
Outlook for the US Economy and the Fed

Housing and financial sector adjustments coming to an end in 2008

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Overview

Adjustment needed for:

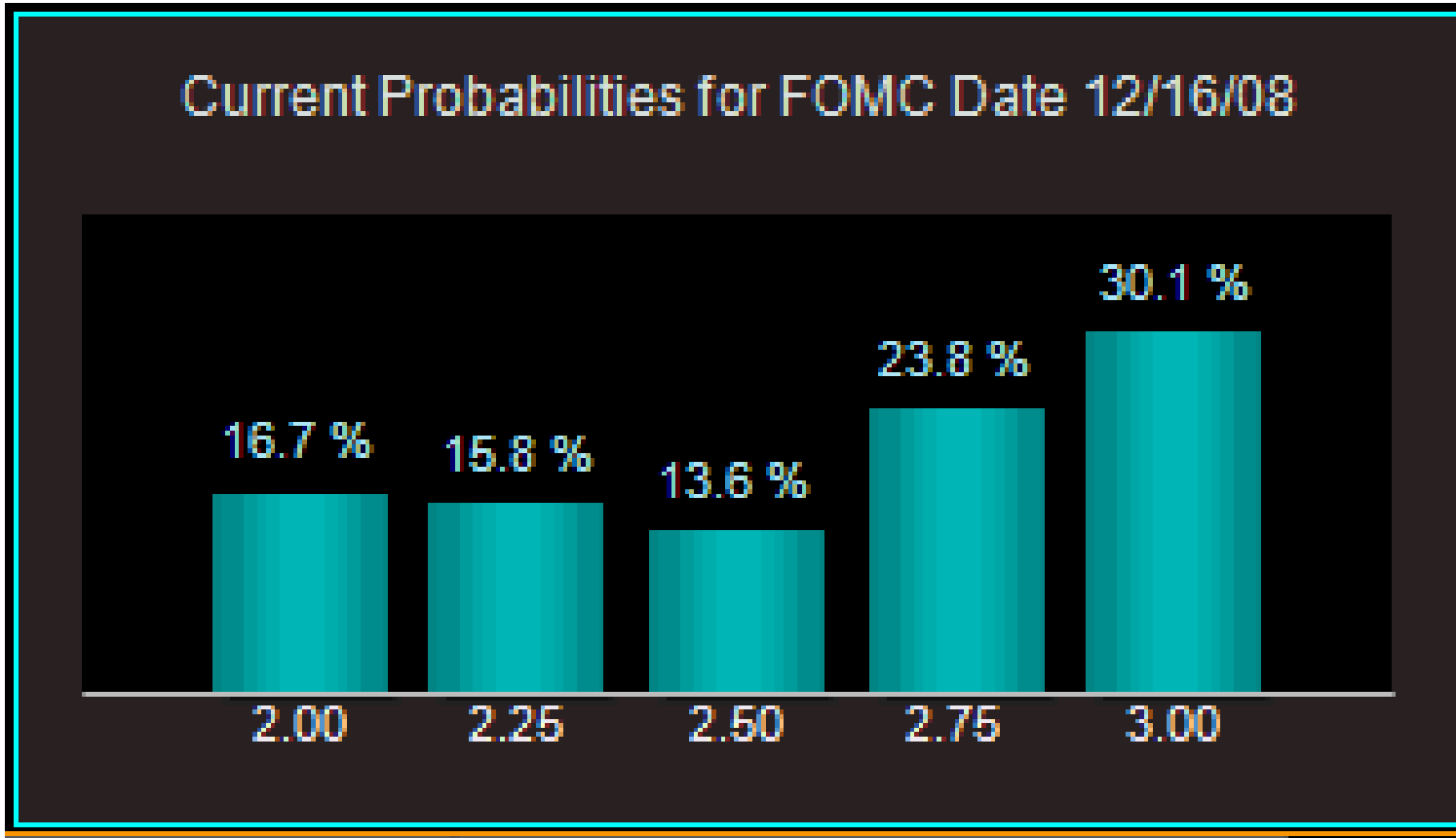
- 1) **Housing** – adjustment in activity began in 2005, house prices to stabilize in early 2009.
- 2) **Banks**, – capital has been raised to cover 75% of losses; we're in the 8th inning.
- 3) **Consumers** – adjustment is just beginning.

Aggressive easing of fiscal and monetary policy could build a bridge in Q2 and Q3 over a potential recession.

Longer-run: Potential growth = $F(\text{productivity, capital, labor})$

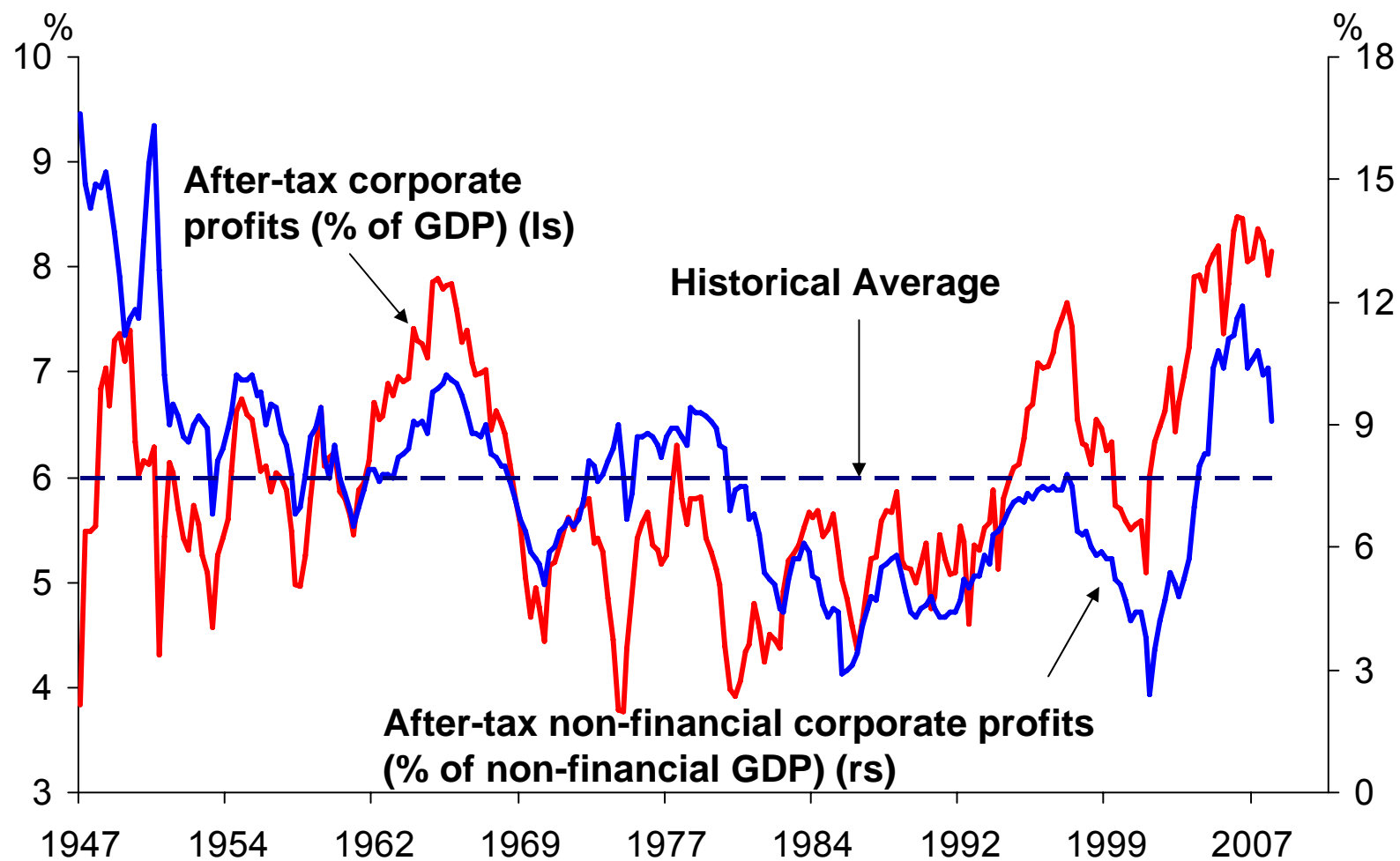
What about inflation? Slowdown in economy => companies see less demand => less pricing power => less inflation. Inflation worries are about food and energy

Market pricing in substantial policy tightening by end of 2008



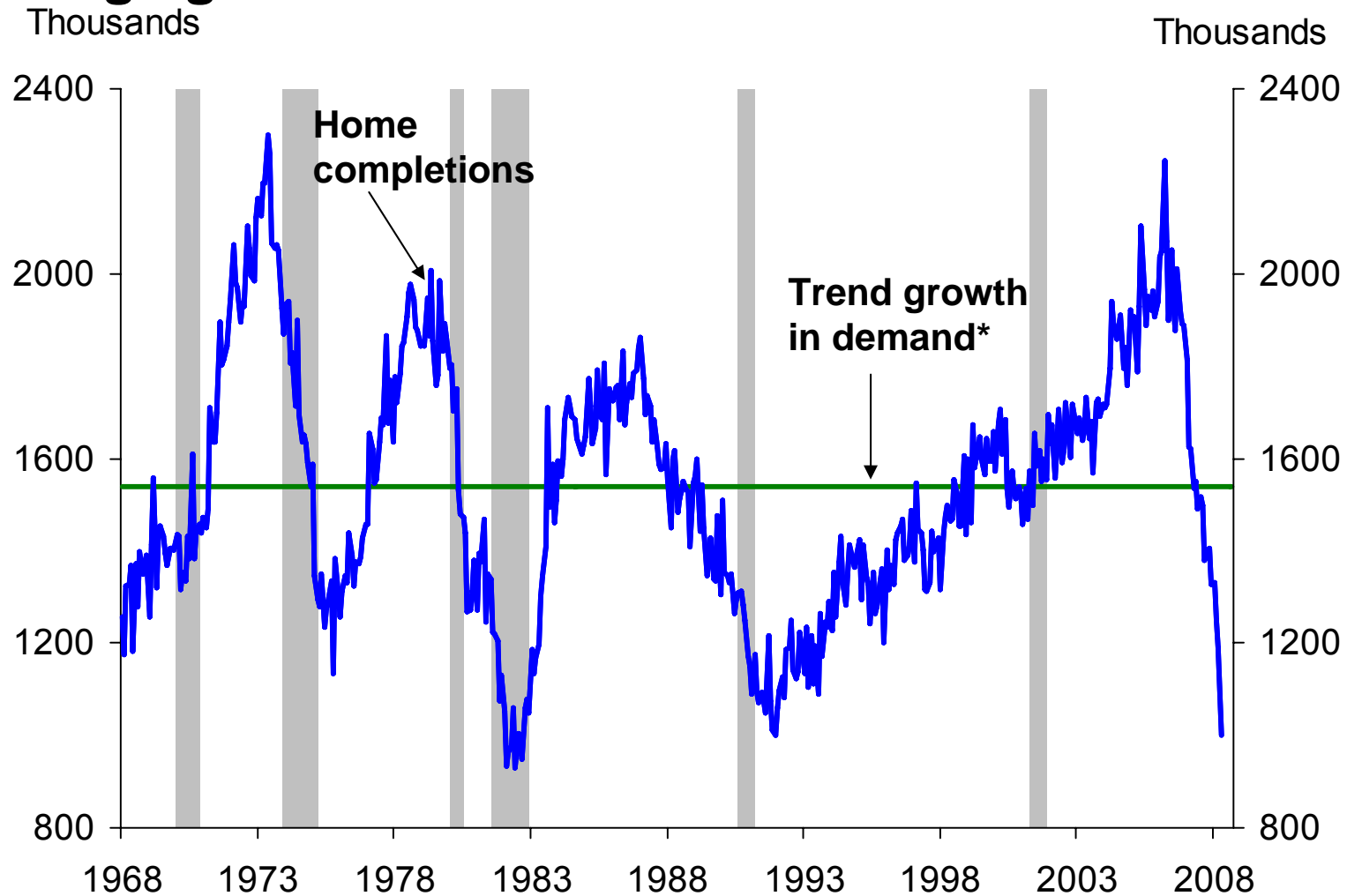
Source: Bloomberg, DB Global Markets Research

Often-ignored fact number 1: Profit margins are high



Source: FRB, BEA, NAR, DB Global Markets Research

Often-ignored fact number 2: Growth of housing stock (completions) has now fallen well below long-run average growth in demand



*Equals 25-year average annual household formations plus removals

Often-ignored fact number 3: Banks have so far raised capital to cover an impressive 75% of their losses

(\$bn)	Total		2Q08		1Q08		4Q07		3Q07		Prior	
Region	Loss	Capital	Loss	Capital	Loss	Capital	Loss	Capital	Loss	Capital	Loss	Capital
Worldwide	392.2	299.8	8.4	153.1	149	89.4	184.3	46.3	46.9	5.4	3.5	5.6
Americas	171.1	156.0	8.4	65.4	65.8	60	69.6	29.8	26.3	0	0.7	0.8
Europe	200.2	127.5	0	74.8	80.6	25.9	101.7	16.6	15.4	5.4	2.8	4.9
Asia	21	16.3	0	12.9	2.6	3.4	13.4	0	5.2	0	0	0

Note: Data as of 6/18/2008

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Source: Bloomberg, DB Global Markets Research

Often-ignored fact number 4: In downturns, commodity prices normally decline

Commodity price changes during global downturns¹

Peak	Dec-1973	Feb-1980	Aug-1981	Nov-1990	Sep-2000
Trough	Jun-1975	Sep-1980	Sep-1982	Jun-1993	Jan-2002
Crude oil	117.2	-10.5	-1.8	-47.9	-37.0
Metals	-5.4	-25.6	-14.9	-34.7	-4.8
Food	-13.0	11.0	-8.1	-7.7	-4.8
Beverages	-17.3	-20.5	-3.2	-24.8	-8.3
Agricultural materials	-19.2	-12.9	-2.1	14.0	-13.5

¹Downturns identified on the basis of global industrial production using business cycle dating methods. Peak to trough changes in % based on \$ prices.

Often-ignored fact number 5: Stimulus provided by economic policy is significant

Impact on GDP of a 3.25%-points reduction in fed funds rate

	2008Q1	2008Q2	2008Q3	2008Q4
Fed model (FRBUS)	0.0	0.4	0.7	0.8
Taylor's model	0.5	0.7	0.7	0.5
Small Fed model	0.4	0.7	0.8	0.7
Average, monetary policy	0.3	0.5	0.7	0.7

Impact on GDP of fiscal stimulus package

	2008Q1	2008Q2	2008Q3	2008Q4
Fiscal	0	1.2	2.0	1.0

Impact on GDP from monetary and fiscal policy

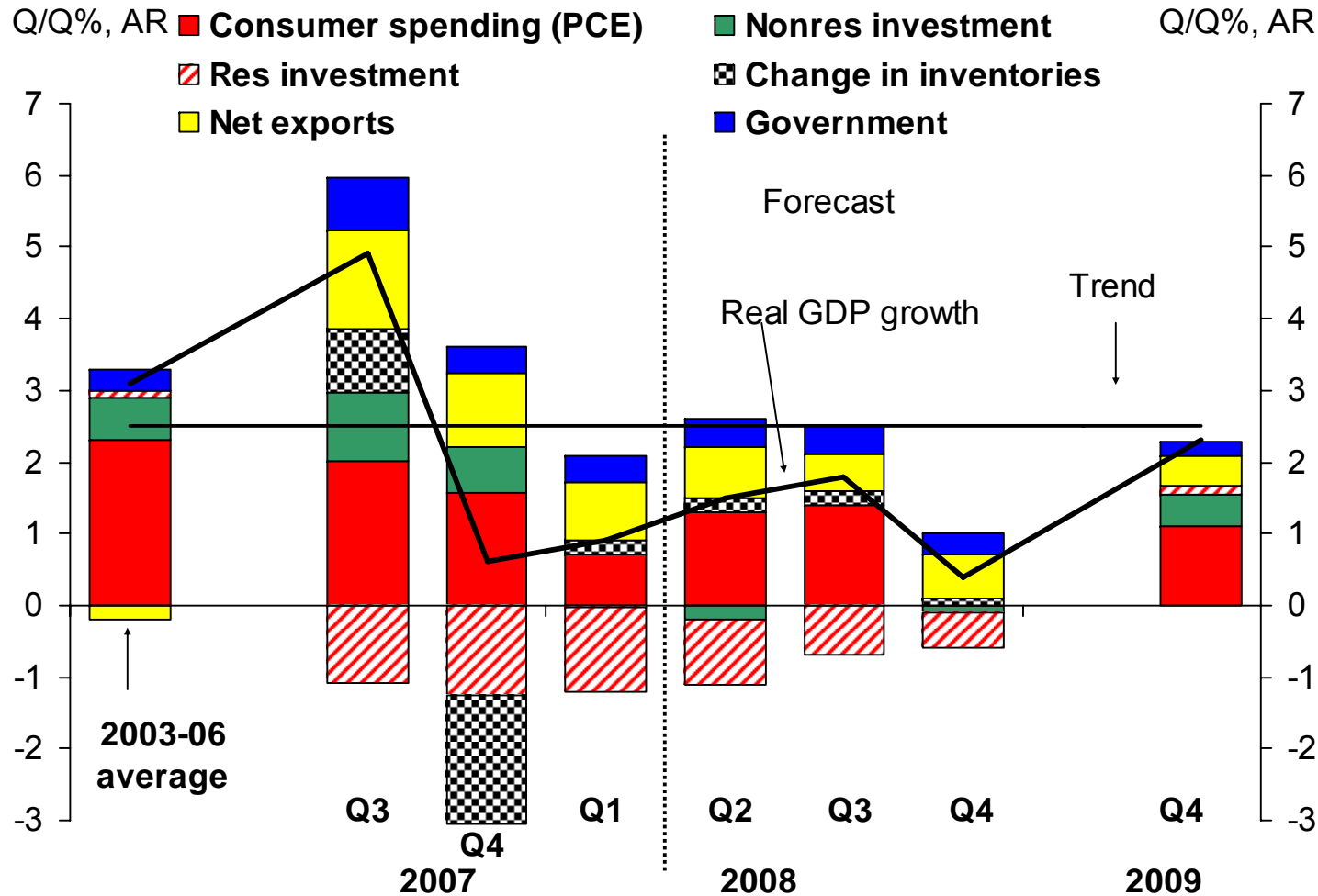
	2008Q1	2008Q2	2008Q3	2008Q4
Total policy boost	0.3	1.7	2.7	1.7

Source: DB Global Markets Research

Central scenario: near recession/sluggish recovery

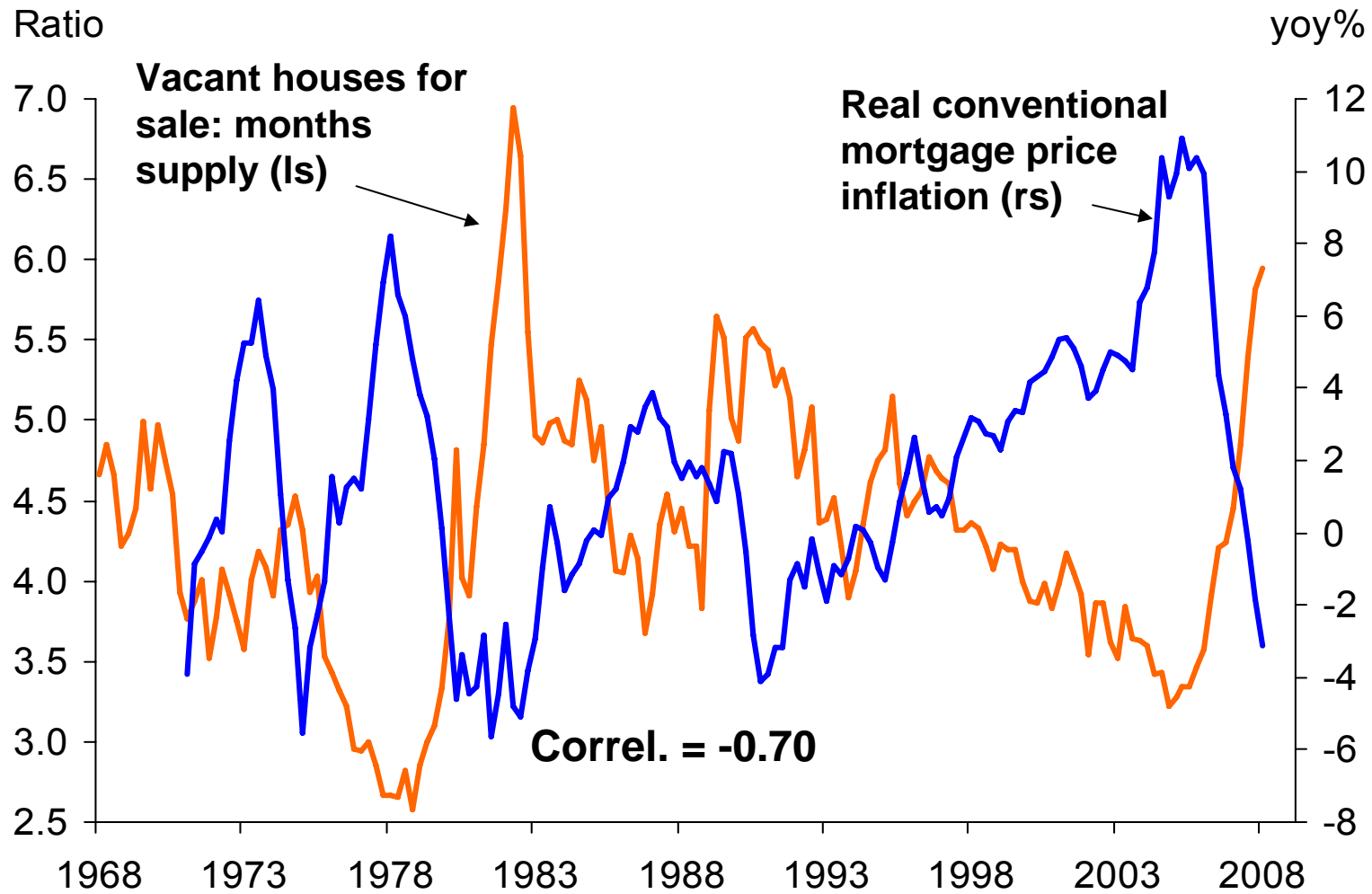
Real GDP Q4/Q4	
2007	2.8
2008	1.1
2009	2.3

Spending contributions



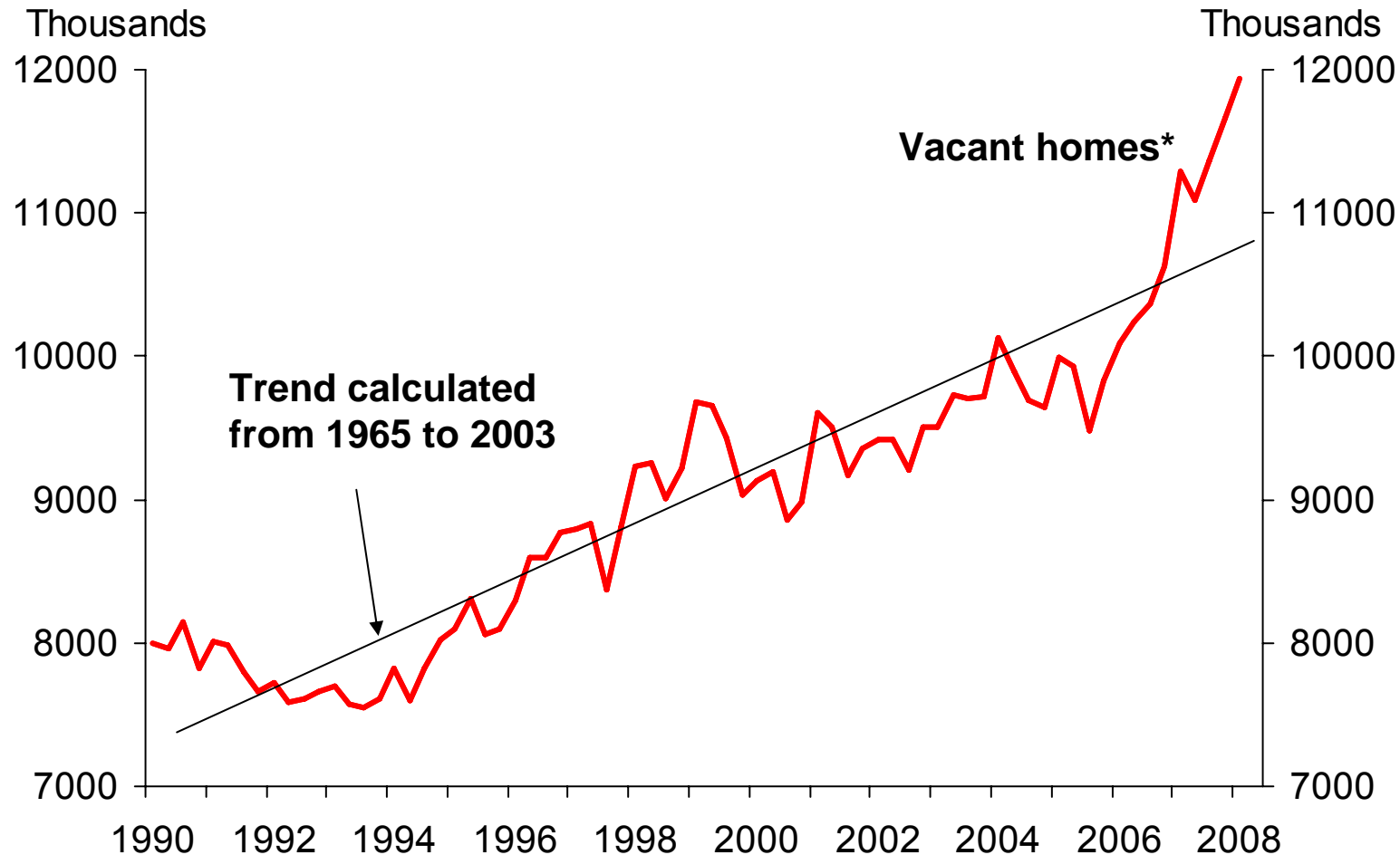
Source: BEA, DB Global Markets Research

Stock of vacant homes inversely correlated with HPA



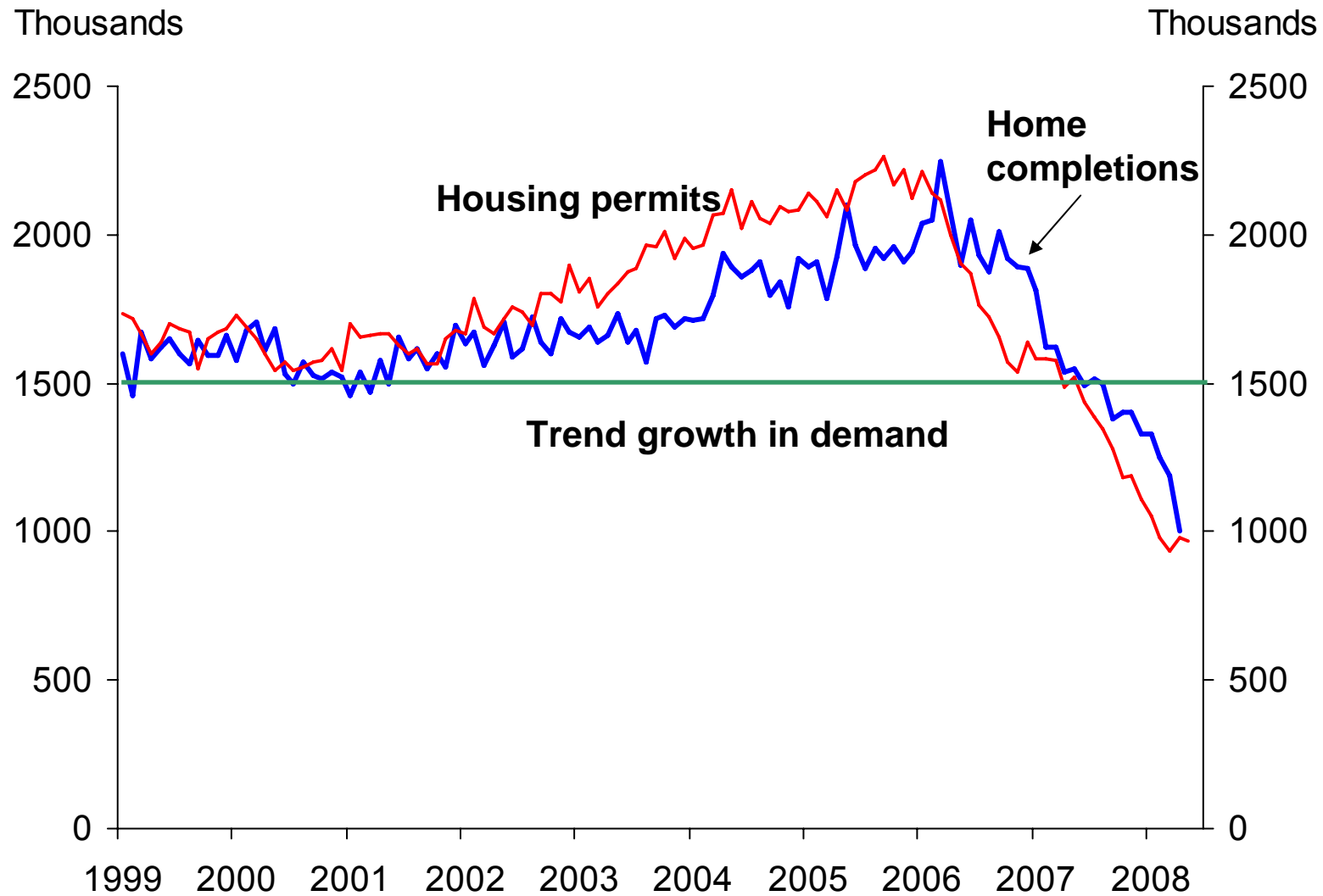
Source: Census, Realtor, DB Global Markets Research

Excess Housing Stock now at about 1.1mn units

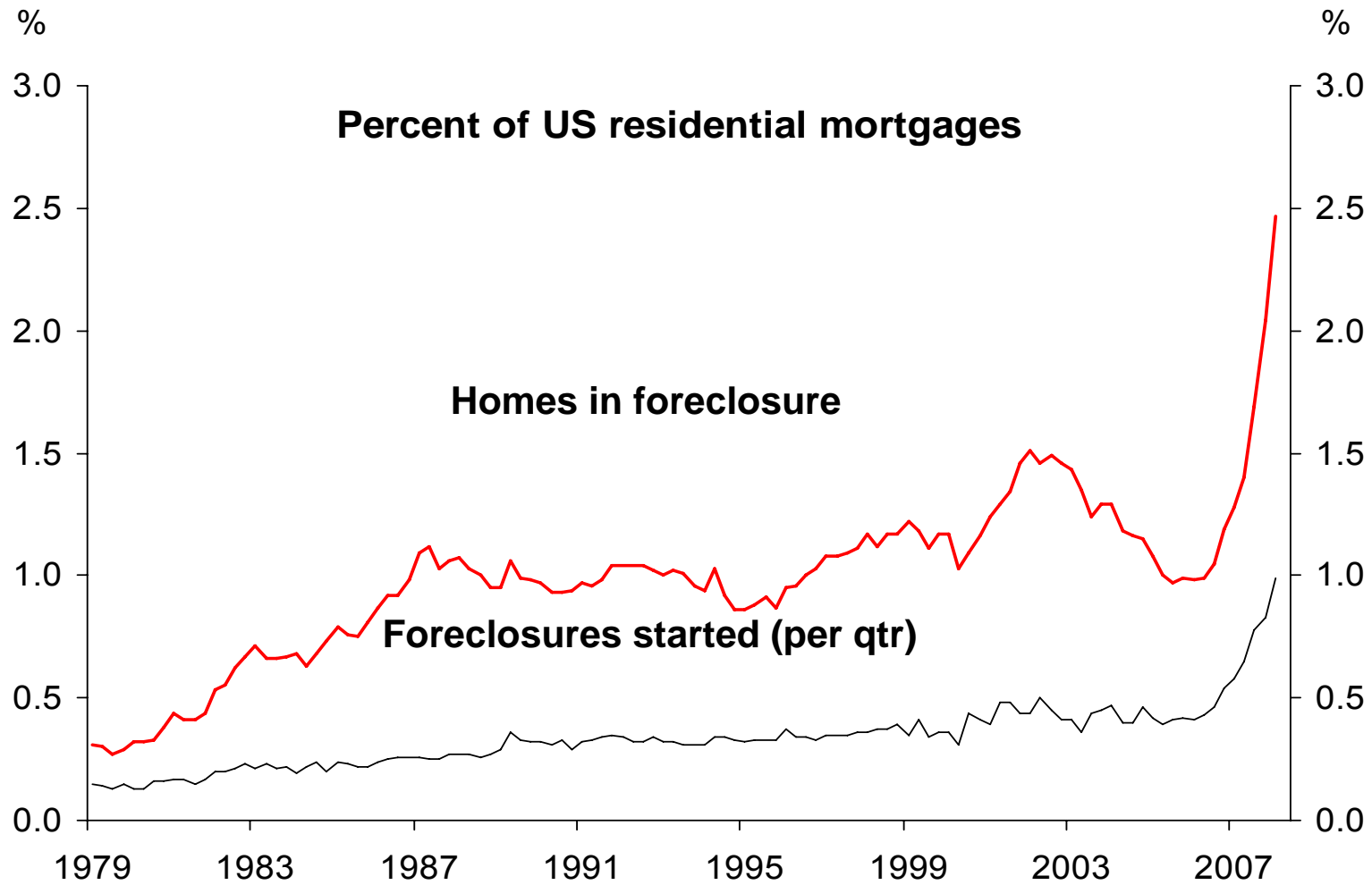


* Includes homes for sale, homes for rent, and homes held off the market; excludes seasonal homes and second homes not used a primary residence.

Excess stock of homes should be turning down soon

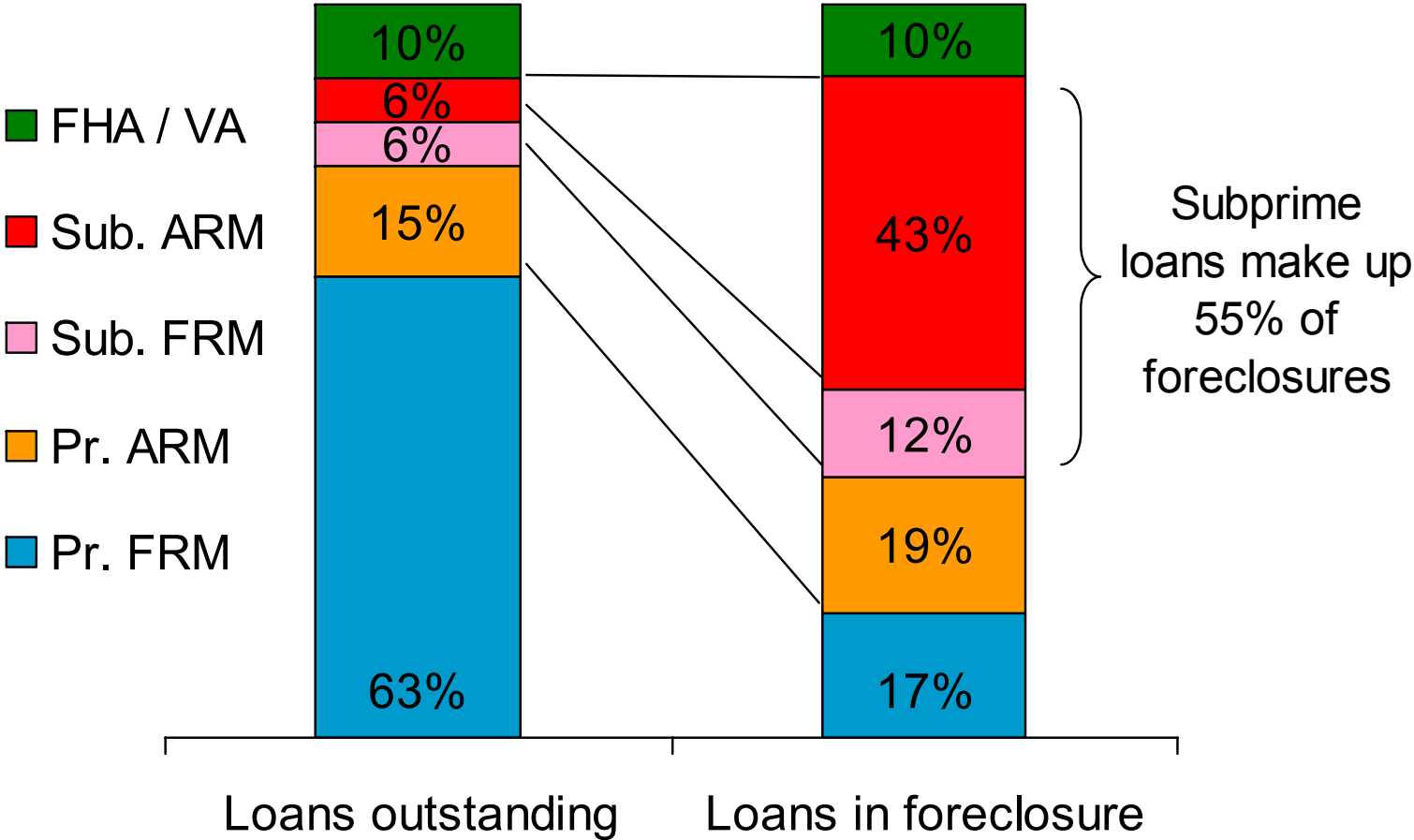


Four states - California, Florida, Nevada and Arizona - account for 89% of the increase in new foreclosures. GDP in those four states is about 20% of US GDP



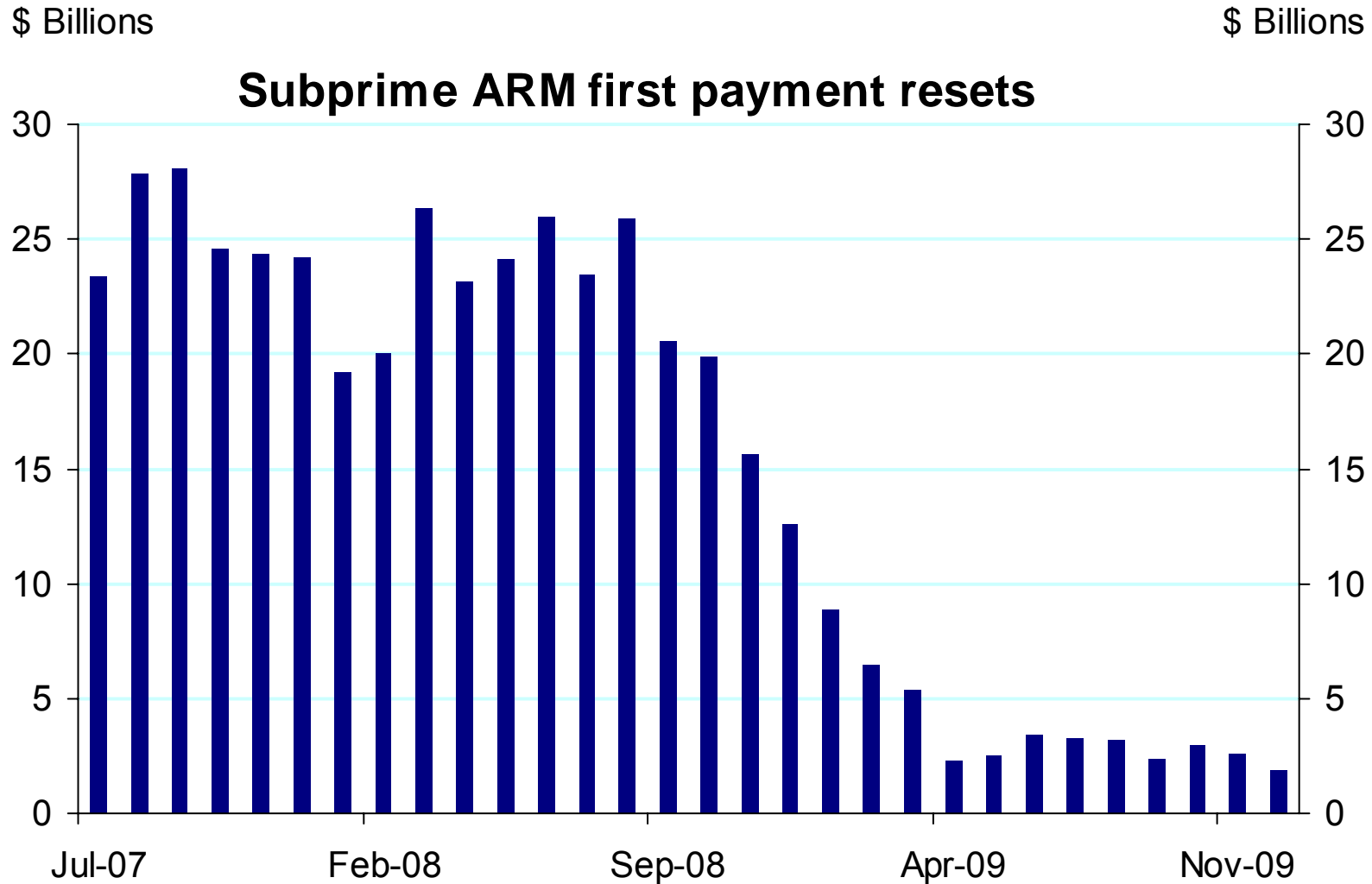
Source: MBA, DB Global Markets Research

Foreclosures heavily concentrated in subprime



Source: MBA and DB Global Markets Research

Foreclosures likely to continue increasing in 2008



Quantifying the ARM reset problem

Loan characteristics				
	Subprime ARM	Option ARM	Alt A 5-1 (IO)	Jumbo 5-1 (IO)
Initial Cap	2.53%	7.50%	5.45%	5.02%
Margin	5.85%	3.05%	2.33%	2.73%
Teaser Rate	7.25%	2.42%	5.31%	4.61%
Loan Amount	200,000	420,889	301,253	632,765
Initial Cap	2.53%	7.50%	5.45%	5.02%
Note: For the interest only mortgages the interest only period is the teaser.				

Source: DB Global Markets Research

	Payment shocks			
	Loan type			
Fed funds	Subprime ARM	Option ARM	Alt-A 5-1 (IO)	Jumbo 5-1 (IO)
3%	15.8%	7.5%	36%	63%
2.5%	10.7%	7.5%	30%	56%
2%	5.9%	7.5%	23%	48%
1.5%	1.0%	7.5%	17%	41%
1%	0.0%	7.5%	11%	34%
0.5%	0.0%	7.5%	5%	27%

Source: Loan Performance, DB Global Markets Research

A macro perspective on ARMs

	Subprime ARM	Option ARM	Alt-A ARM	Jumbo ARM
Share of total mortgage market (in \$)	5.6%	2.8%	4.1%	5.7%
Share of total households in the US	2.9%	0.7%	1.4%	0.9%
Share of loans that will reset in 2008	57%	11%	7%	9%
Households facing a reset in 2008	1.8mn	80,000	100,000	90,000
Share of US households resetting in 2008	1.6%	0.1%	0.1%	0.1%
Share of loans that will reset in 2009	21%	0%	9%	16%
Households facing a reset in 2009	670,000	2,000	130,000	160,000
Share of US households resetting in 2009	0.6%	0%	0.1%	0.1%

Source: Loan Performance, DB Global Markets Research

How do servicers evaluate loan modification options?

Necessary
payment
reduction

		Current CLTV											
		40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%
10%	FC	T	T	T	T	T	T	T	T	T	T	T	T
20%	FC	T	T	T	T	T	T	T	T	T	T	T	T
30%	FC	FC	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR
40%	FC	FC	FC	FC	TR	TR	TR	TR	TR	TR	TR	TR	TR
50%	FC	FC	FC	FC	FC	TR	TR	TR	TR	TR	TR	TR	TR
60%	FC	FC	FC	FC	FC	FC	FC	TR	TR	TR	TR	TR	TR
70%	FC	FC	FC	FC	FC	FC	FC	FC	TRP	TRP	TRP	TRP	TRP
80%	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	TRP	TRP	TRP
90%	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC
100%	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC

Legend

FC	Foreclosure
T	Term Extension
TR	Term Extension + Rate Reduction
TRP	Term Extension + Rate Reduction + Principal Writedown

Illustrative Assumptions

- 60% Current value recovery in foreclosure
- 40 Maximum loan term
- 2.0% Minimum interest rate
- 50% Minimum principal

Note: Ignores second liens and ignores short-sale as a loss mitigation option

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Source: DB Global Markets Research

Some progress on government plans

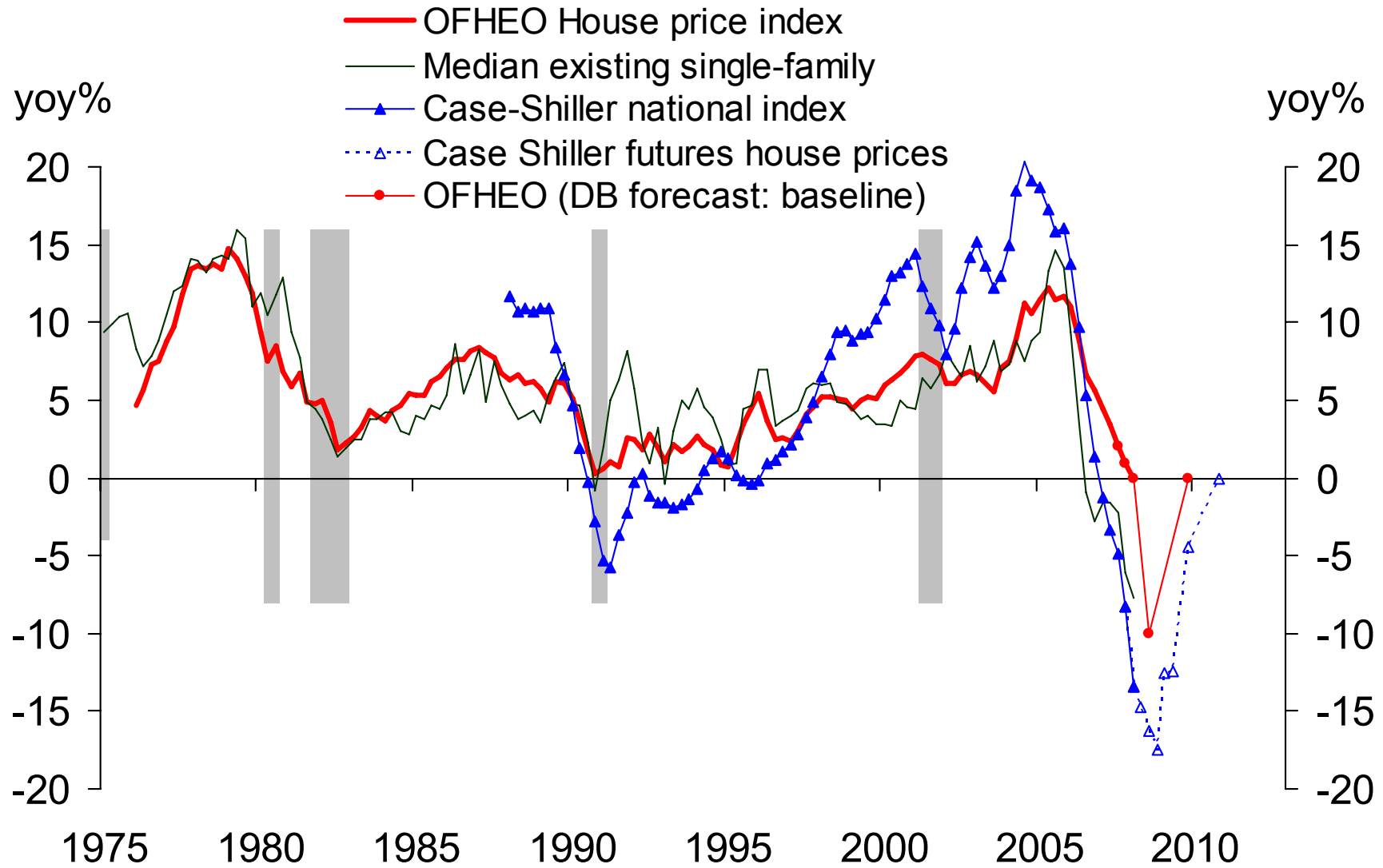
(Numbers in thousands)	Q1-07	Q2-07	Q3-07	Q4-07	Q1-08
Repayment plans	261	270	320	332	323
Modifications	54	65	76	141	179
Total Workouts	314	335	396	473	503
Modifications as a % of Workouts	17%	19%	19%	30%	36%

Source: Hope Now, DB Global Markets Research

DB's top-down house price model

- House price = $F(\text{income, mortgage rate, inflation, vacancy rate, subprime foreclosures})$
- Baseline: No recession, 20% of all subprime borrowers enter foreclosure => home prices fall 5-10% over next two years.
- Worse case: Recession, 40% of all subprime borrowers enter foreclosure => home prices fall 15-20% over next two years.

Steep decline in home price inflation has further to go



Case-Shiller home price changes by major metropolitan area

Metropolitan areas	% Increase Jan-03 to Jun-06	% Decline Jun-06 to Mar-08
Phoenix – AZ	94.2	-26.6
Miami*	93.5	-24.9
Las Vegas *	91.7	-27.6
Los Angeles *	89.4	-24.2
Tampa – FL	78.4	-23.3
Washington *	72.9	-19.4
San Diego *	60.6	-25.7
Portland – OR	56.3	-1.9
San Francisco *	53.7	-22.8
Seattle - WA	53.5	0.3
New York *	47.3	-8.9
Chicago *	31.8	-10.0
Minneapolis – MN	23.3	-16.8
Boston *	21.2	-10.9
Charlotte – NC	17.5	4.0
Atlanta – GA	16.4	-7.0
Denver *	11.7	-8.6
Cleveland – OH	11.6	-13.4
Dallas – TX	9.3	-4.4
Detroit – MI	6.6	-22.4
Composite-10	58.4	-17.8
Composite-20	52.2	-16.6
US National	45.6	-16.2**
OFHEO Purchase only	30.0	-0.9**

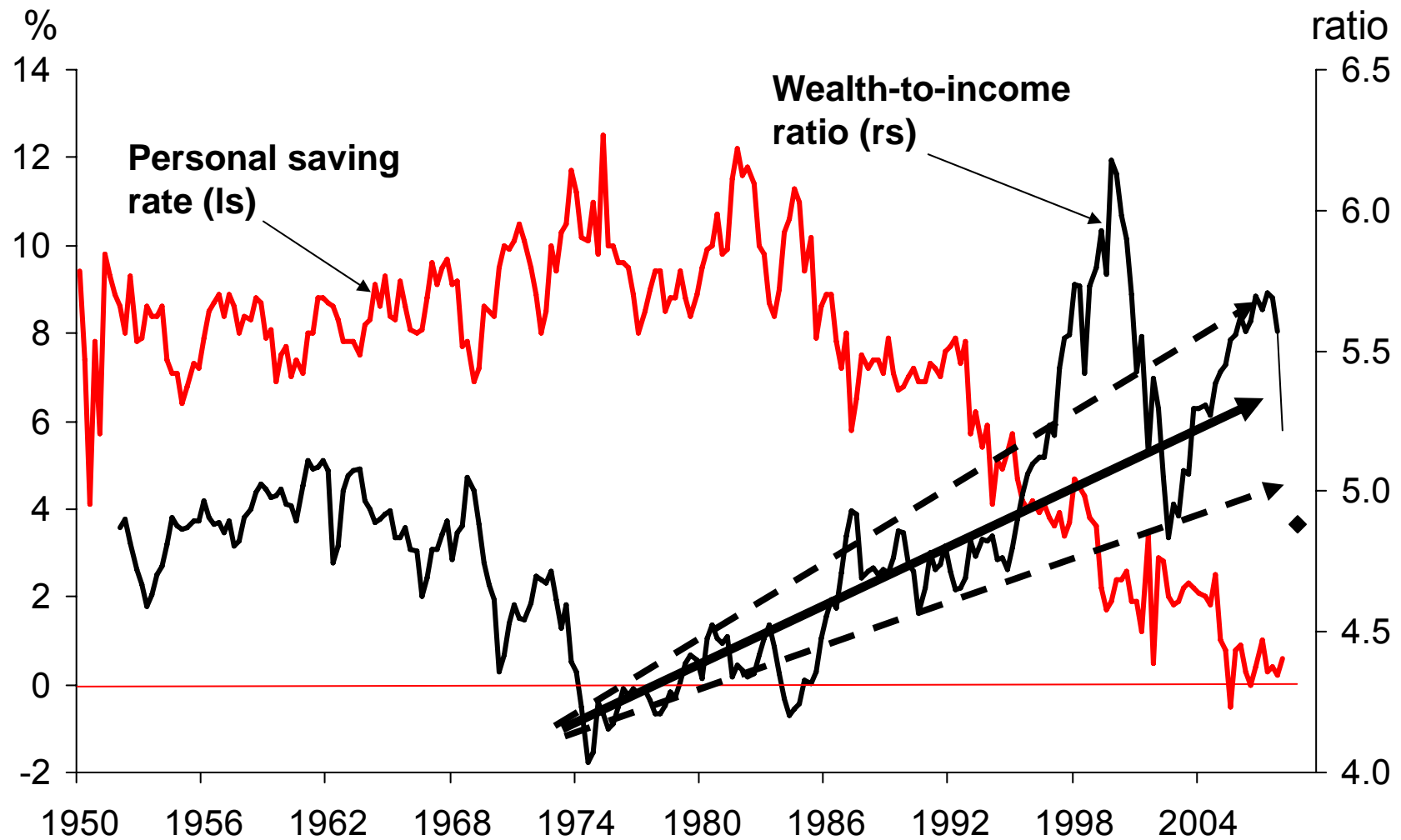
* Composite-10 in bold. ** Quarterly data till Q1-08 used in the calculations.

Consumers currently hit by a “Perfect storm”

Consumers hit by five shocks:

1. High food and energy price inflation
2. Declining real income growth
3. Negative wealth effects
4. Tighter credit conditions
5. Confidence is low

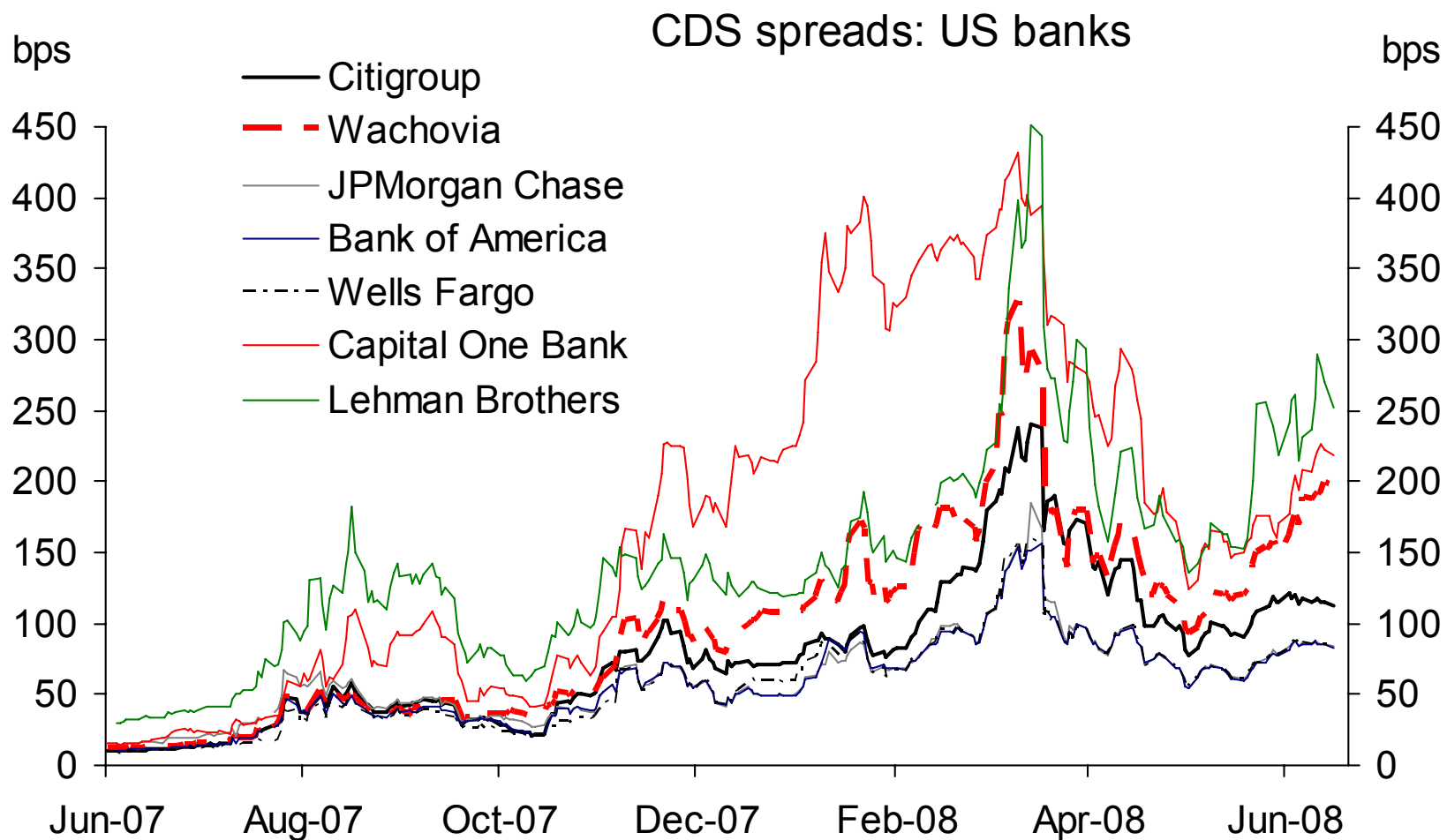
Key to the wealth effect is how much households have looked through the bubbles



Source: BEA, FRB, DB Global Markets Research

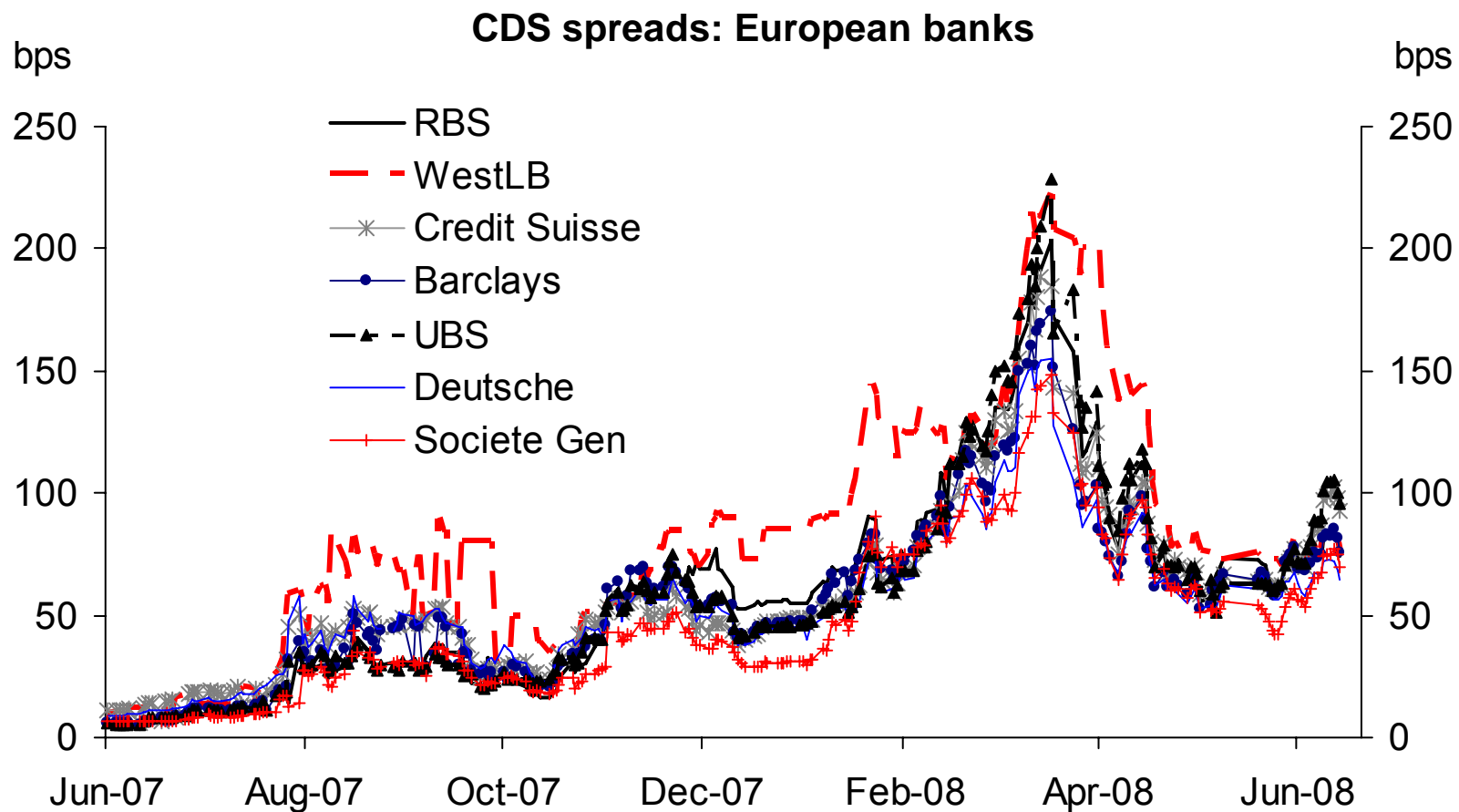
The Credit Crunch

Pressure on US banks has eased since March



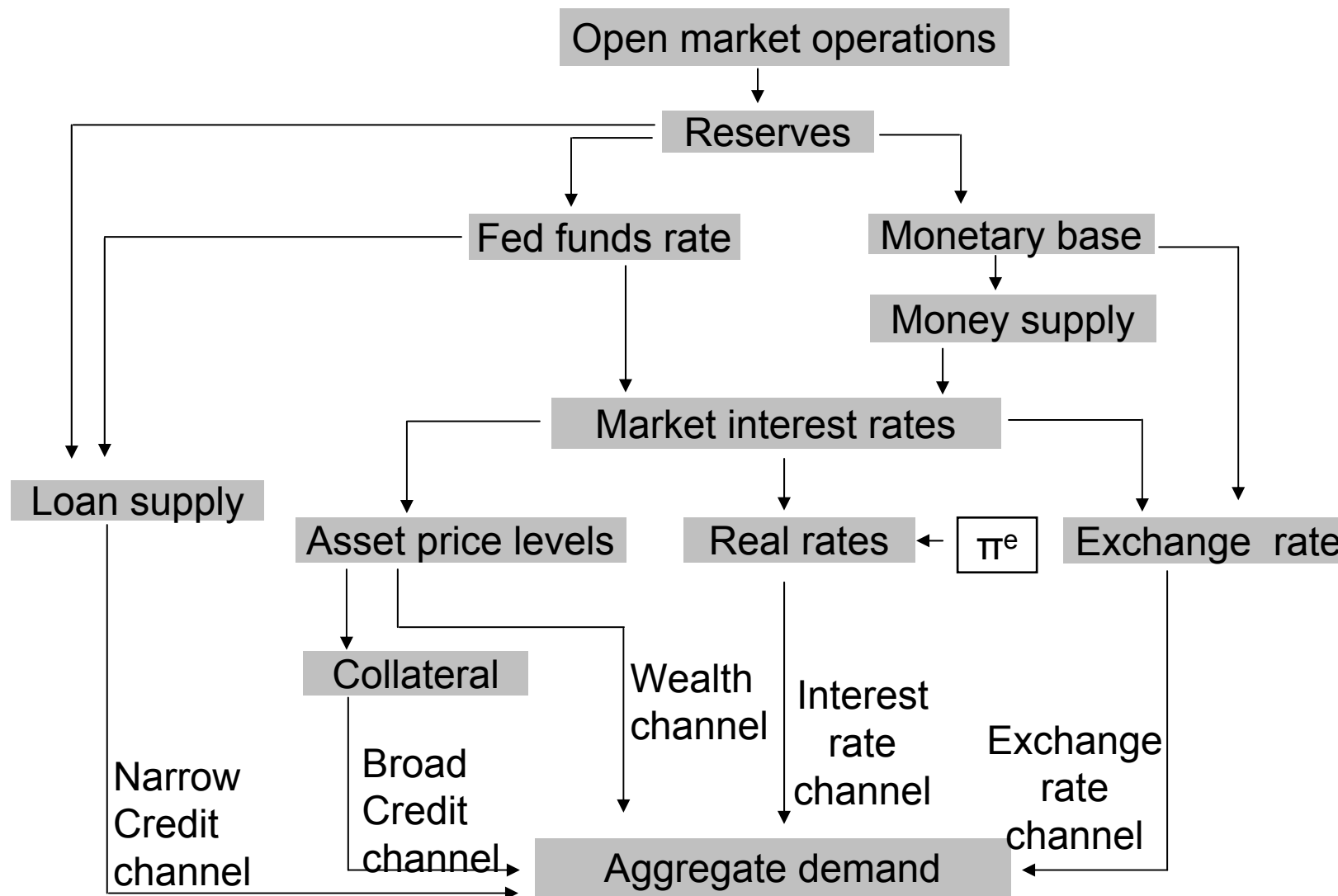
Source: Bloomberg and DB Global Markets Research

Pressure on European banks has eased



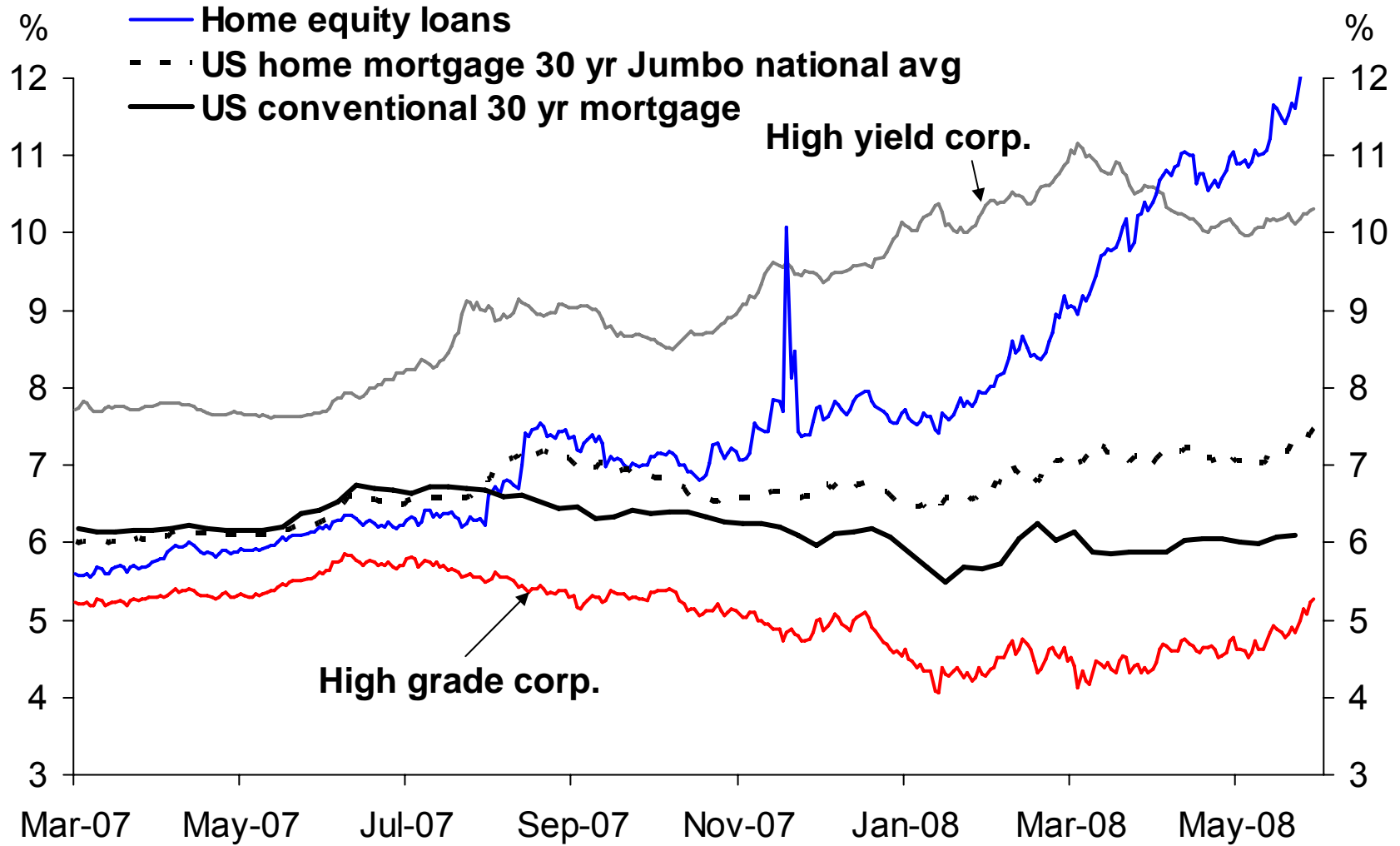
Source: Bloomberg and DB Global Markets Research

Monetary policy transmission channels



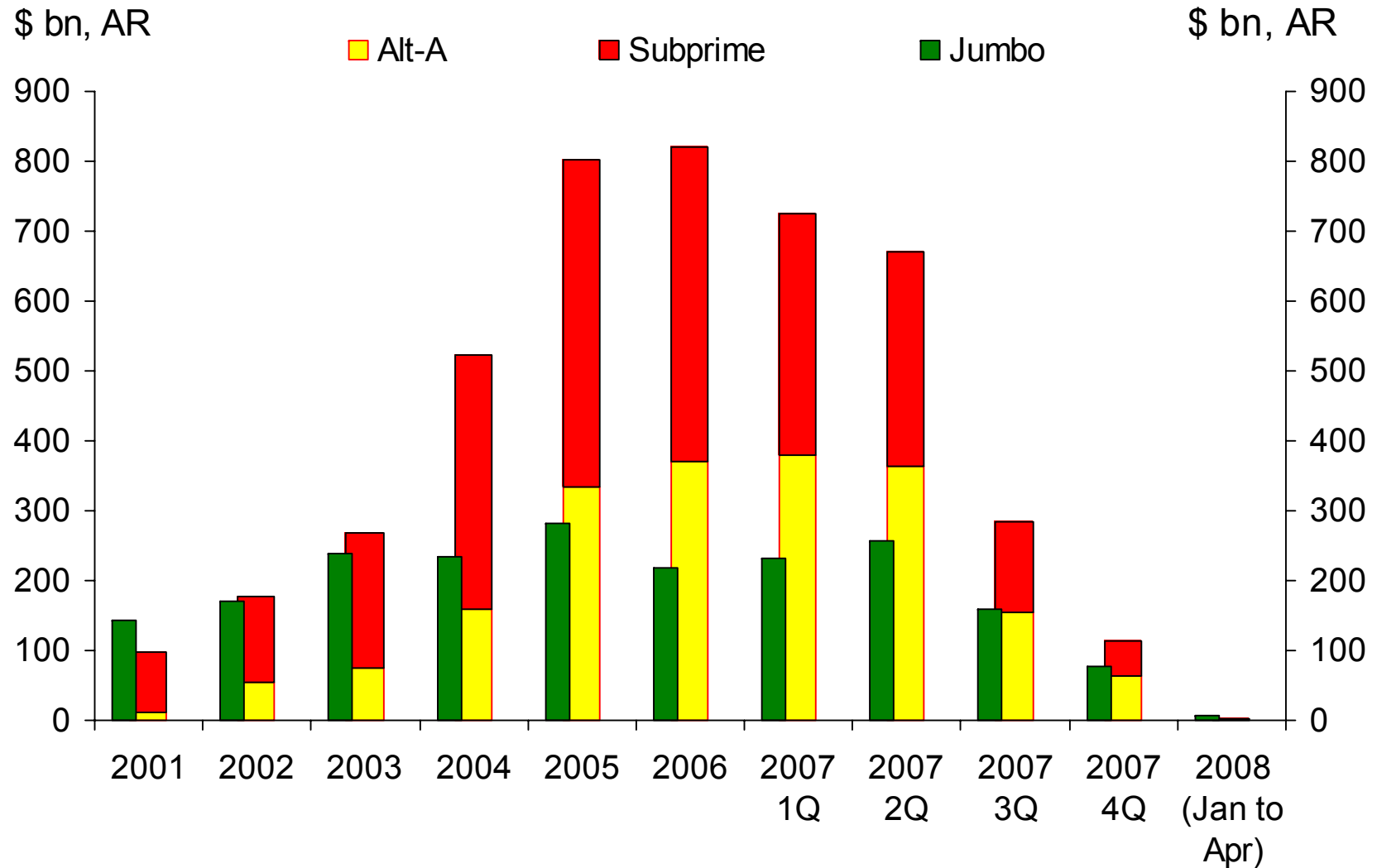
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Private long-term rates rising, or declining only slowly



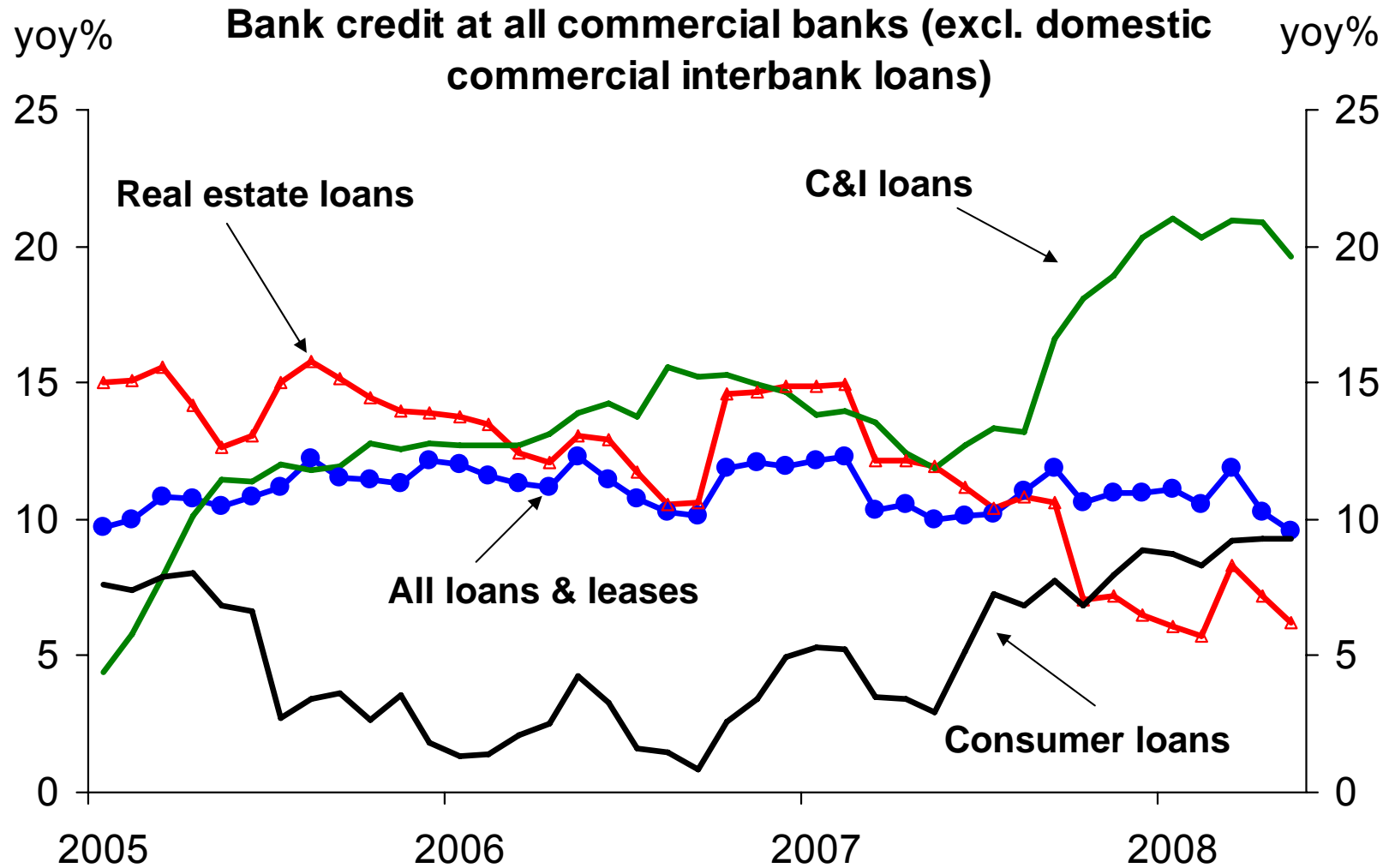
Source: Bloomberg, Haver, FRB, DB Global Markets Research

Securitized mortgage lending has disappeared



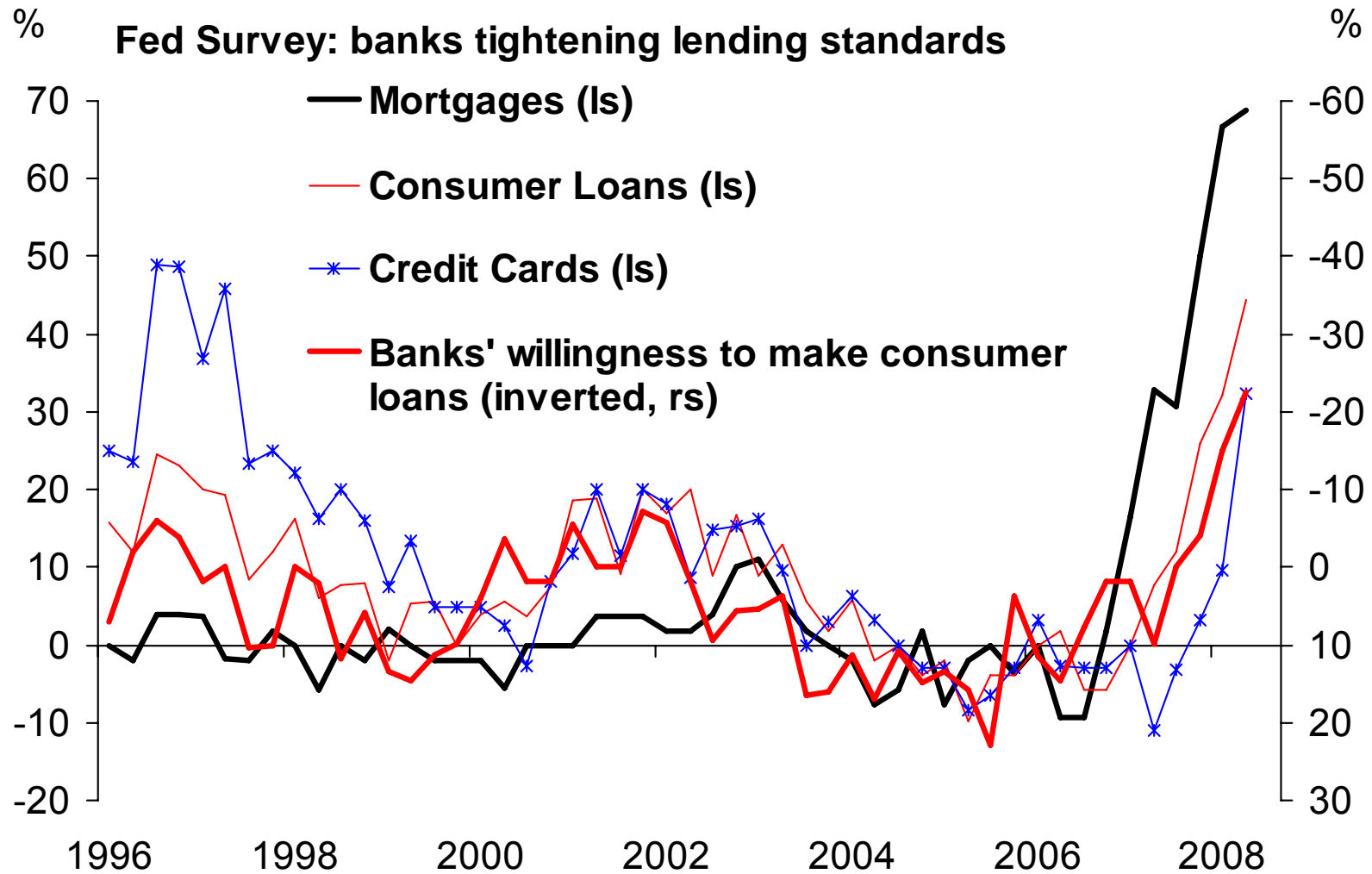
Source: MBA, DB Global Markets Research

Total bank loan growth holding up OK so far



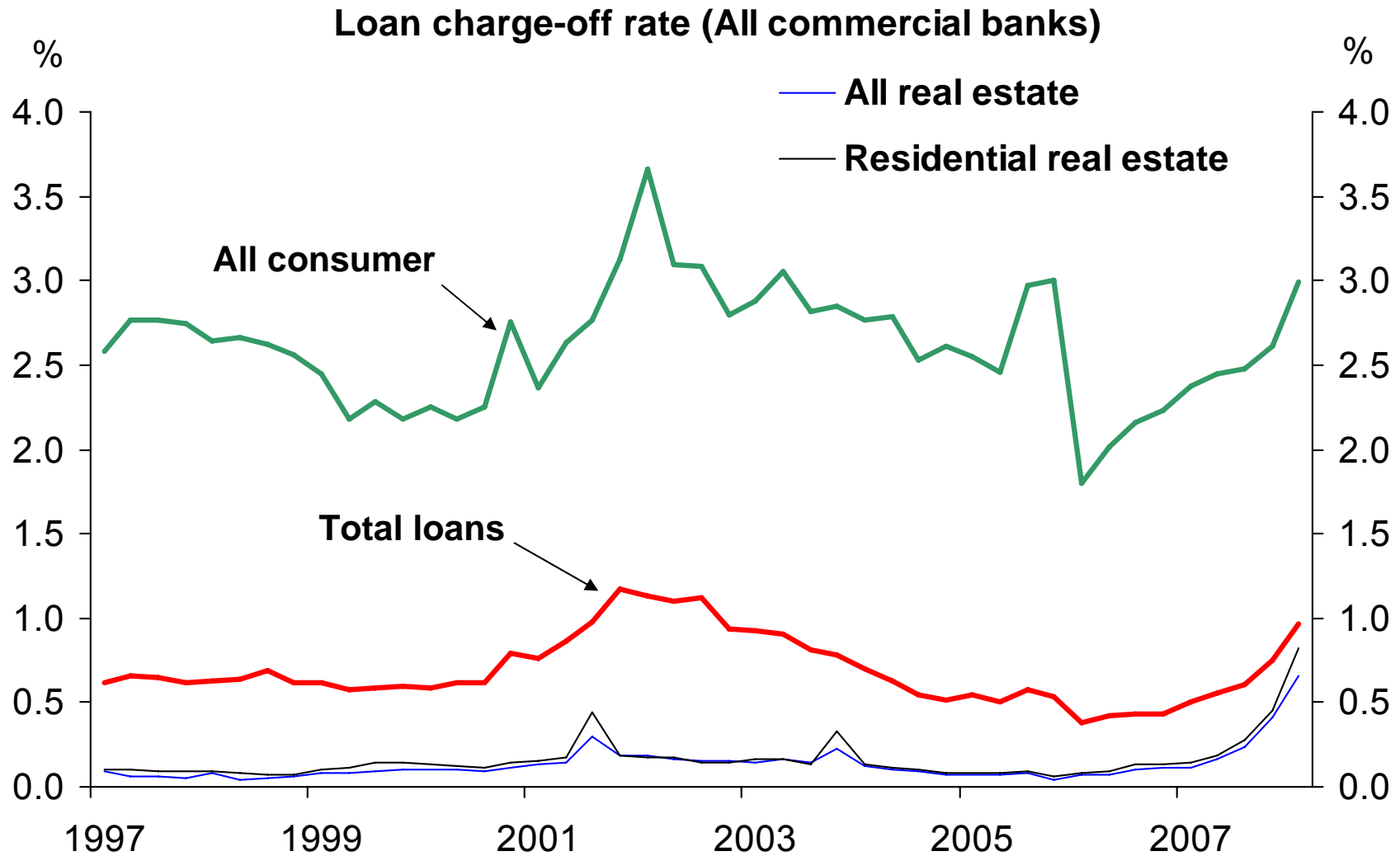
Source: Bloomberg, Haver, DB Global Markets Research

But bank credit conditions for households are tightening



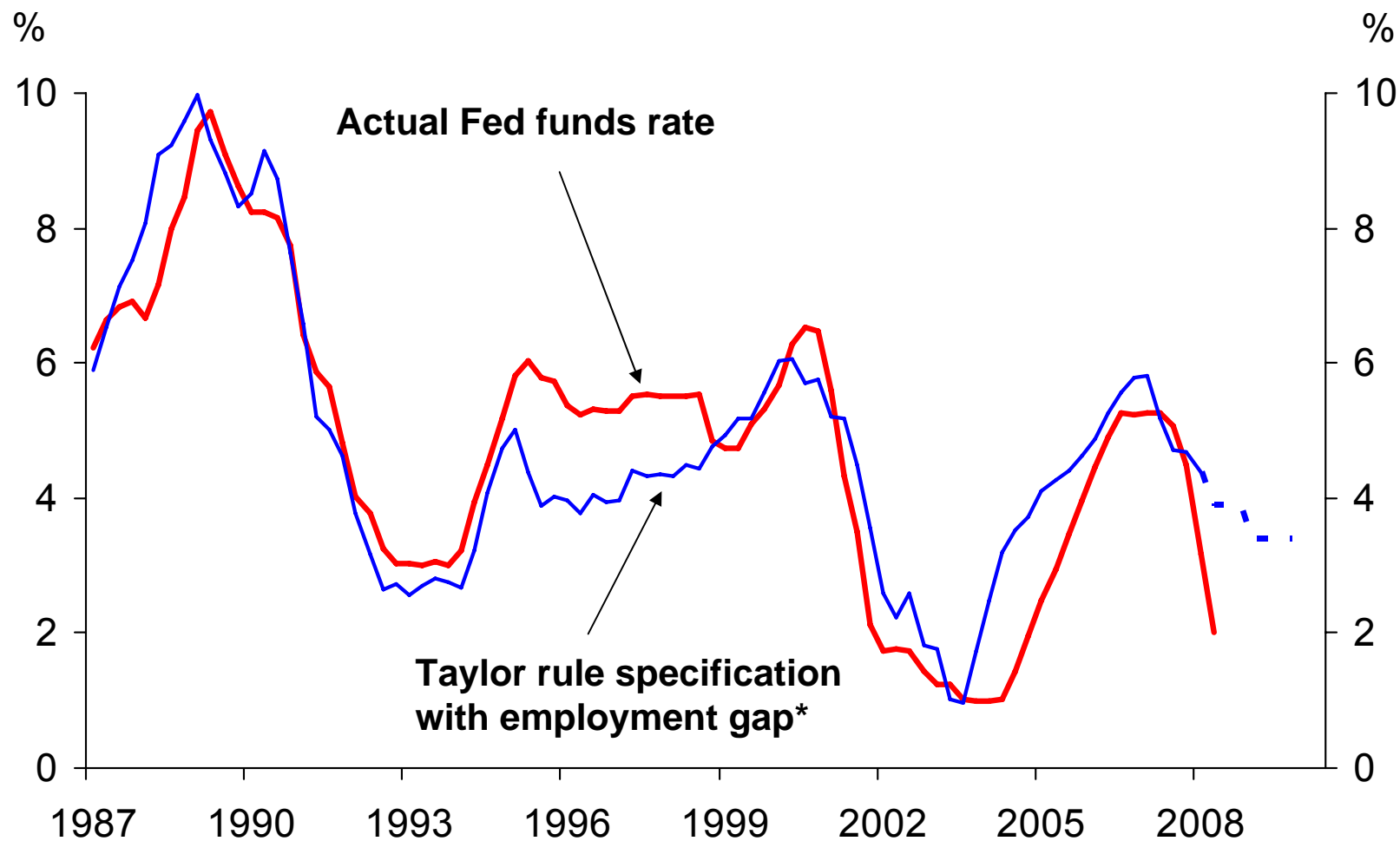
Source: Federal Reserve Senior Loan Officer Survey, DB Global Markets Research

Consumer credit quality beginning to deteriorate



Source: Bloomberg, Haver, DB Global Markets Research

Fed has cut unusually aggressively in response to downside risks



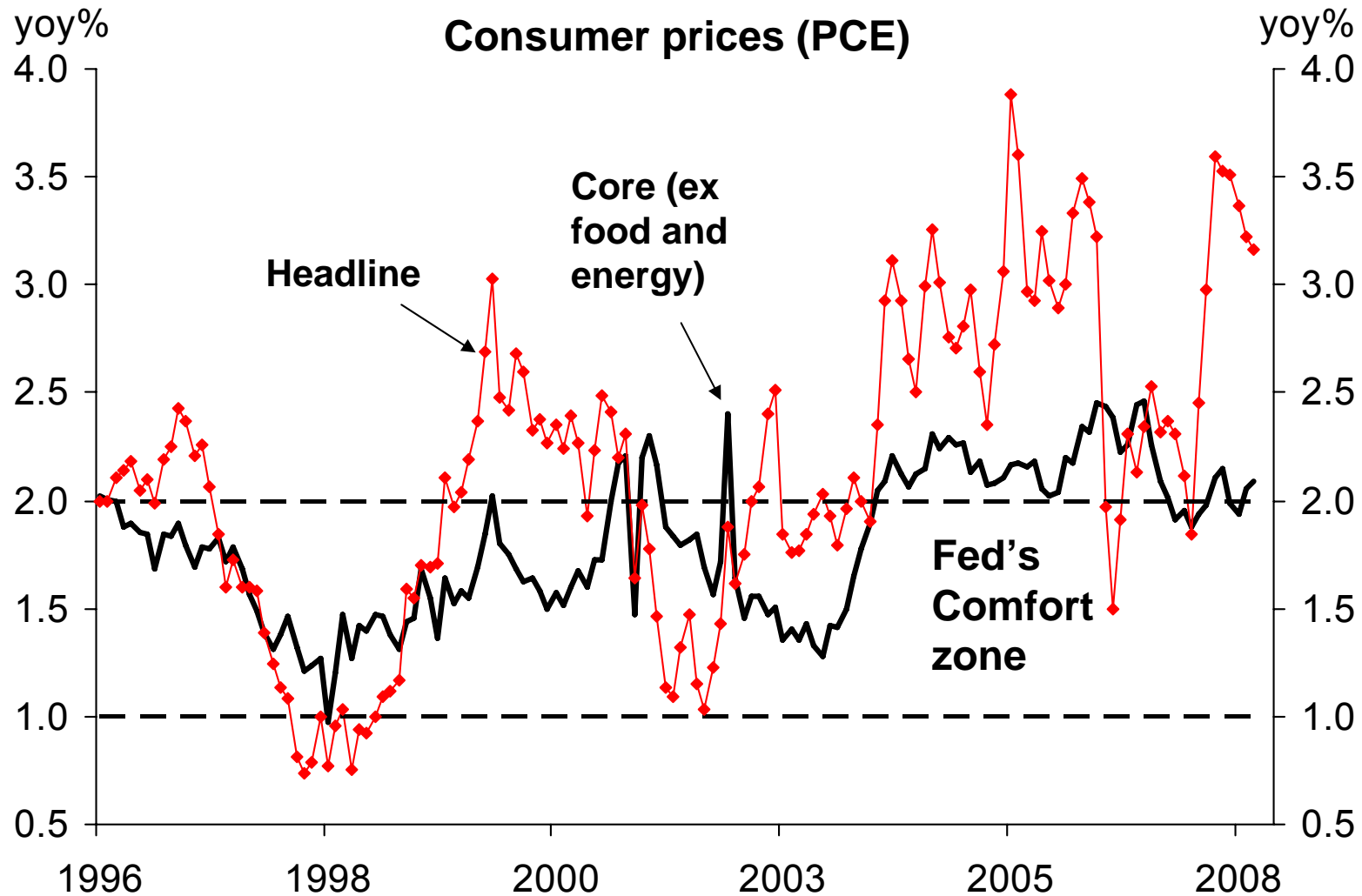
* $FFnom = 2.5 - 2*(UR - NAIRU) + 0.5*(Core\ PCE\ inflation - 1.75) + Core\ PCE\ inflation$

Source: FRB, BEA, CBO, DB Global Markets Research

Taylor Rule rate implied by Fed's latest economic forecast

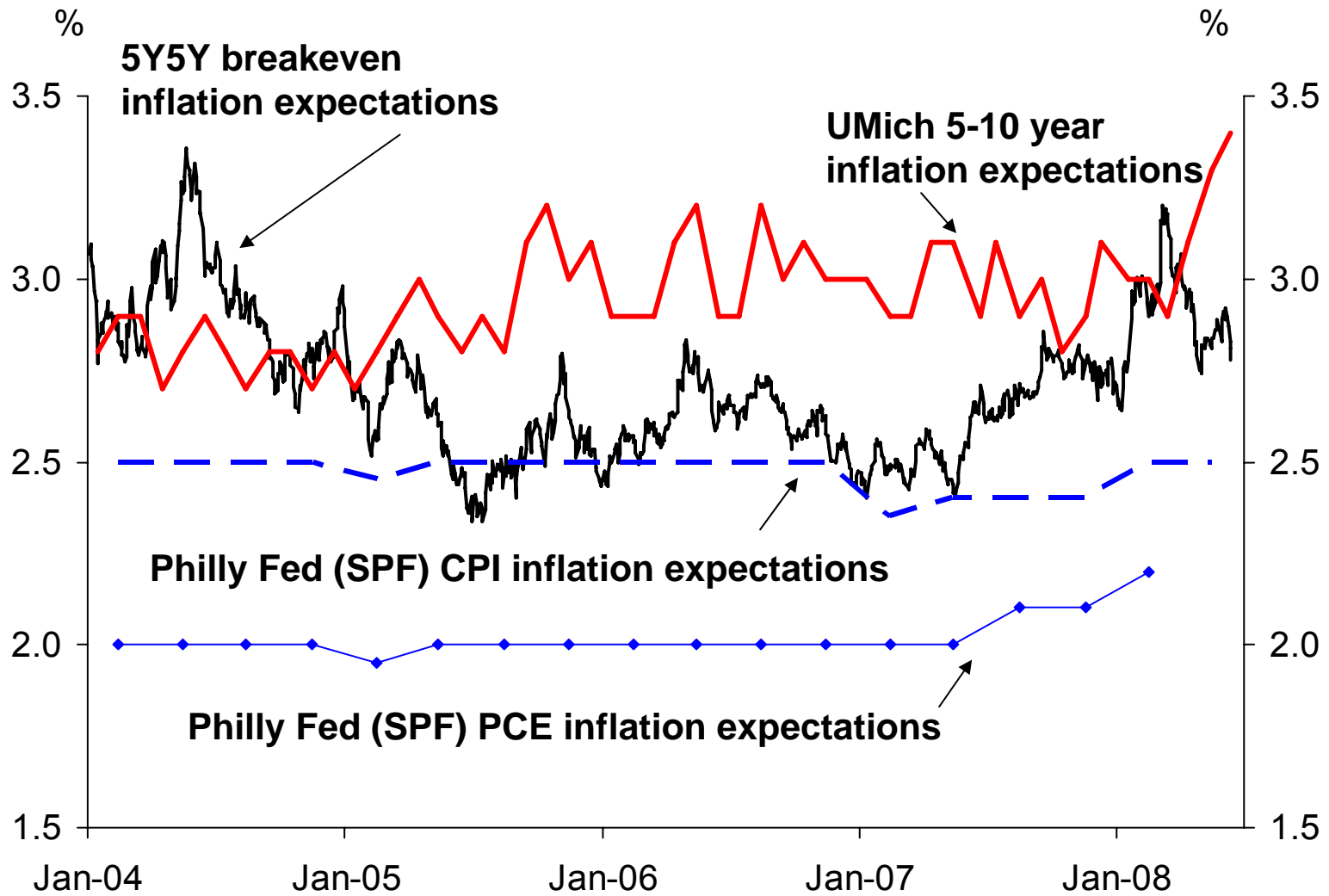
	2008	2009	2010
<i>Implied Fed Funds Rate</i>	3.0	2.8	3.0
Equilibrium real Fed funds	2	2	2
Inflation Target	1.75	1.75	1.75
NAIRU	4.75	4.75	4.75
Core PCE yoy*	2.3	2.0	1.8
Unemployment rate*	5.6	5.45	5.2
	Inflation	Output gap	
Coefficients in this Taylor rule:	0.5	-2	
Taylor's original coefficients	0.5	-1	
Note: * Fed forecasts published with the "Minutes of the Meeting of January 29-30, 2008"			

Inflation: Headline running well above comfort zone

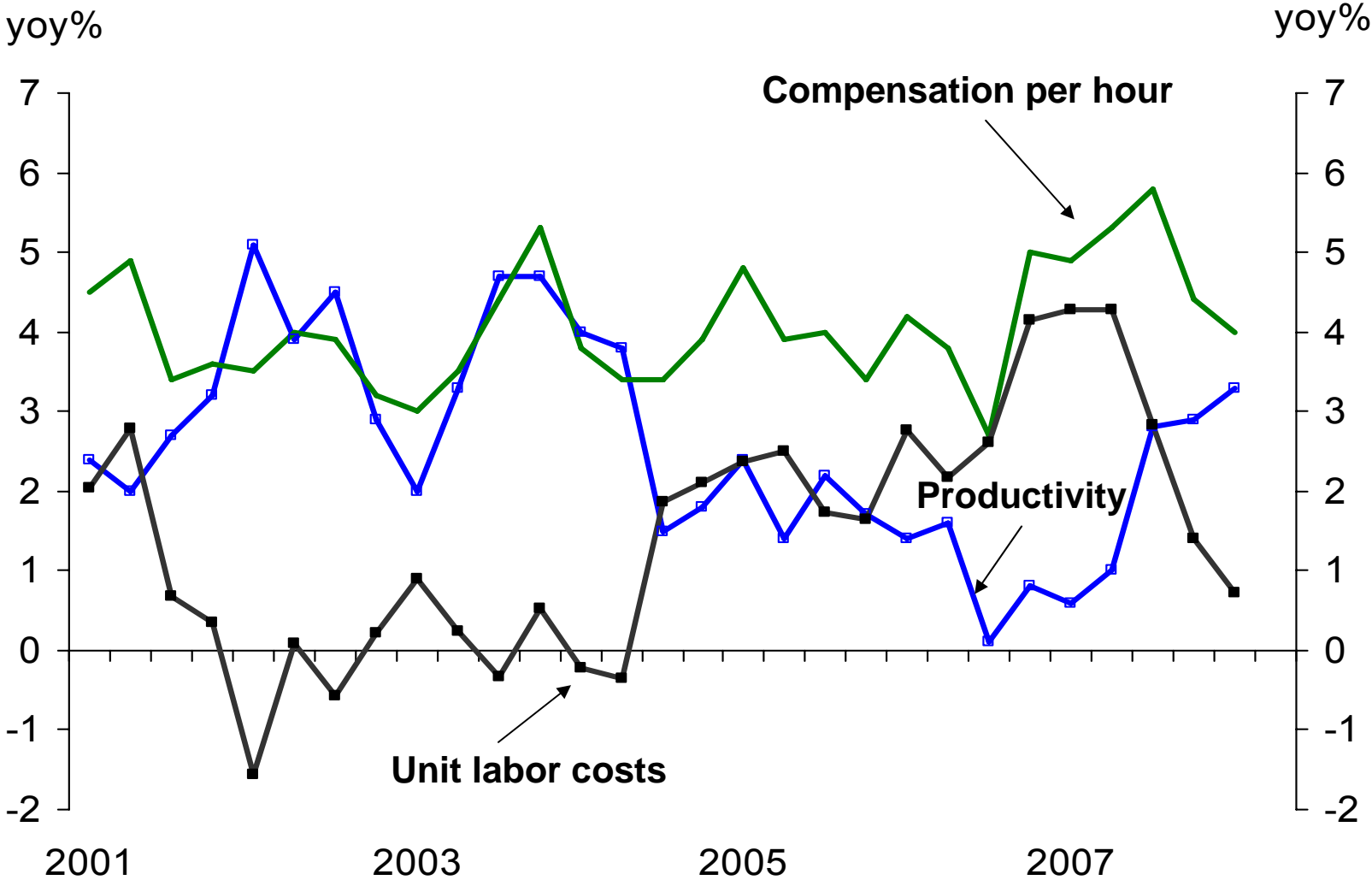


Source: BEA, DB Global Markets Research

Longer term inflation expectations moving upward

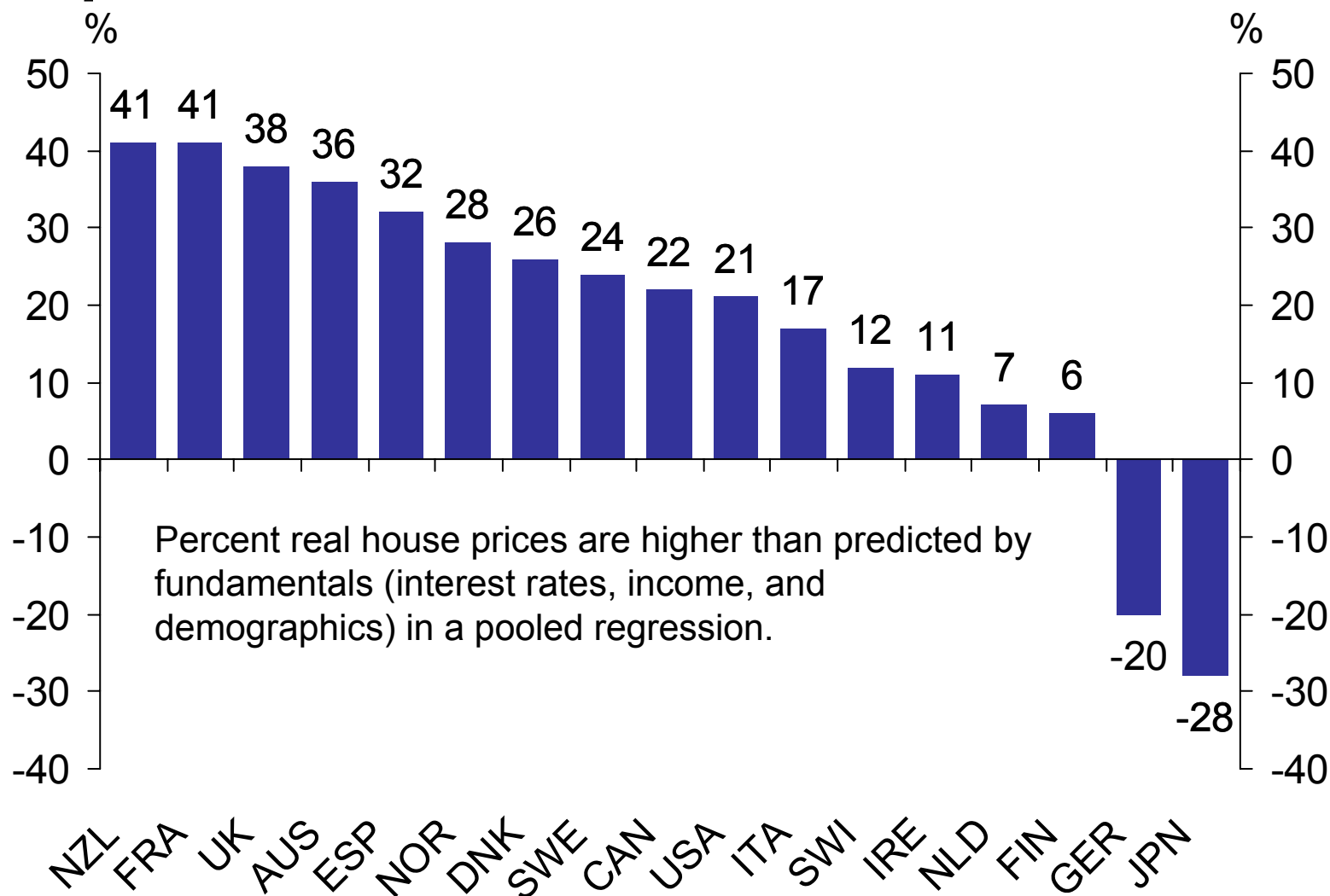


Productivity growth has picked up, compensation easing

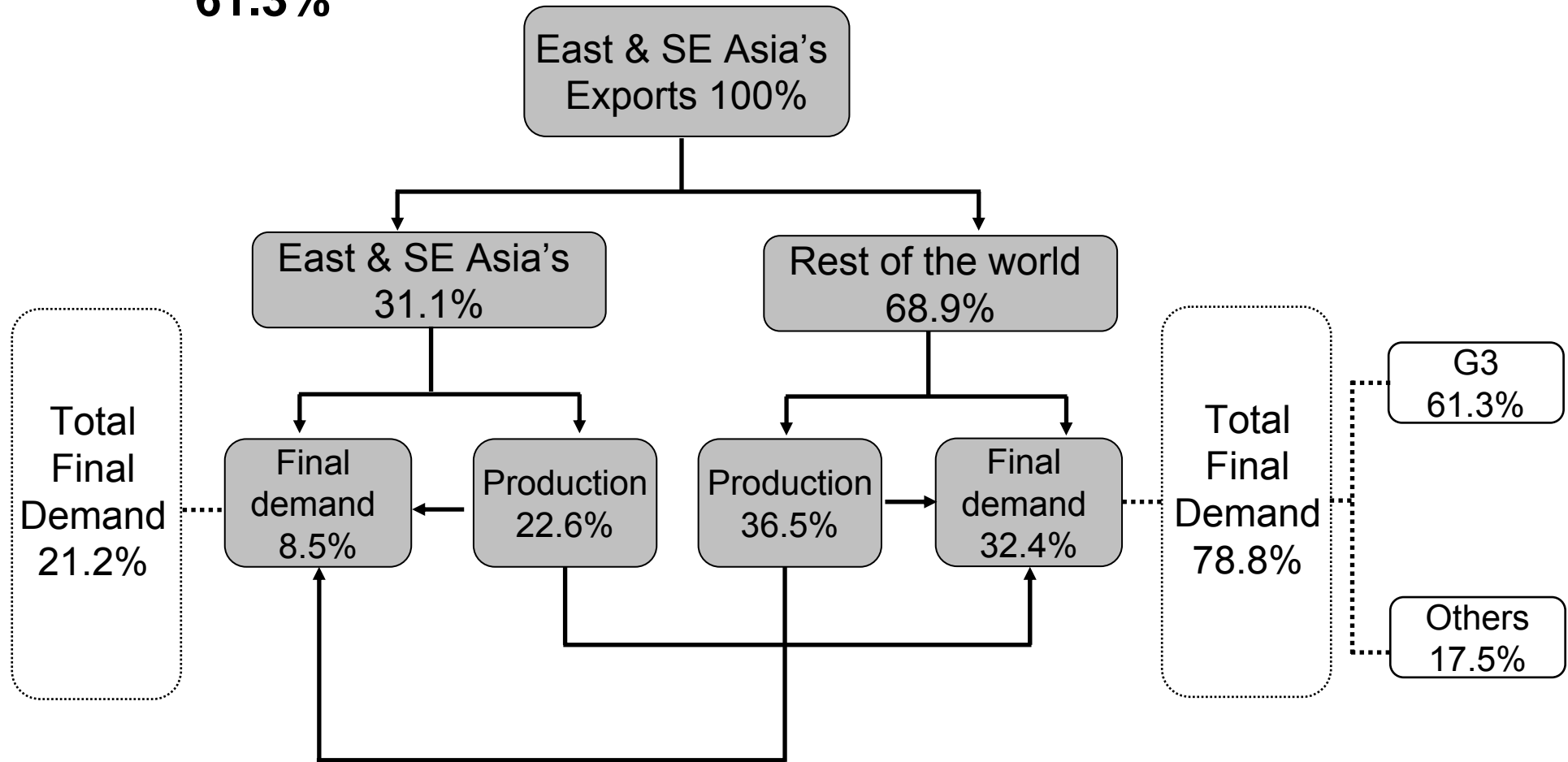


Source: BLS, DB Global Markets Research

Global risk 1: House price overvaluation is widespread



Global risk 2: 43% of Asian exports are to the G3. But including intra-Asian trade Asian exports to G3 rise to 61.3%



Implications for investors I

- Check stories you hear across markets for consistency
- Short rates are pricing in a quick US recovery
- Long rates + spreads pricing in a US recession/depression
- Equity markets are down about 10% from October peak – they normally fall 25% from peak to trough over recessions. I.e. they have priced in a 40% chance of a recession
- FX markets are pricing in a recession. USD = F(US trade balance, Δ interest rate)
- Commodity prices – seem not to worry about recession: Case in point: Unemployment up 0.5%-point and oil rallies +\$10???

But all these stories cannot be true at the same time. Many opportunities for investors in the current environment.

Implications for investors II

A macro trading framework:

- 1) What is the probability of different scenarios?
- 2) Are these probabilities reflected in current prices?
- 3) Bet on your preferred scenario
- 4) Limit downside risks with a hedge portfolio

Set the direction of your core portfolio to efficiently reflect the most likely outcome and at the same time hedge out idiosyncratic risks.

Implications for investors III

Top 3 macro trades if you believe in a US recovery:

- 1) Short bonds
- 2) Long USD
- 3) Long equities

Top 3 macro trades if you believe in a US recession/depression:

- 1) Short fed funds rate
- 2) Short equities
- 3) Short USD

Conclusions

- US economy sluggish, but should avoid serious recession.
- Housing overhang should begin to drop significantly in next several quarters.
- Home prices should bottom by H1 '09, and along with monetary and fiscal stimulus, help keep recession mild.
- Risks to this view are weighted more to the downside than the upside, given deteriorating credit conditions, rising oil price.
- Inflation risks still present, but receding as growth slows and labor market softens despite elevated oil/food prices.
- Fed likely to be on hold into H1 '09.
- Expect a relatively sluggish recovery through 2009.



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- Torsten Slok joined Deutsche Bank Securities in the fall of 2005 and is a senior member of the Global Economics Team.
- Prior to joining the firm, Mr. Slok worked at the OECD in Paris in the Money and Finance Division and the Structural Policy Analysis Division. Before joining the OECD he worked for four years at the IMF in the Division responsible for writing the World Economic Outlook and the Division responsible for China, Hong Kong, and Mongolia.
- Mr. Slok studied at University of Copenhagen and Princeton University. He has published numerous journal articles and reviews on economics and policy analysis.

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Fed's Liquidity Actions



Federal Reserve Bank of New York

May 2008

Forms of Federal Reserve Lending to Financial Institutions

	Regular OMOs	Single-Tranche OMO Program (announced March 7, 2008)	Discount Window ¹	Term Discount Window Program (announced August 17, 2007)	Term Auction Facility (announced December 12, 2007)	Primary Dealer Credit Facility (announced March 16, 2008) ²	Securities Lending	Term Securities Lending Facility (announced March 11, 2008)
Who can borrow?	Primary dealers	Primary dealers	Depository institutions	Primary credit-eligible depository institutions	Primary credit-eligible depository institutions	Primary dealers	Primary dealers	Primary dealers
What are they borrowing?	Funds	Funds	Funds	Funds	Funds	Funds	U.S. Treasuries	U.S. Treasuries
What collateral can be pledged?	U.S. Treasuries, agencies, agency MBS	U.S. Treasuries, agencies, agency MBS	Full range of Discount Window collateral	Full range of Discount Window collateral	Full range of Discount Window collateral	U.S. Treasuries, agencies, agency MBS, investment grade debt securities ³	U.S. Treasuries	U.S. Treasuries, agencies, agency MBS, AAA/Aaa-rated private-label RMBS, CMBS, agency CMO and other ABS
Is there a reserves impact?	Yes	Yes	Yes	Yes	Yes	Yes	No (loans are bond-for-bond)	No (loans are bond-for-bond)
What is the term of loan?	Typically, term is overnight-14 days ⁴	28 days ⁵	Typically overnight, but up to several weeks ⁶	Up to 90 days ⁷	28 days ⁸	Overnight	Overnight	28 days ⁹
Is prepayment allowed if term is greater than overnight?	No	No	Yes	Yes	No	N/A	N/A	No
Which Reserve Banks conduct operations?	FRBNY	FRBNY	All	All	All	FRBNY	FRBNY	FRBNY
How frequently are operations conducted?	Typically once or more daily	Typically weekly	As requested	As requested	Every other week	As requested	Daily	Weekly
Where are statistics reported publicly?	Temporary OMO activity	Temporary OMO activity ⁹	H.4.1 - Factors Affecting Reserve Balances	H.4.1 - Factors Affecting Reserve Balances	H.4.1 - Factors Affecting Reserve Balances	H.4.1 - Factors Affecting Reserve Balances	Securities lending activity	Term securities lending facility activity

¹ Discount Window includes primary, secondary and seasonal credit programs.

² The PDCF will remain in operation for a minimum period of six months and may be extended as conditions warrant.

³ Investment grade debt securities include corporate securities, municipal securities, mortgage-backed securities and asset-backed securities.

⁴ Open market operations are authorized for terms of up to 65 business days.

⁵ 28-day term may vary slightly to account for maturity dates that fall on Bank holidays.

⁶ Primary credit loans are generally overnight. Loans may be granted for term beyond a few weeks to small banks, subject to additional administration.

⁷ Maximum maturity of term increased from 30 to 90 days on March 16, 2008.

⁸ Data only available on days when 28-day term RP operations are conducted.

A Passion to Perform.