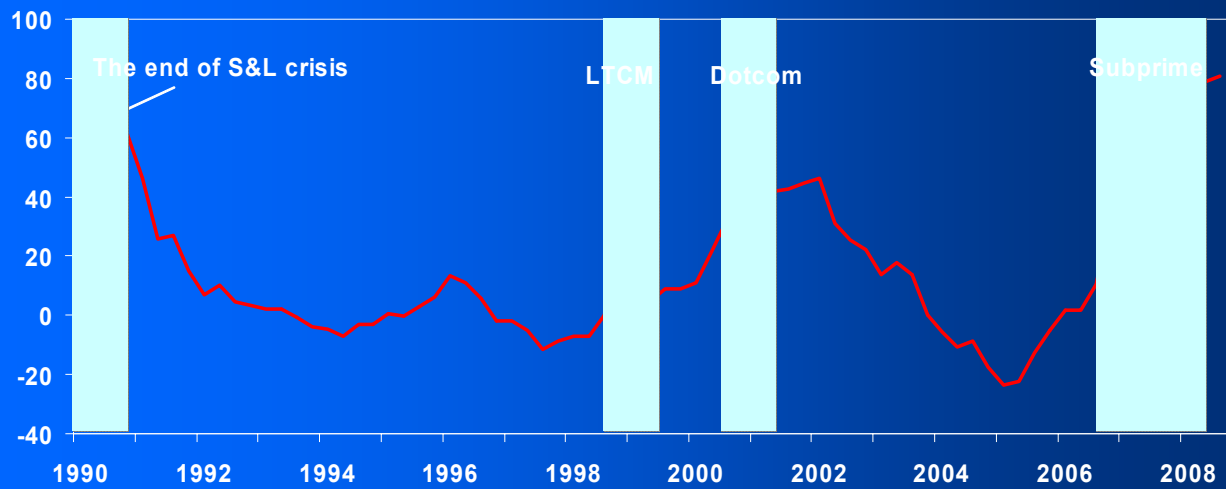
Sources: Bloomberg, Milken Institute.

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Credit Crunch and Liquidity Freeze

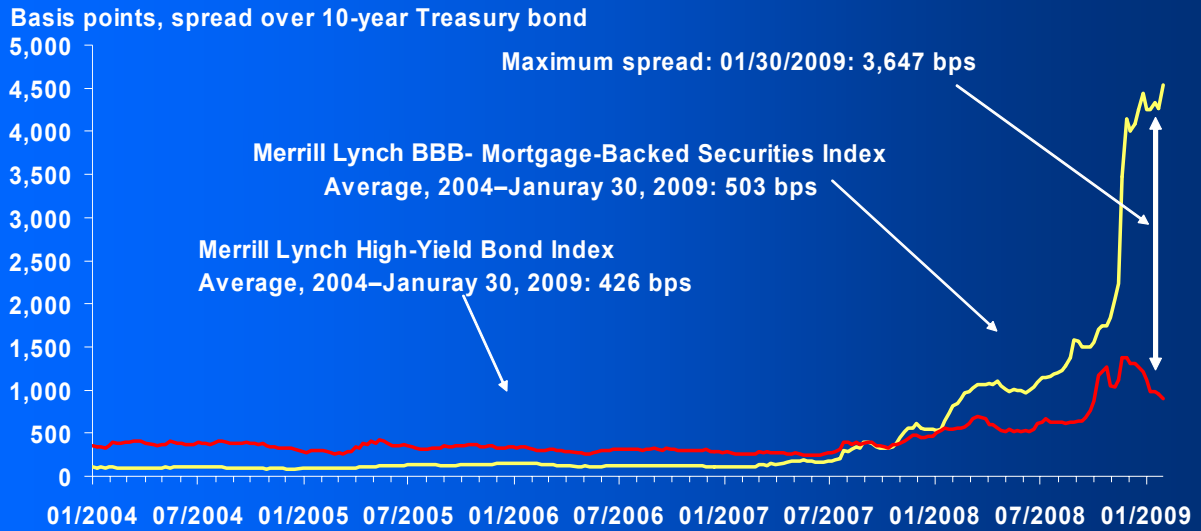
Tightened standards for real estate loans

Net percentage of domestic respondents tightening standards for commercial real estate loans



Sources: Federal Reserve, Milken Institute.

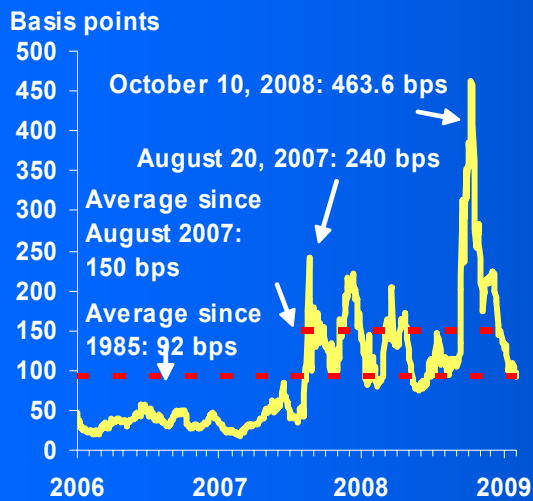
Widening spreads between mortgage-backed and high-yield bonds



Sources: Merrill Lynch, Bloomberg, Milken Institute.

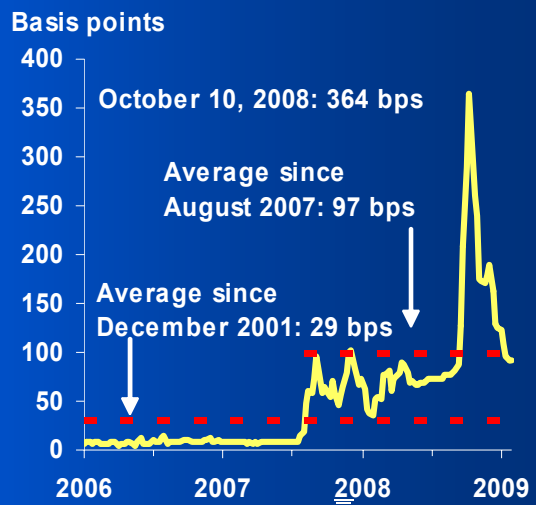
Liquidity freeze

Spread between 3-month LIBOR and T-bill rate



Sources: Bloomberg, Milken Institute.

Spread between 3-month LIBOR and overnight index swap rate



Counterparty risk increases

Average CDS spread, basis points



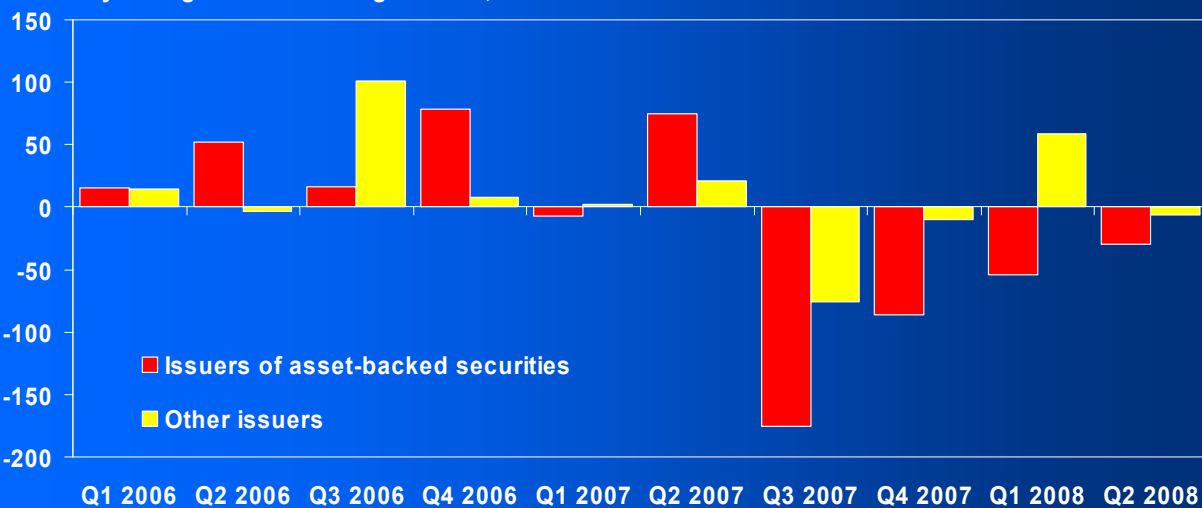
Note: Counterparty Risk index averages the market spreads of the credit default swaps (CDS) of fifteen major credit derivatives dealers, including ABN Amro, Bank of America, BNP Paribas, Barclays Bank, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs Group, HSBC, Lehman Brothers, JPMorgan Chase, Merrill Lynch, Morgan Stanley, UBS, and Wachovia.

Sources: Datastream, Milken Institute.

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Commercial paper issuance dries up

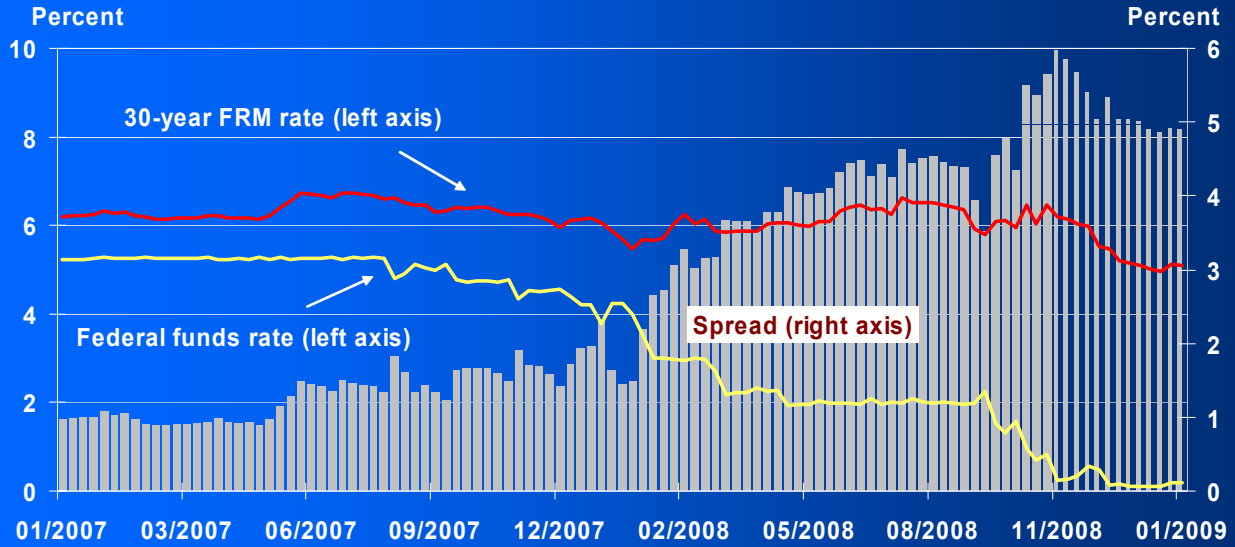
Quarterly change in outstanding amount, US\$ billions



Sources: Federal Reserve, Milken Institute.

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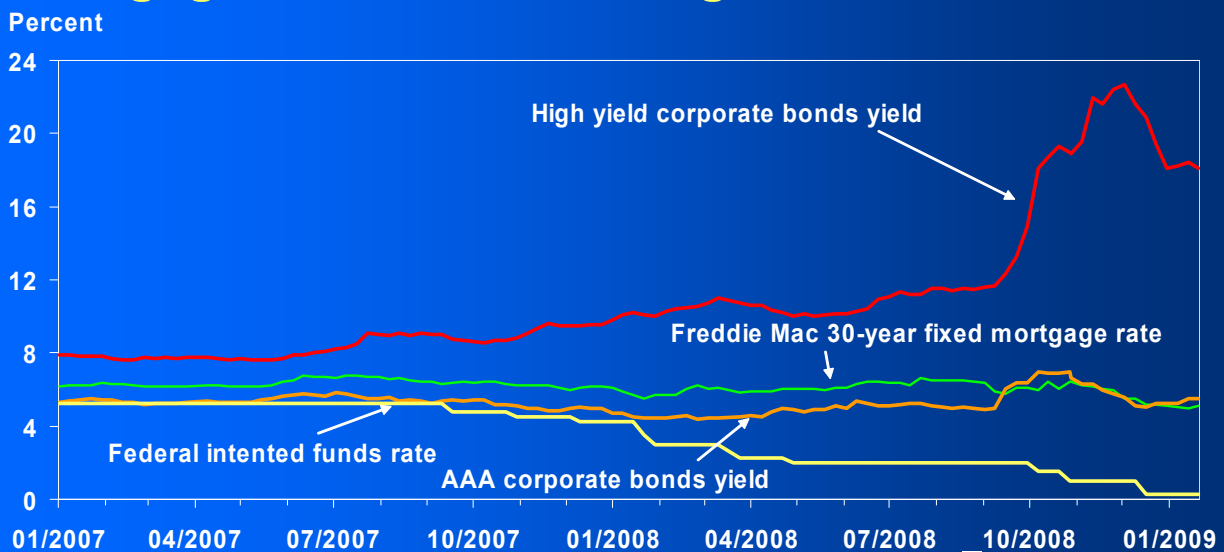
Federal Reserve responds by cutting Fed funds rate, but mortgage rates remain relatively flat



Sources: Freddie Mac, Federal Reserve, Moody's Economy.com, Milken Institute.

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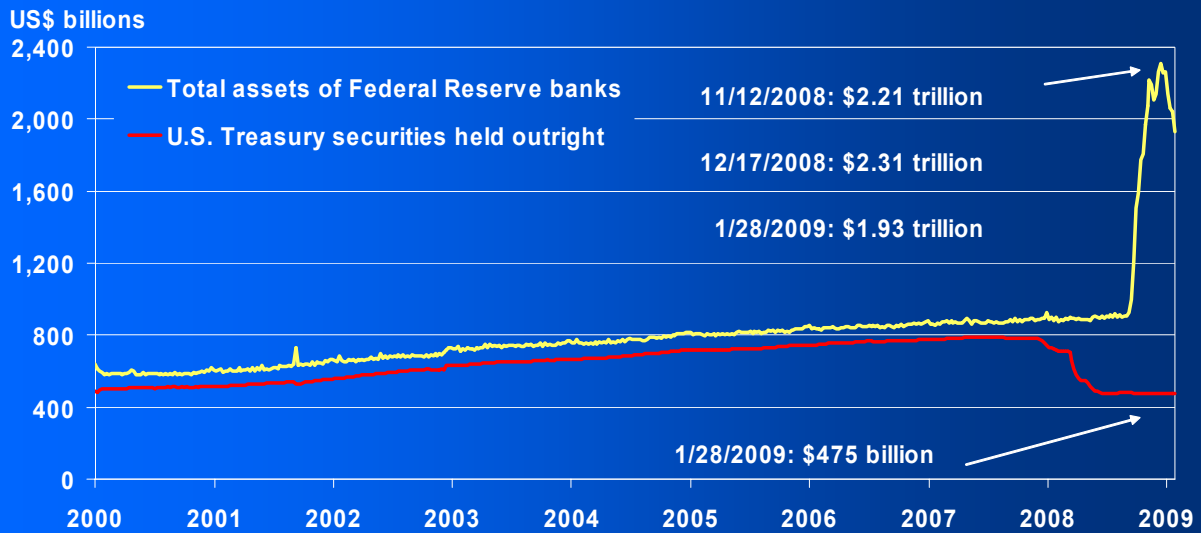
Increasing spreads between corporate bonds, mortgage securities, and target federal funds rate



Sources: Federal Reserve, Freddie Mac, Merrill Lynch, Bloomberg, Milken Institute.

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Federal Reserve assets increased but asset quality deteriorated



Sources: Federal Reserve, Milken Institute.

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Federal Reserve has little maneuvering room

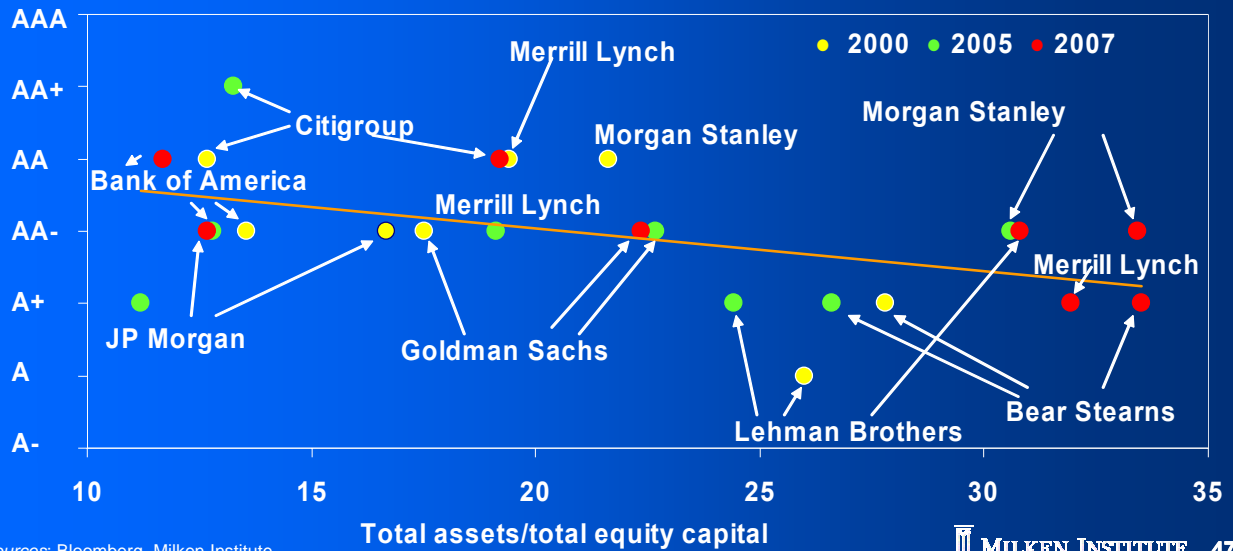


Sources: Federal Reserve, Milken Institute.

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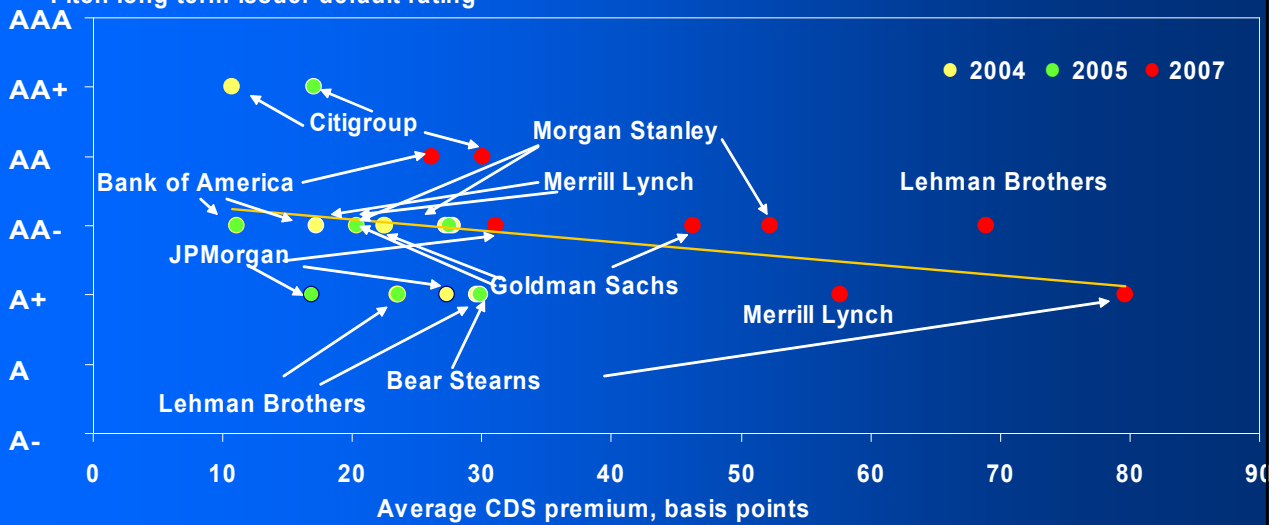
Leverage vs. issuer rating

Fitch long term issuer default rating



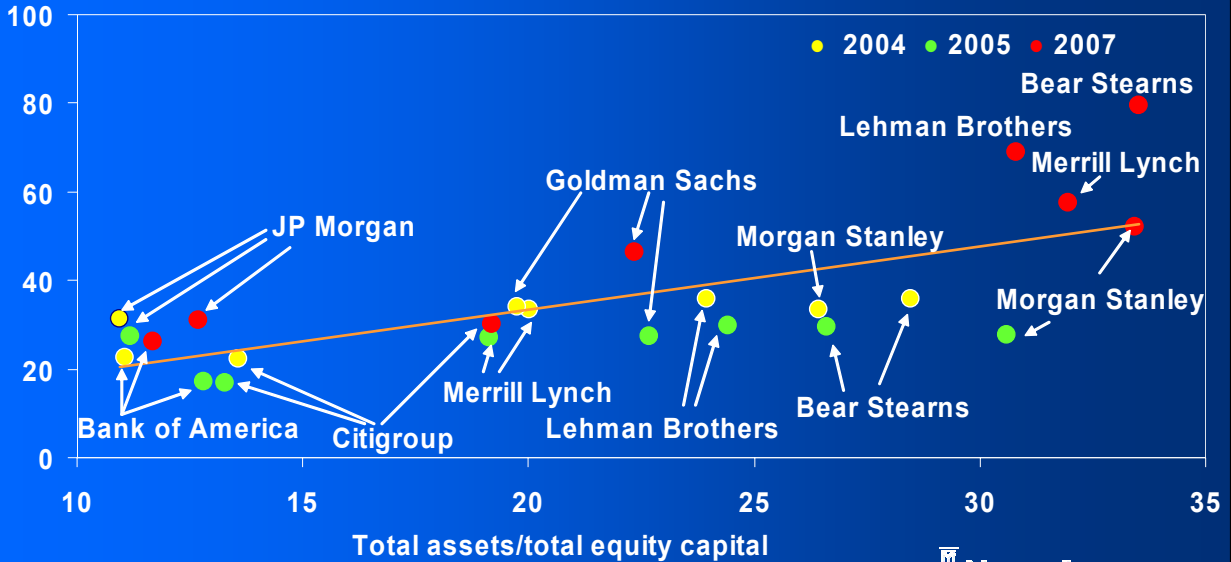
CDS premiums vs. issuer rating

Fitch long term issuer default rating



Leverage vs. CDS premiums

Average CDS premium, basis points



Sources: Datastream, Bloomberg, Milken Institute.

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Credit ratings of selected S&P 500 companies and associated CDS spreads as of October 17, 2008

Investment grade

Speculative grade

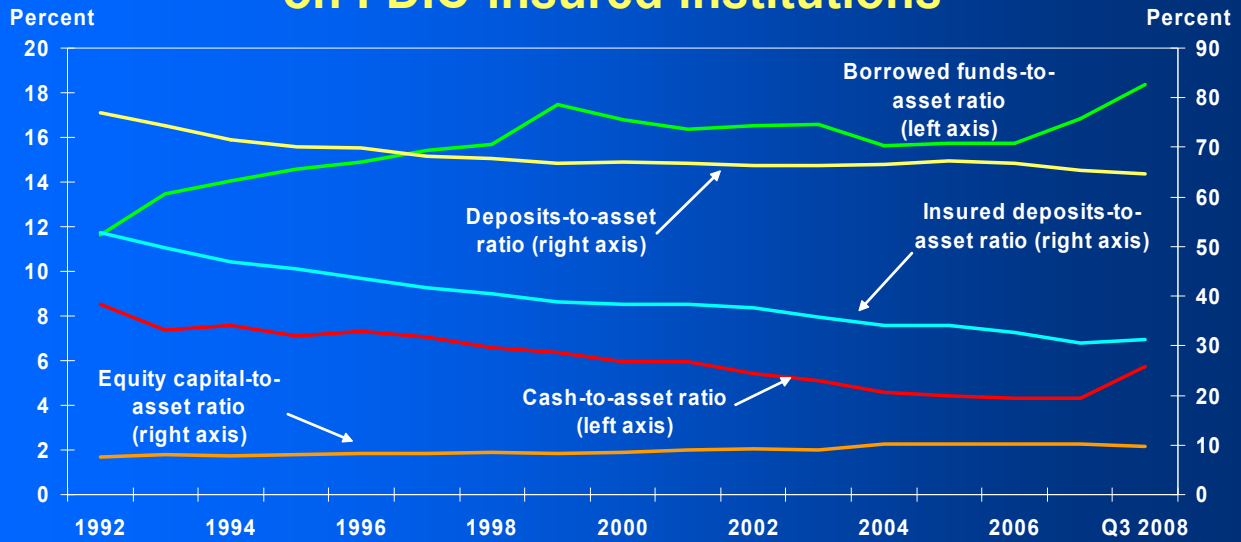
S&P's	Number of companies	CDS spreads (basis points)			S&P's	Number of companies	CDS spreads (basis points)		
		Highest	Lowest	Average			Highest	Lowest	Average
AAA	3	56	15	41	BB+	12	795	130	419
AA+	1	95	95	95	BB	14	938	168	522
AA	5	86	49	74	BB-	8	1,352	337	713
AA-	9	265	54	118	B+	4	3,925	418	1,612
A+	17	2,999	12	346	B	3	2,686	894	1,523
A	36	1,040	38	151	B-	2	4,718	3,701	4,209
A-	34	2,557	51	427					
BBB+	43	1,114	38	222					
BBB	41	1,210	61	271					
BBB-	17	1,235	89	359					

Sources: S&P, Bloomberg, Datastream, Milken Institute.

Note: Credit ratings of S&P 500 companies and the associated CDS spreads for those firms for which both ratings and CDS spreads are available.

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Balance sheet information on FDIC-insured institutions



Sources: FDIC, Milken Institute.

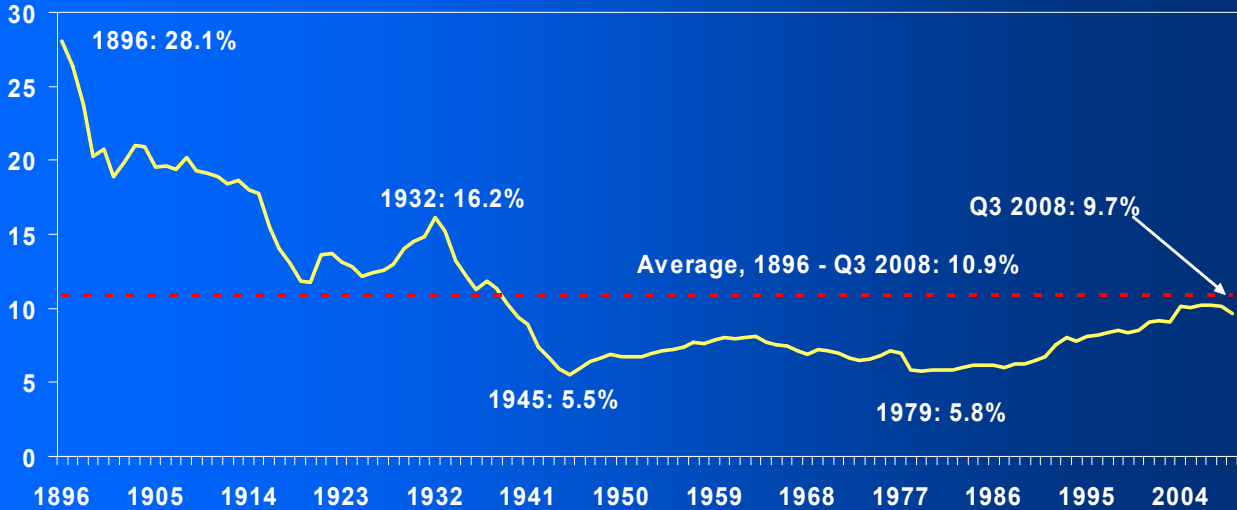
U.S. regulatory capital requirements and prompt corrective action categories

	Tier 1 leverage	Tier 1 risk-based	Total risk-based
Well capitalized	$\geq 5\%$ and	$\geq 6\%$ and	$\geq 10\%$
Adequately capitalized	$\geq 4\%$ and	$\geq 4\%$ and	$\geq 8\%$
Undercapitalized	$< 4\%$ or	$< 4\%$ or	$< 8\%$
Significantly undercapitalized	$< 3\%$ or	$< 3\%$ or	$< 6\%$
Critically undercapitalized	Tangible equity capital ratio that is $\leq 2\%$		

Source: FDIC.

Equity capital-asset ratio for U.S. commercial banks

Equity capital/asset ratio, percent

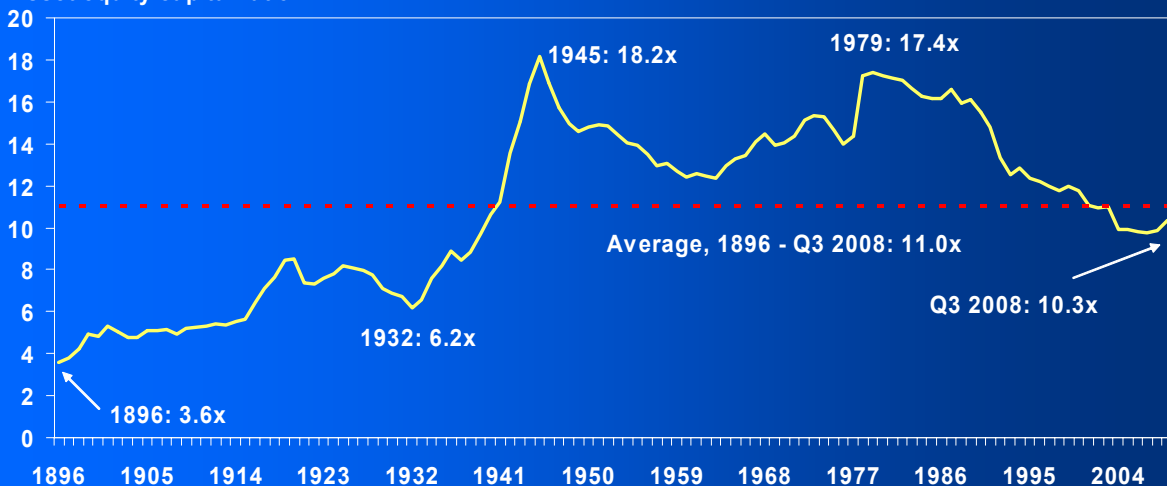


Sources: Historical Statistics of the United States, FDIC, Milken Institute.

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Leverage ratio for U.S. commercial banks

Asset/equity capital ratio



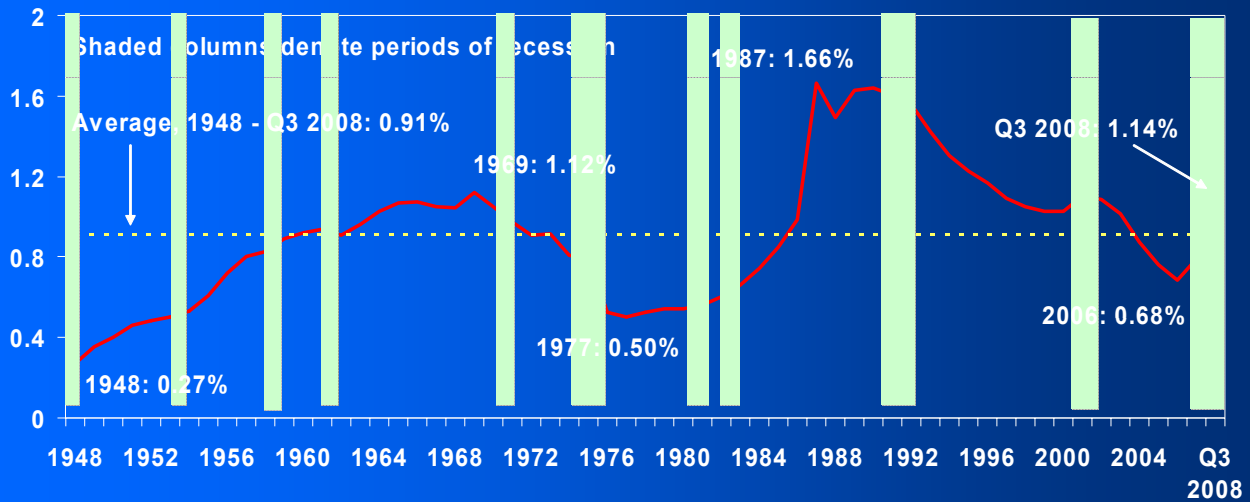
Sources: Historical Statistics of the United States, FDIC, Milken Institute.

Note: The leverage ratio is the reciprocal of the capital-asset ratio.

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Loan loss allowance ratio for U.S. commercial banks

Percent of total assets

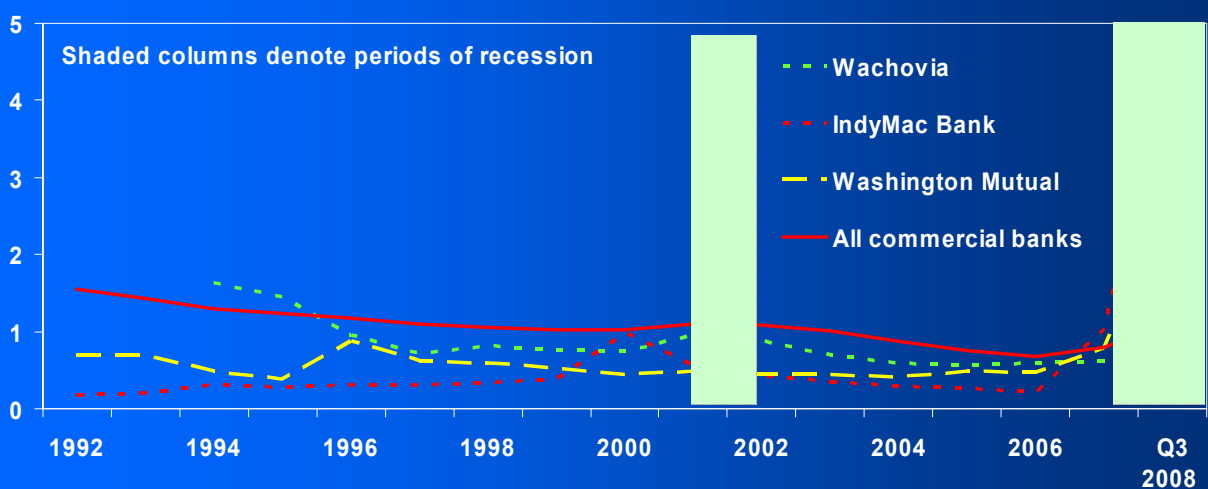


Sources: Historical Statistics of the United States, FDIC, Milken Institute.

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Loan loss allowance ratio for U.S. commercial banks

Percent of total assets



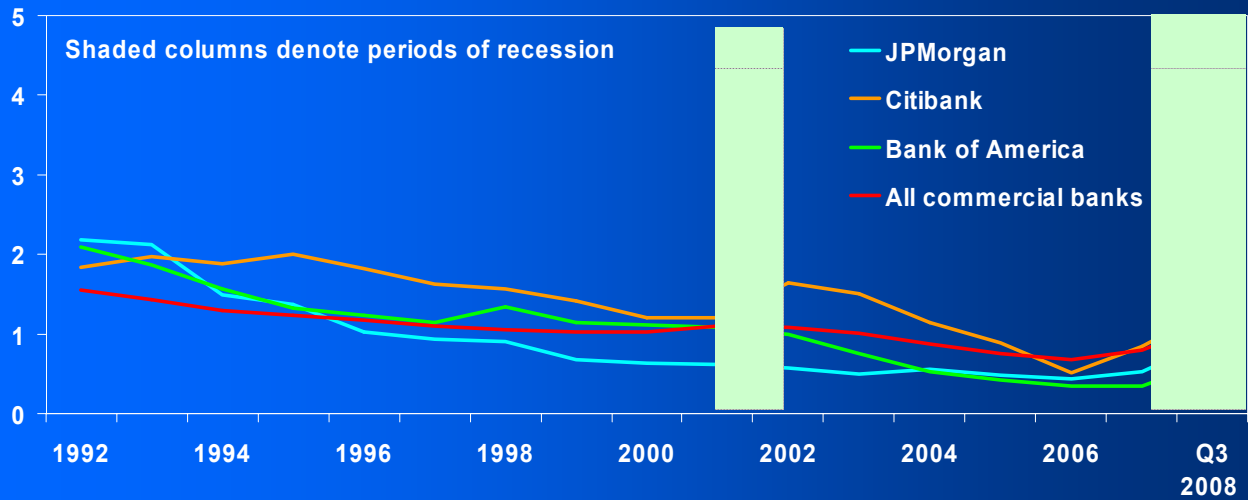
Sources: Historical Statistics of the United States, FDIC, Milken Institute.

Note: IndyMac Bank became IndyMac Federal Bank in July 2007. Latest data for Washington Mutual is Q2 2008.

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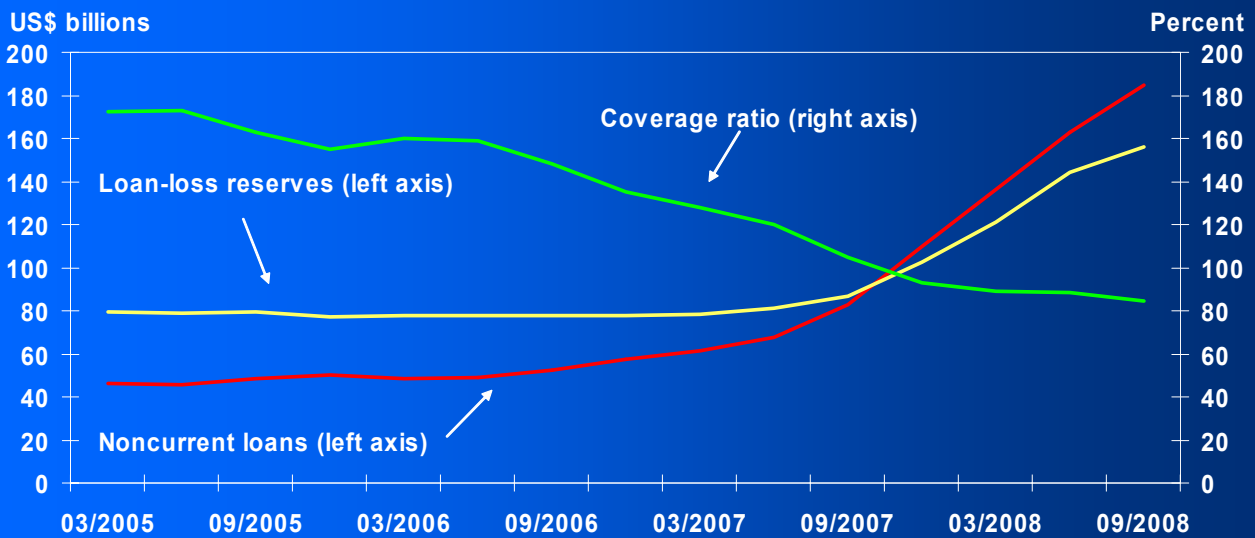
Loan loss allowance ratio for U.S. commercial banks

Percent of total assets



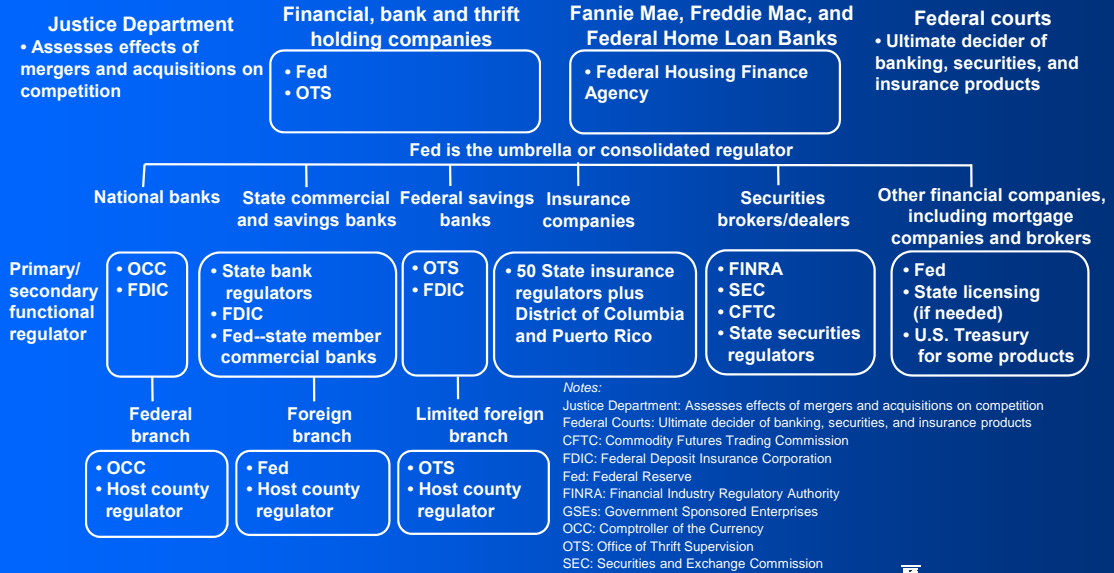
Sources: Historical Statistics of the United States, FDIC, Milken Institute.

Reserve coverage ratio of all FDIC-insured institutions



Sources: Quarterly Banking Profile, FDIC, Milken Institute .

The U.S. regulatory regime: In need of reform?



Sources: Financial Services Roundtable (2007), Milken Institute.

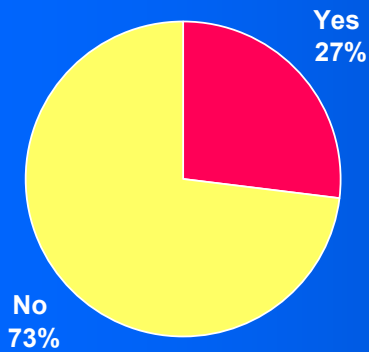
When will we hit bottom?



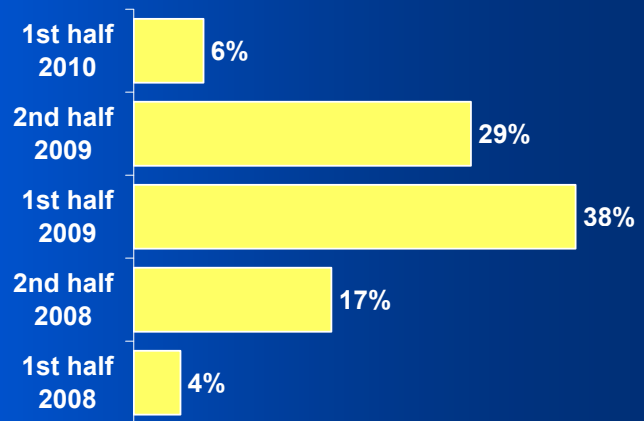
Looking for a bottom?

Economists say the economy isn't at its low point yet, and house prices likely won't get there until 2009

Does this feel like the bottom to a downturn?



When will home prices hit bottom?

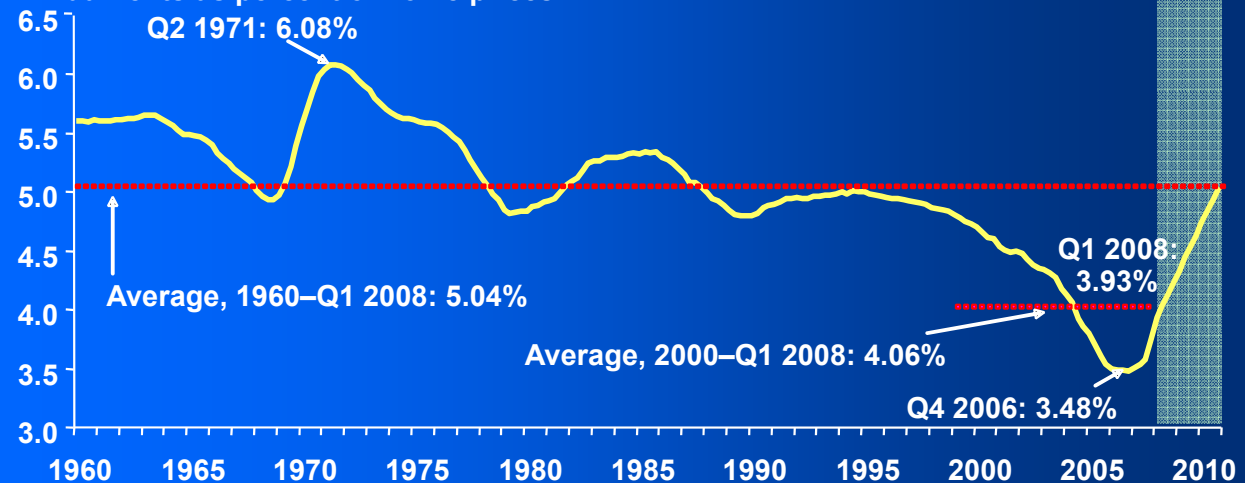


Source: Wall Street Journal.

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How far do home prices have to fall?

Annual rents as percent of home prices



Sources: Davisa, Lehnertb, Martin (2007), Milken Institute.

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Declines in home prices and the time it takes to get the rent-to-price ratio to a targeted value (5.04 is the longer-run average ratio)

		Annual home price decline required				
		-2.0%	-5.0%	-10.0%	-15.0%	-20.0%
Rent-to-price ratio	3.80%	2010 Q3	2008 Q4	2008 Q2	2008 Q2	2008 Q2
	4.00%	2013 Q1	2009 Q4	2008 Q3	2008 Q2	2008 Q2
	5.00%	2024 Q1	2014 Q1	2010 Q4	2009 Q3	2009 Q1
	5.04% average	2024 Q3	2014 Q2	2010 Q4	2009 Q3	2009 Q1
	6.00%	2026 Q4	2017 Q3	2012 Q3	2010 Q4	2009 Q4

Sources: Davisa, Lehnertb, Martin (2007), Milken Institute.