Central Bank Responses to the Meltdown (US, Europe and Japan)

Presented at the Brookings-Tokyo Club-Wharton Conference
Prudent Lending Restored: Securitization after the 2007 Mortgage Securities Meltdown

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"Knock it off, fellas . . . you're scaring me!"

Introduction and Outline of Talk

- What are the key problems
- Who is to blame?
- Macro Environment that made it all possible
- The Involvement of International Financial Institutions in US Subprime
- Three Phases of Central Bank Responses
- What this may mean for the future of the markets

Three Key Problems and It Isn't Liquidity

The three key problems were

- Solvency and questions about asset quality on financial institutions' balance sheets are the reasons that the interbank market has shut down
- Over leverage by financial institutions, borrowers and in complex financial instruments
- Falling housing prices

- The problem never was one of liquidity or confidence– which was simply a symptom
- Confidence comes from understanding asset values – risk aversion is accentuated when there is uncertainty about the quality of underlying assets.

Who Is To Blame?

The Fed for having pursued too easy monetary policy

Financial institutions and Wall Street firms who leveraged themselves

Fannie and Freddie and managements who traded on government guarantees

- They exploited taxpayer implicit guarantees by leveraging themselves at below market rates and kept the guarantees in place through political lobbying and pandering

Credit Rating Agencies who were conflicted and opted for fees and squandered their reputations

Bank Regulators who pursued lax regulation,

- Were distracted by Basel I & II,
- Overlooked, purposely,
  - Off balance sheet activities and t
  - Reputational risk and its implications

Who Is To Blame?

Congress who created the GSEs, who took their campaign contributions, who encouraged them to extend mortgages to those who could never repay in the name of putting people in homes and who encouraged leverage on the part of borrowers

- **Community Reinvestment Act** which compelled banks to make loans to poor borrowers who often could not repay
- Freddie and Fannie Housing Goals
  - 1992 Congress pressed F&F to increase loans going to low and moderate income people
  - 1996 HUD required that 12% of F&F loans be “special affordable” loans (income less than 60% of median income) to be 20% in 2000 and 22% in 2005
  - F&F purchased subprime loans to satisfy above goals
  - F&F securitized $394 billion of CRA loans between 2000 and 2002
- 1997 Taxpayer Relief Act increased capital gains exclusion from $125K to $500K which increased the demand for high priced homes and jumbo loans

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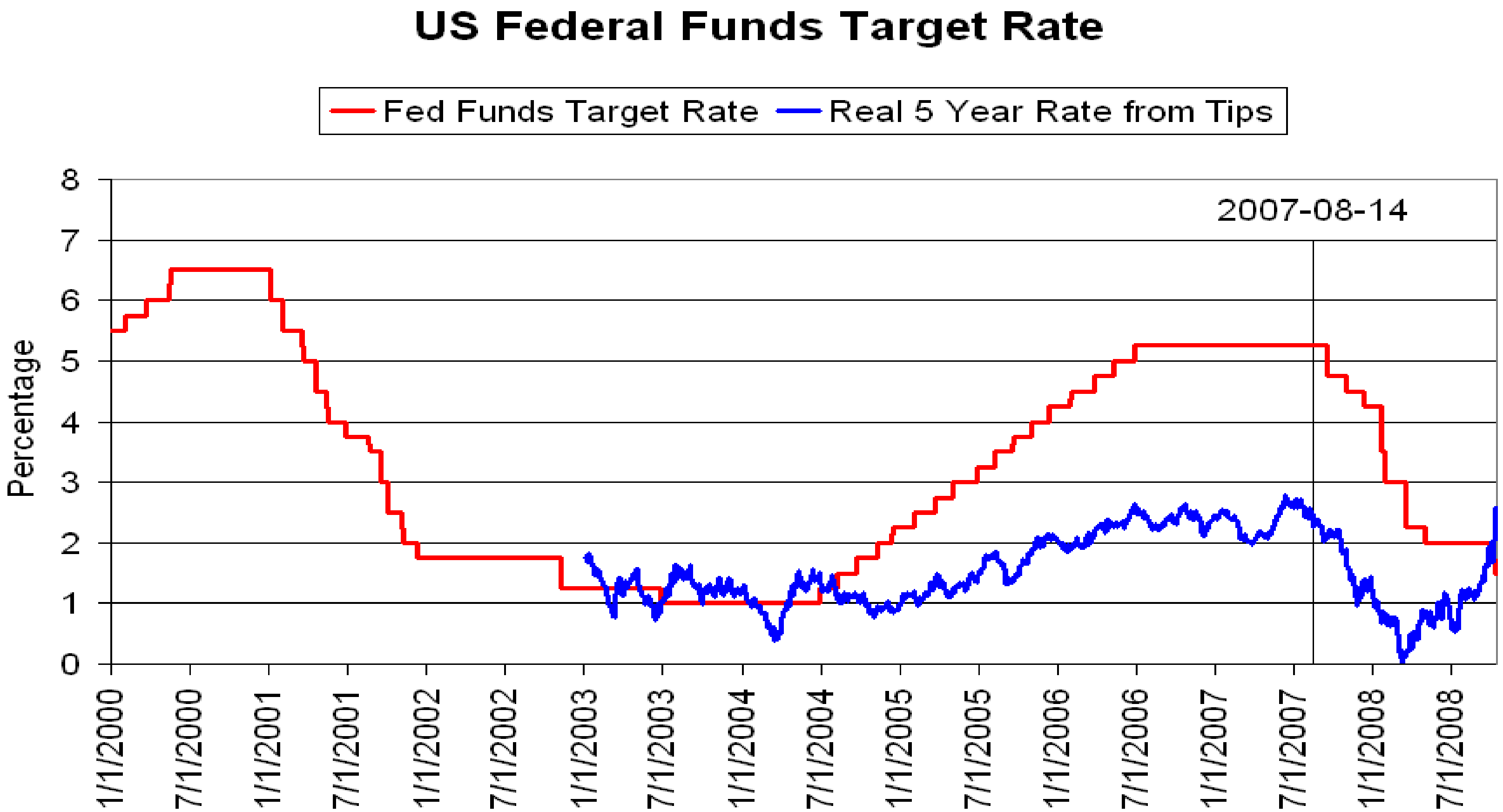
Macro Environment Which Was Incubator of the Crisis

The Fed for having pursued too easy monetary policy



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Macro Environment and Macro Policy Errors (Cont)

- Large and Persistent US Fiscal Deficits and Growing Trade Imbalances
  - China and Japan Currency Under-valuation
  - Accumulation of dollar reserves and accumulation of US Treasuries
- Zero Interest Rate Policy of Japan and Carry Trade
- Macro environment had all the right conditions to fuel a housing boom.
- The boom was desired and fostered because it lead the US out of a recession and was consistent with national goals

When Did the Crisis Begin?

- Crisis Started Long Before August of 2007
- Problems in the subprime market were clearly already developing by the start of 2006 when several institutions began to report credit related problems
  - This included Banks like Northern Rock in the UK,
  - Two state owned banks in Germany
  - Countrywide, IndyMac and investment banks, like Bear Stearns and other institutions in the US
- Festered for the early part of 2007
- Positions became increasingly difficult to finance.
- Financial markets began to re-price and re-evaluate risk and essentially seized up in late August of 2007.

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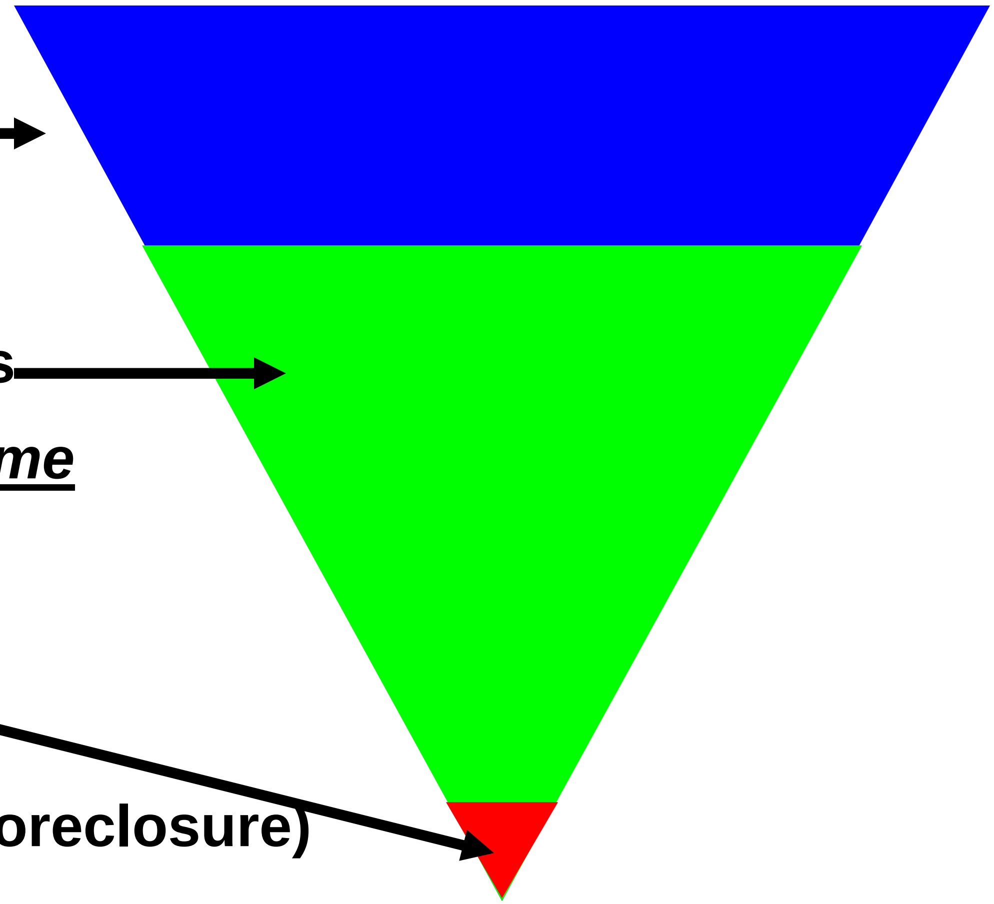
We Had the Demise of Many Different Types of Institutions

- Failures Exposed Two Critical Flaws in Bankruptcy Process and in Structure of Deposit Insurance
  - We had failures – actual or de facto
    - Banks like Countrywide, IndyMac, Wachovia
  - Run on Banks like Northern Rock in UK
  - Government takeovers of institutions like Bear Stearns, two German Banks, Freddie Mac and Fannie Mae
  - US commercial and savings banks were resolved promptly, depositors were protected and institutions opened next business day
  - Government takeovers in US and Europe was made necessary by inadequate bankruptcy and resolution capabilities
    - Problems were similar in US with Bear, Freddie and Fannie, with German banks and with Northern Rock
    - No adequate bankruptcy process
  - Problem in NR exposed defect in deposit insurance system

How Could Such a Small Segment of the Mortgage Market Cause Collapse That It Did?

- Answer lies in the changed nature of the lending business and why it evolved from the originate and hold model to originate and distribute.
- Keep in mind that the bulk of the market was reasonably sound in that most borrowers were meeting their obligations

US Housing Market



80 million houses

<u>25 million are paid off</u>

55 million have mortgages

<u>51 million are paying on-time</u>

4 million are behind

(8% of 55 million with 2% in foreclosure)

This compares to 50% seriously delinquent in the 1930s

Source: U.S. Treasury Department.

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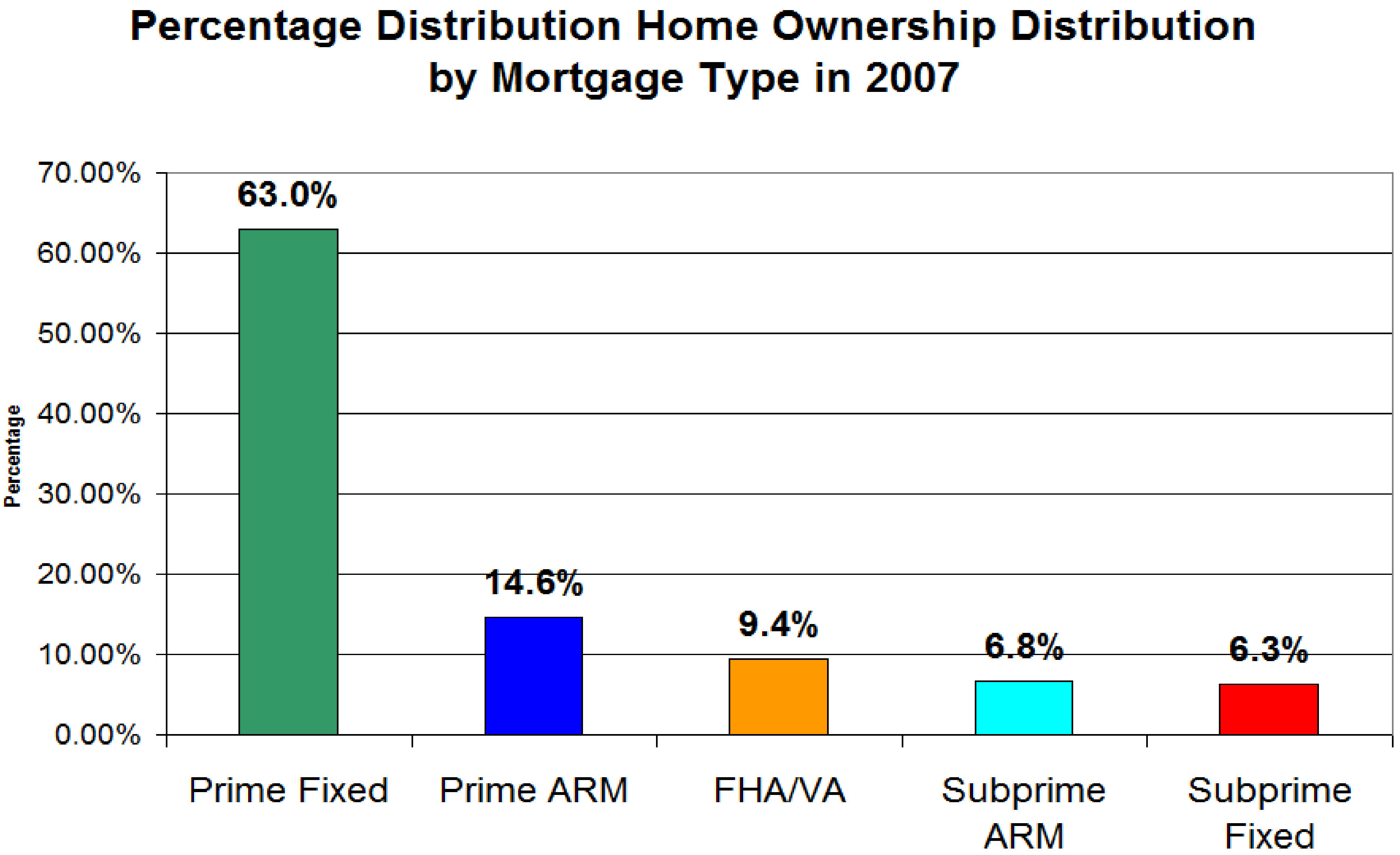

Source: Mark Perry over at Carpe Diem

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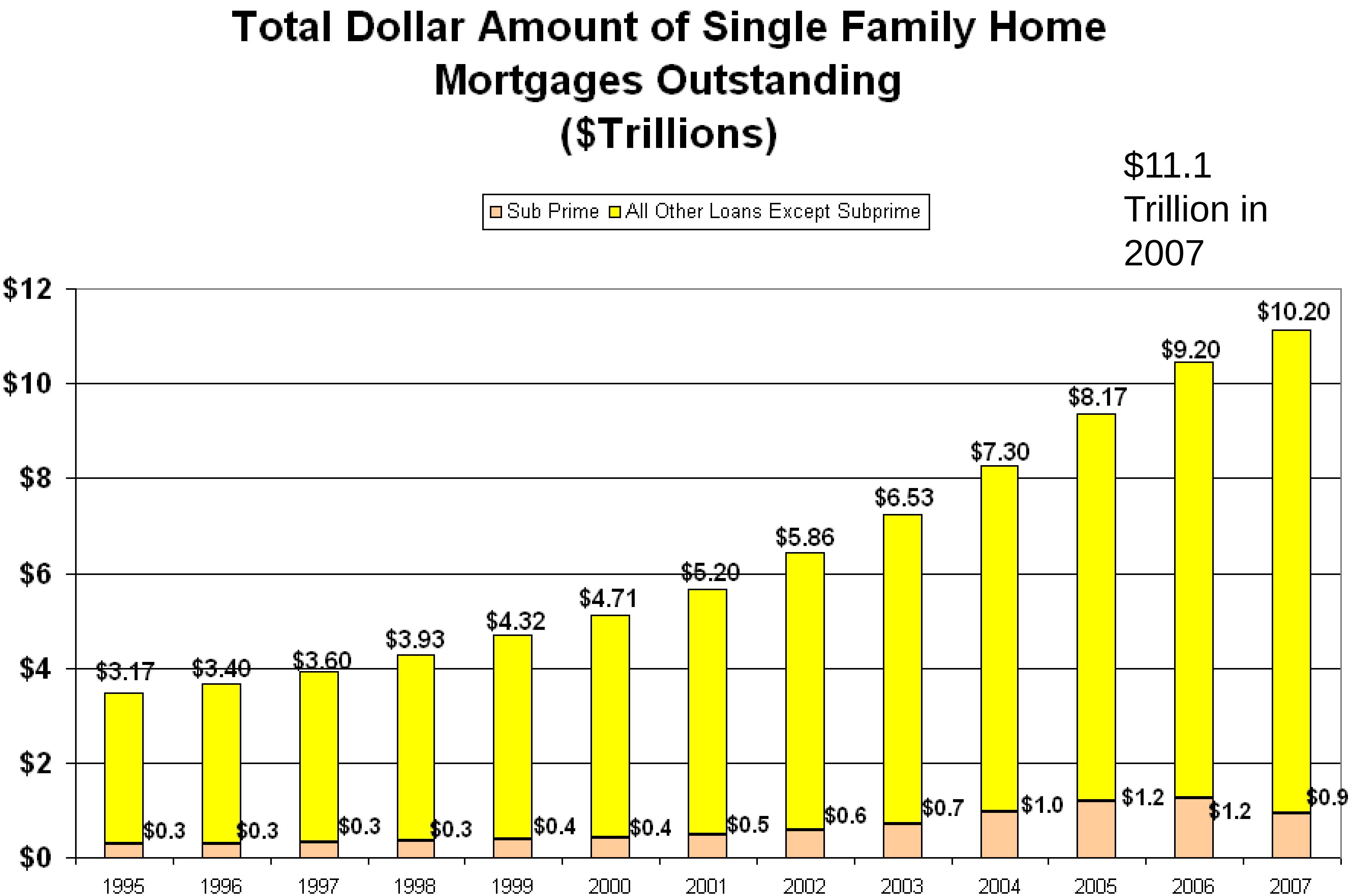

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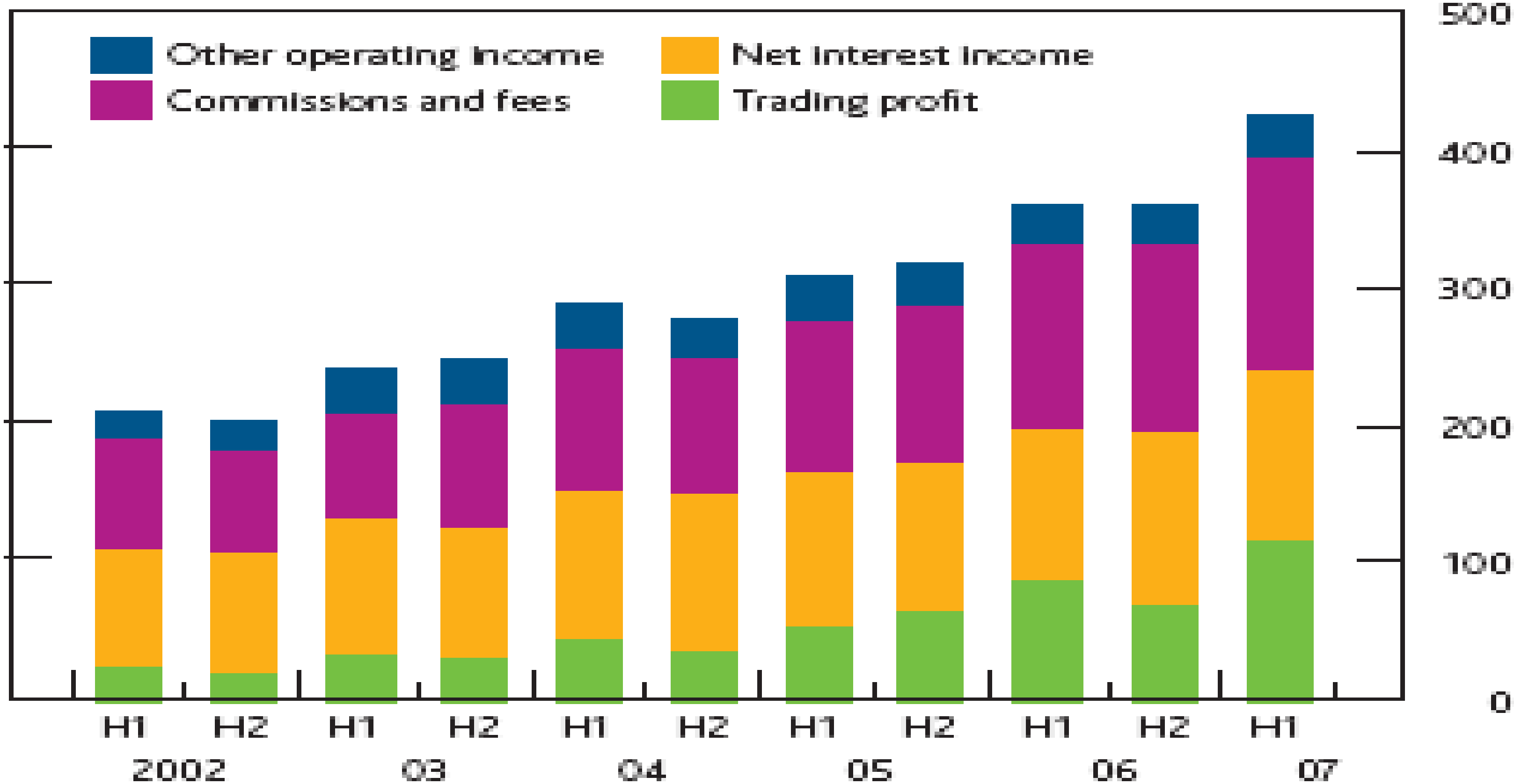
Institutions Needed a New Model

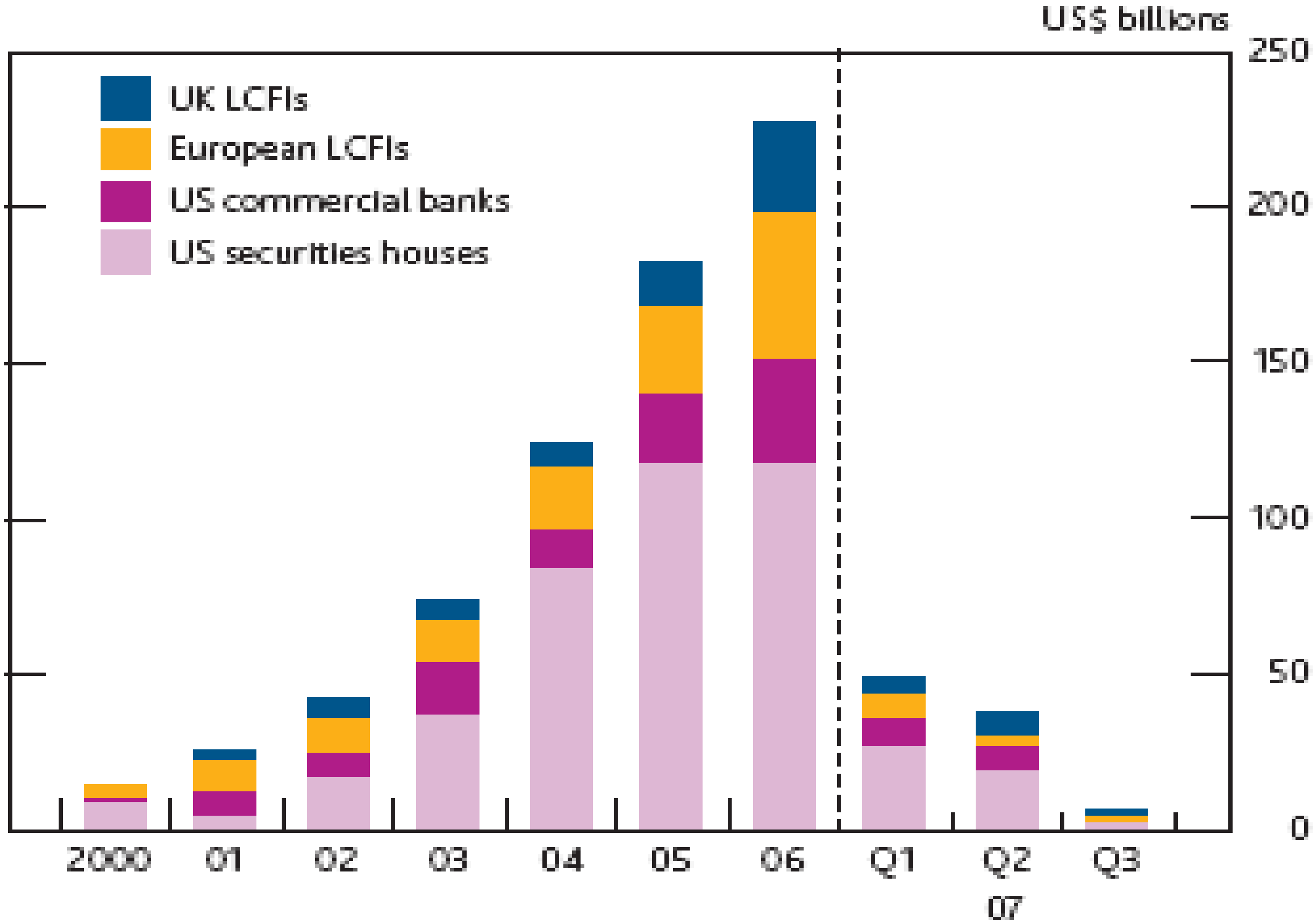
- The flat term structure made traditional lending less attractive
- Securitization appeared to be an attractive way to
  - Earn fees
  - Control risk
  - Make efficient use of capital

Sources of Income for
Large Complex Financial Institutions



Sources: Bloomberg and Bank calculations.

LCFI Issuance of RMBS backed by Sub-Prime Lending



Sources: Dealogic and Bank calculations.

(a) Data include residential mortgage-backed securities (RMBS) backed by sub-prime and non-first lien mortgages.

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Institutions Lived on Leverage

- When spreads are narrow
- Make it up on volume and turnover

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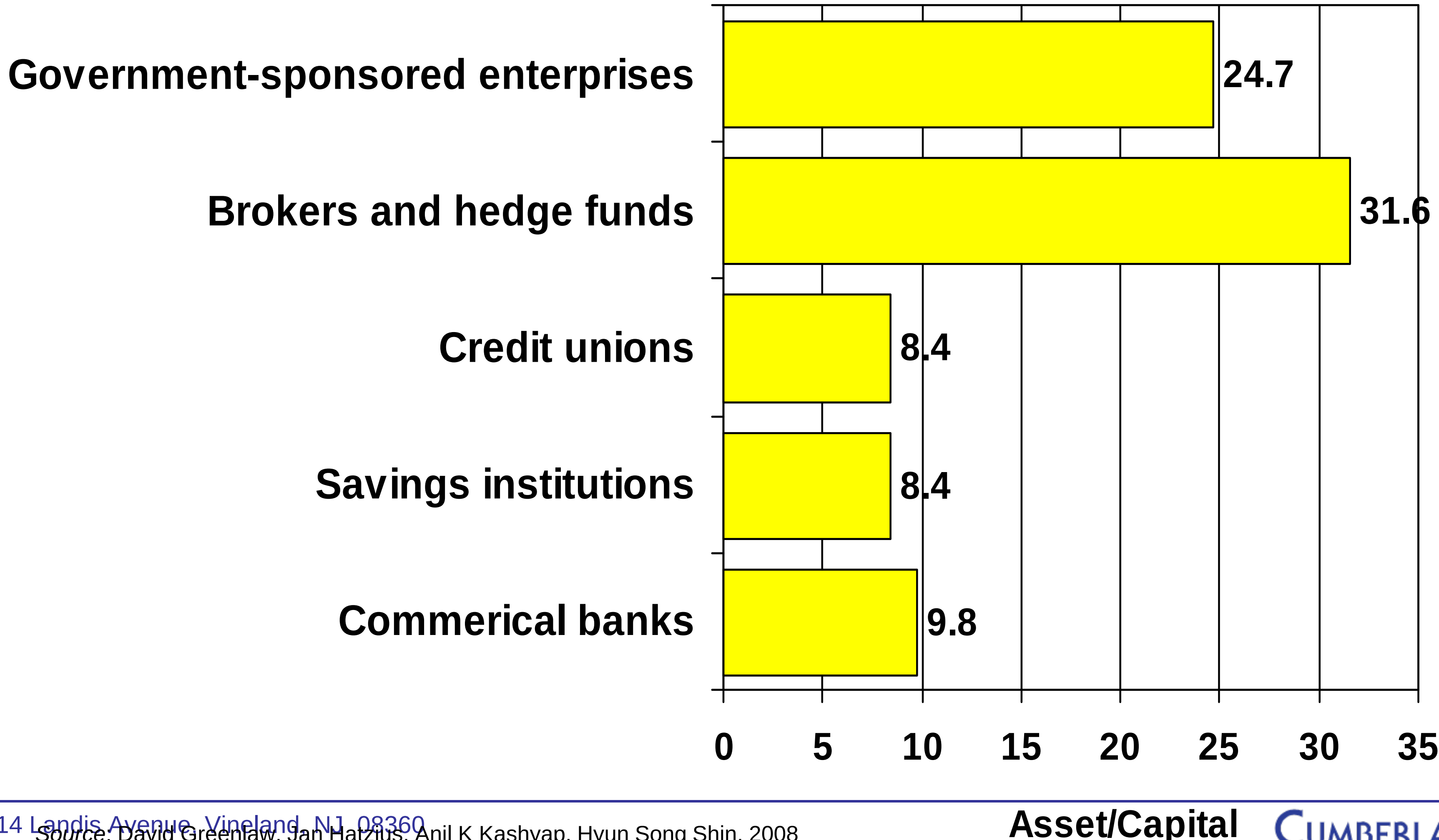
Leverage Ratios of Different Types of Financial Firms

2007



Source: David Greenlaw, Jan Hatzius, Anil K Kashyap, Hyun Song Shin, 2008

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Leverage of Key Large Financial Institutions as of Year End 2007

	Assets (Billions)	Shareholder Equity (Billions)	Leverage
US Banking Institutions			
Bank of America	$1,715	$146.80	11.7x
Citigroup	$2,187	$113.60	19.2x
JP MorganChase	$1,562	$123.20	12.7x
Foreign Banking Institutions			
Deutsche	€ 2,020	€ 39	52.0x
UBS	CHF 2,272	CHF42.5	53.4x
Credit Suisse	CHF1,360	CHF59.8	22.7x
Fortis	€ 871	€ 34.20	25.5x
Dexia	€ 604	€ 16.40	36.8x
BNP	€ 1,694	€ 59.40	28.5x
Barclays	£ 1227	£ 32.5	37.8x
RBS	€ 1,990	£ 91.4	21.7x

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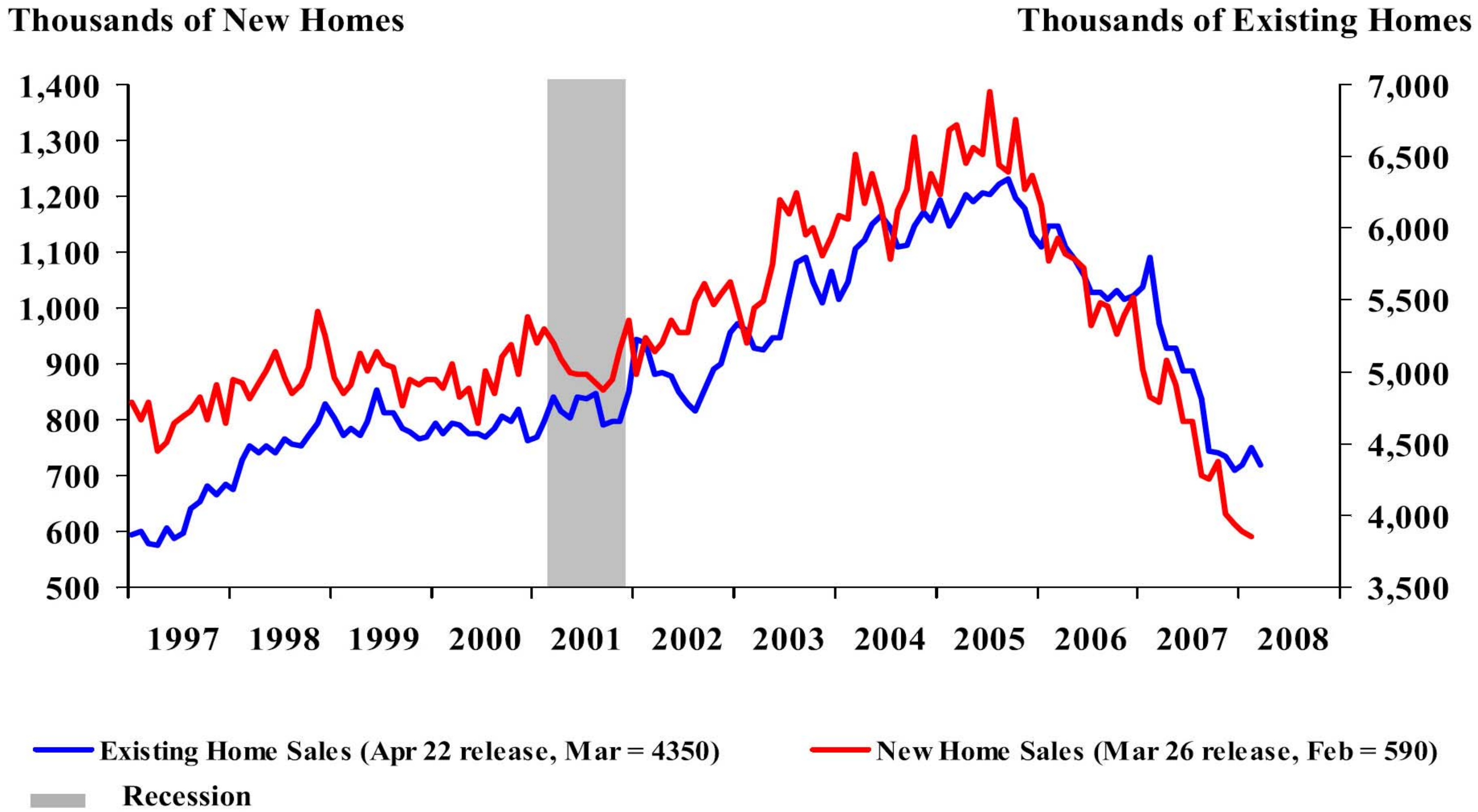
Signs of Vulnerability in Housing

- Housing market began its decline in late 2005

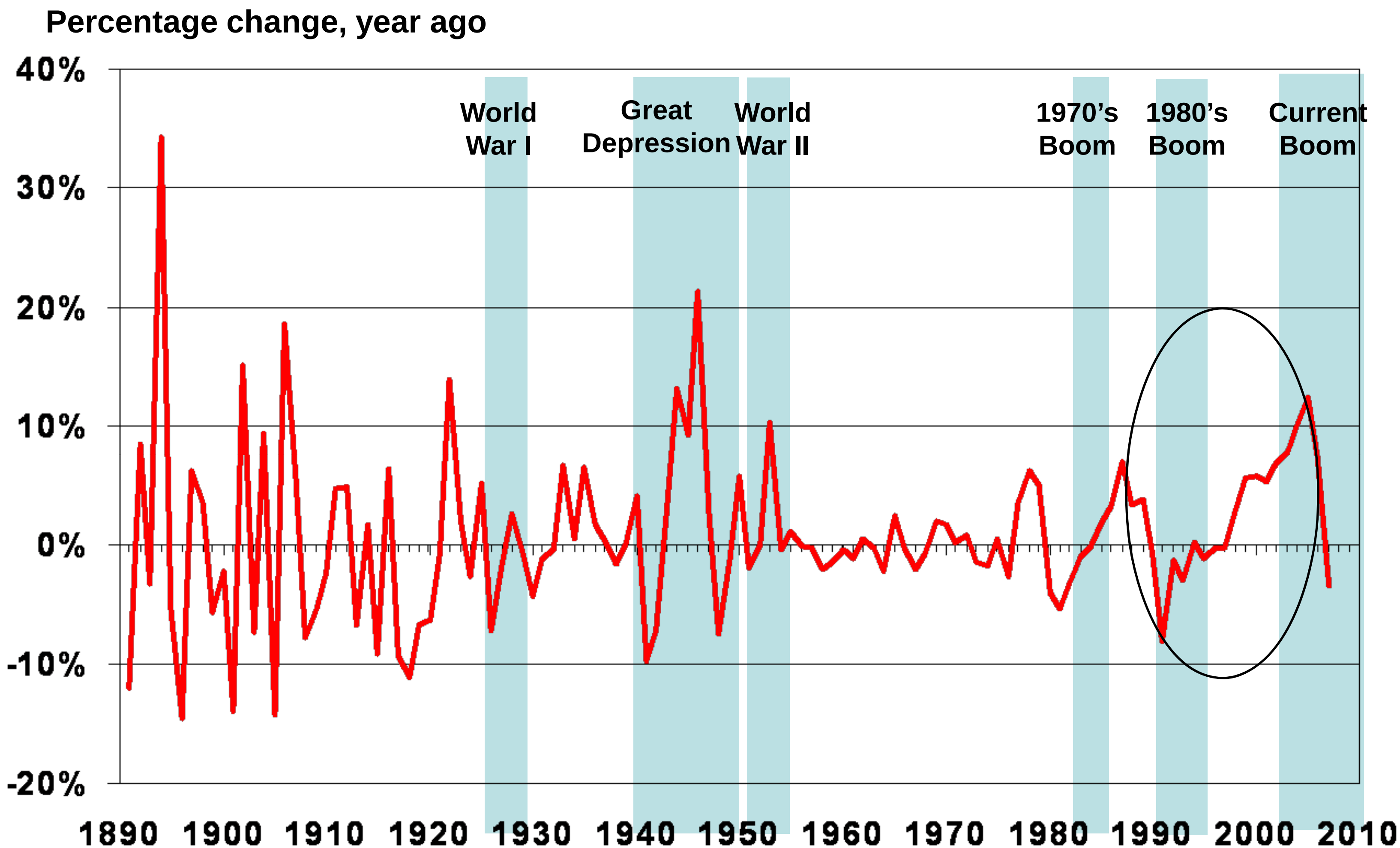
Home Sales



Source: Bureau of the Census, National Association of Realtors http://www.dallasfed.org

History Repeats Itself:
Home Prices Don't Just Go Up

Change in Home Prices in 100 plus years



Source: Robert J. Shiller, 2006.

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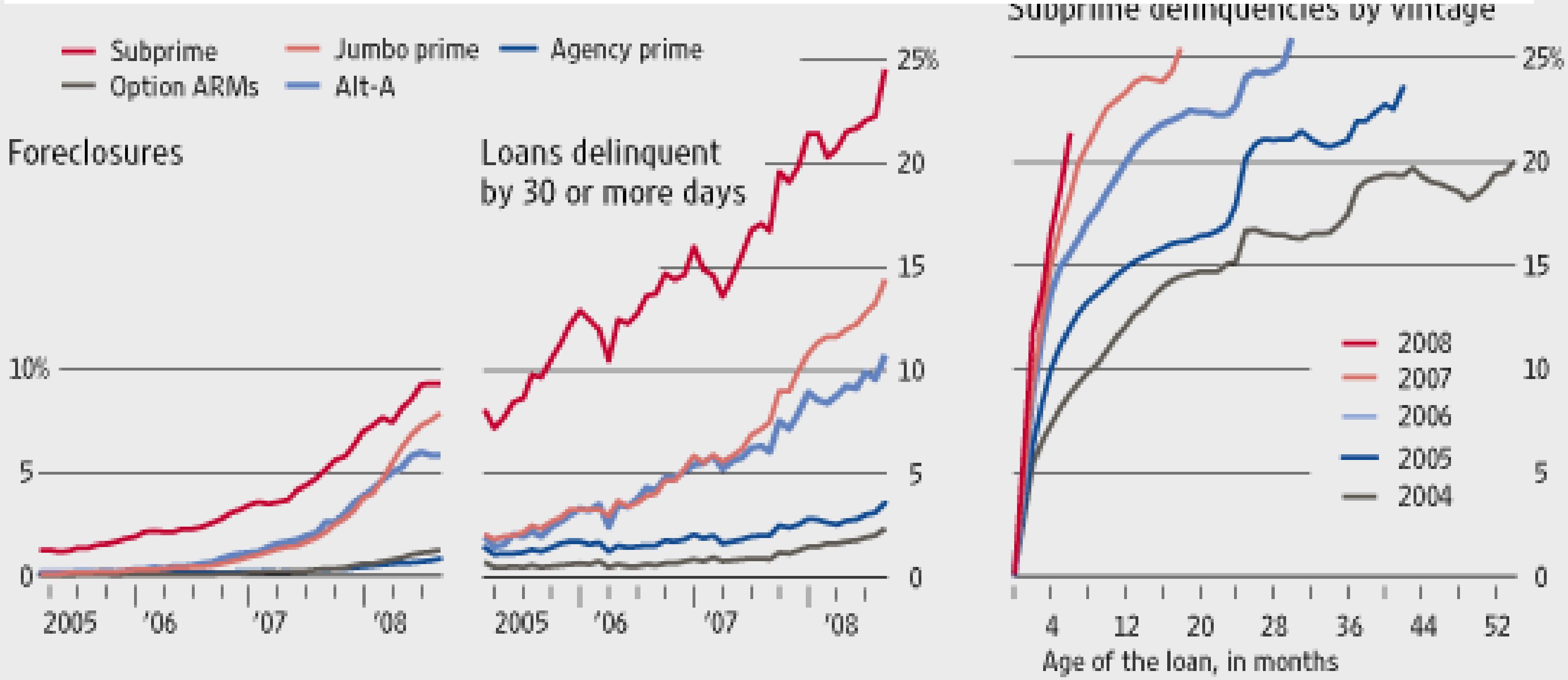
Mortgage Delinquency Rates By Type and Vintage



Notes: Mortgages originated between January 2004 and August 2008, excluding home-equity loans. Subprime and Alt-A loans are non-agency, non-government loans. Subprime loans are either identified as such by the servicer or have an original FICO score of less than 620. Alt-A loans are loans made without full documentation and have original credit scores of 620 to 719.

Source: LPS Applied Analytics

In August

- Sufficient questions arose about such transactions and the capabilities of the issuers to keep funding themselves

- Spreads in the interbank market widened and subsequent policies were initially directed towards injecting liquidity to address perceived spread problems.

Money Market Spreads Lower, But Still High

(3m LIBOR minus government bond yield)

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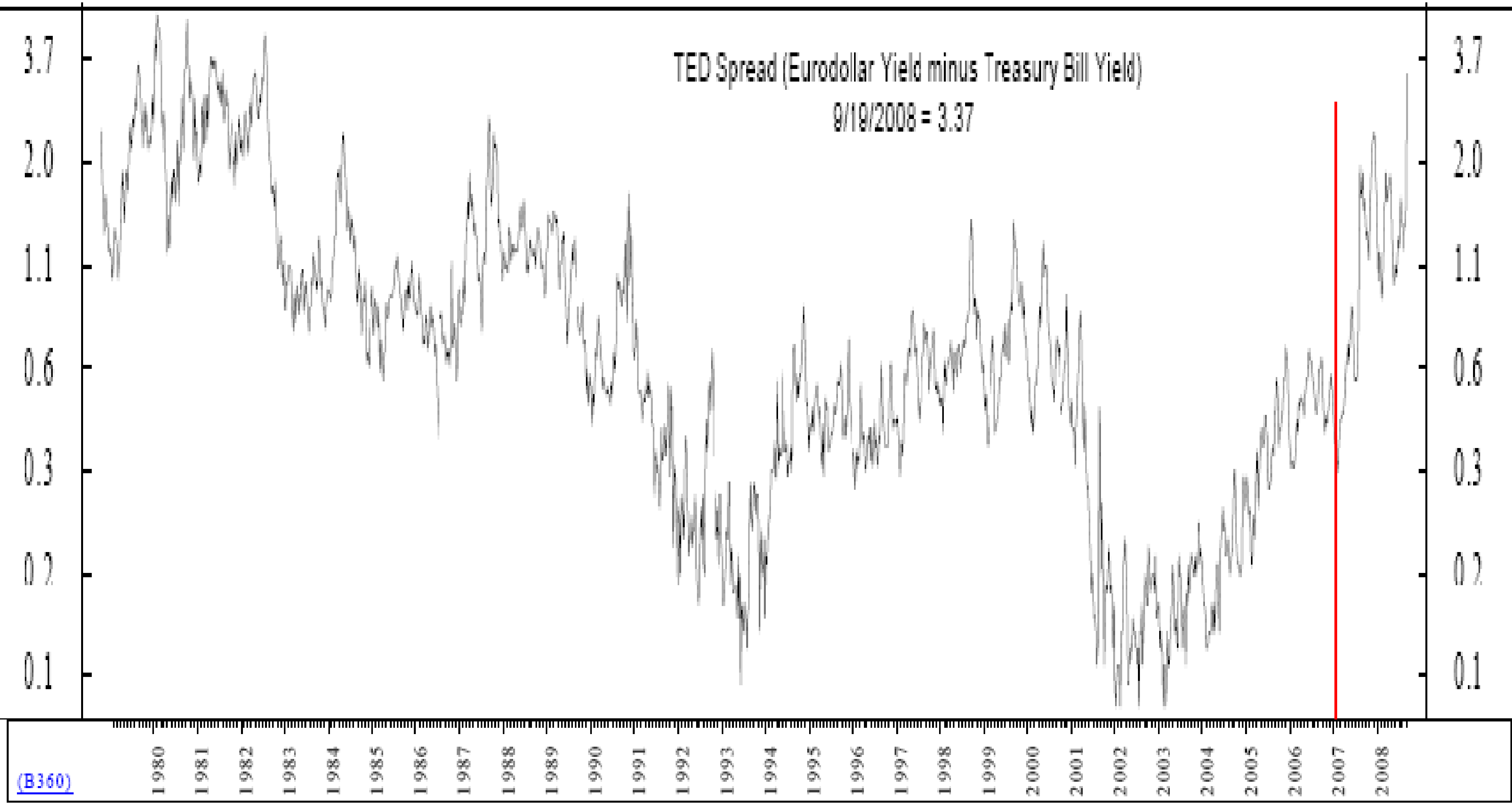
High TED Spread reflects freezing up of credit markets



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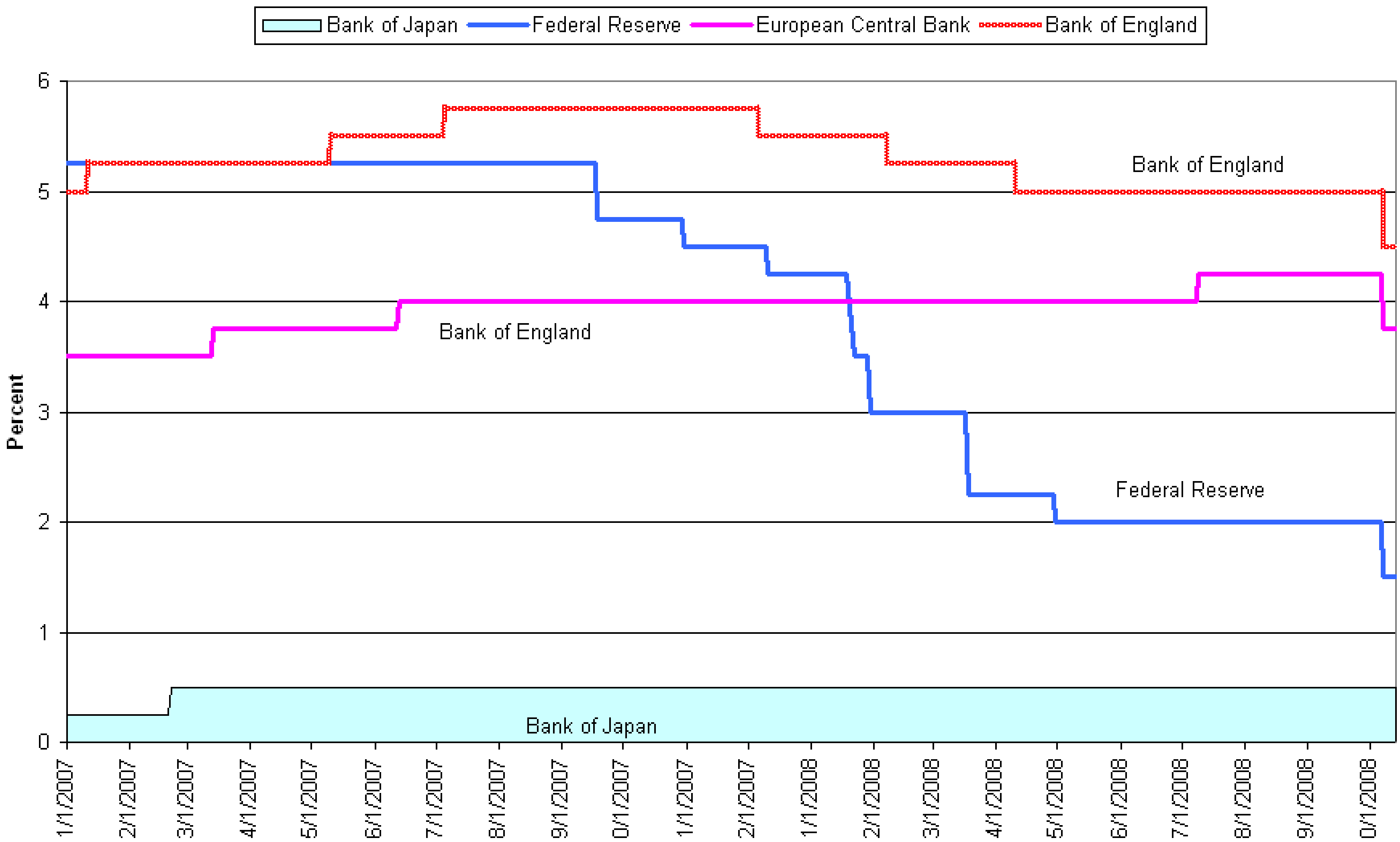
Three Phases of Central Bank Responses

- I. Uncoordinated early responses
  - ECB liquidity injection
  - Federal Reserve rate cuts and Facilities innovations to protect mainly the primary dealers
- II. Semi-coordinated responses with other innovations
  - Foreign TAFS
  - Deposit insurance changes
- III. Coordinated responses – full crisis mode
    - Foreign TAFS with
    - Coordinated rate cuts

Central Bank Policy Rates - 2007-2008



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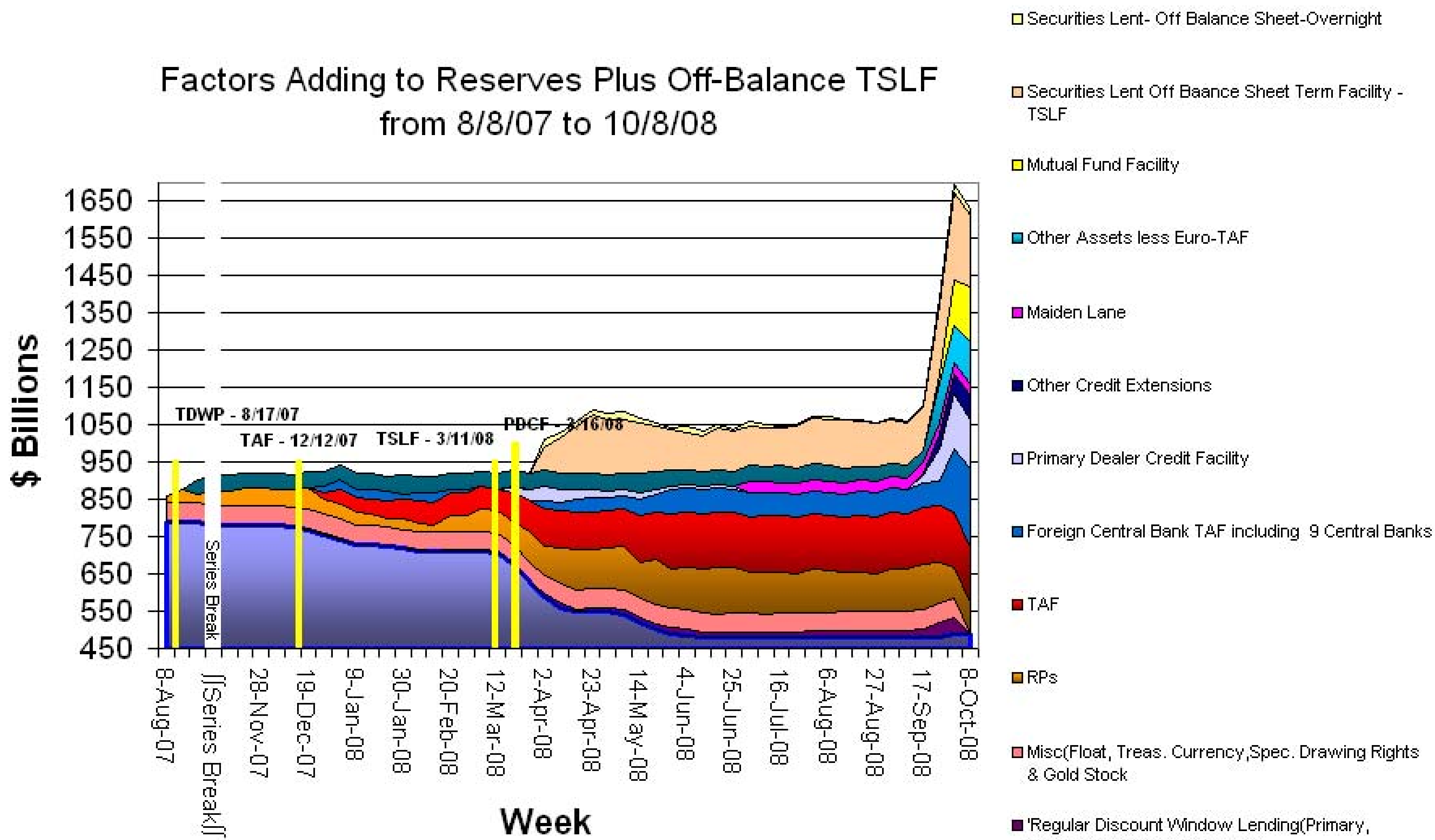
Federal Reserve Programs

Program	Date
Term Auction Facility	Dec. 12, 2007
Primary Dealer Credit Facility	March 16, 2007
Term Discount Window Facility	August 17, 2007
Single-Tranche OMO Program	March 7, 2008
Term Securities Lending Program	March 11, 2008
Term Securities Lending Facility Options Program	July 30, 2008
ABCP Money Market Fund Liquidity Facility	September 19, 2008
Transitional Credit extensions – US and London broker dealer subs of Goldman Sachs, Morgan Stanley and Merrill Lynch	September 21, 2008
Commercial Paper Funding Facility -	October 27, 2008

Loss Experience of Primary Dealers ($Billions)

	Losses	Capital Raised	Difference	Loss Rank
Citigroup	$55.1	$49.1	-$6.0	1
Merrill Lynch	$52.2	$29.9	-$22.3	2
UBS	$44.2	$27.7	-$16.5	3
HSBC	$27.4	$5.1	-$22.3	4
Bank of America	$21.2	$20.7	-$0.5	6
Morgan Stanley	$14.4	$5.6	-$8.8	9
JPMorgan Chase	$14.3	$9.5	-$4.8	10
Lehman Bro	$13.8	$13.9	$0.1	12
Deutsche Bank	$10.2	$3.2	-$7.0	13
Credit Suisse	$10.1	$2.7	-$7.4	14
Barclays	$7.5	$17.5	$10.0	18
Canadian Imperial	$7.0	$2.7	-$4.3	20
BNP Paribus	$3.8	$0.0	-$3.8	33
Dredsdner	$3.8	$0.0	-$3.8	34
Goldman, Sachs & Co.	$3.8	$0.6	-$3.2	35
Bear Stearns	$3.2	$0.0	-$3.2	39
All Others	$219.7	$172.5	-$47.2	
	$511.7	$360.7	-$151.0	
Primary Dealers	$292.0	$188.2	-$103.8	
% total Losses	57.1%	52.2%	68.7%	



Note: Date are weekly averages for all but the Foreign Central Bank TAF which are as of the last day of the week

Where Have All the Policy Efforts Taken U.S.?

Implications of Policies to Solve Crisis

- Deep government involvement in financial system with no exit strategy in place or vision for the future.
  - Quasi bank ownership with few protections for taxpayer
    - Preferred stock is put in but with no costs to existing equity holders or push to write down losses
  - Tiered banking system with largest clearly de facto now just like GSEs
  - Will clearly competitively disadvantage firms without the perceived guarantee
  - Liquidity programs are nothing but forbearance
    - Little progress in reducing leverage
    - What's the intent of these programs?

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Implications of Policies to Solve Crisis

- US Housing Market
  - US housing market is forever changed and we don’t know who or how credit will be provided at this moment
  - We have now the government the main player in the mortgage market and its role will increase with bail out program.
  - What to do about Freddie and Fannie and government's role as conservator as distinct from loss absorption
  - Can Freddie and Fannie credibly be privatized without implicit guarantee?
  - Where do the Home Loan Banks fit in?
  - To what extent is mortgage portfolio now a constraint on Fed inflation policies
    - Increasing rates will
      - Impose capital losses
      - Increase carrying costs to government
      - Does this repeal the 1951 Treasury/Fed Accord?

Implications of Policies to Solve Crisis

- Need for new bankruptcy process
  - For US non bank institutions – not investment banks per se, but perhaps for other institutions that will come under scrutiny
  - For UK institutions and EU
  - What to do in a cross border failure?
- Need for deposit insurance reform
  - Europe and US now seem in a race for competitive increase of coverage which raises moral hazard concerns even with no government ownership
  - UK and EU are seemingly engaged in competitive extension of guarantees
  - What should future guarantees be?
  - What are the implications of increasing the limits v too-bi-to-fail?

Implications of Policies to Solve Crisis

Revise structure for conduct of open market operations in US
  - Operating procedures – are primary dealers necessary?
    - EU has many counterparties
    - EU has broader array of collateral to use
  - Interest on reserves and TAF may bracket Funds rate
    - Makes interbank market moot
- International policy coordination
  - Policy rates are out of alignment
  - Arbitrage possibilities that result if institutions can borrow in one country at a low policy rate and lend in another at higher rate
- Will flooding world with dollars
  - Drive down exchange rate?
  - Displace LIBOR with target Fed Funds rate?
  - What's the role of the Euro in such a world?
- Need for new supervisory and regulatory approach
  - Basel II v leverage constraint?
  - Need to Control Regulatory Incentives
  - How should universal banking model be regulated?
  - What role is there for the SEC?

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