

**The US and World Economy:
Global Imbalances, Global Saving Glut, and Financial
Crisis**

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Global Imbalances and Capital Flows from Poor to Rich Nations

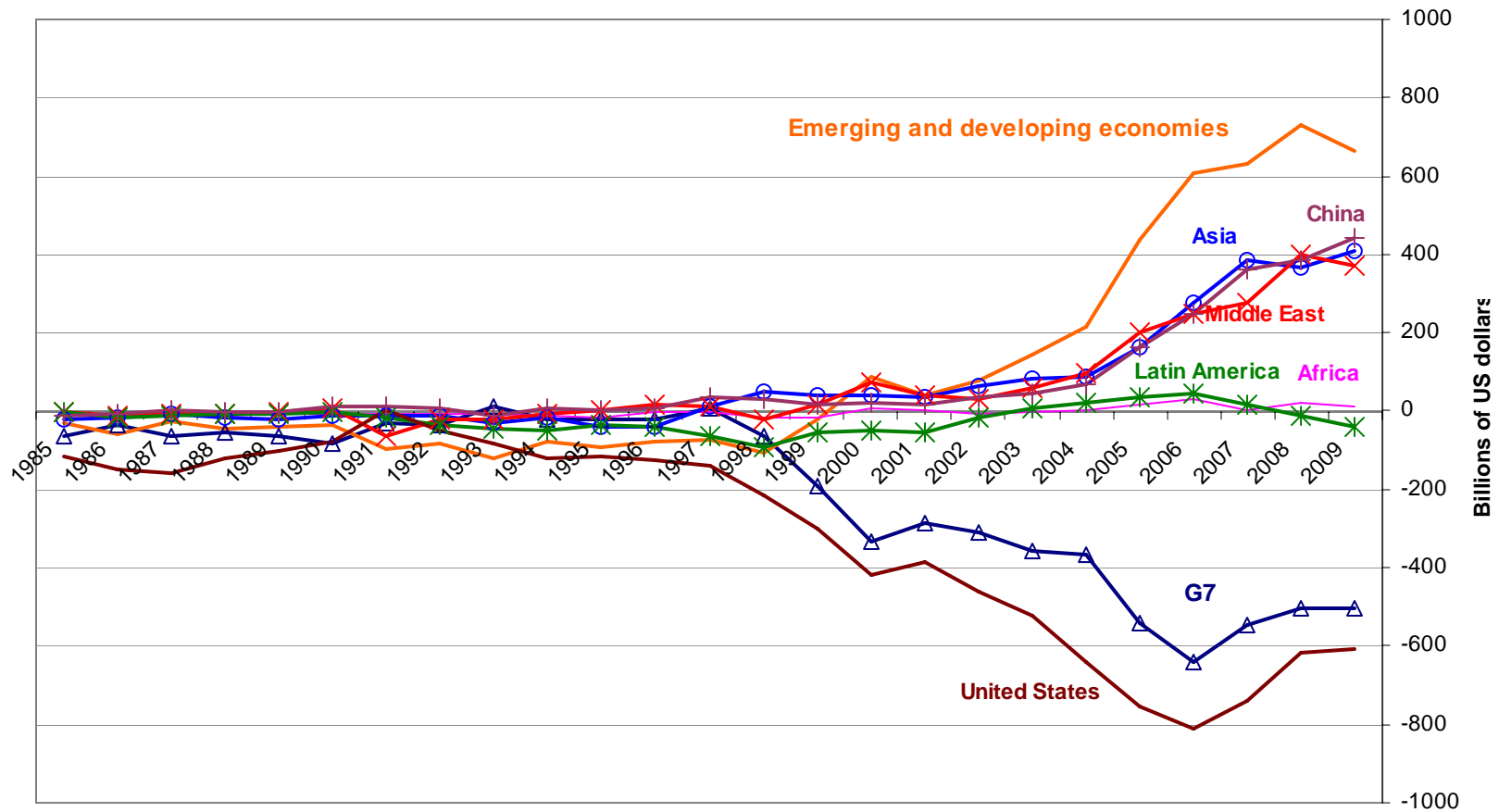
- **Neoclassical Theory: capital flows from rich to poor countries**

Data contradicts this prediction: capital flows from poor to rich countries (Lucas paradox, 1990AER)

- (1) Country risk/institutional quality (rule of law & expropriation risk, political risk)**
- (2) Human capital**
- (3) Export-led growth strategy of Asia (running current account surplus/accumulating foreign reserves – also, self insurance against financial crisis)**
- (4) Fiscal prudence in oil & commodity exporting countries**

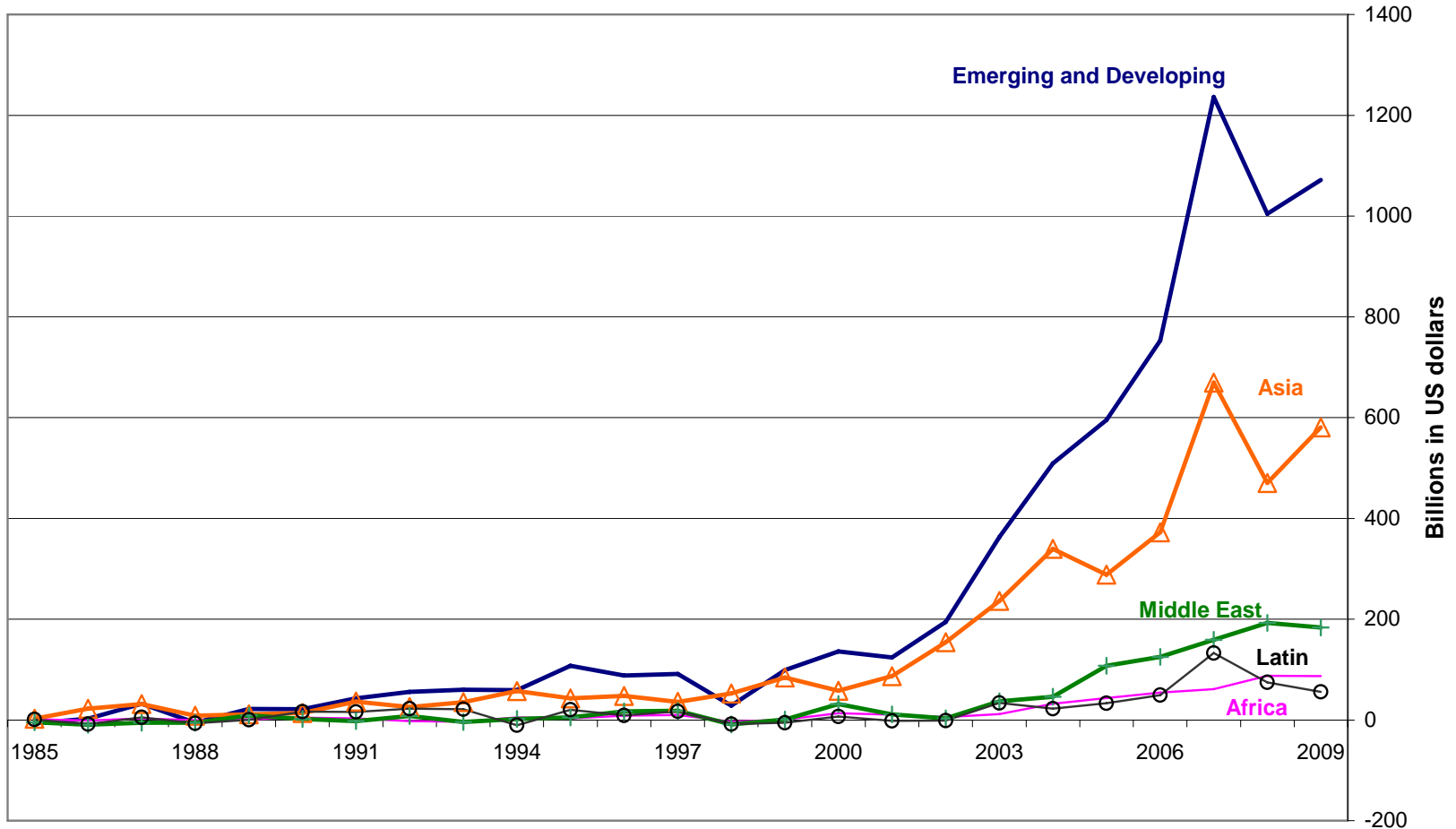
- **Capital flows from developing countries have been financing very large U.S. trade deficits (& other industrial countries') esp. since 1998-99.**
- **Capital flows behind global imbalances are closely related to the U.S. housing bubble and credit crisis, and have important implications for the world economy.**

Global Imbalances and Capital Flows from Poor to Rich Current Account Balance: 1985-2009



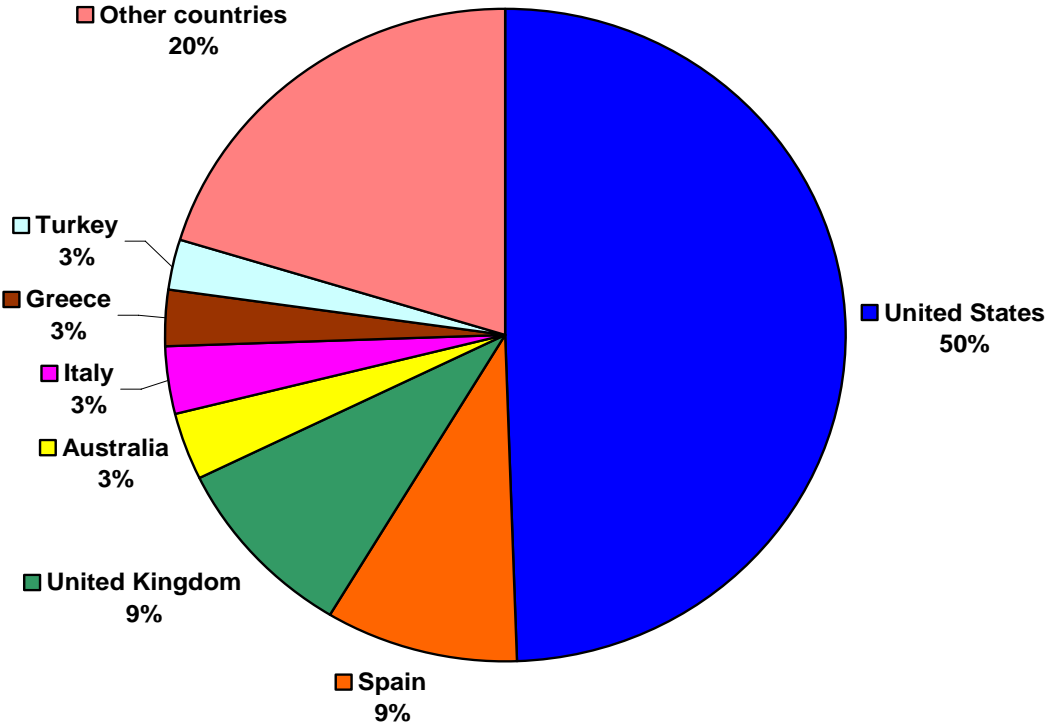
Data: IMF, World Economic Outlook 2008

Annual Increases in International Reserves: Emerging and Developing Economies



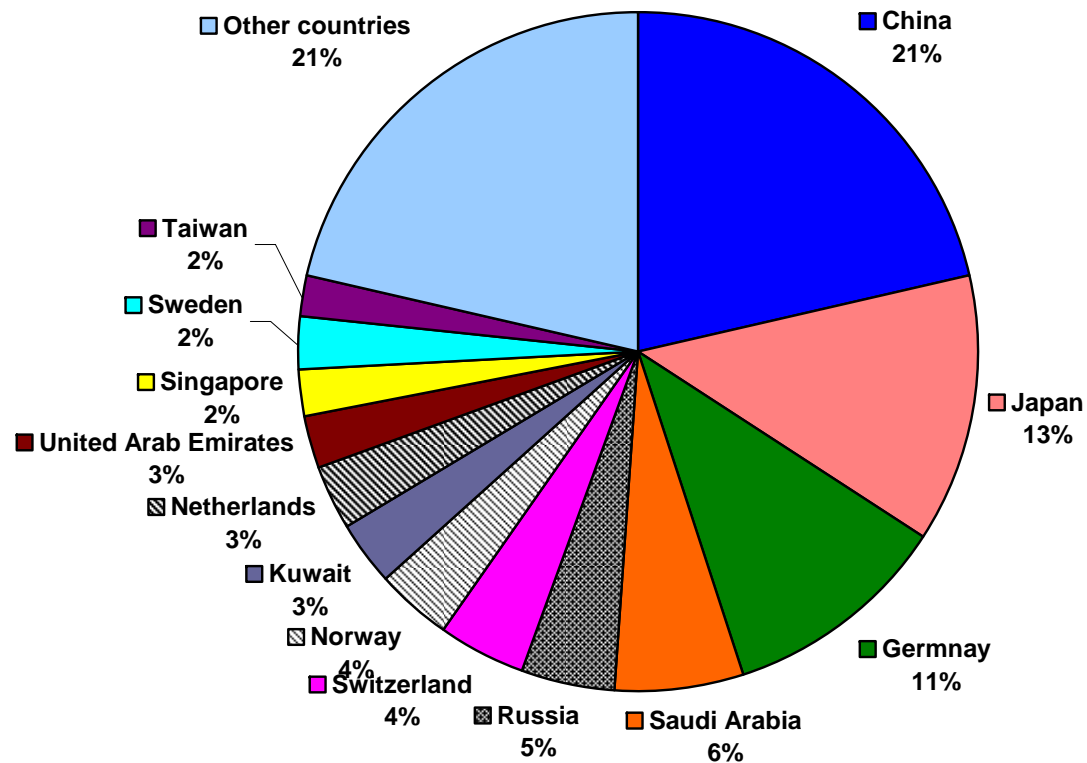
Data: IMF, World Economic Outlook 2008

Major Net Importers of Capital in 2007



Data: Global Financial Stability Report, IMF 2008

Major Net Exporters of Capital in 2007



Data: Global Financial Stability Report, IMF 2008

The U.S. Economy

- **Sustainability of large U.S. trade deficits (about 5-6% of GDP) has been questioned. Adjustment process is taking the form of U.S. housing collapse, financial crisis and recession, not only US dollar depreciation.**
- **House prices fell 30% since June 07(peak) (first time since the Great Depression). Housing markets have to hit bottom: large inventory of unsold new homes (9-month supply), and foreclosures continue to rise. Currently, historic low level of mortgage rates & home prices (affordability).**
- **Bank-lending channel and Financial accelerator effects: credit has tightened for businesses & consumers as a result of the huge losses that banks and Wall Street firms have incurred from sub-prime mortgage crisis (\$1.1 trillion since 2007 (US S&L crisis in 1980s=\$600bn; IMF predicts \$945bn in total). Credit crisis is spreading to bond insurers (MBIA, AMBAC, FGIC, AIG), muni-bond markets, and to credit card/auto loans. Fannie Mae, Freddie Mac (\$5.4 trillion liabilities in \$12tn mortgage market) taken over by U.S government.**
- **Falling house prices, credit tightening, sharp decline in demand for goods & services are to make the worst recession in the post-world war II period.**

The U.S. Economy

- Perhaps the worst is to come yet: GDP growth was -6.3% in 4Q 2008.

Employment fell by 5.1m since Jan 2008 (more than $\frac{1}{2}$ m job losses each month since Nov 08). Unemployment rate is rising (4.6% in 2007 to 8.5% in Mar 09). The capacity utilization rate for manufacturing fell to 71% , 9% below its average of 1972-2008. Personal consumption expenditure fell sharply & saving rate rising.

- Fiscal Stimulus: Tax rebates of \$110bn (a bit less than 1% of GDP) in May 2008. Its stimulus effects on consumption faded in 2H08.

New fiscal package \$787bn in Feb 2009 (about 35% are tax cuts and the remaining is spending on infrastructure, education, IT, green energy...)

Fiscal deficits will be over \$1 trillion over next couple of years (\$1.85tr in 2009= 13.1% of GDP; 9.6% in 2010), which would put U.S. gov'n't debt above 71% of GDP by 2013, putting long-term growth & dollar at risk.

The U.S. Economy

- Fed cut interest rates to 0-0.25% from 5.25% (Sept 2007). With rescue of Bear Stearns in mid-March, Fed started lending to prime dealers and investment banks against collateral of mortgage-backed securities (TAF, TSLF, Expansion of Repo), and now even against collateral of equities. Buy commercial papers from U.S. corporations (CPFF).
- Some easing short-term credit market condition, but (\$2tr) asset-backed securities markets collapsed. New \$1tr TALF (term asset-backed securities loan facility) for consumer credits (student loans, credit cards), commercial mortgages. Yet lukewarm reception.
- Quantitative Easing: buy up to \$300bn T-bonds, \$750 agency MBS and \$100bn agency debt. Fed's balance sheet will add to \$1.15tr to already high \$1.9tr.

Why? BOE, BOJ, SNB already into quantitative easing. If not aggressive, dollar can move up higher, hurting exports. Lukewarm reception of TALF (possibly fears over retroactive taxes, restrictions).

The U.S. Economy

- **Low interest and weakening economy led to sharp decline in dollar exchange rate (until 1H08). However, with world economy sharp slowdown, US export growth was -3.4% in 4Q 08.**
- **\$700bn Troubled Asset Relief Program (TARP) was initially to buy illiquid mortgage assets (at discount) from financial markets through reverse auction, but then instead capital injection (preferred shares). (Resolution Trust Corporation of 1989 or Reconstruction Finance Corporation of 1932; can cost \$1 trillion).**

Still rising bank losses are concern for Citi, BofA, Wells Fargo, and others. Currently, debates on loss socialization vs nationalization of the insolvent banks.

- **3/23/09, Geithner-Summers Plan (public/private investment plan): up to \$100bn from TARP and another \$100bn from private investors will buy up to \$1tr toxic assets off-banks' balance sheet. FDIC provides non-recourse loans 600% of investors' capital. Essentially, socializing the bank losses.**

The U.S. Economic Outlook

	1995- 2003	2004	2005	2006	2007	2008	2009/Latest
Real GDP Growth	3.1	3.6	3.1	2.8	2.0	1.1	-2.2 (Economist) -2.6 (JPMorgan)
Labor Productivity	2.6	2.7	1.9	1	1.6		1.1(Q3-2008)
CPI Inflation	2.4	2.7	3.4	3.2	2.6	0.1	0.2 (Feb)
Unemployment	5.0	5.5	5.1	4.6	4.6	7.2	8.5(Mar)
Federal Fund Target Rate	4.4	1.4	3.3	5	5		0-0.25
Federal government Budget Balance	1.4	-4.4	-3.6	-2.6	-2.8	-11.1*	-12.3%
Current Account Balance	-3.1	-5.5	-6.1	-6.2	-5.3	-4.6	-3.3%

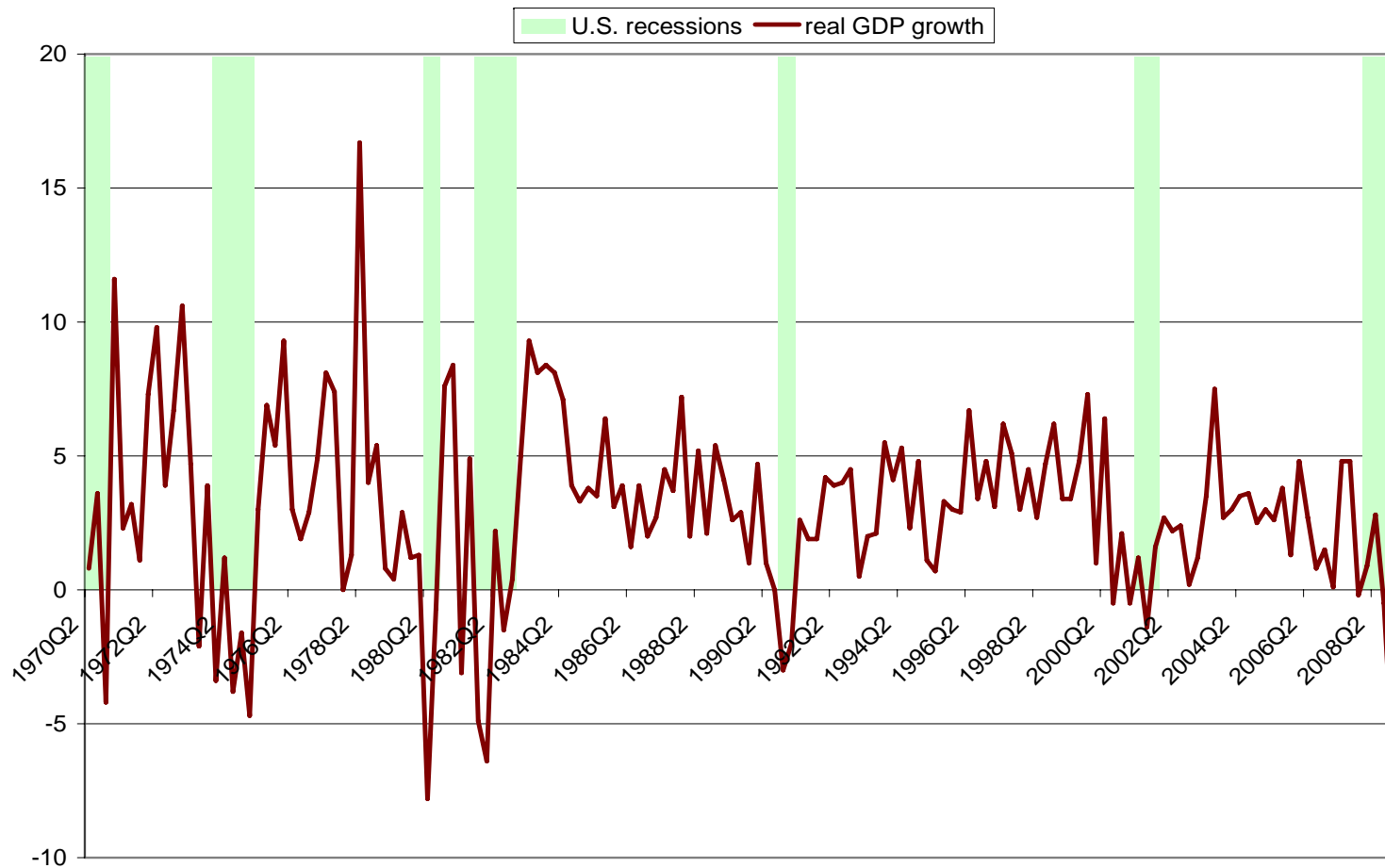
CPI inflation rate in 2008 is (Dec 2007-Dec, 2008)

Figures are percent of GDP for federal government budget balance, and current account balance.

* indicates the forecast, as of Feb 2009.

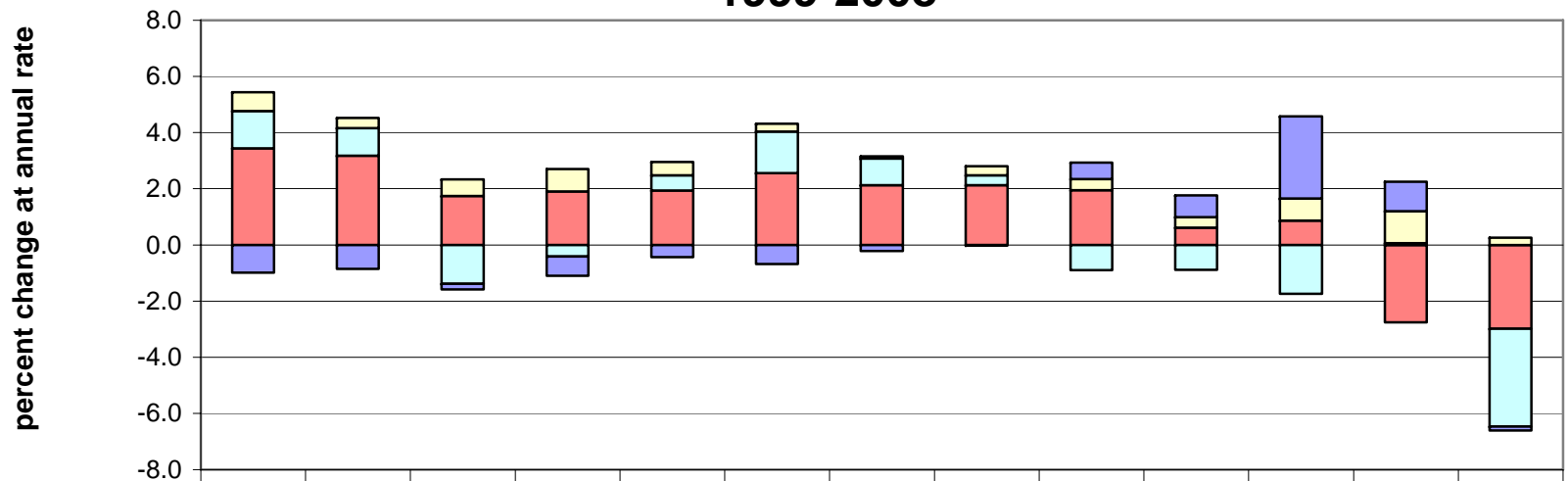
Source: Federal Reserve Board, BLS, BEA, JPMorgan (March 27, 2009), and Economist (March 26, 2009)

U.S. Real GDP Growth (Quarter to Quarter): 1970-2008 (annual rates)



GDP growth in 4Q2008 was -6.3%, worst since 1982 2Q when it was -6.4% (and 1980Q2, -7.8%).
Data: Bureau of Economic Analysis and NBER, 2009

Contributions to Percent Change in U.S. Real GDP Growth: 1999-2008

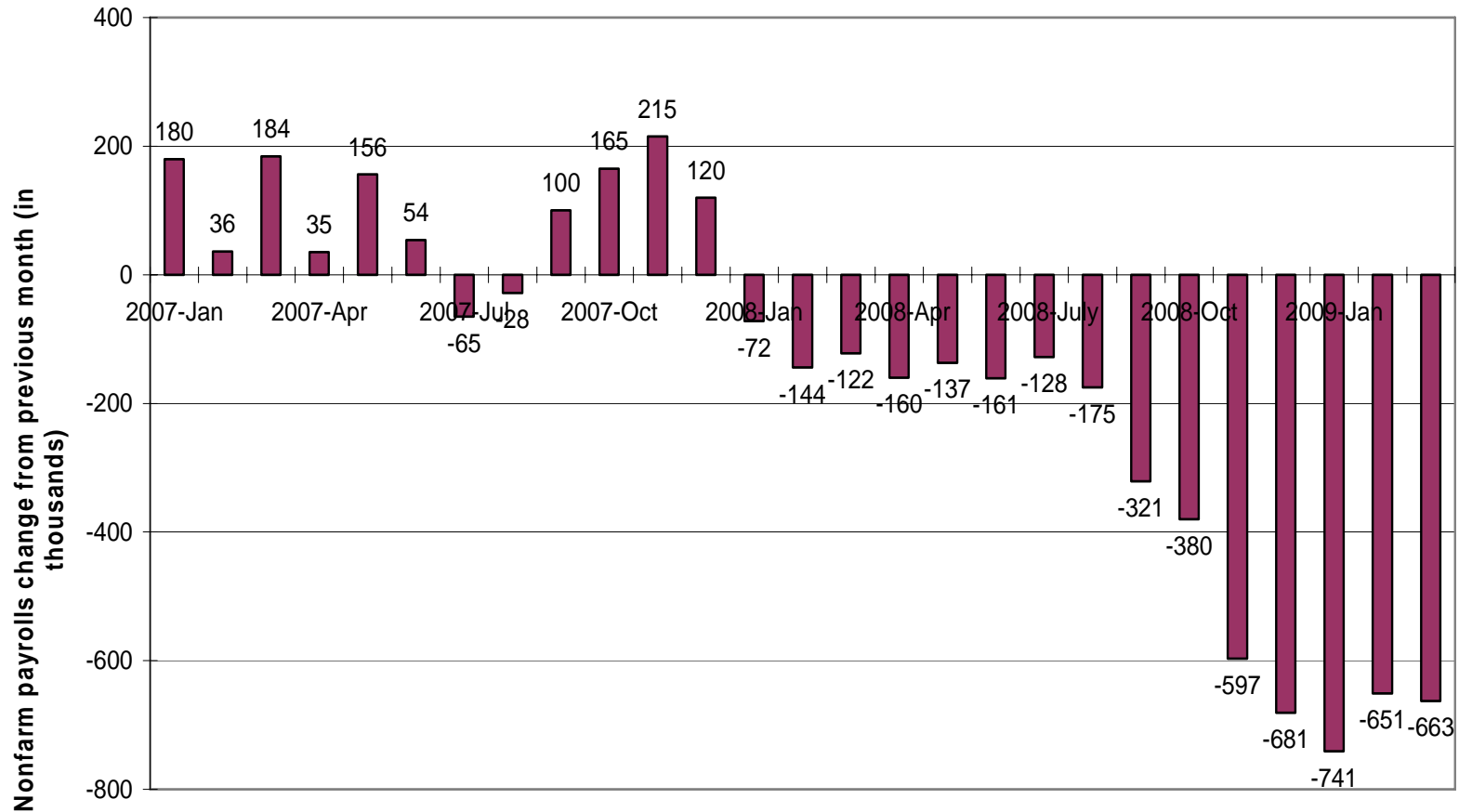


	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008 Q1	2008 Q2	2008 Q3	2008 Q4
Net exports	-1.0	-0.9	-0.2	-0.7	-0.4	-0.7	-0.2	0.0	0.6	0.8	2.9	1.1	-0.2
Government expenditures	0.7	0.4	0.6	0.8	0.5	0.3	0.1	0.3	0.4	0.4	0.8	1.1	0.3
Gross investment	1.3	1.0	-1.4	-0.4	0.5	1.5	1.0	0.4	-0.9	-0.9	-1.7	0.1	-3.5
Personal consumption	3.4	3.2	1.7	1.9	1.9	2.6	2.1	2.1	2.0	0.6	0.9	-2.8	-3.0

**1Q2008: output growth =0.9% (at annual rates); 2Q2008: output growth =2.8% (at annual rates)
3Q2008: output growth is -0.5%; 4Q output growth -6.3%**

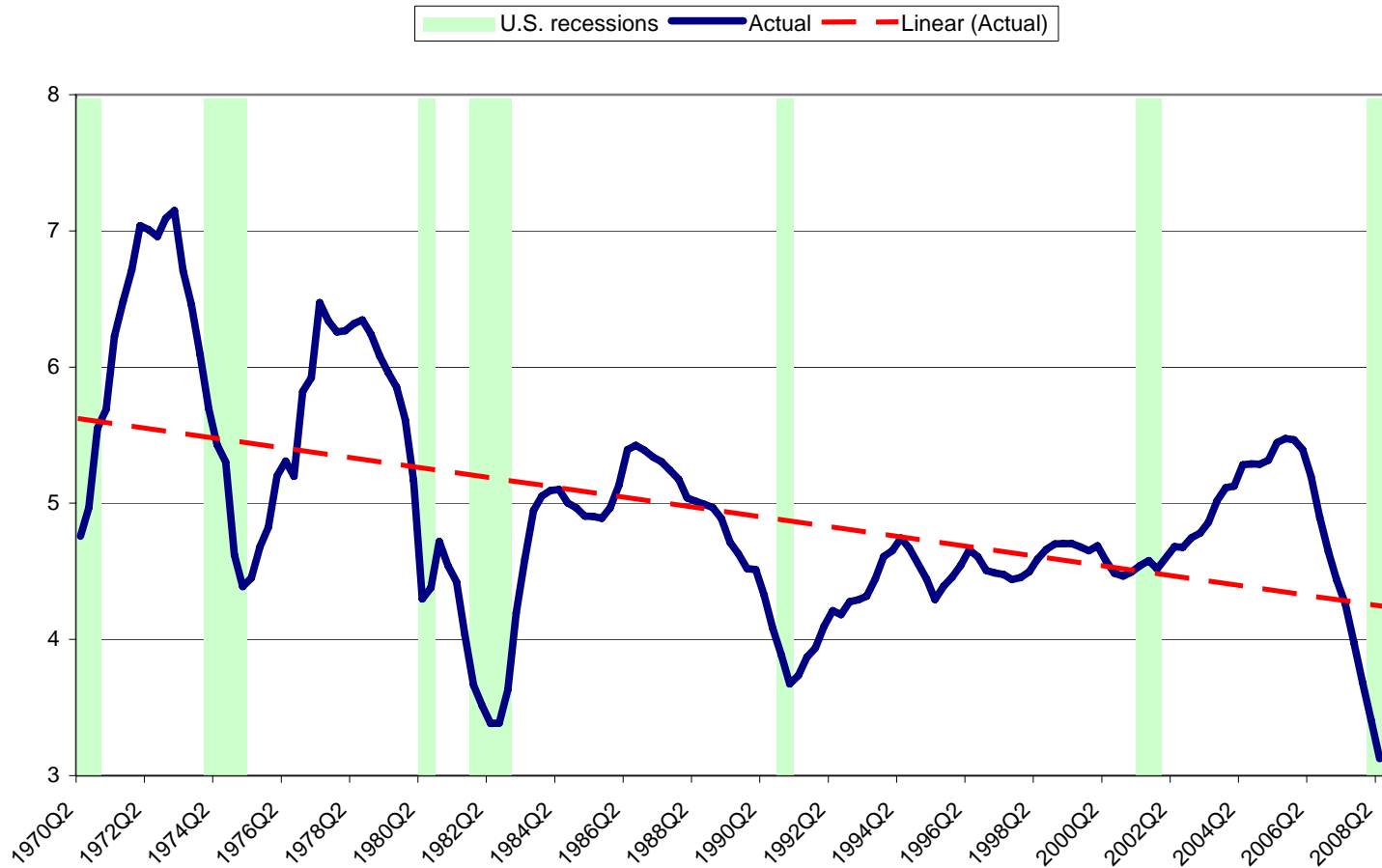
Data: Bureau of Economic Analysis, Mar 26, 2009

Heading for Deep Recession? Employment (nonfarm payrolls) Monthly Changes



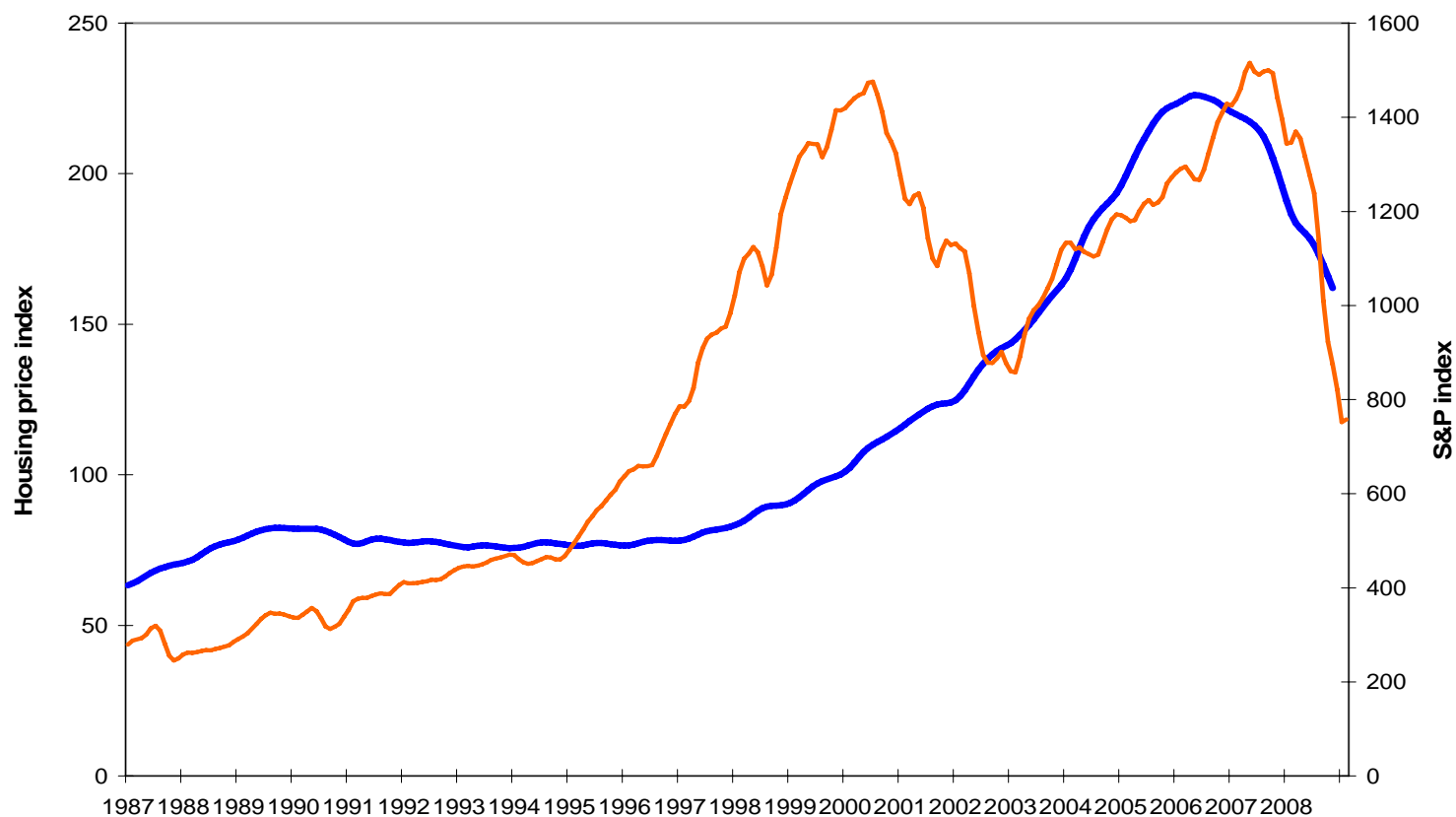
Since Jan 2008, non-farm payroll employment fell by 5.1 million.
Data: Bureau of Economic Analysis and Bureau of Labor Statistics, April 3, 2009

U.S. Real Residential Investment-GDP Ratio: 1970-2008(2Q)



During the current cycle, the ratio peaked in 2005 4Q at 5.5% and continued to fall to 3.1% of GDP in 2008 2Q.
Data: Bureau of Economic Analysis and NBER, 2008

The U.S. Housing Prices and Stock Prices:1987-2009

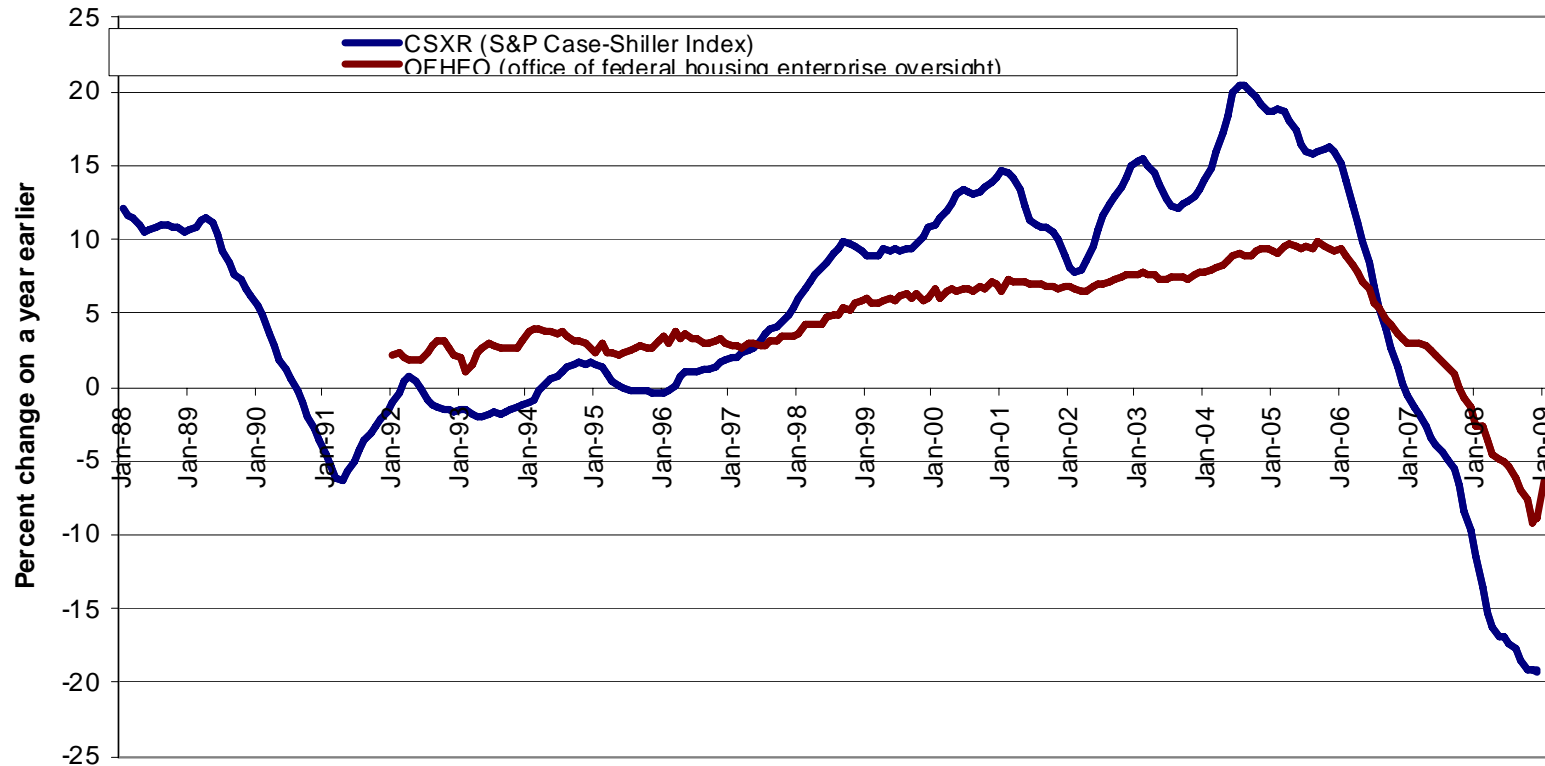


Note: three month moving averages of the indices

Data: Standard & Poor's Case-Shiller® Home Price Indices, March 31 2009

**The Case-Shiller index of house prices is falling quite rapidly.
As of Jan 2009, house price fell by 19% over the 12 months, and 30% since June 2006 (peak).
S&P 500 Stock Index fell 45% since July 2007 (peak).**

U.S. House-Price Indices, Percent Change on a Year Earlier



S&P Case-Shiller index: as of Jan 09, house prices fell 30% from a peak in June 2006

OFHEO index: house prices fell 10% from a peak in April 2007

Data: Standard & Poor's, OFHEO (Office of Federal Housing Enterprise Oversight), March 2009

Stock Market Crash around the World

Stock Markets	2007 Peak	April 3, 2009	Percent Change
Dow Jones Industrials	14164.53	8017.59	-43%
S&P 500	1565.15	842.50	-46%
FTSE 100	6732.4	4029.67	-40%
FTSE Eurofirst 300	1630.32	771.60	-53%
Nikkei 225	18261.98	8749.84	-52%
MSCI Emerging Market	1338.49	613.07	-54%
Shanghai Composite	6092.06	2419.78	-60%

Data: Financial Times and Bloomberg, April 3, 2009

The U.S. Economy

- **Record low interest rates led to housing and stock boom: House prices went up by 126% in 2000-2006 (peak in June).**
- **Strong consumption (plummeting saving) due to low interest rates, tax cuts, and rising household net worth (housing, stock)**

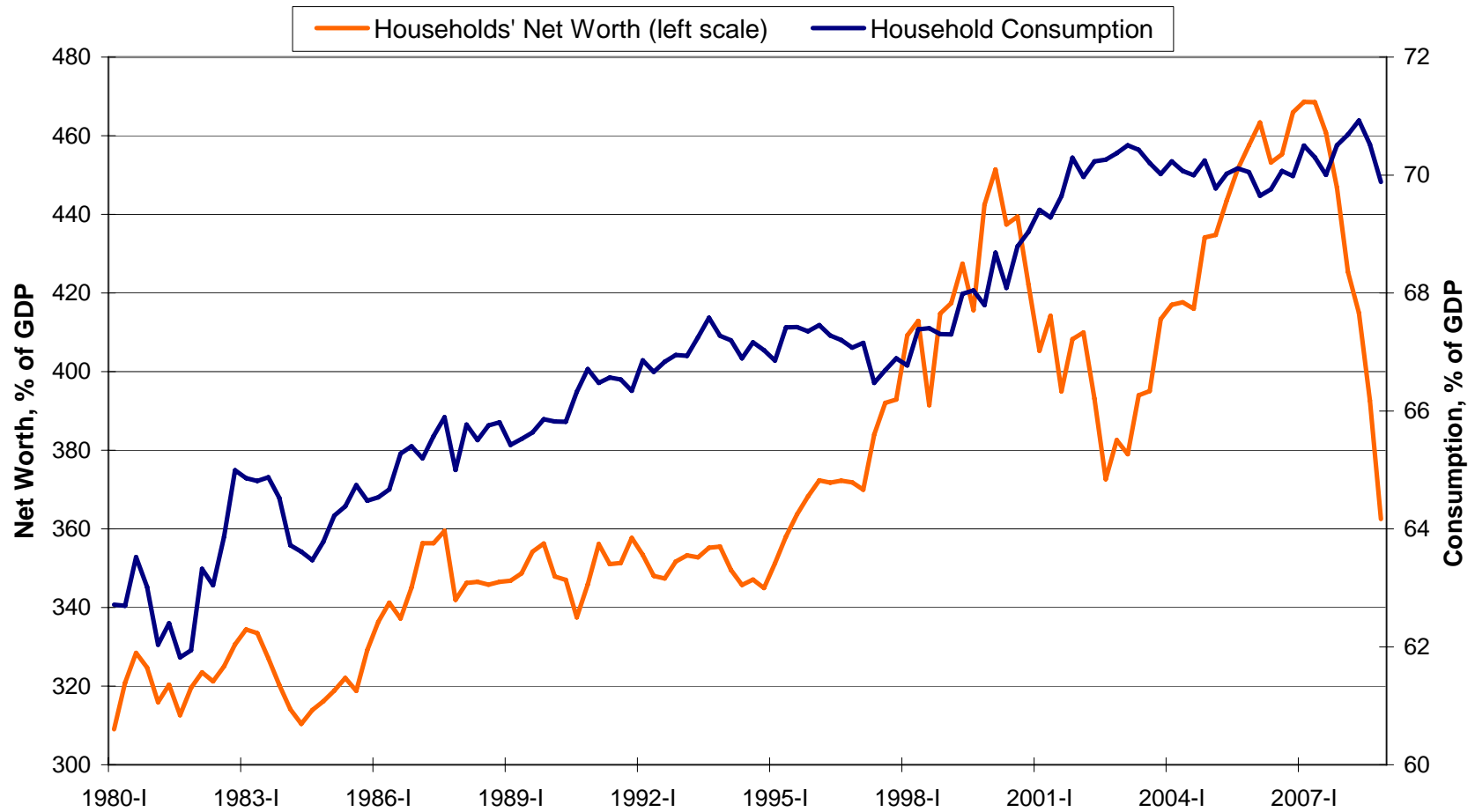
- **$S - I = NX$**

Plummeting personal savings and government budget deficits (negative government savings) caused the US current account deficits to nearly double from 3% of GDP to 6% during 2000-07.

Current account deficit = 6.2% of GDP in 2006; 5.3% in 07; 4.6% in 08

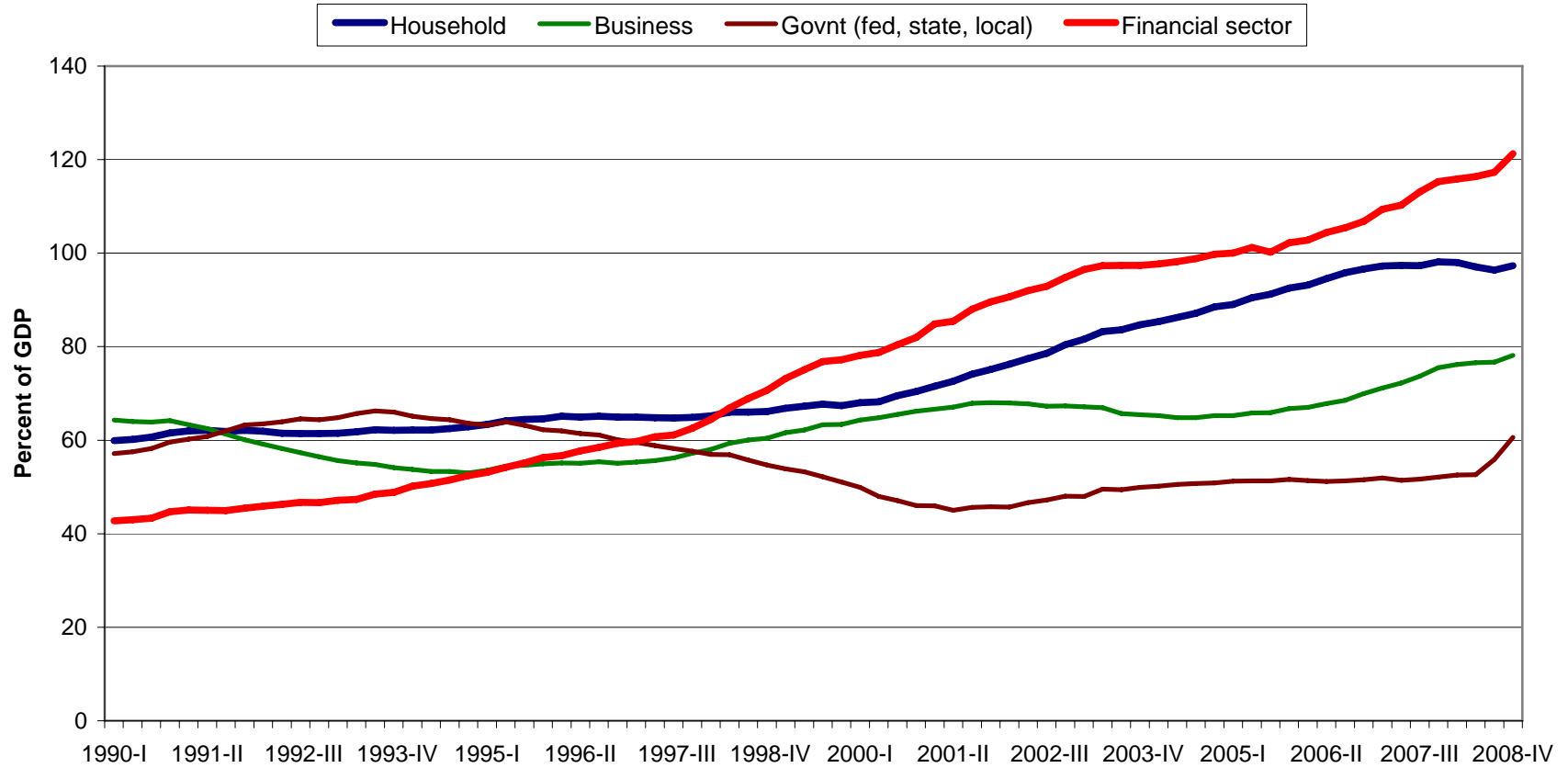
The rest of the world was financing the US current account deficits (foreign purchases of US assets including mortgage backed-securities with investment grade ratings).

US Household Consumption and Households' Net Worth: 1980-2008



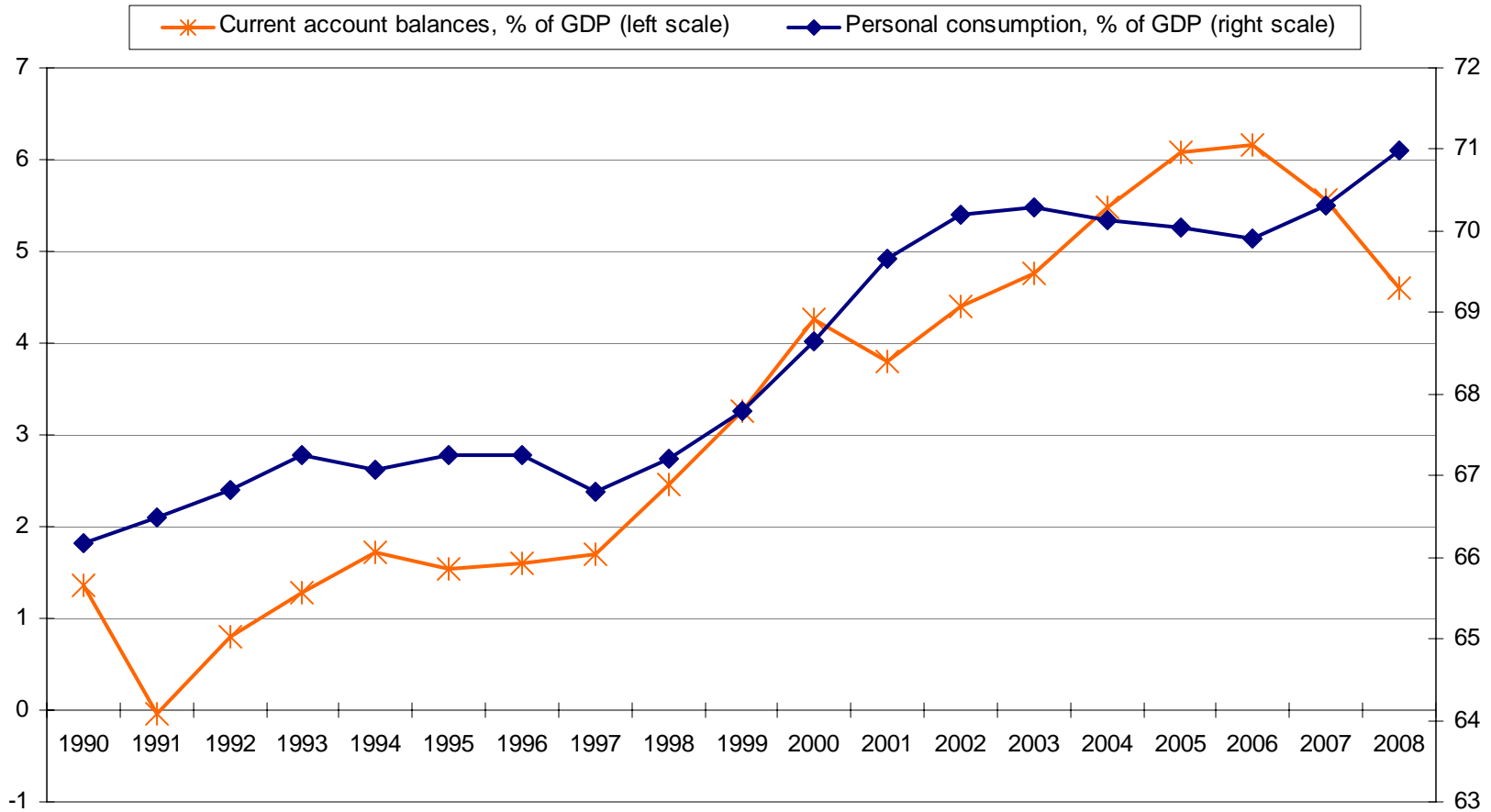
Data: Bureau of Economic Analysis and Federal Reserve Board, March 2009

Total Debt Outstanding (% of GDP): Household, Business, Government, and Financial Sector: 1990-2008



Data: Flow of Funds, FRB March 2009

U.S. Current Account Deficit and Private consumption: 1990-2008 (percent of GDP)



Data: Bureau of Economic Analysis and OECD, 2008

Consumption

- **Expect consumption to slump (rising saving) for an extended time period:**

It is overdue in light of required rebalancing of global imbalances.

Plummeting household net worth (housing, stock - more than \$11 tr loss), and credit tightness due to banking crisis.

- **New fiscal stimulus (\$787bn=5.4% of GDP) will have only limited effects (tax cuts about 35% of the bill and others spending). Fiscal multiplier =0.8, so limited effects but debt burden in future.**

2008 Tax Rebates = \$110bn (compared to \$38bn of 2001 Tax rebates)

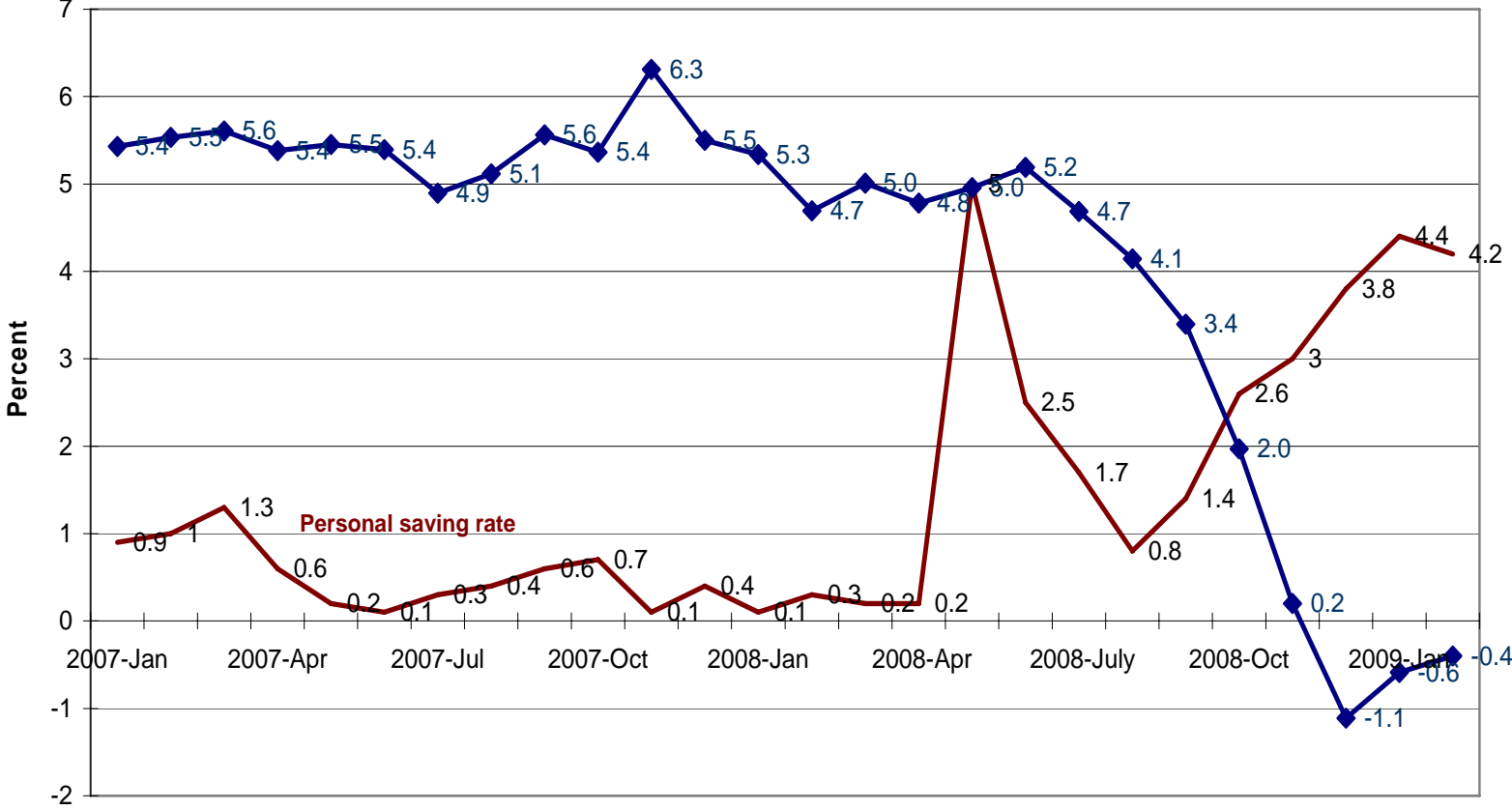
1975 and 2001 tax rebates: 12-25% and 22% spent in the first quarter (Poterba 1988AER; Shapiro-Slemrod 2003AER)

**Thus, 20% of rebates spent \Rightarrow C rises by \$22bn = 0.8% (quarterly)
=3.2% annualized growth**

\Rightarrow C is 70% of GDP, so Y rises by 2.2%

However, it faded in 2H 2008. Moreover, it was more than offset by then strong oil prices.

Personal Consumption Expenditure (percent change, oya) and Saving Rate (share of disposable income): 2007-2009



Data: Bureau of Economic Analysis April 3, 2009

U.S. Subprime Loan Losses and Financial Crisis

- **Low interest rates, strong economic growth, and no major financial crisis: credit boom (assume more debt to buy assets)**
- **Financial innovation (pursue higher returns in low interest rate environment)**
Mortgage loans originated by banks (originate & distribute model)
 - ⇒ Sold to investors as mortgage-backed securities (MBS)
 - ⇒ Repackaged as structured credit products like collateralized debt obligations (CDOs) that slices types of risk of the underlying assets, and sold to SIVs and conduits (banks' off-balance sheet entities), investment banks, hedge funds which financed the purchases by issuing commercial papers and other short-term debts. (Asset-liability maturity mismatch was extreme in the case of SIVs and conduits as well as investment banks)
- **Defaults on subprime loans ⇒ troubles for SIVs, conduits, investment banks, and financial institutions ⇒ their investments on CDOs and MBS go bad, and simultaneously, hard to roll over the short term debt, even forced to repay debt, causing fire sales of their assets & further depressing market value of structured credit products.**

U.S. Subprime Loan Losses and Financial Crisis

- **Because of a lighter/little regulation relative to commercial banks, the shadow banking system (investment banks, hedge funds, private equity funds, SIV and conduits, money market funds, non-bank-mortgage lenders) has grown rapidly over the last 20 years.**
- **Most of these financial institutions borrow very short-term, more highly leveraged than banks (except money market funds), and lend/invest to more illiquid and long-term instruments.**
- **Yet unlike banks that are sheltered from bank runs because of deposit insurance and central banks being lender of the last resort, most of those financial institutions are subject to a self-fulfilling, destructive run on them if their solvency is questionable.**
- **When the deleveraging after the housing bubble burst led to uncertainty about which institutions were solvent, a run started with SIV & conduits: plummeting prices of CDO & MBS, and short-term funding dried up.**

Collapse of SIVs (once \$400bn industry at the peak)

Banks exploited loopholes by placing many mortgage-related assets into off-balance-sheet vehicles (SIV) that are not subject to minimum capital requirements.

Ten Biggest SIV Managers

(at the peak of the market by senior debt issued, July 2007)

	Debt(\$bn)	Vehicles	Status
1. Citi Group	89.0	7	Absorbed into bank, assets sold
2. Gordian Knot	52.6	1	Ceased trading, Oct 1 2008
3. HSBC	42.5	2	Restructured by bank
4. Dresdner Kleinwort	29.0	1	Absorbed into bank, assets sold
5. Bank of Montreal	22.3	1	Absorbed into bank, assets sold
6. Standard Chartered	16.7	2	Part absorbed, part receivership
7. WestLB	16.2	2	Absorbed into bank, assets sold
8. Rabobank	14.0	1	Absorbed into bank, assets sold
9. Ceres Capital	13.0	1	Restructured in bankruptcy
10. Axon Asset	11.0	1	Restructured by new manager

Source: Financial Times, Oct 2, 2008

U.S. Subprime Loan Losses and Financial Crisis

- **The next was a run on the big investment banks: first Bear Stearns lost its liquidity in days. Fed's lender of the last resort support was extended to investment banks. But could not prevent runs on Lehman, Merrill Lynch given the concerns about their solvency.**
- **Then, Fannie Mae, Freddie Mac, AIG, mortgage lenders, hedge funds are troubled. Also 13 banks failed this year (WaMu, IndyMac). There will be many more.**
- **Bond insurers (MBIA, MBAC, AIG) suffered huge losses on complex structured securities (CDOs) they guaranteed through CDS (credit default swaps), which jeopardized AAA credit ratings, which raised borrowing costs of municipalities (cities, local and state governments).**

CDS market size is \$54.6 trillion at the end of June 2008 (\$62.3tr in 2007).

Interest rate swaps = \$464.7 trillion; Equity derivatives =\$11.9 trillion

U.S. Subprime Loan Losses and Financial Crisis

- **The transfer of risks off bank balance sheets was overestimated:**

Repeatedly, banks have revealed unexpectedly large risk exposures through many channels: purchases of securities based on loans that had initially been sold by banks, implicit guarantees provided to off-balance sheet vehicles, and large lines of credits extended to hedge funds and other high risk clients.

At the same time, the degree of leverage undertaken by hedge funds and other market participants has often turned out to be much higher than expected.

- **In sum, it was a combination of lax underwriting standards in mortgage market, the extension of securitization into increasingly complex and difficult-to-understand structures, and a financial environment in which risks were not fully appreciated.**

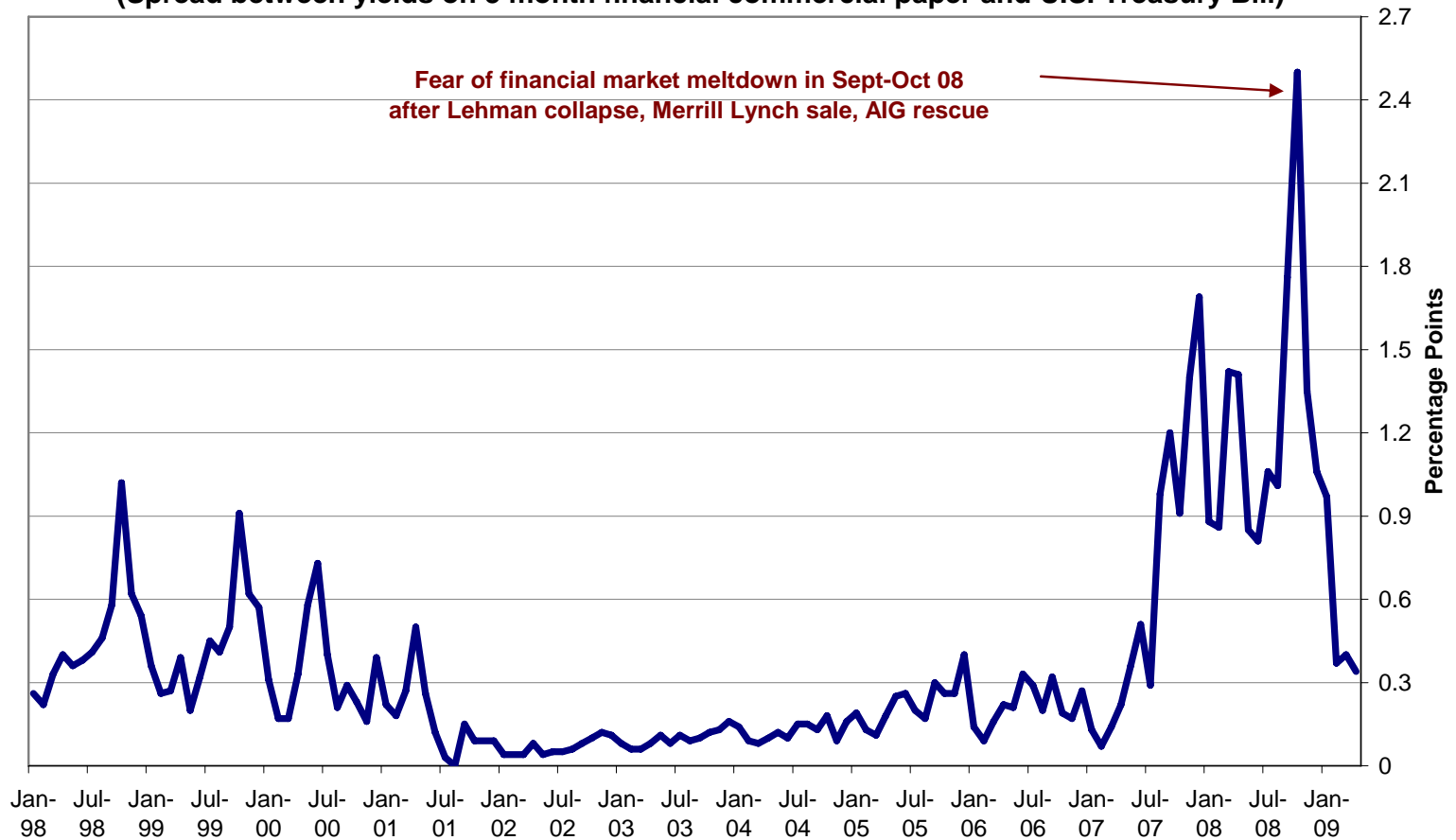
Bank Losses: Writedowns Since Beginning of 2007

Banks	Writedowns & credit losses (in billion dollars)
Wachovia	97.9
Citi	85.4
Merrill Lynch	55.9
UBS	18.6
Washington Mutual	45.6
Bank of America	40.2
HSBC	33.1
JPMorgan	29.5
Morgan Stanley	21.5
Lehman Brothers	16.2
Banks Worldwide	799.2
Insurers (AIG, AMBAC...)	148
Freddie Mac and Fannie Mae	114.4
Grand Total	\$1,061.6bn

Data: Financial Times, February 4, 2009

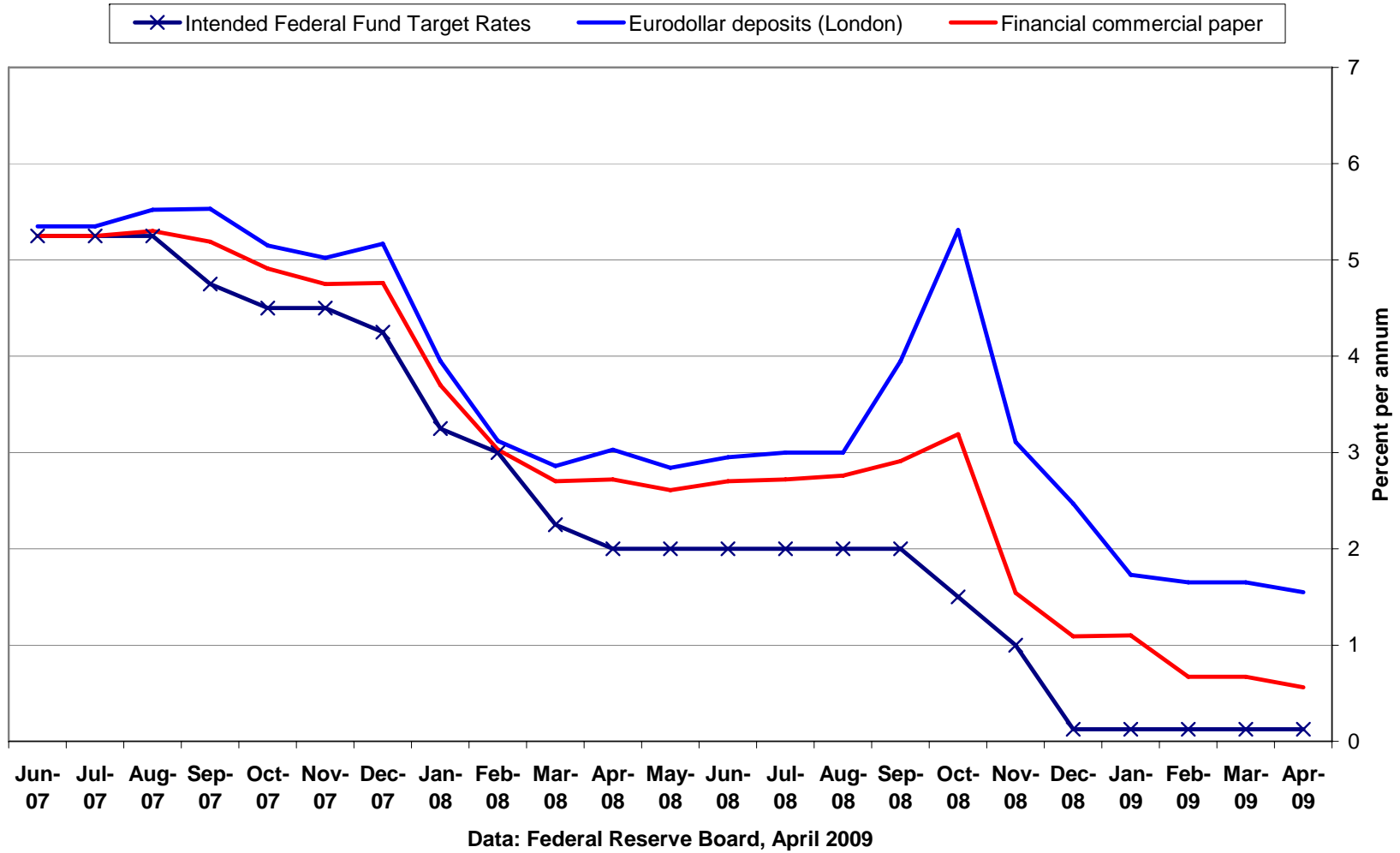
Easing Credit Squeeze in U.S. Money Markets: Commercial Paper Spreads

(Spread between yields on 3 month financial commercial paper and U.S. Treasury Bill)



Data: Federal Reserve Board, April 2009

U.S. Interest Rates and Credit Squeeze in Money Markets



Banking Restructuring

- **Short-term credit markets see some improvements, but asset-backed securities markets (consumer credits such as credit cards, student loans, residential and commercial mortgages) completely collapsed – \$1tr TALF program**
- **Key: how to clean up the bad assets and recapitalize banks**

Partial nationalization (current Treasury position):

Socialization of bank losses (taxpayers bear the burden) while protecting creditors (and to lesser degree shareholders).

So preventing another panic or spillovers to investors in bank liabilities (insurance, pension). Bank bonds are 1/4 of US investment grade corporate bonds. However, may not reveal the bad debts more forcefully and delay the restructuring of banking industry – Japanese style of problem.

US Bank Losses and Effect on Total Banking Capital

		Net effects on total capitalization	
Loss estimates			
	IMF	-900bn	+290bn
	Goldman Sachs	-1000bn	+190bn
	Roubini	-1800bn	-610bn
Replacement capital		+1190bn	
	New capital already raised	510bn	
	Core earnings (-dividends paid)	490bn	
	Tarp allocation	200bn	
	others	70bn	

Source: Financial Times, March 4, 2009

Banking Restructuring

- **3/23/09, Geithner-Summers Plan (public/private investment plan): up to \$100bn from TARP and another \$100bn from private investors will buy up to \$1tr toxic assets off-banks' balance sheet. FDIC provides non-recourse loans 600% of investors' capital.**

Essentially, socializing the bank losses at the taxpayers' cost while protecting shareholders, creditors.

Banks and private investors win.

Quite likely to result in overpay for toxic assets above market value

Geithner-Summers Plan (public/private investment plan)

- Likely to result in overpay for toxic assets above market value.

Say, Face value \$100 asset: pays off fully with prob 0.2 and pays only 20% of FV with prob 0.8.

Risk-neutral investor will pay \$36 (expected value).

However, Geithner-Summers plan requires private investors to put capital 12.5% with 87.5% from government (FDIC non-recourse loan + Treasury).

So investors will bid \$67, i.e. overpay by \$31(=67-36). Why?
 $0.2(100-x)+0.8(-0.125x)=0$ (break-even), where x=bidding price

Expected losses to taxpayers = \$31 = overpay.
 $0.8(0.875x-20)=0.8(\text{loan} - \text{remaining value of assets})=\$31.$

If not non-recourse loan, investors will bid \$36.
 $0.2(100-x)+0.8(20-x)=0$

Fed's Two Functions

- (1) monetary policy: change the size of money supply (i.e., federal funds rate) – expansion & contraction of Fed's balance sheet.**
 - (a) Securities held outright (system of open market account SOMA – entirely Treasury securities \$703bn out of \$898bn total assets of Fed (at the end of April 2008)).**
 - (b) Securities held under repo agreement (Treasuries, GSE-agency bonds and agency MBS, \$77bn (at the end of April 2008)).**
 - (c) Discount window lending (\$60bn ((at the end of April 2008)).**

Fed's total assets rose to 1.9tr (Mar 4, 09) due to aggressive lending to banking industry.

Now, it looks set to rise further to \$3.05tr with quantitative easing (buy T-notes up to \$300bn, \$750 agency MBS, \$100bn agency debt).

(2) Lender of last resort (liquidity and financial stability):

To promote liquid and functioning markets, Fed can change the composition of Fed's balance sheet, not the size. Take out-of-favor-assets into its balance in exchange for Fed liabilities.

(i) TAF (term auction facility – discount window): Fed lent funds to depository institutions against a broad range of collateral that the borrowing institutions have pledged to the Fed. (\$100bn for 28- or 35-days in March 2008). To offset the increase in the balance sheet, Fed has had to reduce Treasuries under SOMA.

(ii) TSLF (term securities lending facility): Under the new facility, the 20 primary dealers will be allowed to exchange mortgages (GSE agency mortgages or private label RMBS) for Treasuries that the Fed holds in the SOMA. (\$200bn for 28-days)

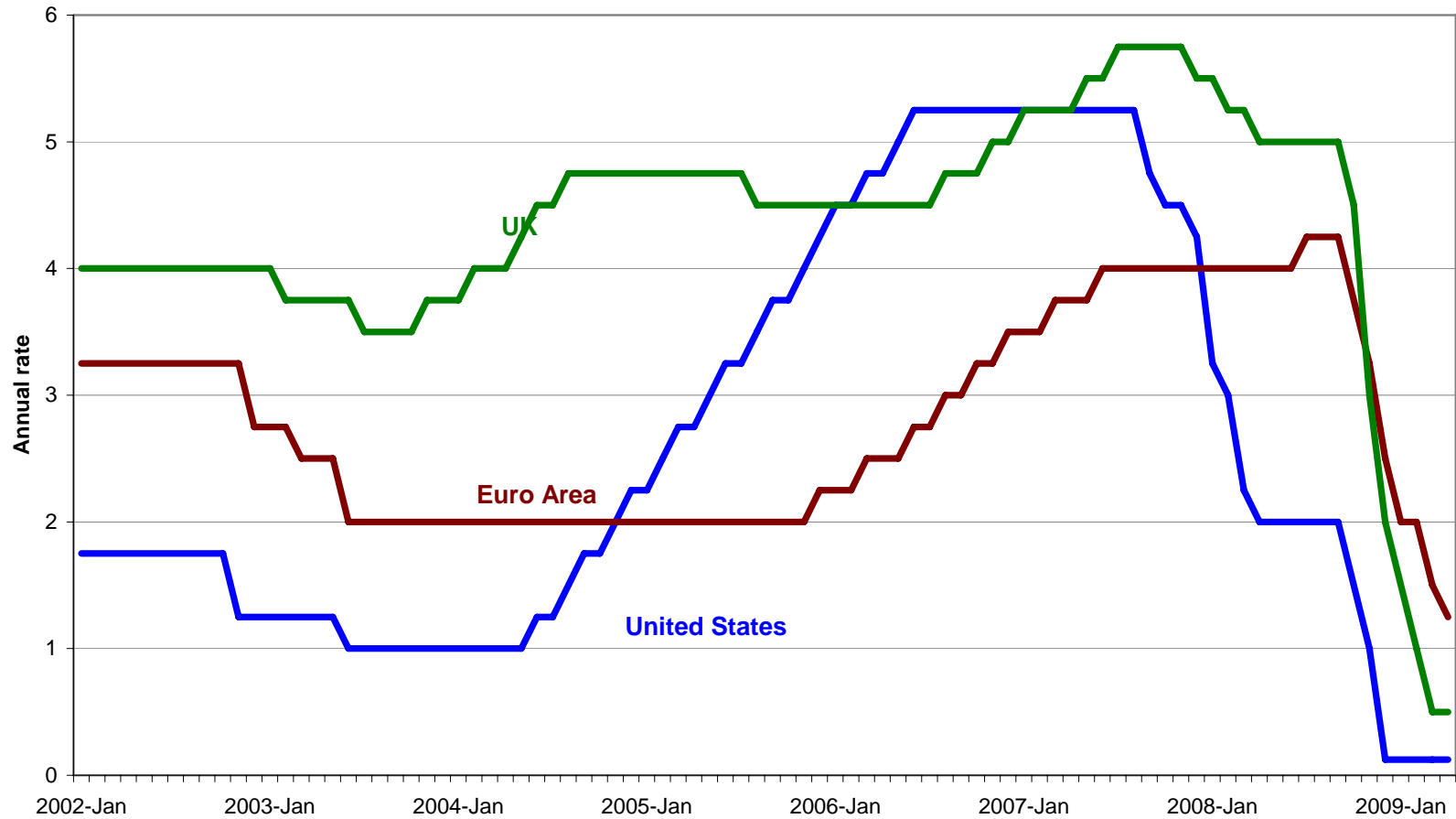
(iii) Expansion of the term repos: On March 7 Fed announced an intention to take in \$100bn in 28-day term repos (i.e., lending \$100bn in return for GSE debt and MBS). Again, in order to offset the increase of the balance sheet, Fed has had reduced SOMA holdings.

In effect, TAF, TSLF, and term repos all have the potential of Fed bringing more mortgage into the Fed's balance sheet – reducing the supply of relatively illiquid assets and increasing the supply of the currently more desired asset.

(iv) CPFF (Commercial papers funding facility)

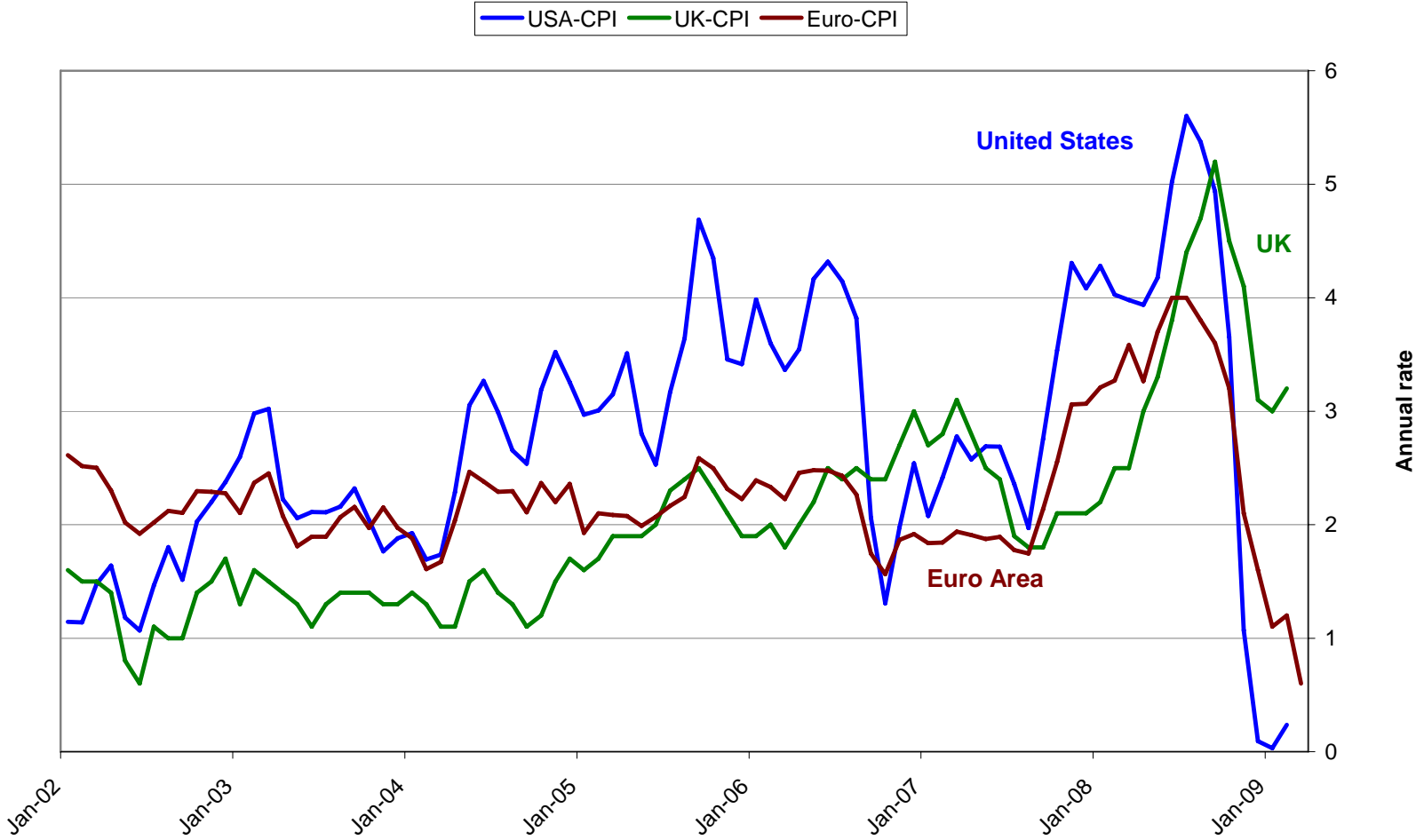
(v) TALF (Term asset-backed securities loan facility) in March 2009, Fed and Treasury launches \$1tr TALF program to boost asset-backed securities market. Now expanded to buy impaired mortgage-backed securities.

Monetary Policy: Target Interest Rates in U.S., U.K., and Euro Area



Data: Federal Reserve Board, Bank of England, and European Central Bank, April 2009

Sharp Reversal of Inflation Rates in U.S., U.K., and Euro Area



Data: Federal Reserve Board, Bank of England, and European Central Bank, April 2009

U.S. Fiscal Policy

Implications of \$787bn fiscal stimulus and other fiscal spending

- **Total U.S. gov'n't debt was about \$5.8trillion (40.8% of GDP) in 2008. Gov'n't debt in France (64.2% of GDP); Germany (65%); Euro (66%)**
- **Some additional fiscal commitments made:**
 - Fannie Mae and Freddie Mac (with \$5.4 trillion liabilities): \$200-300bn**
 - Bear Stearns rescue: \$29bn**
 - AIG rescue: \$89bn+\$37.8bn+more (totaling 185bn)**
 - Extended deposit insurance to \$3.4 trillion MMMF market.**
 - TARP \$700bn**

Fiscal deficits will be over \$1 trillion over next couple of years (\$1.85tr in 2009=13.1% of GDP; \$1.4tr in 2010=9.6% of GDP), which would put U.S. gov'n't debt above 71% of GDP by 2013. It can be managed, possibly. However, it will put long-term growth & dollar at risk.

- **Yet, fiscal multiplier =0.8, so limited effects but debt burden in future.**

U.S. Fiscal Policy

Increase of government debt by 30% of GDP by 2013 reflects also

- **Given the severity of current recession with slim prospects of strong recovery, output gap will be negative for extended time periods: lower tax revenues & higher social transfer spending like unemployment benefits.**
- **Aging population & required fiscal spending (social security, medicare)**

Increase of government debt by 30% of GDP by 2013 implies

- **Foreign payments (interest pay) rise, so current account deficit rises, which will put downward pressure on dollar.**
- **Crowding out of private investment could reduce the level of GDP in 2013 about 4% (ballpark figure using Ball and Mankiw' method)**
- **Real interest rates can rise about 1% (debt 1% increase leads to 3bp - Engen and Hubbard).**

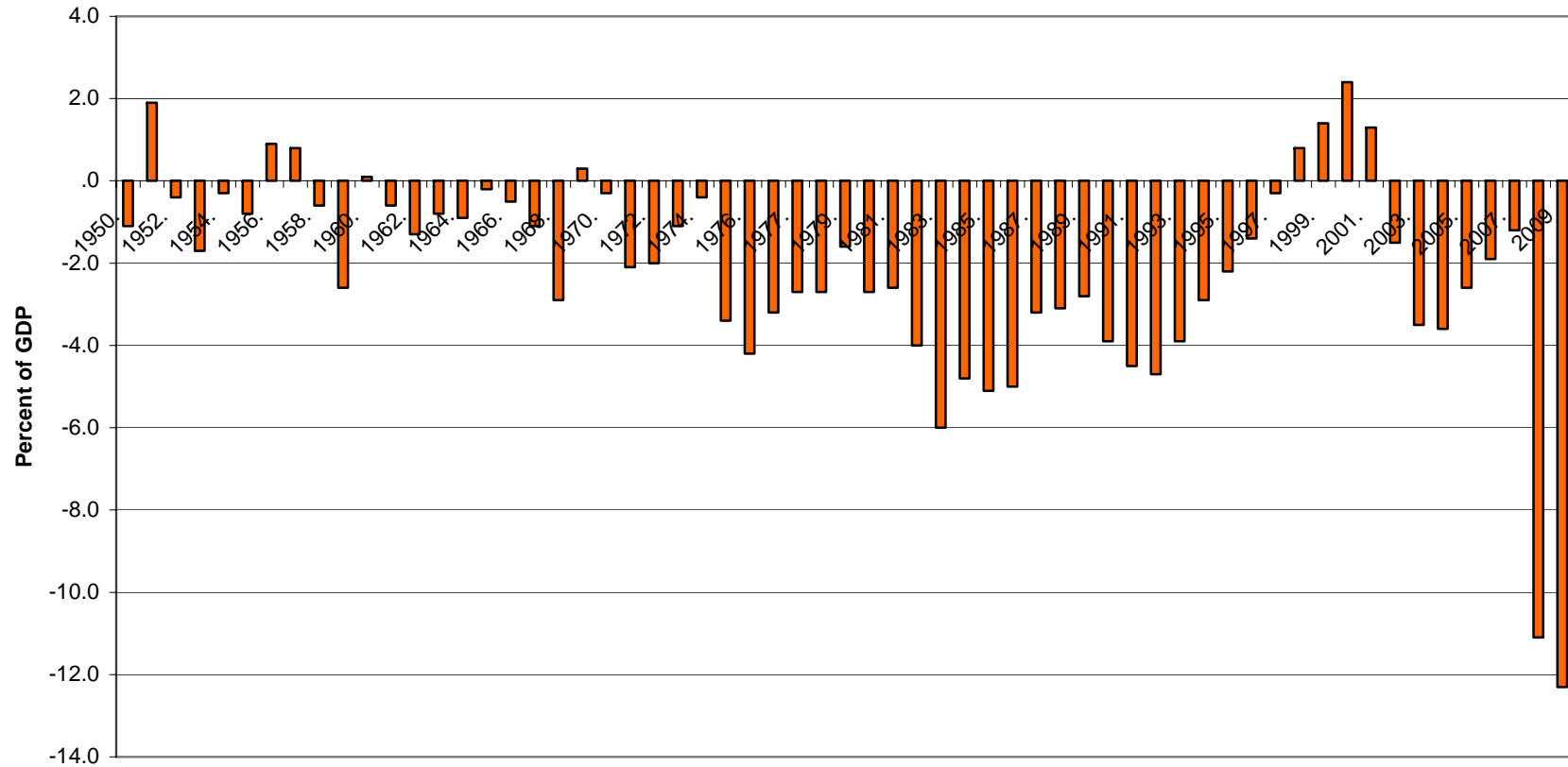
Government Total Bailout Tab

As of March 23, 09, total gov'n't commitment is \$9.8tr and spent \$2.4tr.

	Committed	Spent
Govn't as investor	\$5.4tr	\$1.3tr
	Includes direct investments in financial institutions, purchases of high-grade corporate debt and purchases of mortgage-backed securities issued by Fannie Mae, Freddie Mac and Ginnie Mae.	
Govn't as lender	\$2.3tr	\$734bn
	A significant expansion of the government's traditional overnight lending to banks, including extending terms to as many as 90 days and allowing borrowing by other financial institutions.	
Govn't as insurer	\$2.1tr	\$286bn
	Includes insuring debt issued by financial institutions and guaranteeing poorly performing assets owned by banks and Fannie Mae and Freddie Mac.	

Source: New York Times, March 26, 2009

US Federal Government Fiscal Balance: 1950-2009 (Percent of GDP)



Data: Economic Report of the President, March 2009
Figures for 2008-2009 are estimates.

Prospect of U.S. Recession: How Severe Will It Be?

Key Characteristics of Seven Recessions in the United States

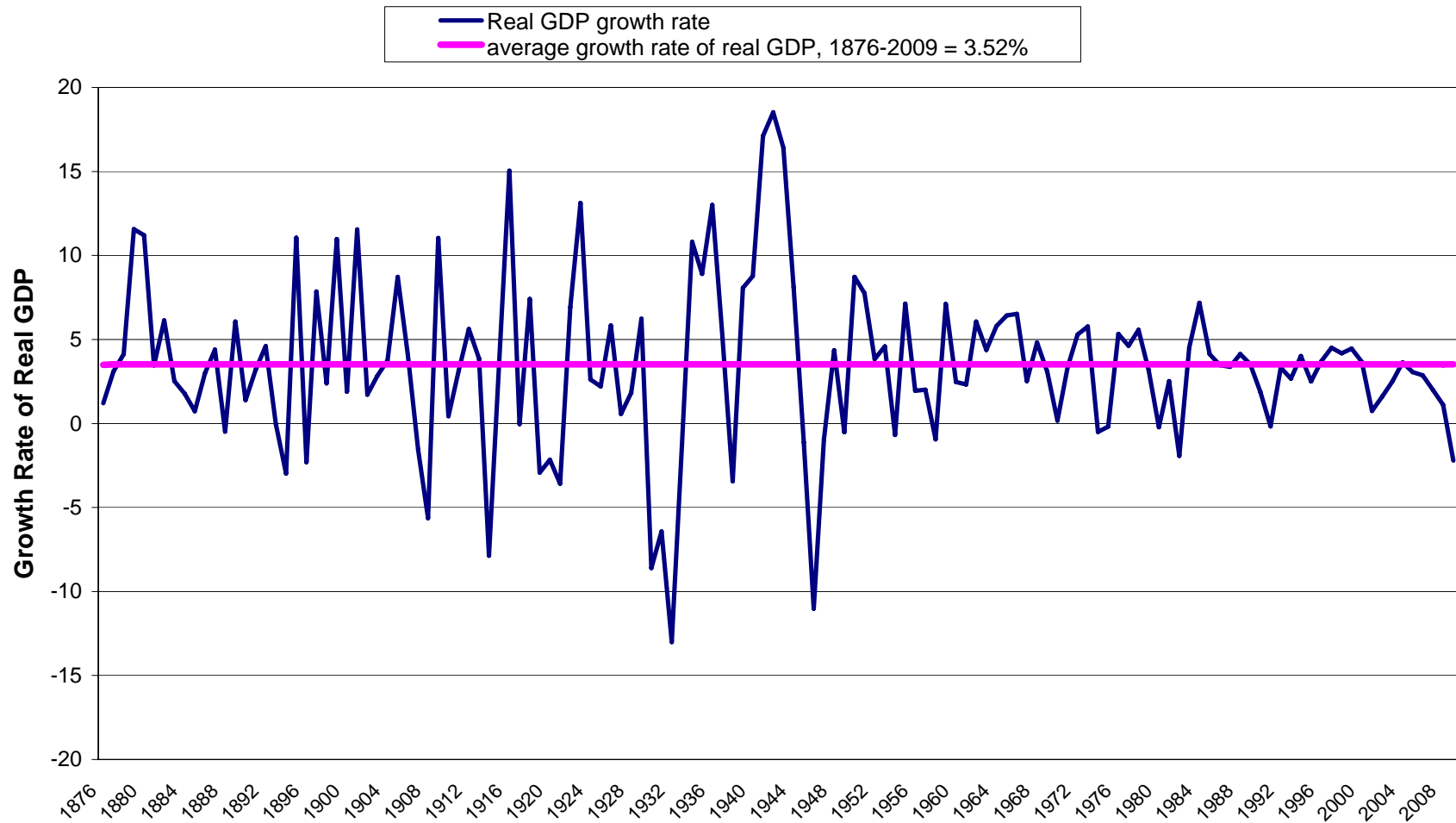
Recessions	Recession Depth (Percent changes from peak to trough) ²						
	Duration ¹	GDP	Output gap	Industrial production	Employment	Sales	Income
1960(II)/1961(I)	10	-0.53	-3.84	-6.16	-2.30	-4.80	-0.04
1969(IV)/1970(IV)	11	-0.14	-2.37	-5.84	-1.17	-4.15	-0.03
1973(IV)/1975(I)	16	-3.40	-4.31	-14.75	-1.82	-12.92	-5.62
1980(I)/1980(III)	6	-2.19	-2.21	-6.15	-1.16	-5.57	-2.74
1981(III)/1982(IV)	16	-2.79	-7.38	-9.51	-3.02	-5.90	-1.13
1990(III)/1991(I)	8	-1.31	-1.91	-4.27	-1.26	-4.09	-2.46
Average	11.2	-1.73	-3.67	-7.78	-1.79	-6.24	-2.00
2001(I)-(IV)	8	0.20	-2.34	-4.29	-1.00	0.68	0.47

Source: Bureau of Economic Analysis, Congressional Budget Office, and National Bureau of Economic Research.

Note: 1. Number of months from peak to trough, as declared by the NBER Business Cycle Committee.

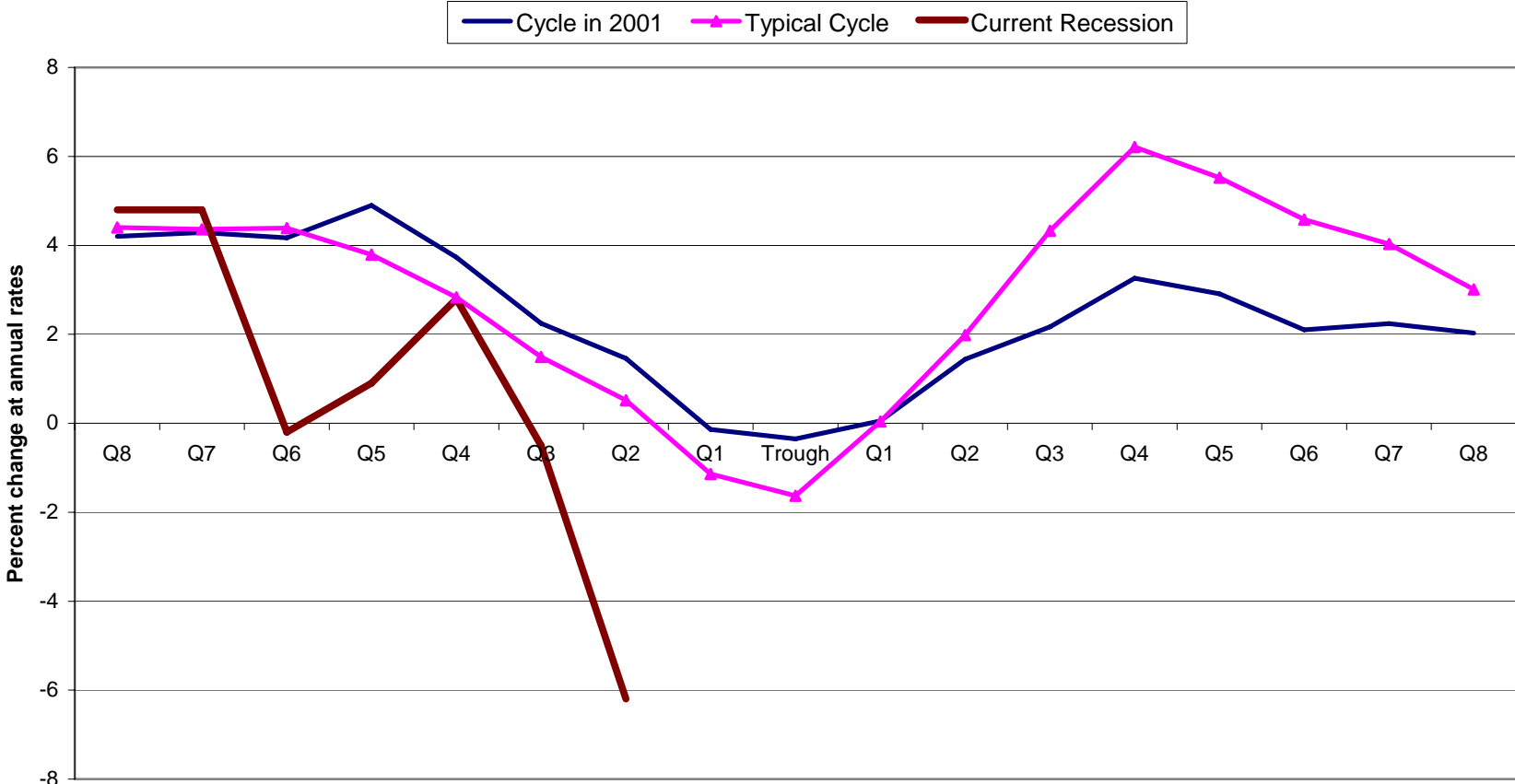
2. Except output gap, which was measured at the trough of recession as the ratio of (real GDP-potential real GDP)/potential real GDP (and then multiplied by 100). The estimates of potential real GDP is from the Congressional Budget Office (CBO).

U.S. Business Cycle Fluctuations, 1876-2009



Data Source: Robert Gordon, Macroeconomics, OECD Economic Outlook, and Bureau of Economic Analysis.

U.S. Business Cycles: GDP Growth



Data: Bureau of Economic Analysis and International Monetary Funds

Lessons from 18 Banking and Financial Crises in Industrial Countries in the Post-War Period

- **Five Big Crises: Spain (1977, fiscal cost 16% of GDP), Norway (1987, cost 8% of GDP), Finland (1991), Sweden (1991, cost 8% of GDP) and Japan (1992, over cost 20% of GDP; lost decade)**
- **Other Thirteen Banking and Financial Crises: Australia (1989), Canada (1983), Denmark (1987), France (1994), Germany (1977), Greece (1991), Iceland (1985), Italy (1990), New Zealand (1987), United Kingdom (1974, 1991, 1995) and United States (1984, S&L crisis, cost 3.2% of GDP)**
- **Best leading indicators of crisis: Equity and housing prices (Rogoff & Reinhart 2008; Carmen & Reinhart 1999)**

Although each financial crisis is different, there are striking similarities. US equity and housing prices also closely track the average of the previous 18 banking crises in industrial countries.

Magnitude of the Impact of Banking Crises on the Economy

- **The average drop in real GDP growth rate is near 2%. It typically takes 2-3 years to return to trend.**

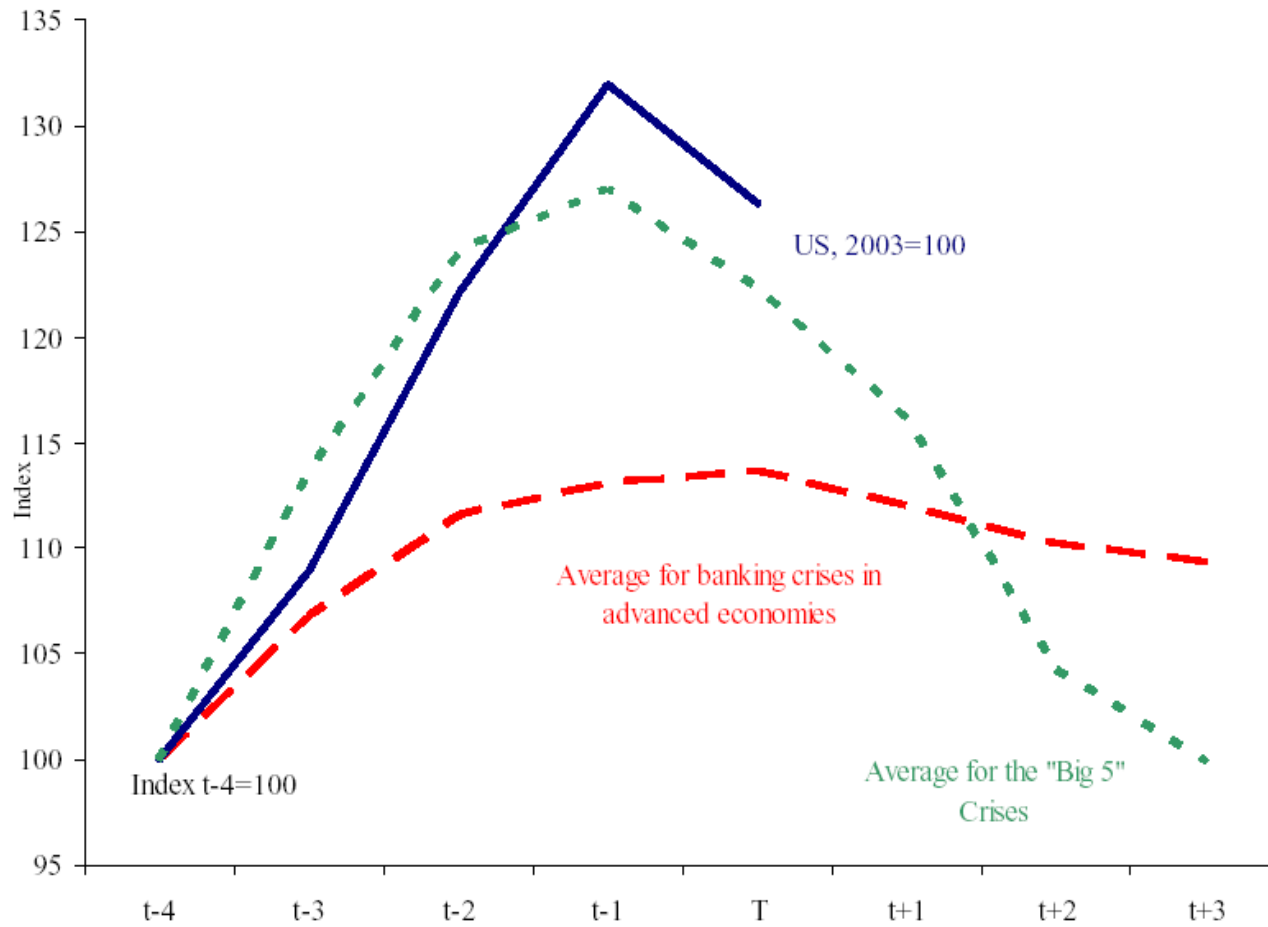
U.S. S&L crisis: after RTC in 1989, took 1 year for stock market to bottom, two years for output to bottom, 3 years for housing market to bottom.

- **For 5 big crises, the drop in annual output growth rate from peak to trough is over 5%, and growth remained well below pre-crisis trend even after 3 years.**

Japan: after Financial supervisory agency in 1997, took more than 5 years for stock market to bottom. Economic growth is still fragile.

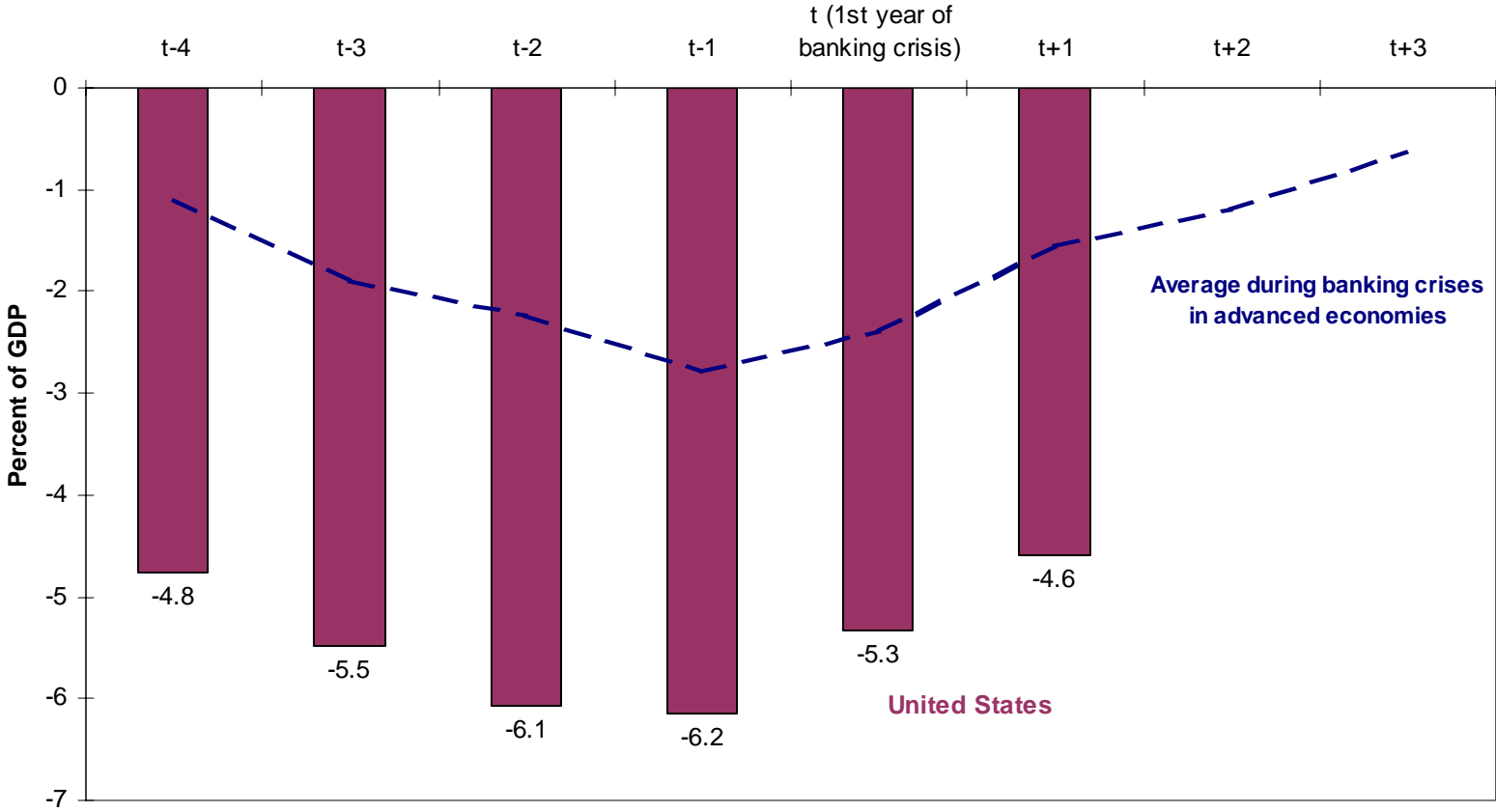
Sweden: even with effective gov'n't intervention, bear market lasted for more than two years & 20-month recession

Real Housing Prices and Banking Crisis



Source: Reinhart and Rogoff (2008)

Current Account Balance (% of GDP) and Banking Crises



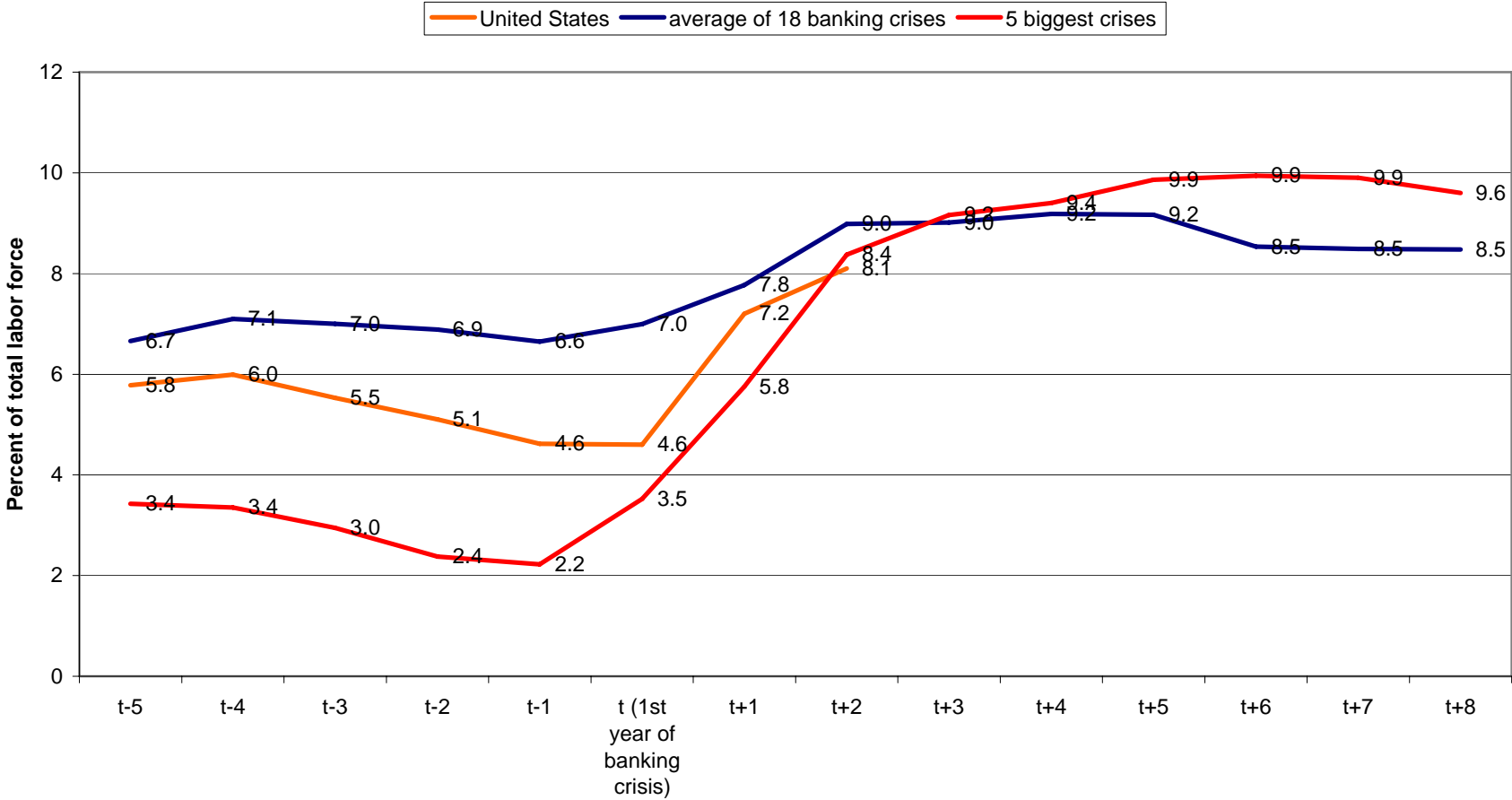
Data: World Development Indicators, Bureau of Economic Analysis 2009

Real GDP Growth and Banking Crises



Data: World Development Indicators, Bureau of Economic Analysis, and JPMorgan (for 2009 US growth forecast)

Banking Crisis and Unemployment Rates



Data: IMF, World Bank, and US Bureau of Labor Statistics 2009

Korea

- **Won is among the worst performing currency: Won depreciated against US\$ to Won1334 by 25% from July 15 2009 to April 2, 2009.**

Lack of credibility in foreign exchange policy

Current account deficit in 11 years = -5bn (12 months) as of Jan 2009

Korean export fell 34% (Japan 46%, Taiwan 44%, China 18% down year-to-year)

Household + corporate debt =180% of GDP, higher than US

Korean Banks reliant on offshore market for 12% of funding

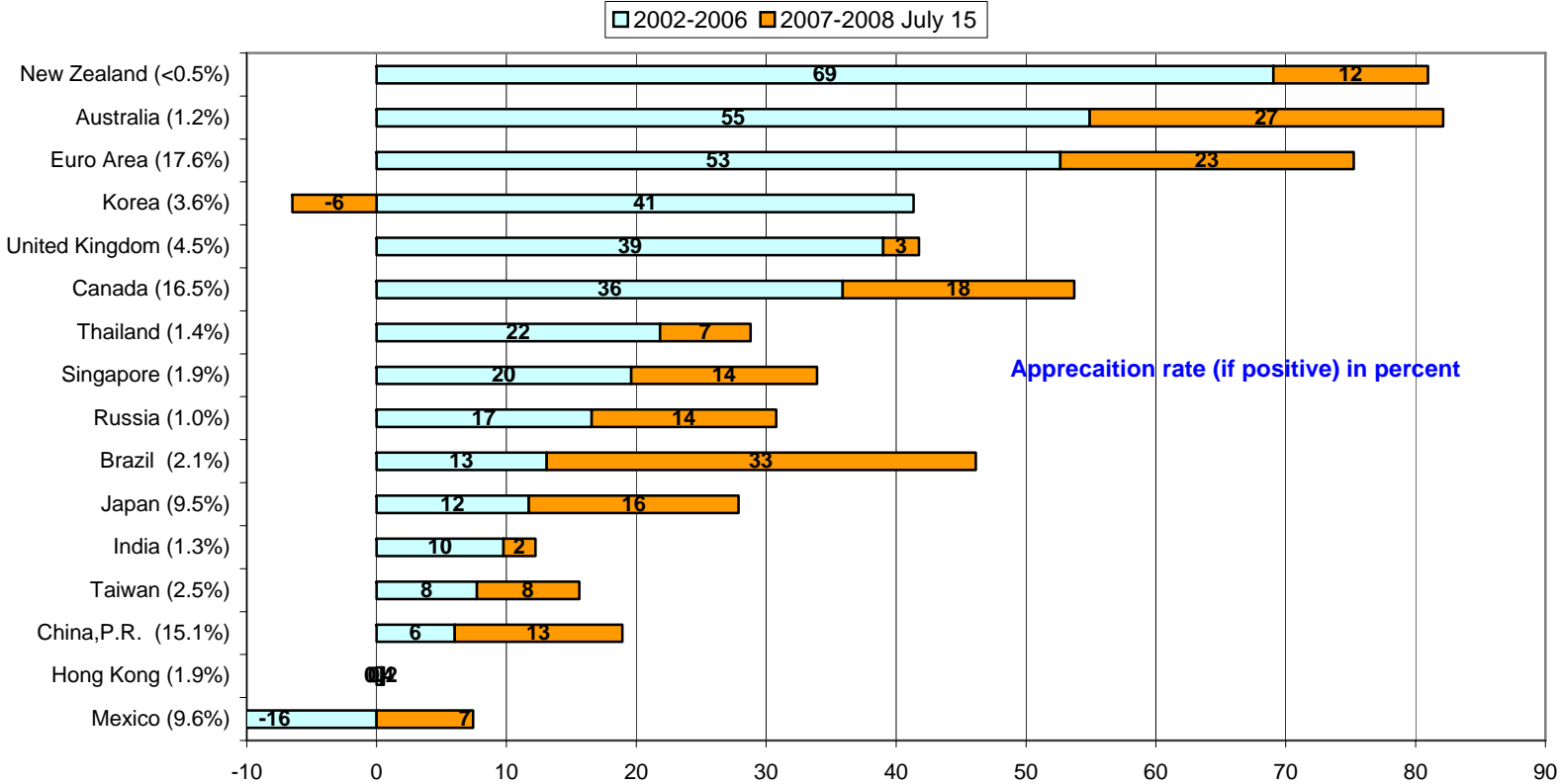
Banking sector has huge foreign debt of \$222bn and short-term debt is \$159bn (compared to \$201bn foreign reserves in Feb 09)

58% of this funding was provided by European Banks which also provided 90% of loans to central & eastern Europe.

Against this background, worldwide credit crunch further weakened Won.

Most recently, Won gained some strength: gain in stock market, record-high current account surplus (\$5bn) expected for march 09, and better than expected industrial output (-10% in Feb, relative to -26% in Jan)

Magnitude of Currency Appreciation against U.S. Dollar: 2002-2006 and 2007-2008 (July 15)

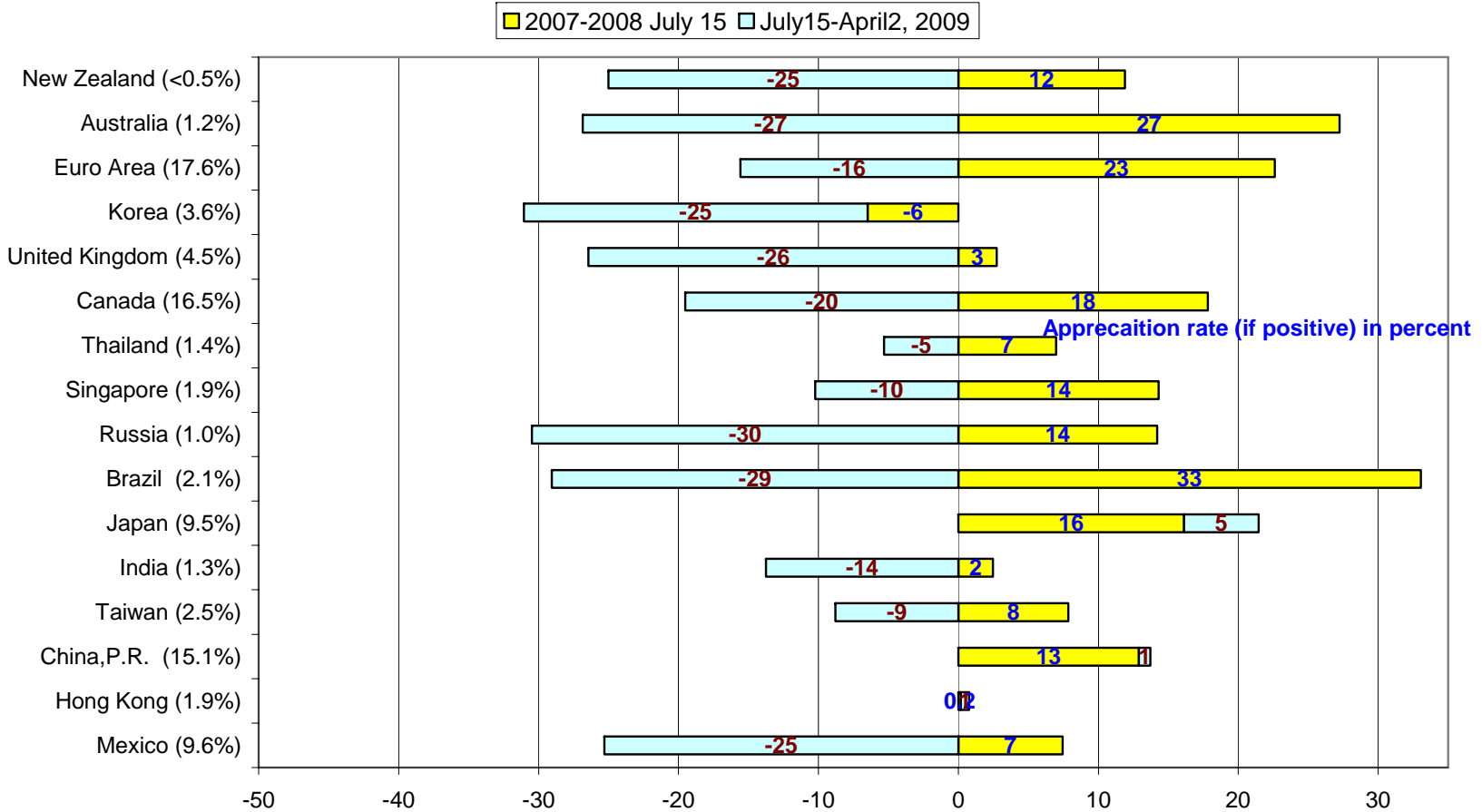


Note: Trade shares are in the bracket.

For Korean Won, the appreciation rate in Jan 2002-Oct2004 is only 17.4%. Since Oct 2004 until late 2007, the Won appreciated more sharply.

Data: Federal Reserve Board, Sept 2008

After Sharp Depreciation Until 2008 Summer, the U.S. Dollar Has Appreciated against Major Currencies.

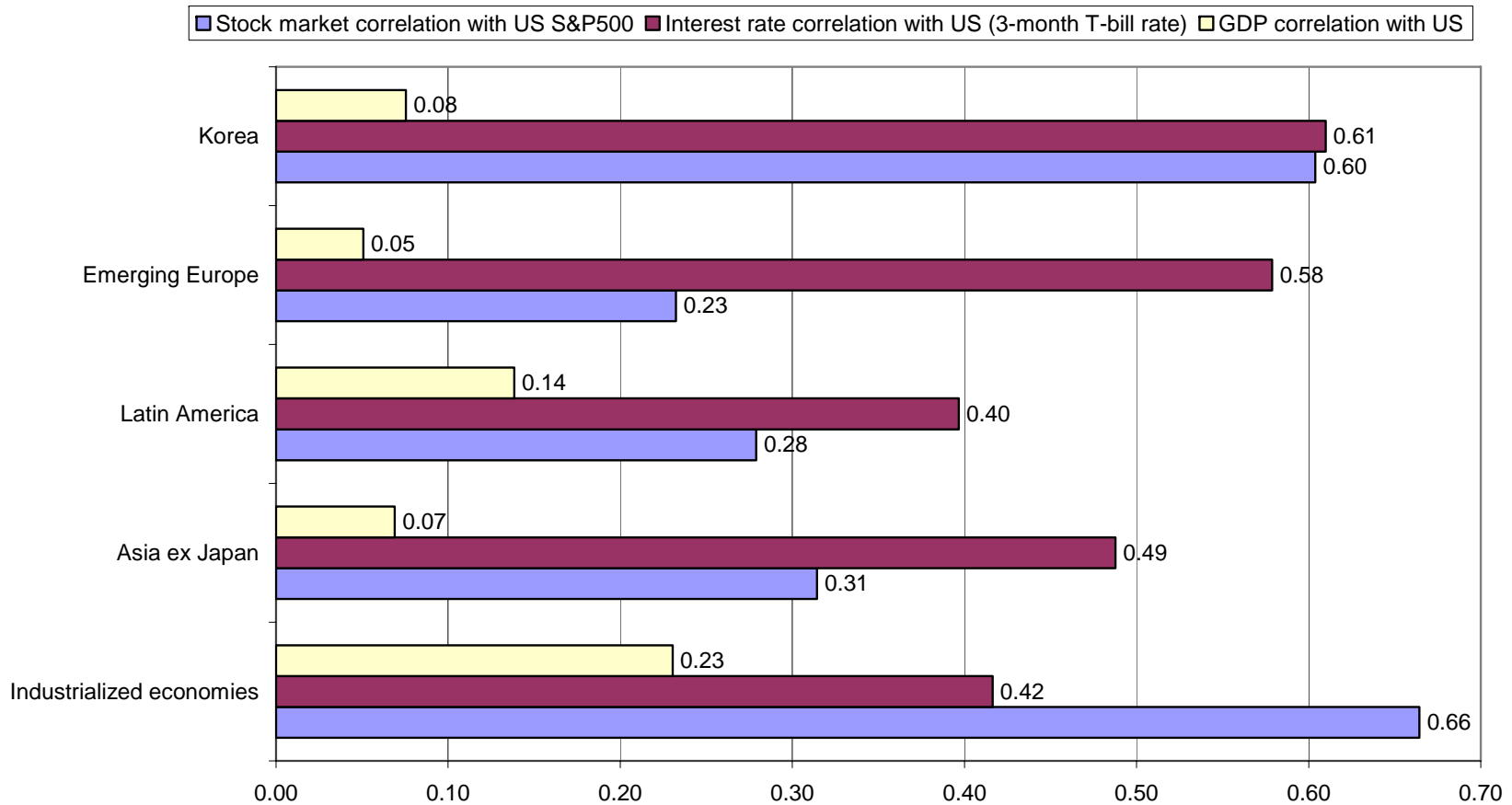


Note: Shares of US trade are in the bracket next to country names.

Numbers in the shadows are the appreciation/depreciation rates against U.S. dollar.

Data: Federal Reserve Board and Financial Times, April 3, 2009

Average Correlation with U.S. by Variables: 1994-2006

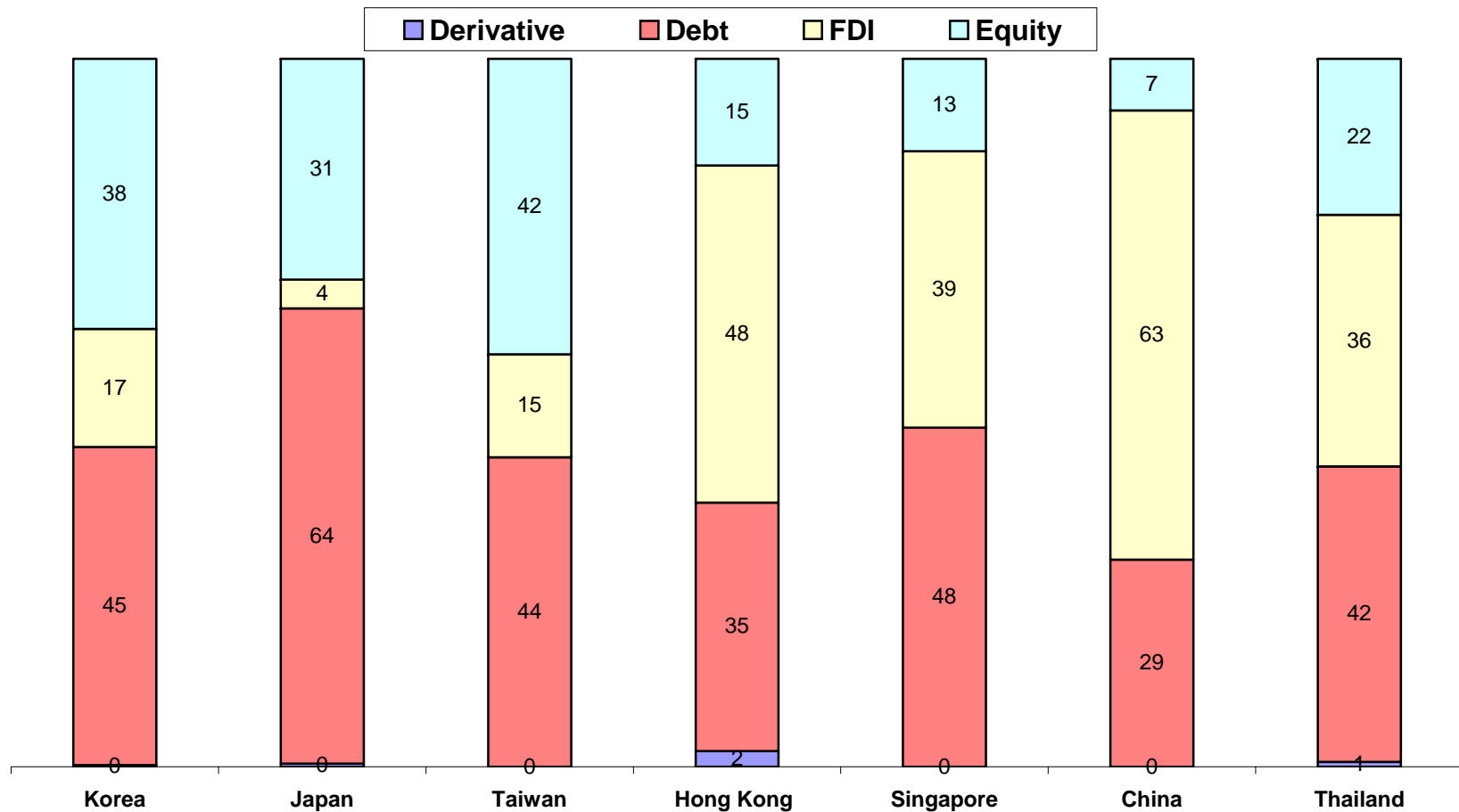


Note: Stock market returns (MSCI index in local currency, deflated by CPI, monthly returns)

For Korea, KOSPI and 1 year Treasury-Bill Rates: 2000-2007

Data: IMF, US Treasury Dept., and Bank of Korea

Composition of Foreign Liabilities: Equity, FDI, Debt, Derivatives in Asian Countries (as percent of total foreign liabilities)



Data: Lane and Milesi-Ferretti (2006)

Countries vulnerable to Global Credit Crunch

Country	Current account % of GDP	Short-term debt % of reserves	Banks' loan/deposit ratio	Overall risk ranking
South Africa	-10.4	81	1.09	17
Hungary	-4.3	79	1.30	16
Poland	-8.0	38	1.03	14
South Korea	1.3	102	1.30	14
Mexico	-2.5	39	0.93	12
Pakistan	-7.8	27	0.99	12
Turkey	-2.3	70	0.83	10
Russia	1.5	28	1.51	9
Argentina	0.2	63	0.74	8
Venezuela	0.8	58	0.75	7
Indonesia	1.2	88	0.62	6
Thailand	0.3	17	0.88	5
India	-2.4	9	0.74	4
Taiwan	7.9	26	0.87	3
Malaysia	11.3	15	0.72	2
China	5.2	7	0.68	1

Source: The Economist, March 5, 2009

European Banks: Foreign bank lending to developing countries as % of lender nation's GDP

Country	% of GDP
Austria	80%
Netherlands	66%
Belgium	39%
Spain	25%
Ireland	17%
France	16%
Portugal	16%
Germany	13%
Italy	12%
Bank lending to developing countries (Sept 2008)	Total of \$4,593bn
Europe	3,369bn (19% of GDP in Eurozone)
US	475bn (3.4% of US GDP)
Japan	218bn (5% of JP GDP)

Source: Financial Times, Feb 19, 2009

There is still a risk of abrupt reversal of capital flows and dollar collapse, although the chances are still very low.

- **If net foreign capital inflows suddenly reverse their course, say, due to abrupt shifts in confidence on U.S. economy, the US\$ exchange rate would plummet and the interest rates on government debt would soar.**
- **Banking crises tend to coincide with a currency crisis. So far, however, U.S. has not suffered a sudden reversal of capital flows and dollar collapse (US\$ being int'l reserve currency, 40% of total losses by European financial institutions, swift policy reaction in U.S. in contrast to Europe, flight to safe haven (US T-bonds)).**

Amid the renewed fear of financial meltdown, US\$ actually strengthened (from all-time low in July 2008), and T-bond interest rates have been low because of flight to safety.

- **In the long run, however, US dollar may remain weak as the financial crisis continues to deepen and the bail-out causes large fiscal deficits.**

Implications

- **This banking crisis-led recession will be worst in the post-WWII period.**
- **Japanese style of 10-year long recession may not have to happen in the US – Japanese government made policy mistakes and when they acted (monetary and fiscal), it was often too late and too little.**
- **However, the risks of prolonged economic slump are high and the government's ability to deal with the problems may be more limited than most people expect:**
 - (1) **Continued fall of house prices: public intervention may not be enough to stabilize the housing losses?**
 - (2) **In the end, governments resolve financial crises: government can assume the bad debt (as in Japan). But unlike Japan (a net creditor nation), The U.S. is a net debtor, and it must keep the trust of foreigners.**