Outlook for the U.S. Economy

Presentation by James Kahn and Simon Potter
to the
Economic Advisory Panel

May 11, 2007

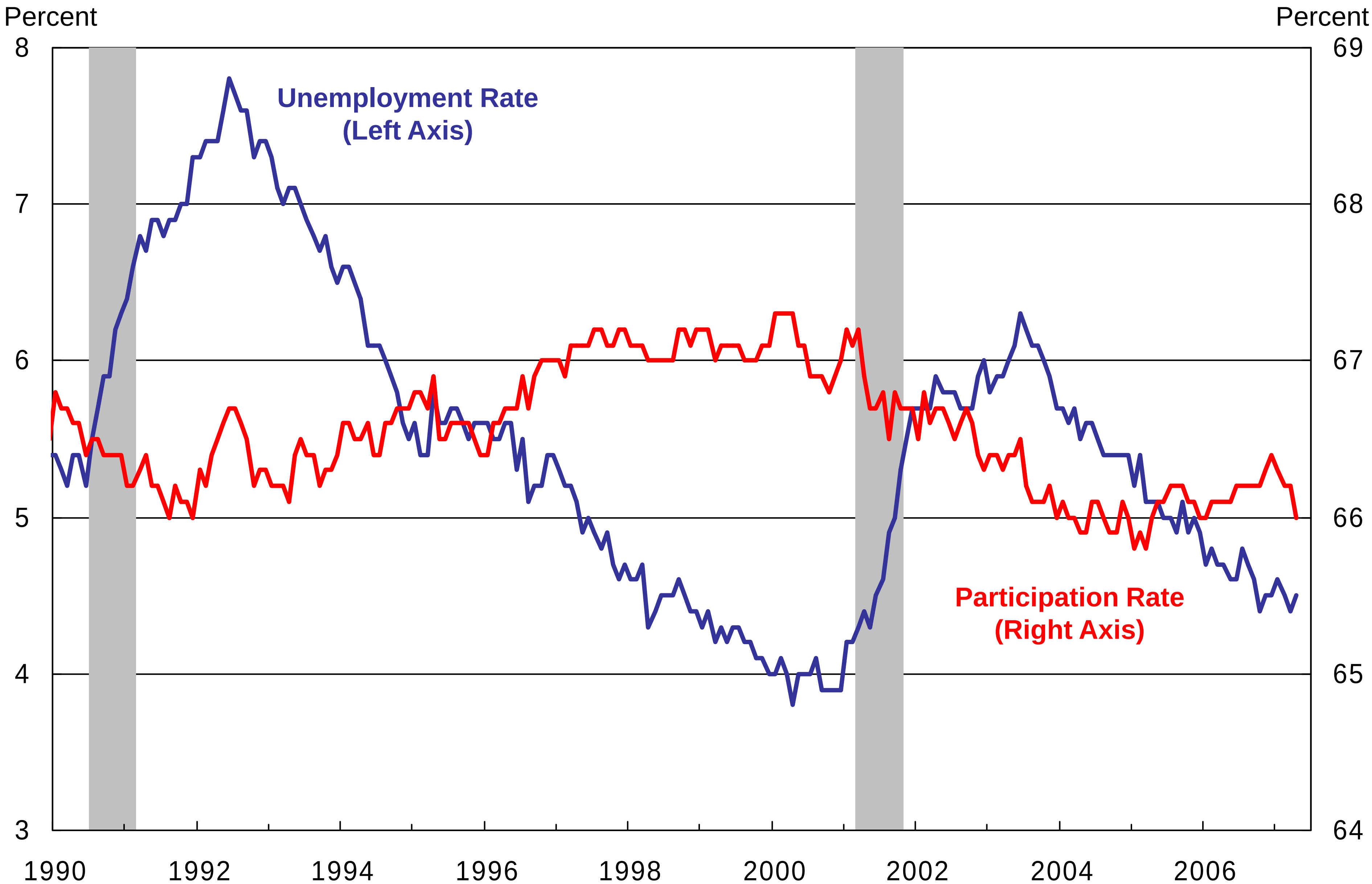
Overview

- Inflation outlook shows slight improvement
  - Year-over-year core inflation remains elevated
  - *Latest* core numbers suggest moderation (*after unexpected blip up in early 2007*)
- Real activity has decelerated *further* since the first half of 2006
  - Employment and hours growth have slowed (*following unexpected strength late in 2006*)
  - Large housing ‘correction’ *continues*
- We *still* expect GDP growth to recover in ’07, with continued moderation in inflation

Labor Market Update

- Big picture is still a relatively strong labor market juxtaposed with weak output growth
- Latest numbers show some softening

Unemployment steady, participation sluggish

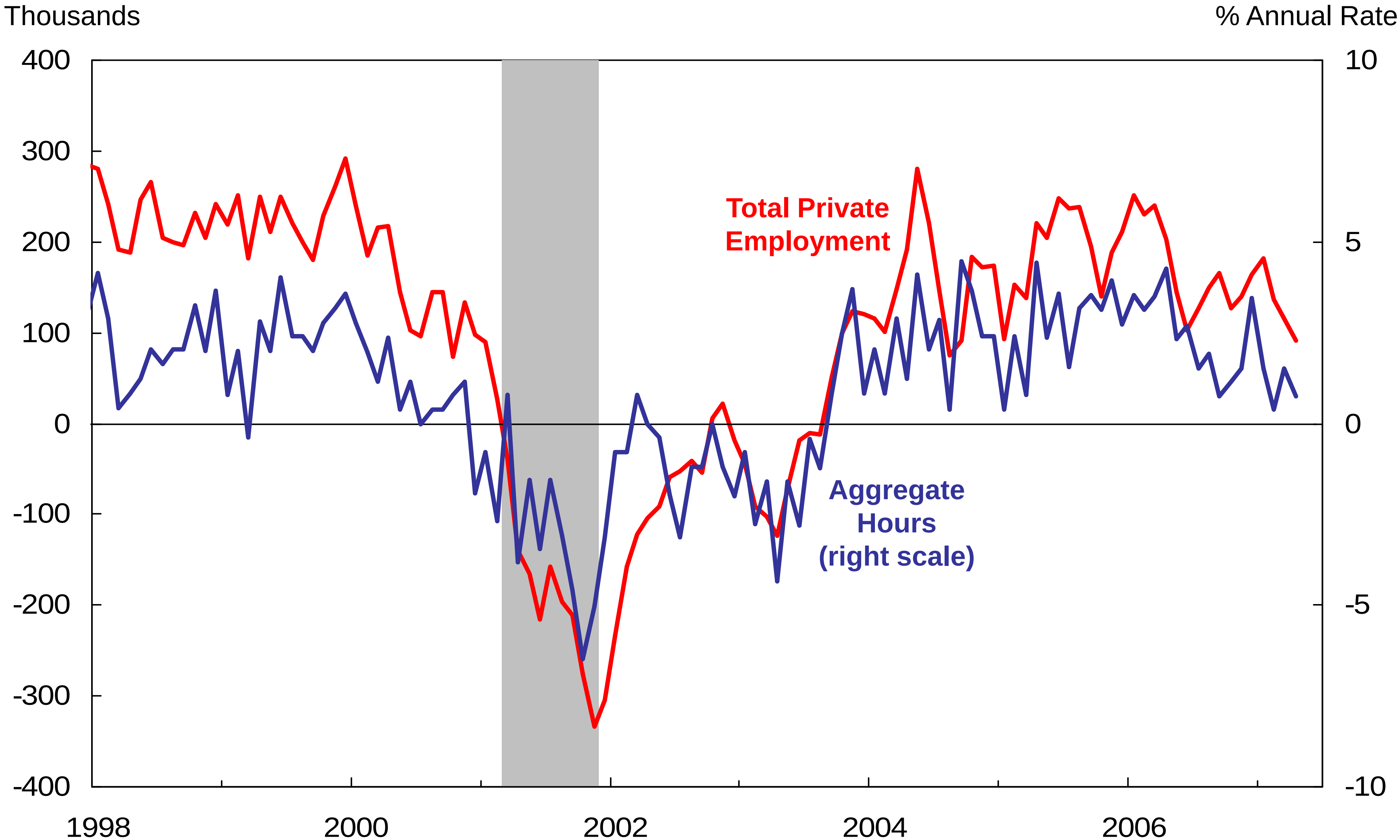


Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.

Job and hours growth have slowed

3-Month Moving Averages

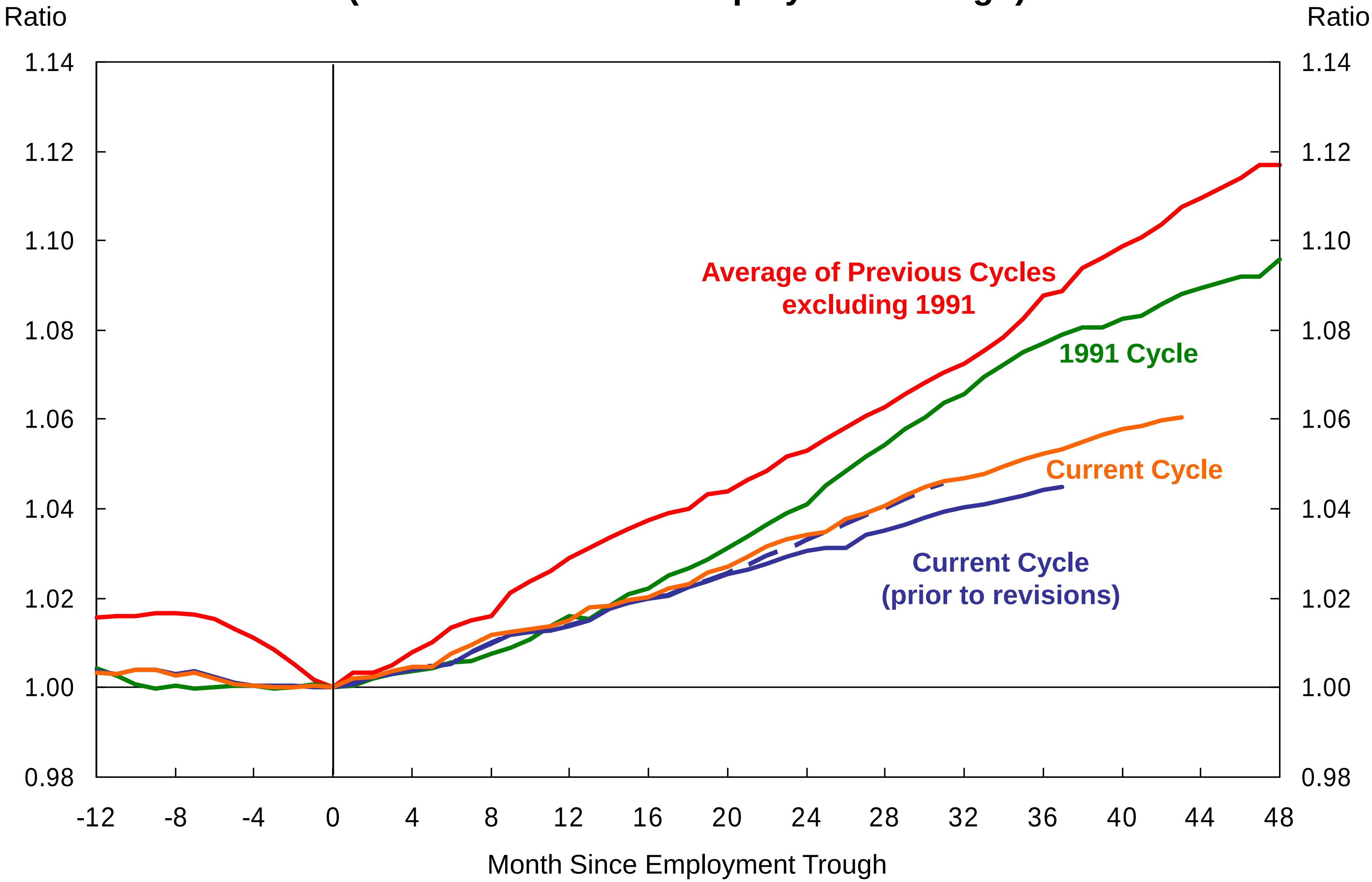


Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.

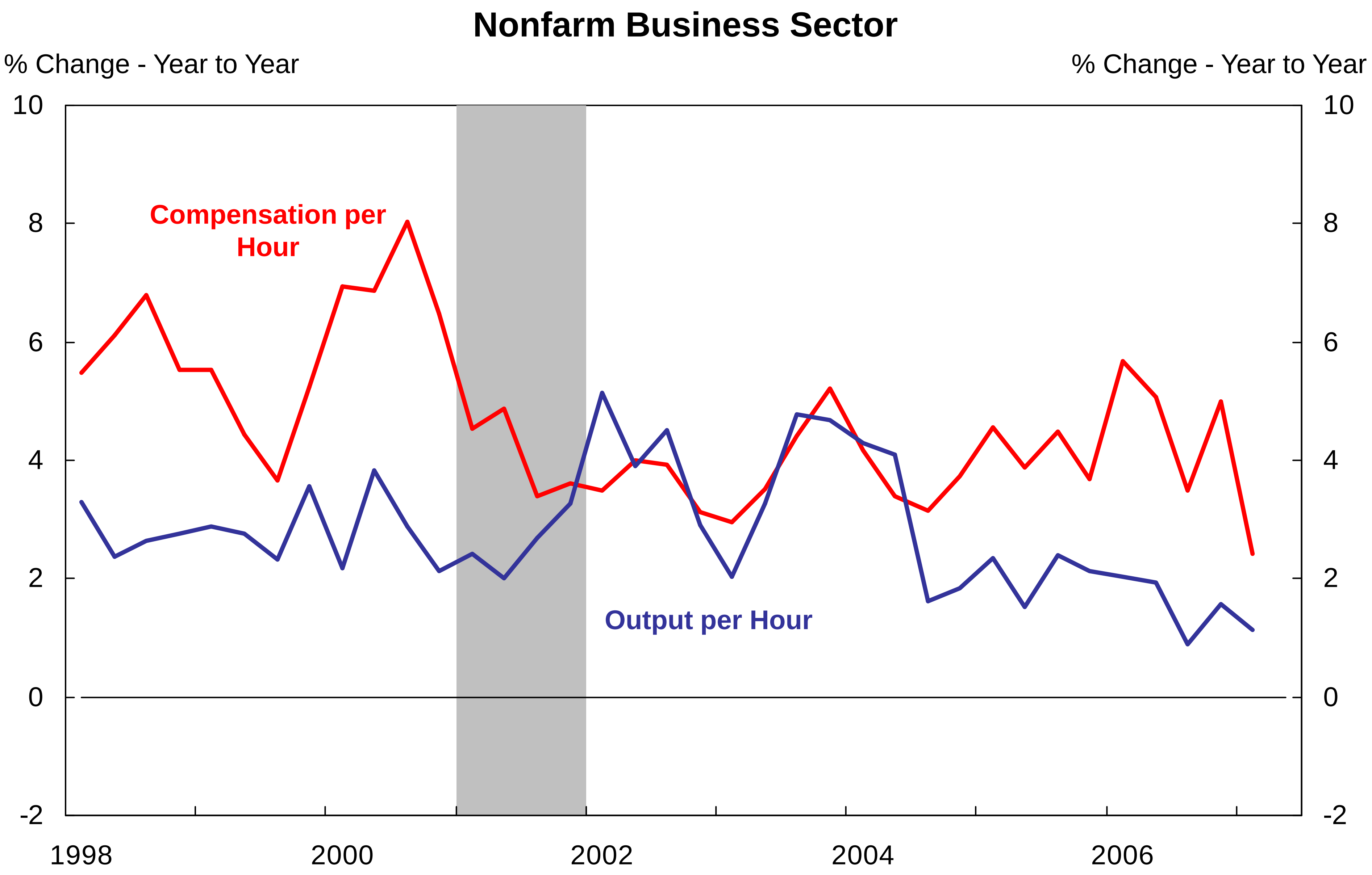
Employment expansion remains below past norms

(Series Set to 1.0 at Employment Trough)



Source: Bureau of Labor Statistics

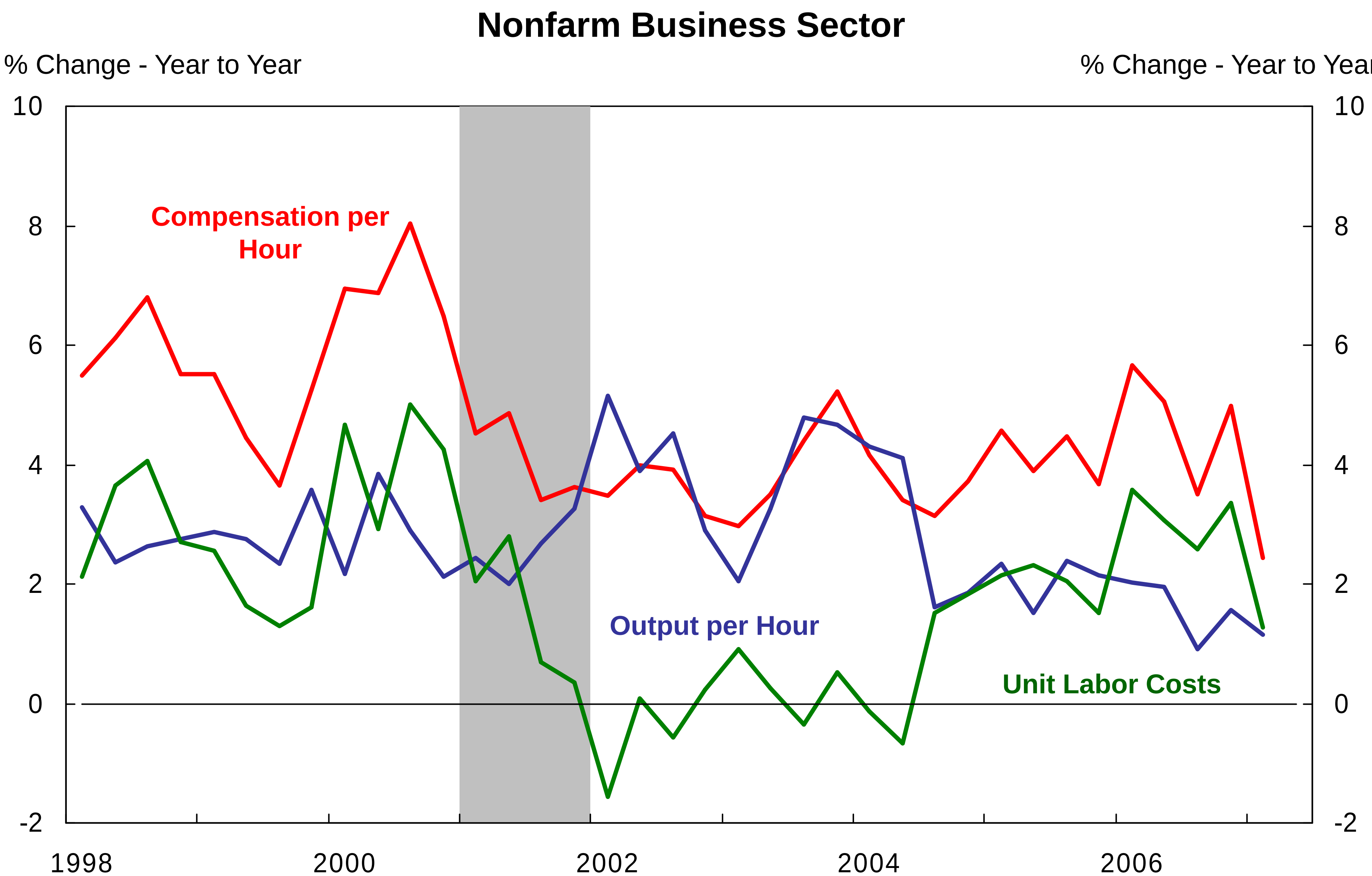
Productivity, compensation have slowed…



Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.

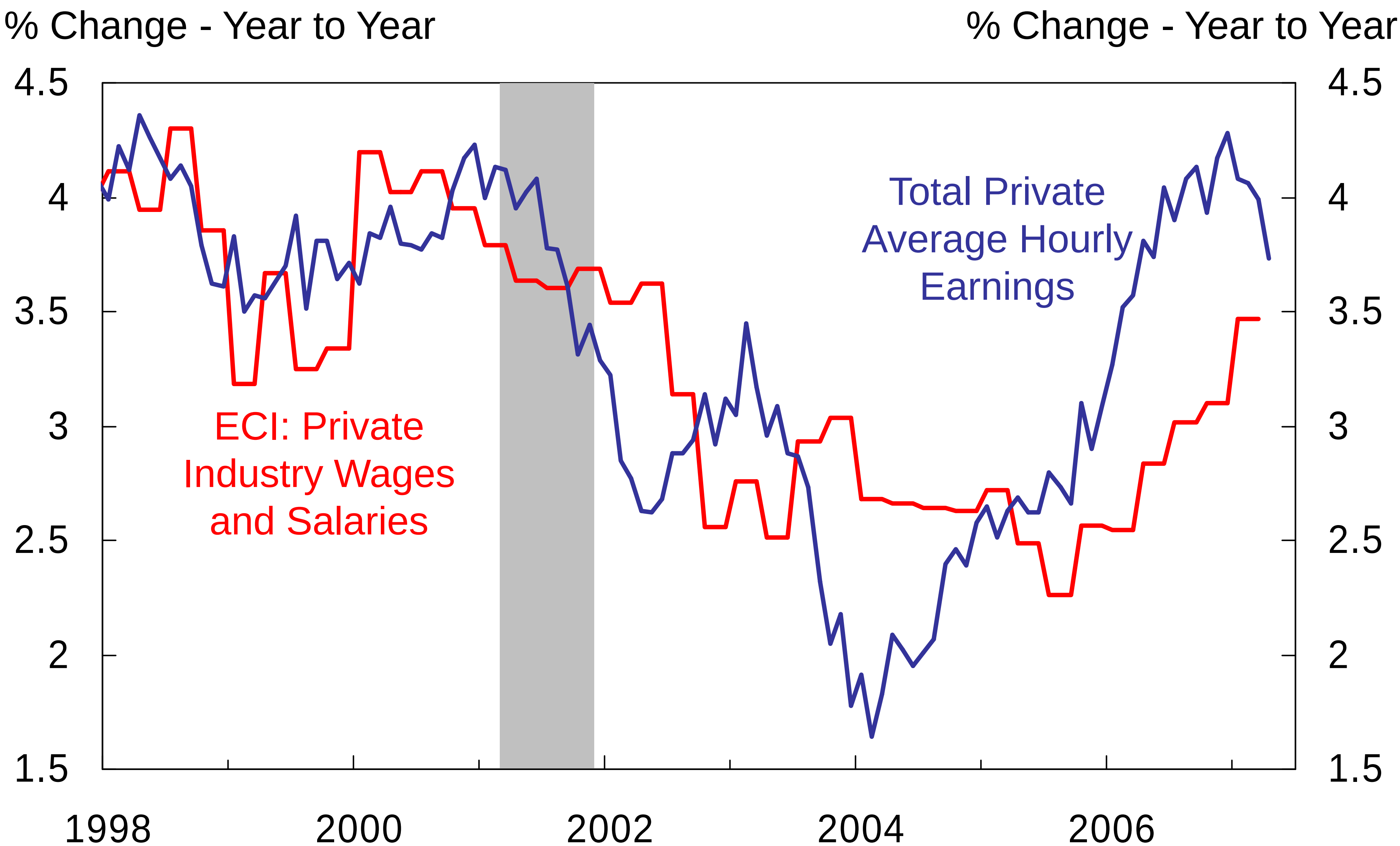
…so unit labor costs growth has come down



Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.

Average Hourly Earnings growth has also slowed

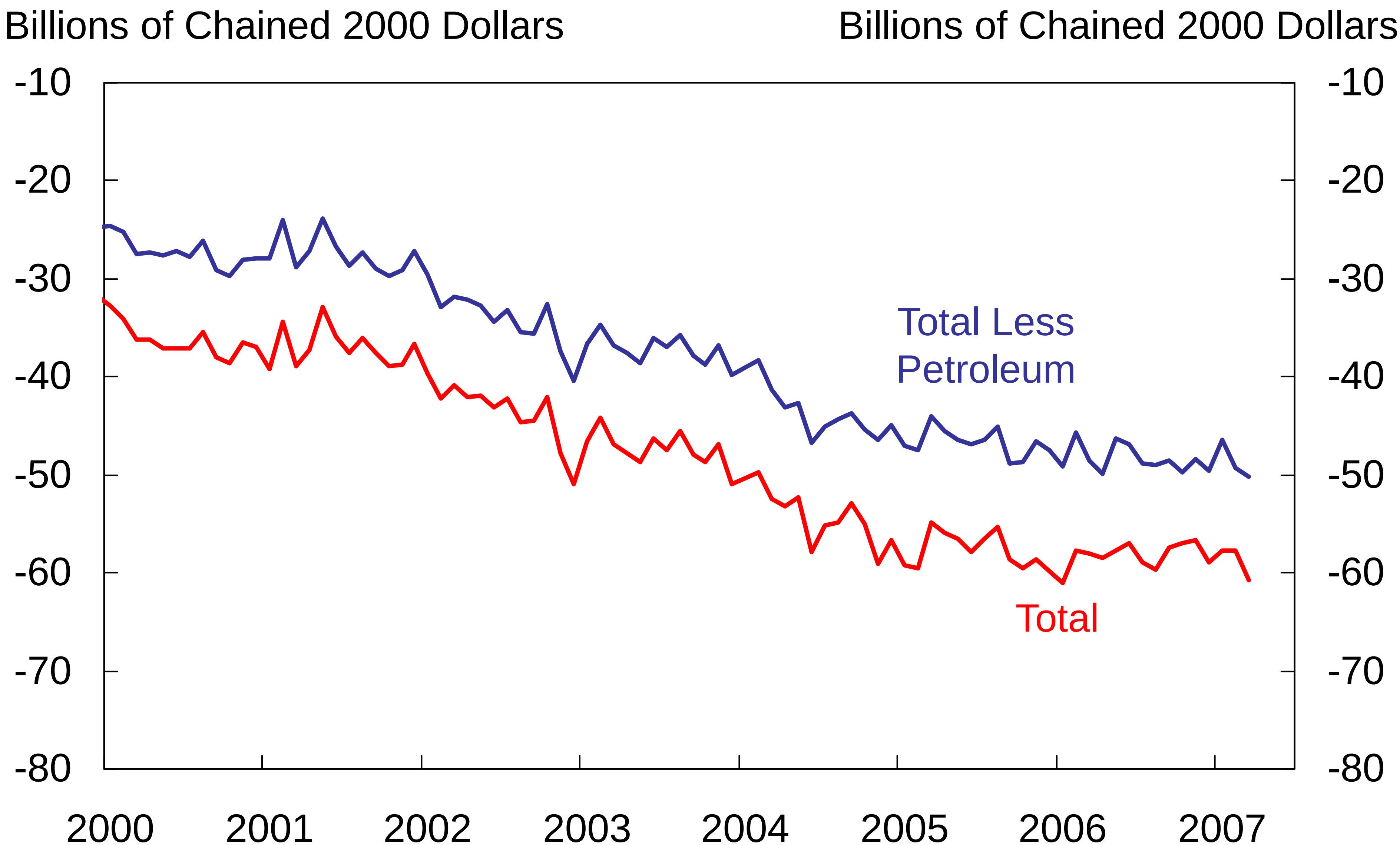


Source: Bureau of Labor Statistics

Other Releases

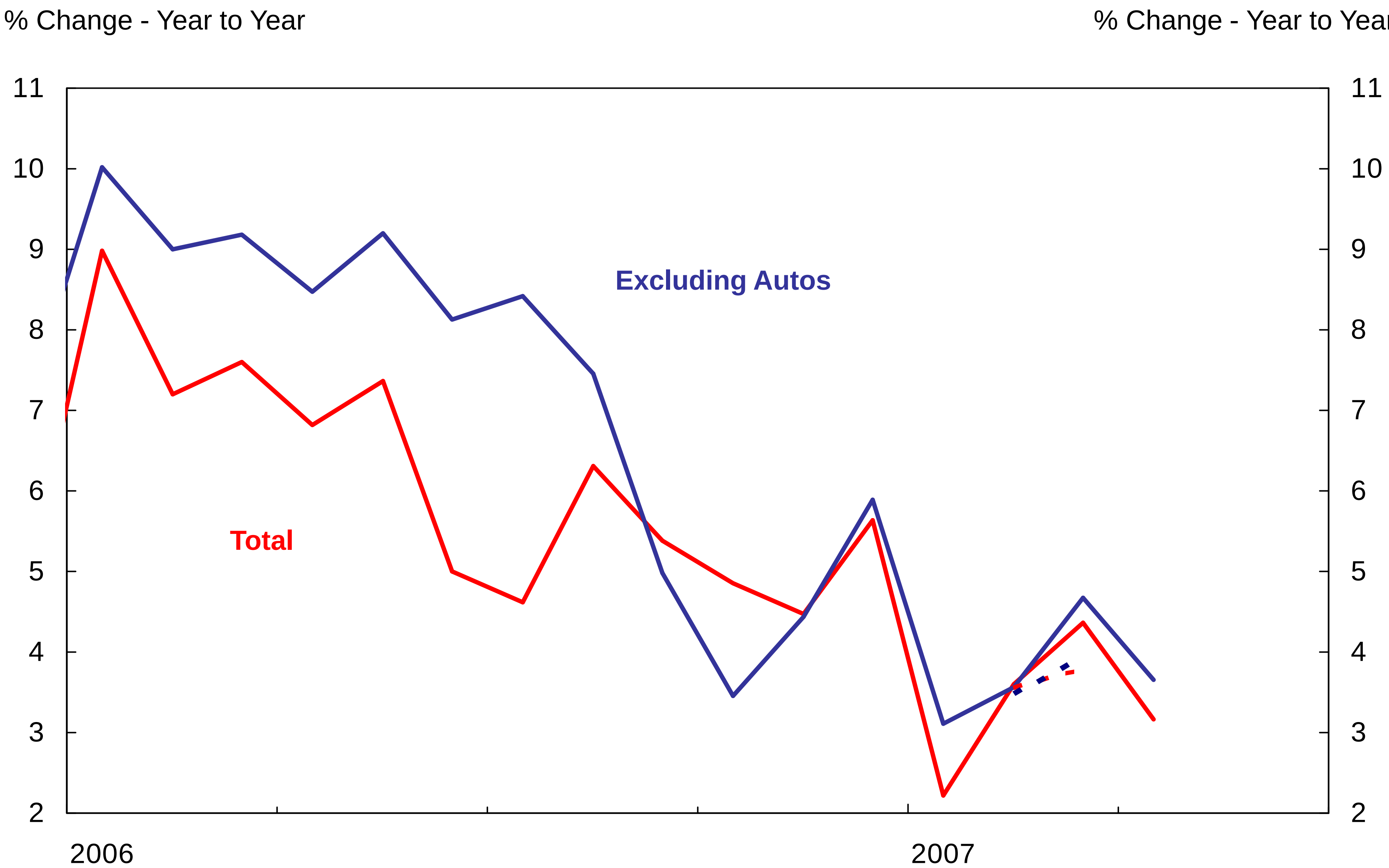
- March trade balance: lower than anticipated
- April retail sales: sluggish but Q1 revised up
- April PPI: “core” was -0.1 percent

March Trade Balance Lower than Expected



Source: Census Bureau

Retail Sales off in April, but revised up for Q1

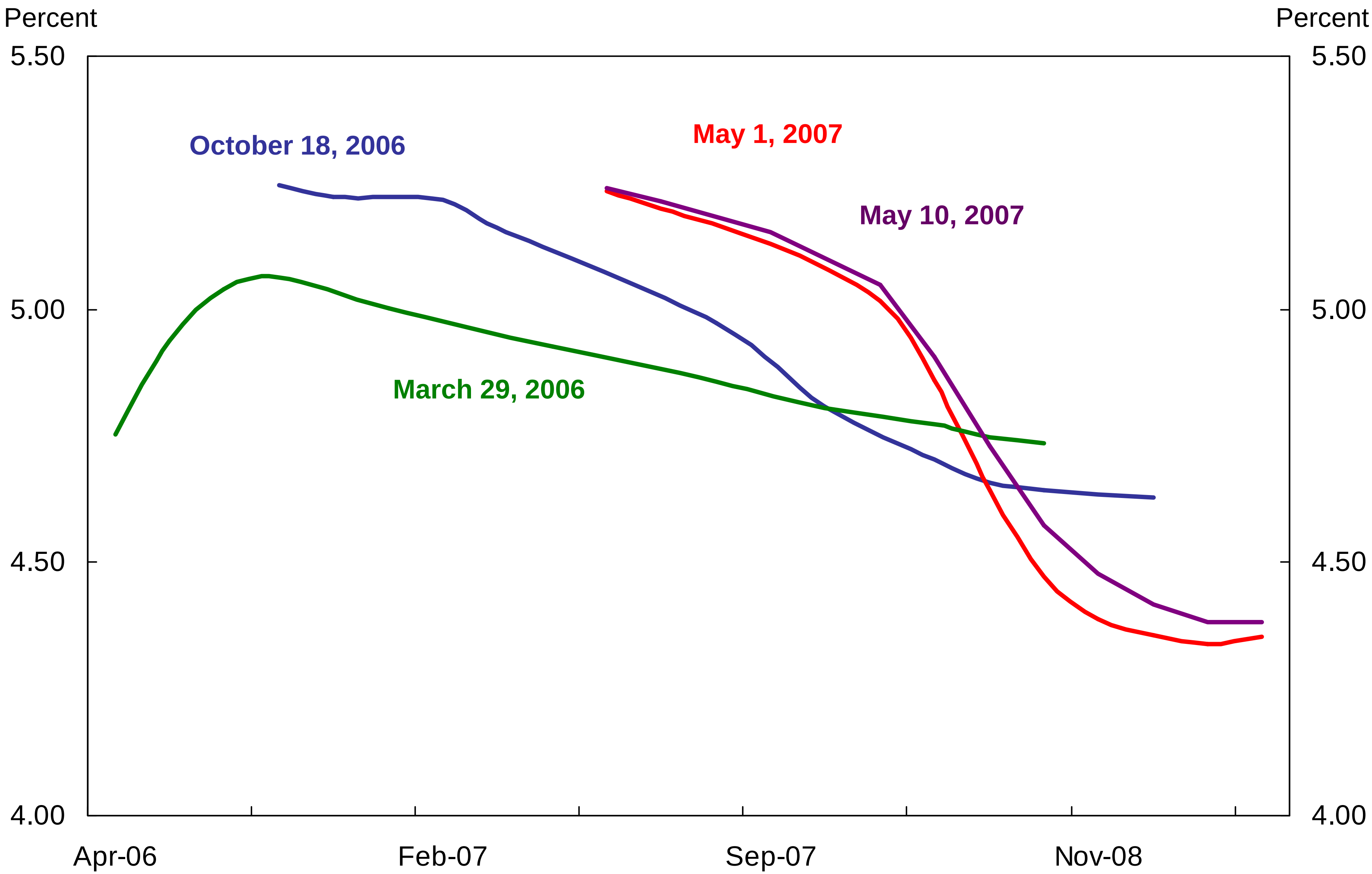


Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.

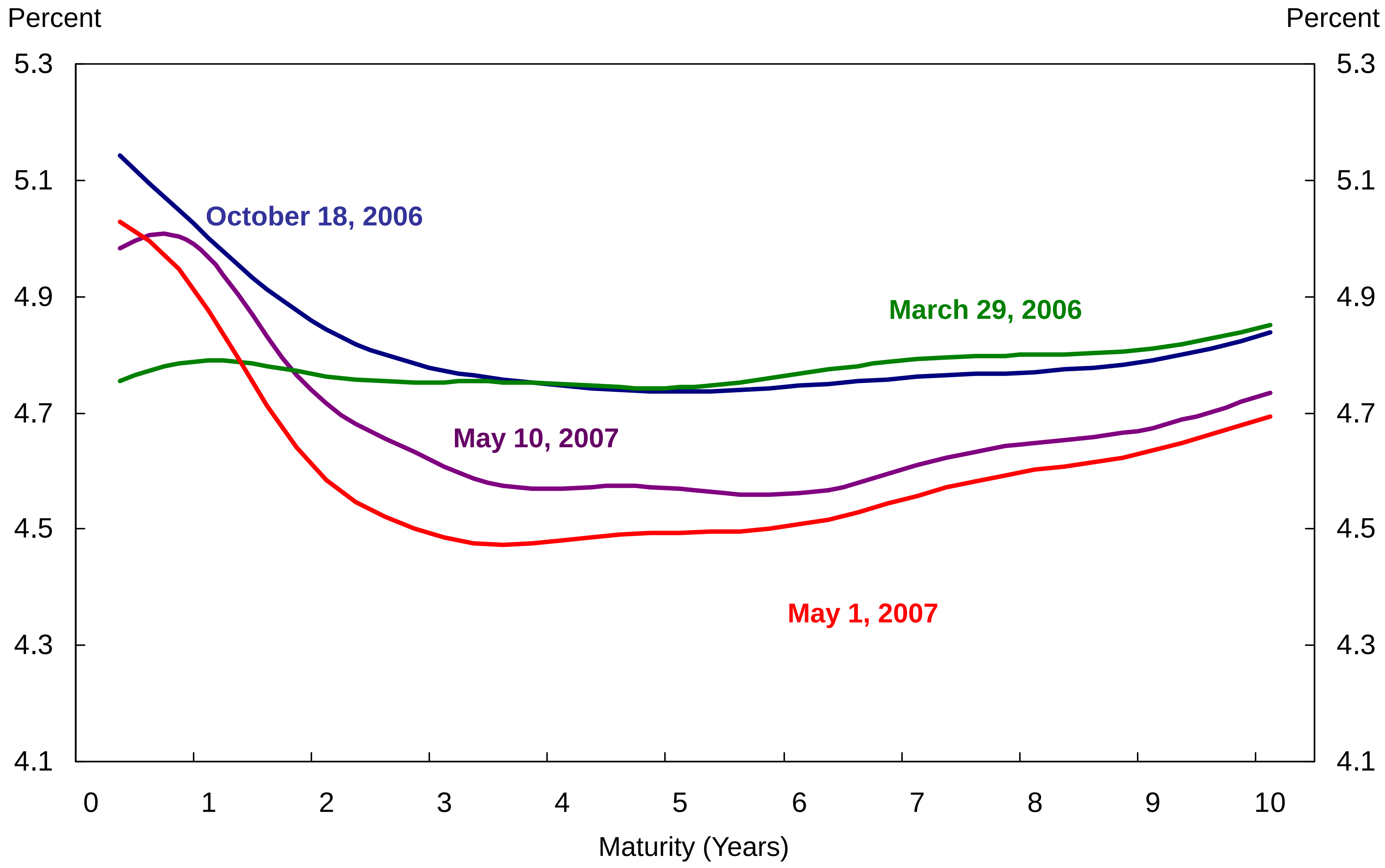
Monetary Policy
and Financial Markets

Expected funds rate path: Stronger downward tilt



Source: Federal Reserve Board

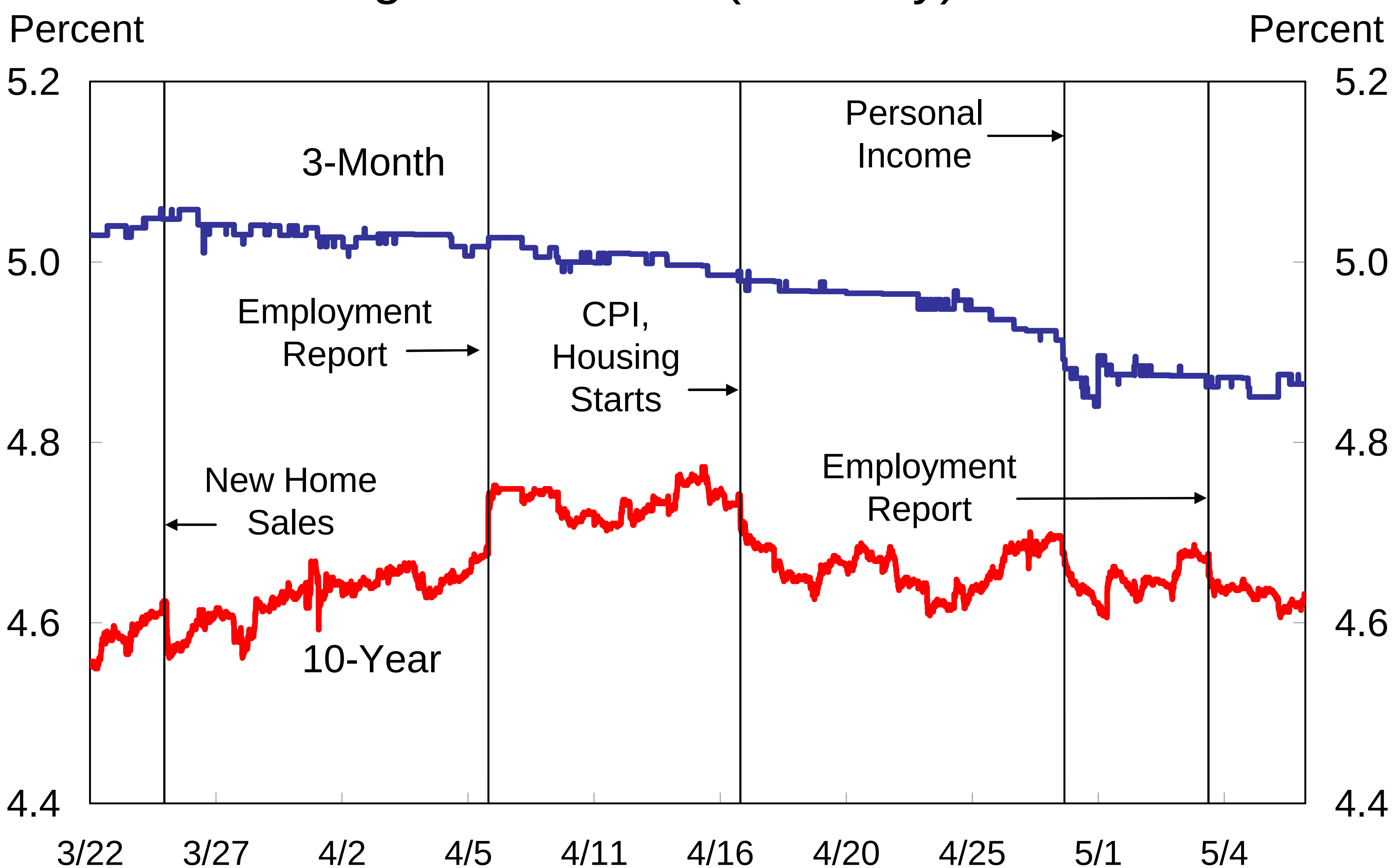
The yield curve has fallen and steepened slightly



Source: 8:40AM quotes and FRBNY Calculations

*Estimated using off-the-run Treasury securities

Short- and Long-Term Rates (Intraday)



Note: On-the-run 3-month and 10-year yield, 8 am to 4 pm

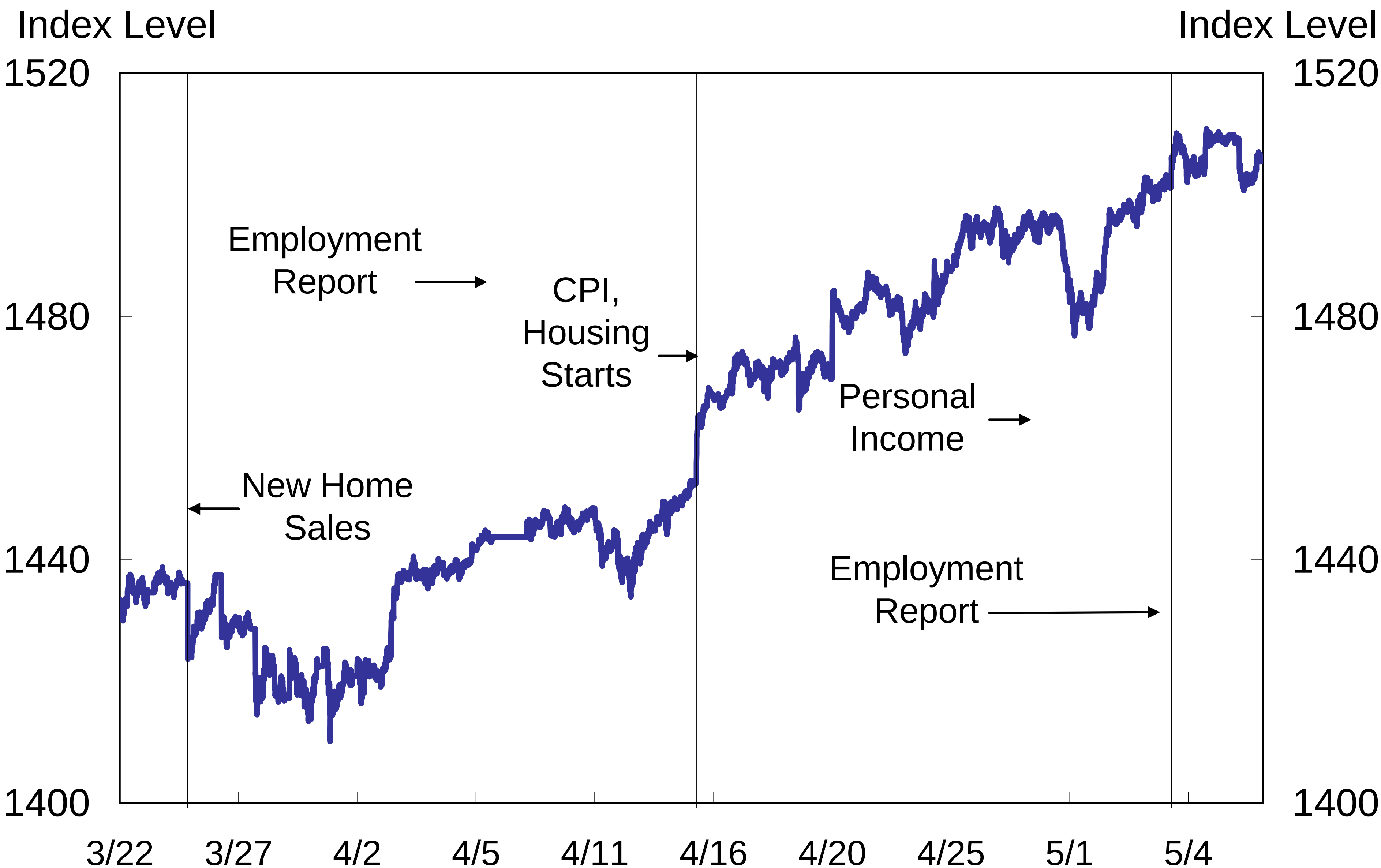
Source: Bloomberg

10-Year Breakeven Inflation Rate (Intraday)

Source: Bloomberg

Note: Calculated as difference between on-the-run 10-year Treasury and 10-year TIPS yield, 8 am to 4 pm.

S&P 500 (Intraday)



Source: Bloomberg

Note: Data between 9:30 am and 4:00 pm

Evolution of the Forecast

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Forecast Comparison: October 2006 and May 2007

FRBNY Central Forecast

Growth Rates	2007 Q1		2007 Q2		2007 (Q4/Q4)		2008 (Q4/Q4)	
	Oct. 20	Actual	Oct. 20	May 7	Oct. 20	May 7	Oct 20	May 7
Real GDP	2.9	1.3	2.9	2.7	3.0	2.7	3.0	3.0
Core PCE Deflator	2.0	2.2	1.9	2.0	1.9	2.0	1.7	1.8
Unemployment	4.8	4.5	4.8	4.6	4.8[a]	4.6[a]	4.8[b]	4.6[b]

Policy Path	07 Q2	07 Q3	07 Q4	08 Q1	08 Q2	08 Q3	08 Q4
October 20	5.25	5.00	5.00	5.00	5.00	4.75	4.75
May 7	5.25	5.25	5.00	5.00	5.00	4.75	4.75

[a] 2007Q4 levels
[b] 2008Q4 levels

Source: FRBNY

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Forecast Comparison: October 2006 and May 2007

FRBNY Forecast

Growth Contributions	2007 Q1		2007 Q2		2007 (Q4/Q4)		2008 (Q4/Q4)	
	Oct. 20	Actual	Oct. 20	May 7	Oct. 20	May 7	Oct 20	May 7
Real GDP	2.9	1.3	2.9	2.7	3.0	2.6	3.0	3.0
Consumption	2.1	2.7	2.1	2.1	2.1	2.3	2.1	2.1
Business Fixed Investment	0.8	0.2	0.7	0.6	0.7	0.6	0.6	0.6
Residential Investment	-0.5	-1.0	-0.2	-0.9	-0.3	-0.6	0.0	0.1
Government	0.7	0.2	0.5	0.6	0.6	0.5	0.6	0.4
Inventory Investment	0.1	-0.3	-0.1	0.3	0.0	0.1	0.0	-0.2
Net Exports	-0.2	-0.5	0.0	-0.2	-0.2	-0.2	-0.2	-0.1

Source: FRBNY

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Forecast Comparison: October 2006 and May 2007

FRBNY Forecast

Growth Rates	2007 Q1		2007 Q2		2007 (Q4/Q4)		2008 (Q4/Q4)	
	Oct. 20	Actual	Oct. 20	May 7	Oct. 20	May 7	Oct 20	May 7
Real GDP	2.9	1.3	2.9	2.7	3.0	2.6	3.0	3.0
Nonfarm Output	3.3	1.4	3.4	3.1	3.4	2.9	3.4	3.4
Hours	0.8	-0.3	0.9	1.0	0.9	0.8	0.9	1.1
Productivity	2.5	1.7	2.5	2.1	2.5	2.1	2.5	2.2
Compensation/hour	4.5	2.3	4.1	3.7	4.2	4.0	4.1	4.7
Unit Labor Costs	2.0	0.6	1.6	1.6	1.7	2.0	1.6	2.4

Source: FRBNY

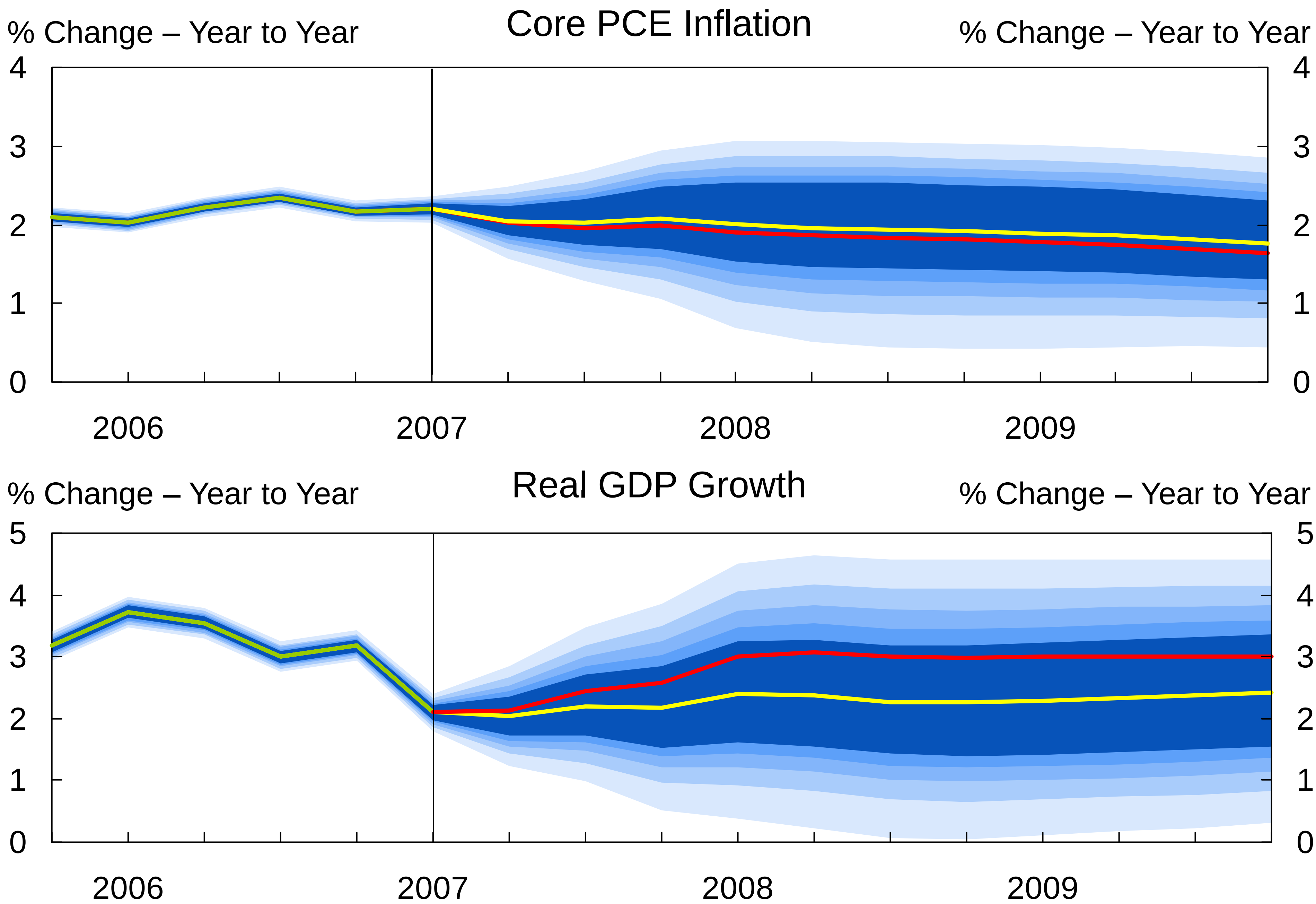
Summary

- Central forecast calls for
  - Core inflation to moderate slowly
  - Real activity to recover at a moderate pace for the remainder of 2007
  - Potential still at 3% going forward, pending data revisions
- Still broadly resembles 1994-95 slowdown
  - But without the rate cuts (yet)
  - Downside risk?

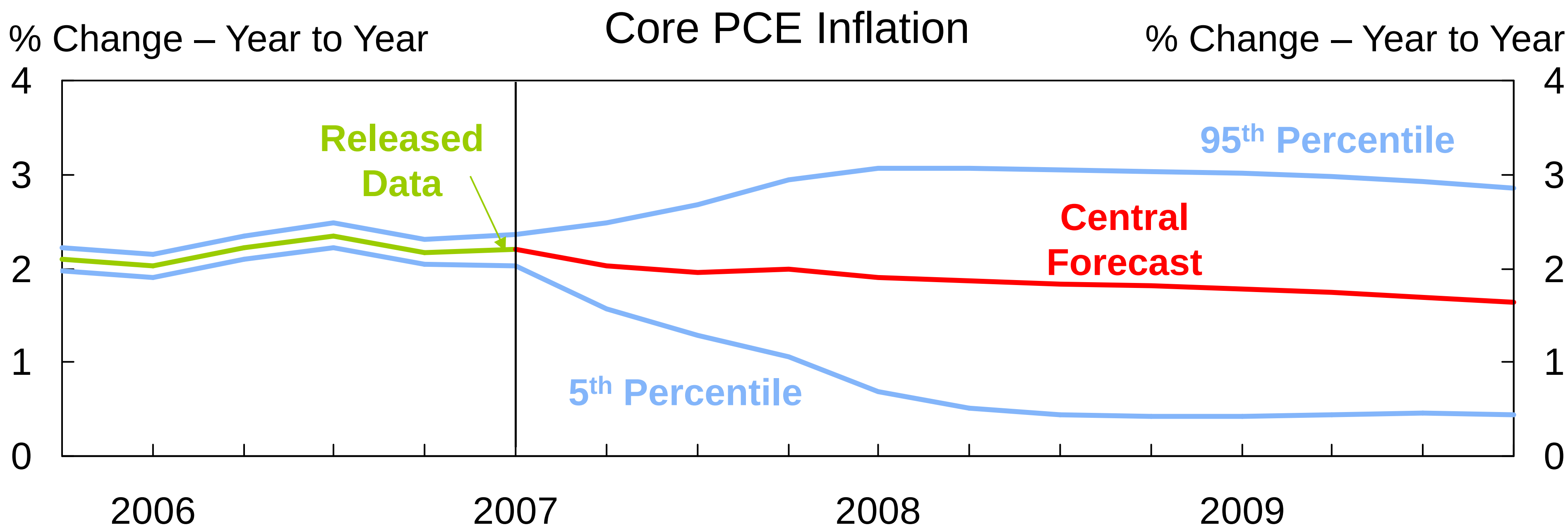
Main Risks to Central Scenario

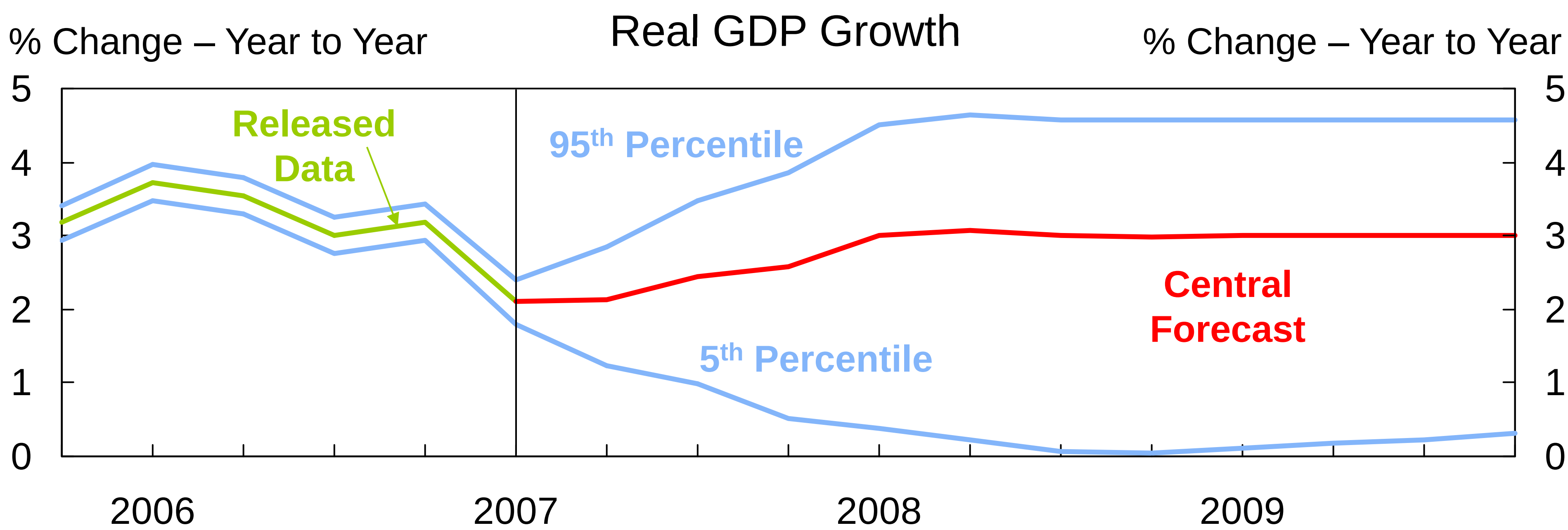
Scenario	Effect on Forecast	Evidence in Favor
Productivity Slowdown	**Output:** Down **Inflation:** Up	Recent low productivity Sluggish investment
Aftermath of Overheated Economy	**Output:** Down **Inflation:** Up	Housing correction Low savings
Fed Over-Tightened	**Output:** Down **Inflation:** Down	Yield curve inversion

May 2007 Forecast Distributions

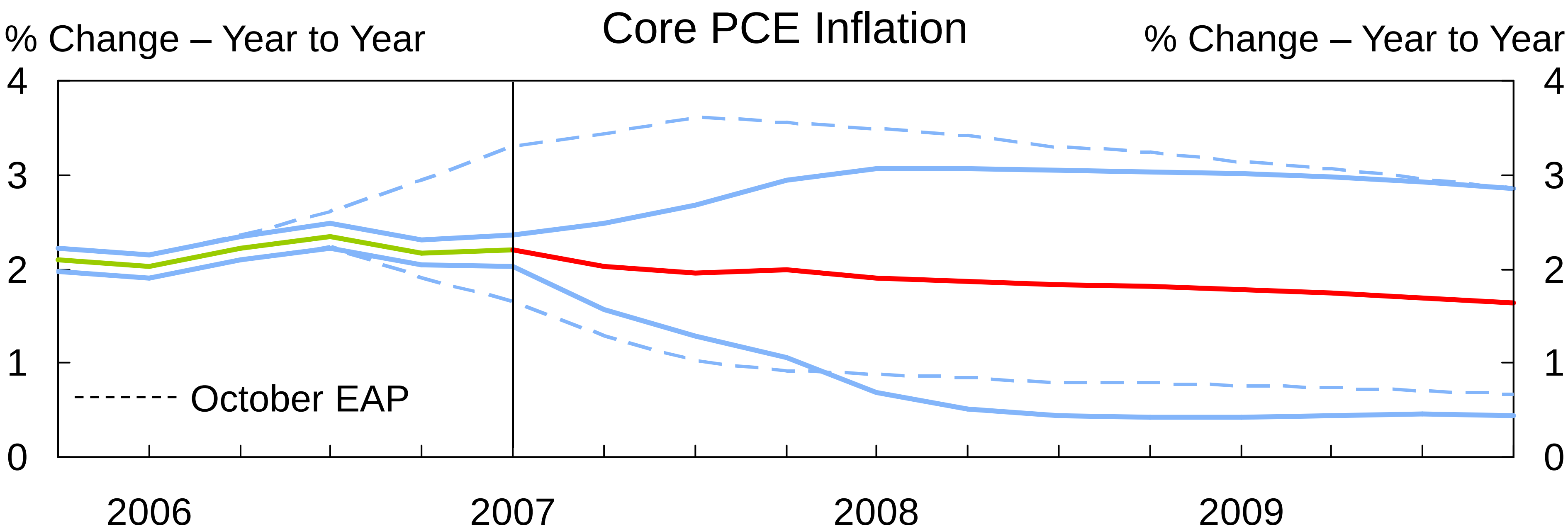


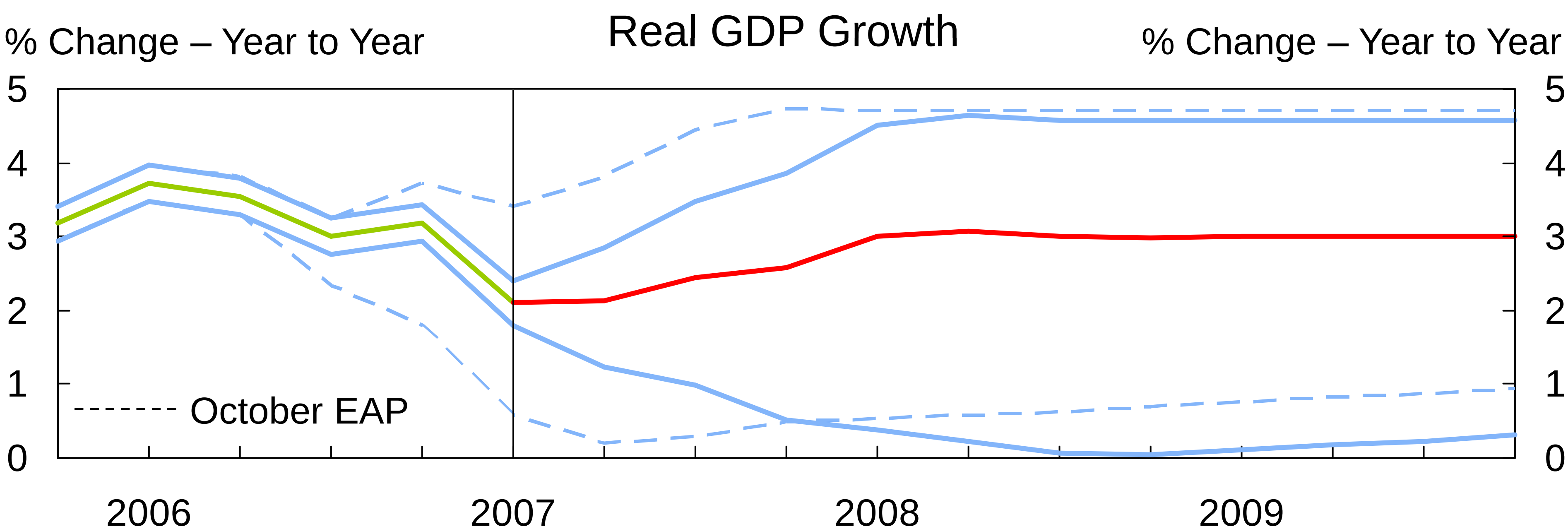
May 2007 Forecast and 90% Probability Interval



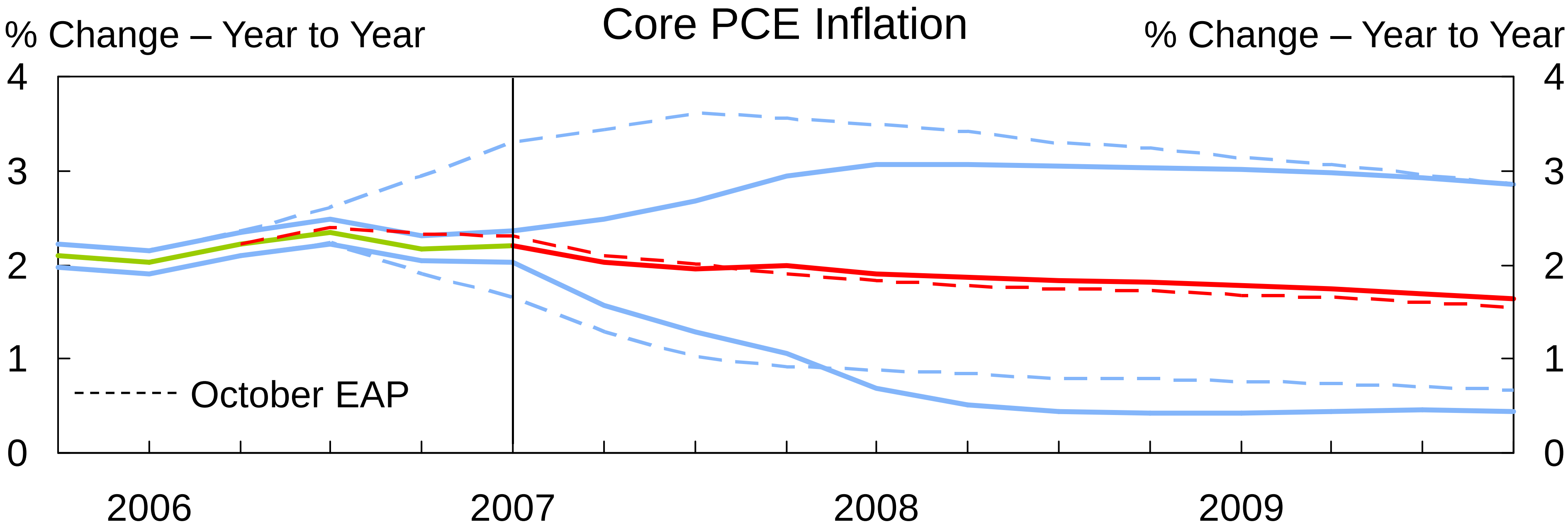


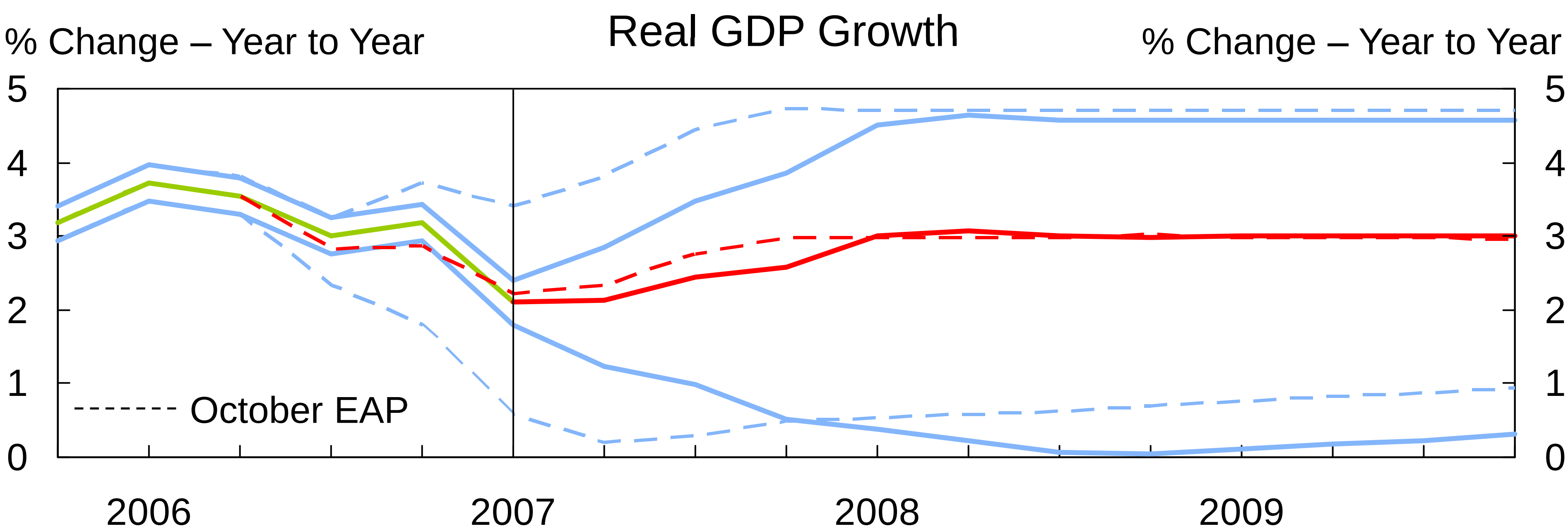
Change in 90% Probability Interval





Change in Forecast and 90% Probability Interval





Summary

- *Productivity Slowdown* and *Aftermath of Overheating* imply firmer path for policy than priced into markets

Risks to central forecast consistent with

- Low volatility priced around market path
- Negative skewness priced around market path (from presence of *Over-tightening* risk)
- Low probability of Fed Funds Rate above 6% going forward

Are long-term inflation expectations anchored, contained, or unmoored?

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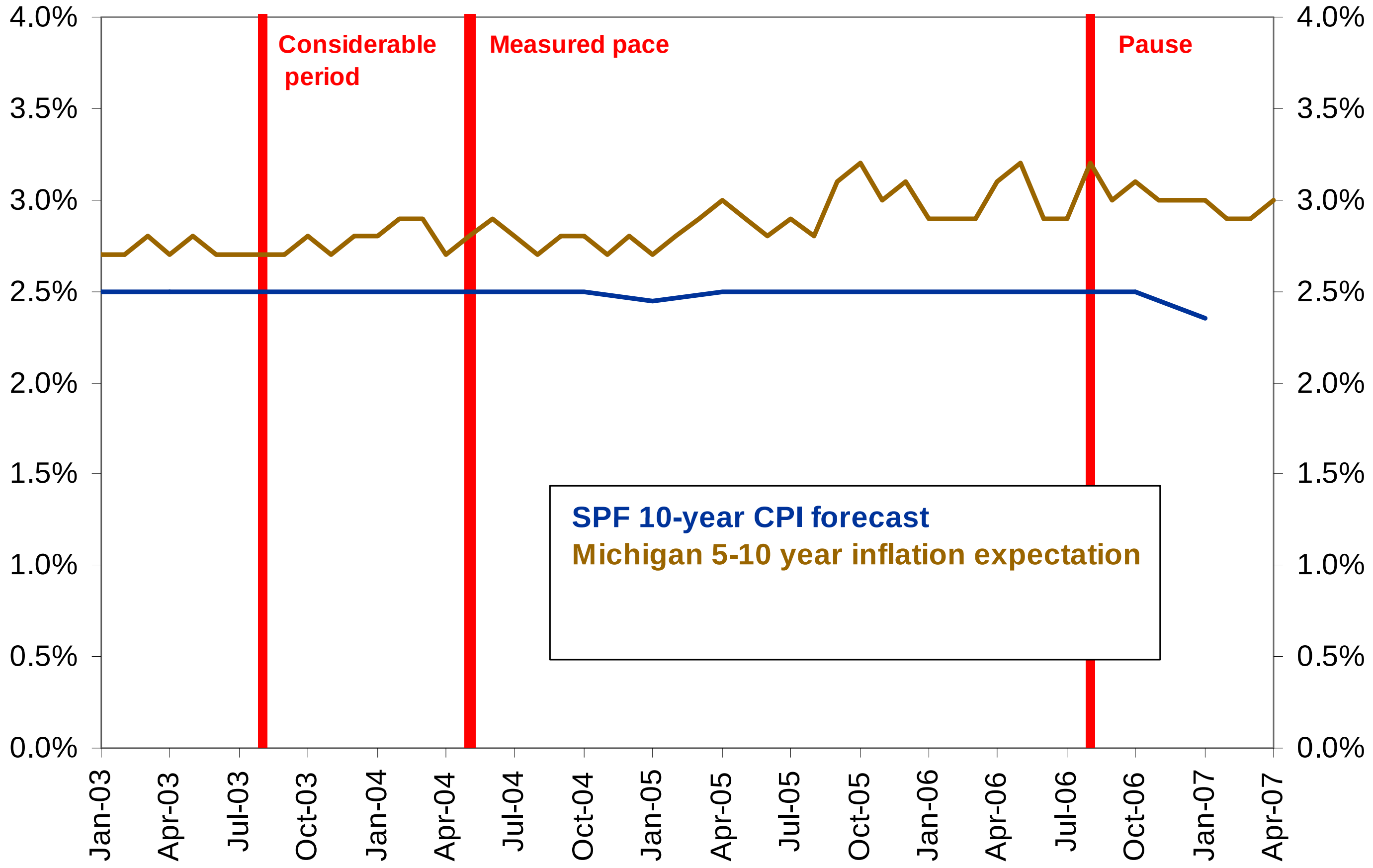
Research and Statistics Group
Federal Reserve Bank of New York

May 11, 2007

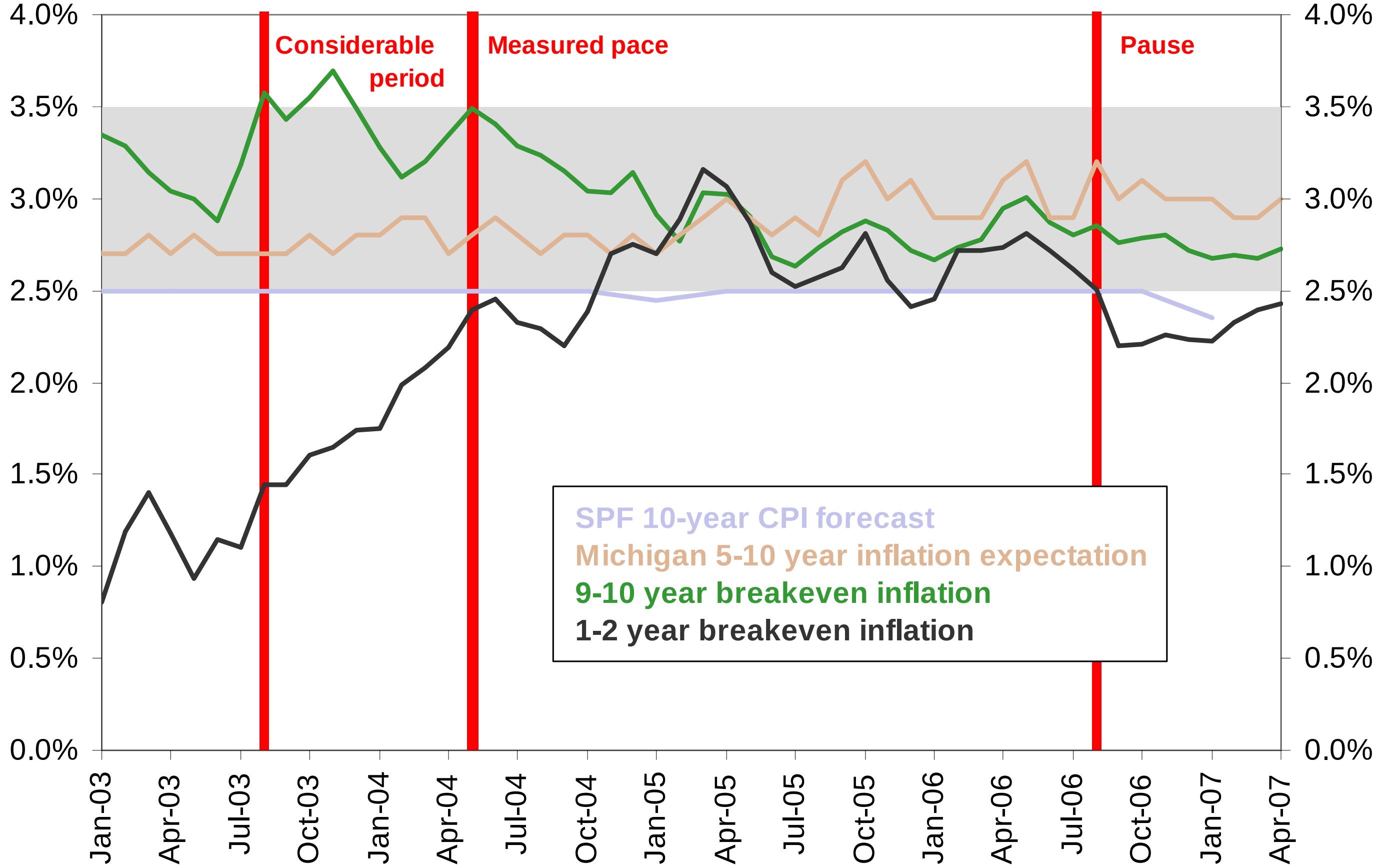
[1]This is joint work with Simon Potter.

Long-term inflation expectations from surveys appear well anchored



Source: Federal Reserve Board, Philadelphia Fed, University of Michigan, author's calculations

Long-term inflation expectations from markets are centered in the 2.5% to 3.5% range



Source: Federal Reserve Board, Philadelphia Fed, University of Michigan, author's calculations

3 models of long-term inflation expectations

- *Anchored*:
  - Markets are certain about the CB's inflation target.
  - Long-term inflation expectations are approximately constant.
  - There is no pass-through from short to long-term expectations.

- *Contained*:
  - Markets believe the CB will push back when inflation reaches the edge of the comfort zone.
  - Long-term inflation expectations are bounded above and below.
  - Pass-through is low and asymmetric at the edge of the comfort zone.

- *Unmoored*:
  - Inflation expectations are neither anchored nor contained.

Market expectations appear weakly anchored

$$\boxed{\Delta\pi^{9,10} = 0.16\,\Delta\pi^{1,2}}$$

- 16% of the change in 1-2 year inflation expectations is passed through to 9-10 year inflation expectations.

- Pass-through is not high.

- Why would there be any pass-through when long-run expectations do not fluctuate widely?

  – Perhaps, markets believe Fed is indifferent inside comfort zone.
  – And, aggressive at boundaries.

Note: Data are daily changes in 1-2 and 9-10 year breakeven inflation rates from 2003 to 2007. The estimated coefficient is significant at the 1% level.

But, market expectations appear well contained

$$\Delta\pi^{9,10} = 0.29\Delta\pi^{1,2} - 0.20\ \left|\pi^{1,2} - 2.25\right|\Delta\pi^{1,2}$$

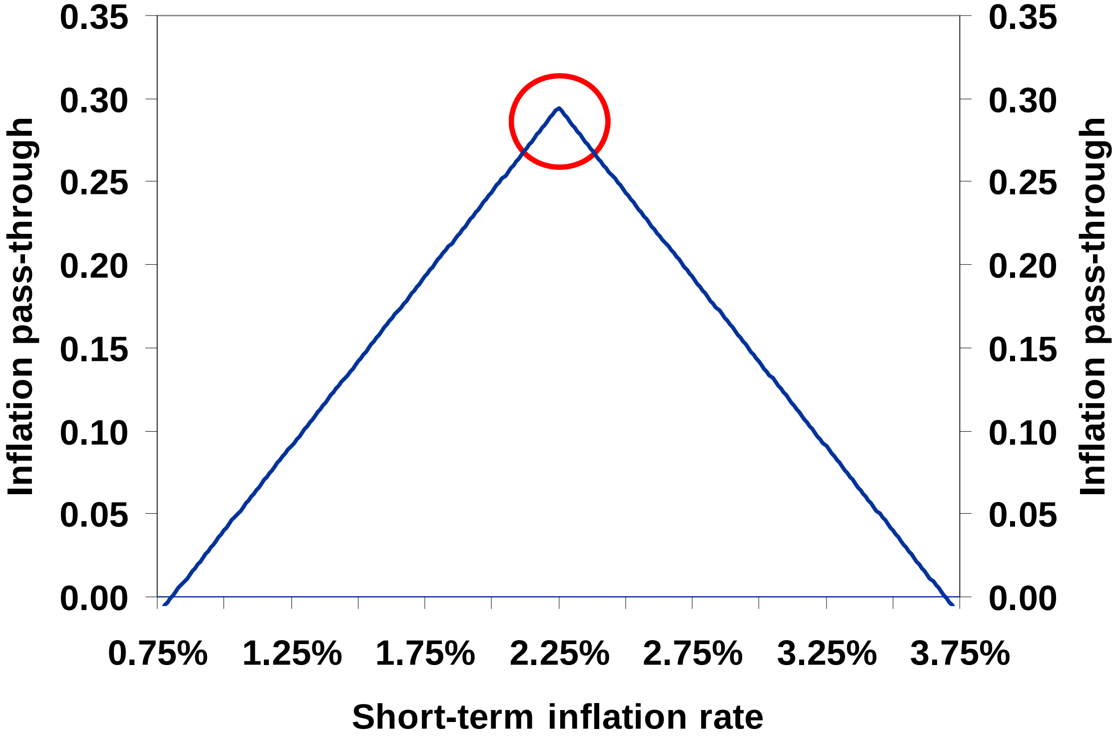
Pass-through at center of comfort zone

Distance from center of comfort zone

Note: Data are daily changes in 1-2 and 9-10 year breakeven inflation rates from 2003 to 2007. All estimated coefficients are significant at the 1% level.

But, market expectations appear well contained

$$\boxed{\Delta\pi^{9,10} = 0.29\Delta\pi^{1,2} - 0.20\,|\pi^{1,2} - 2.25|\Delta\pi^{1,2}}$$

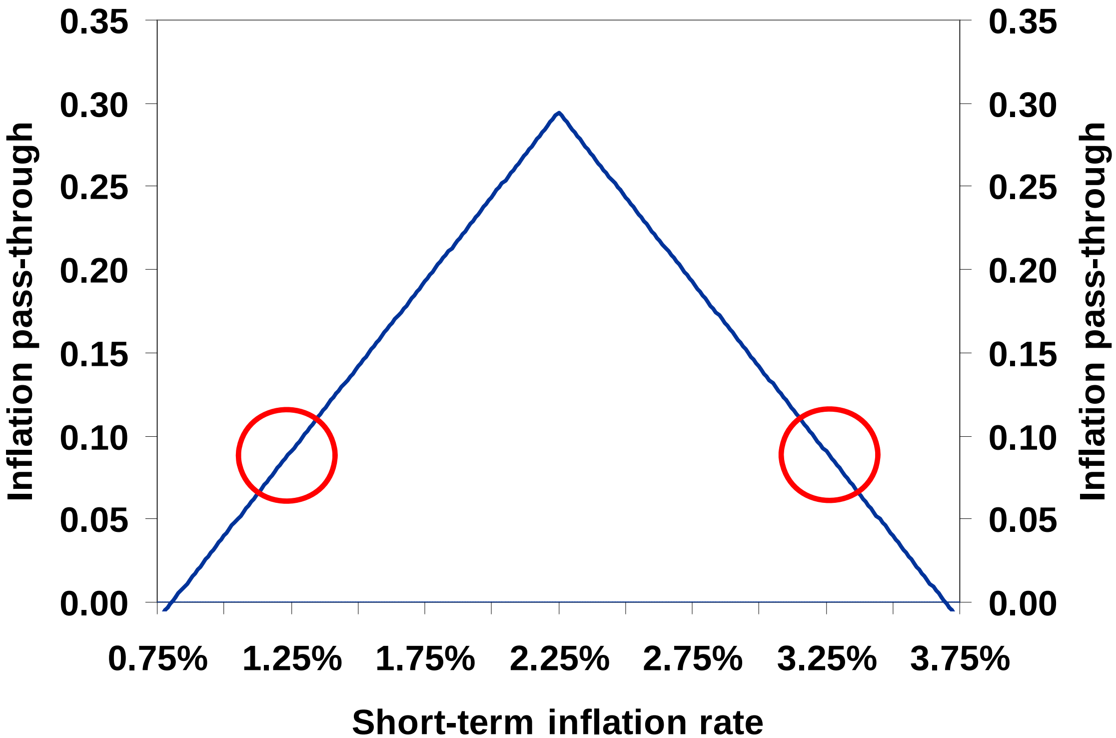


At the center of the comfort zone, pass-through is 29%.

Note: Data are daily changes in 1-2 and 9-10 year breakeven inflation rates from 2003 to 2007. All estimated coefficients are significant at the 1% level.

But, market expectations appear well contained

$$\boxed{\Delta\pi^{9,10} = 0.29\Delta\pi^{1,2} - 0.20\left|\pi^{1,2} - 2.25\right|\Delta\pi^{1,2}}$$



1 percentage point from the center of the comfort zone, pass-through declines by 20% to 9%.

Note: Data are daily changes in 1-2 and 9-10 year breakeven inflation rates from 2003 to 2007. All estimated coefficients are significant at the 1% level.

Asymmetric pass-through keeps long-term expectations bounded

Effect of four 0.25% changes in short-term inflation expectations on long-term expectations

	Increase 1%	*Decline 1%*

Note: Effects are averaged over the duration of the policy regime.
Policy change dates are 8/12/03, 5/4/04, and 8/8/06.

Asymmetric pass-through keeps long-term expectations bounded

Effect of four 0.25% changes in short-term inflation expectations on long-term expectations

	Increase 1%	*Decline 1%*
Considerable period 8/2003-5/2004	+23 bp	-12 bp
Measured pace 5/2004-8/2006	+14 bp	-23 bp
Pause 8/2006-present	+20 bp	-20 bp

Note: Effects are averaged over the duration of the policy regime.
Policy change dates are 8/12/03, 5/4/04, and 8/8/06.

Why well contained rather than well anchored?

- CB members might have range of preferences within the comfort zone.
- Difficulties in precisely measuring inflation.
- Cost to micromanaging small fluctuations in inflation expectations.

Questions

1. If we had the perfect measure of inflation expectations, how should policymakers make use of it? What are the pitfalls?

2. Given that we don't, as a practical matter how can policymakers best make use of the information on expectations that we do have?

3. What are the implications of current measures of expectations for current policy?

Additional slides

Pass-through regressions

Panel A. Relationship between 9-10 and 1-2 year breakeven inflation changes

Model	*Equation*	*Number obs.*	*Adjusted R^2*
(1) Linear	$\Delta\pi^{9,10} = 0.00 + 0.16^{***}\,\Delta\pi^{1,2}$	1084	5.83%
(2) Nonlinear *(center of range = 2.25%)*	$\Delta\pi\text{-}^{9,10} = 0.00 + (0.29^{***} - 0.20^{***}\,\lvert\pi^{1,2} - 2.25\rvert)\Delta\pi^{1,2}$	1084	8.15%
(3) Nonlinear *(estimated center of range)*	$\Delta\pi^{9,10} = 0.00 + (0.34^{***} - 0.20^{***}\,\lvert\pi^{1,2} - 2.67^{**}\rvert)\Delta\pi^{1,2}$	1084	9.37%

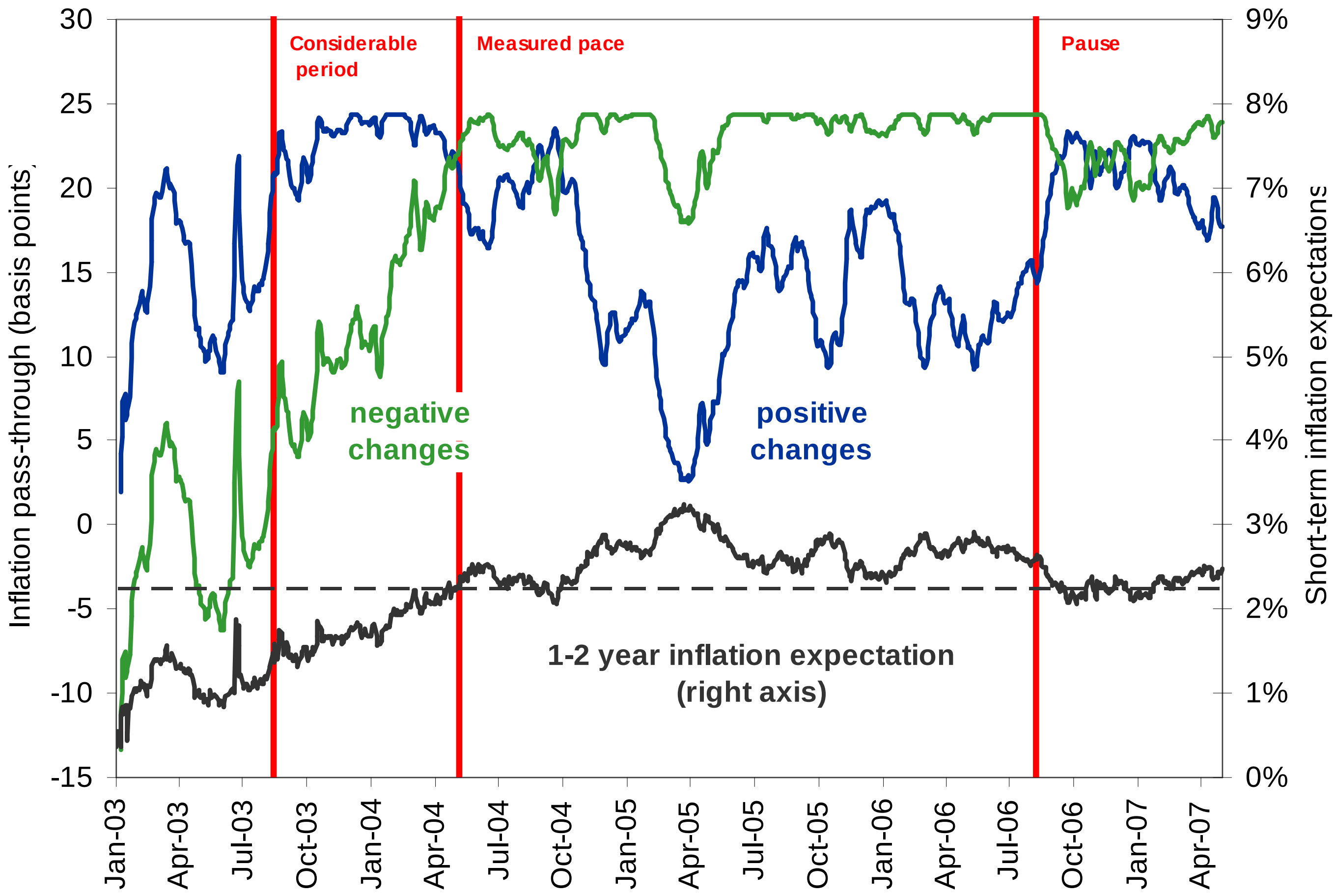
Panel B. Relationship between 5-10 and 1-2 year breakeven inflation changes

Model	*Equation*	*Number obs.*	*Adjusted R^2*
(4) Linear	$\Delta\pi^{5,10} = 0.00 + 0.14^{***}\,\Delta\pi^{1,2}$	1084	5.98%
(5) Nonlinear *(center of range = 2.25%)*	$\Delta\pi^{5,10} = 0.00 + (0.20^{***} - 0.10^{***}\,\lvert\pi^{1,2} - 2.25\rvert)\Delta\pi^{1,2}$	1084	6.58%
(6) Nonlinear *(estimated center of range)*	$\Delta\pi^{5,10} = 0.00 + (0.25^{***} - 0.10^{***}\,\lvert\pi^{1,2} - 2.93\rvert)\Delta\pi^{1,2}$	1084	7.10%

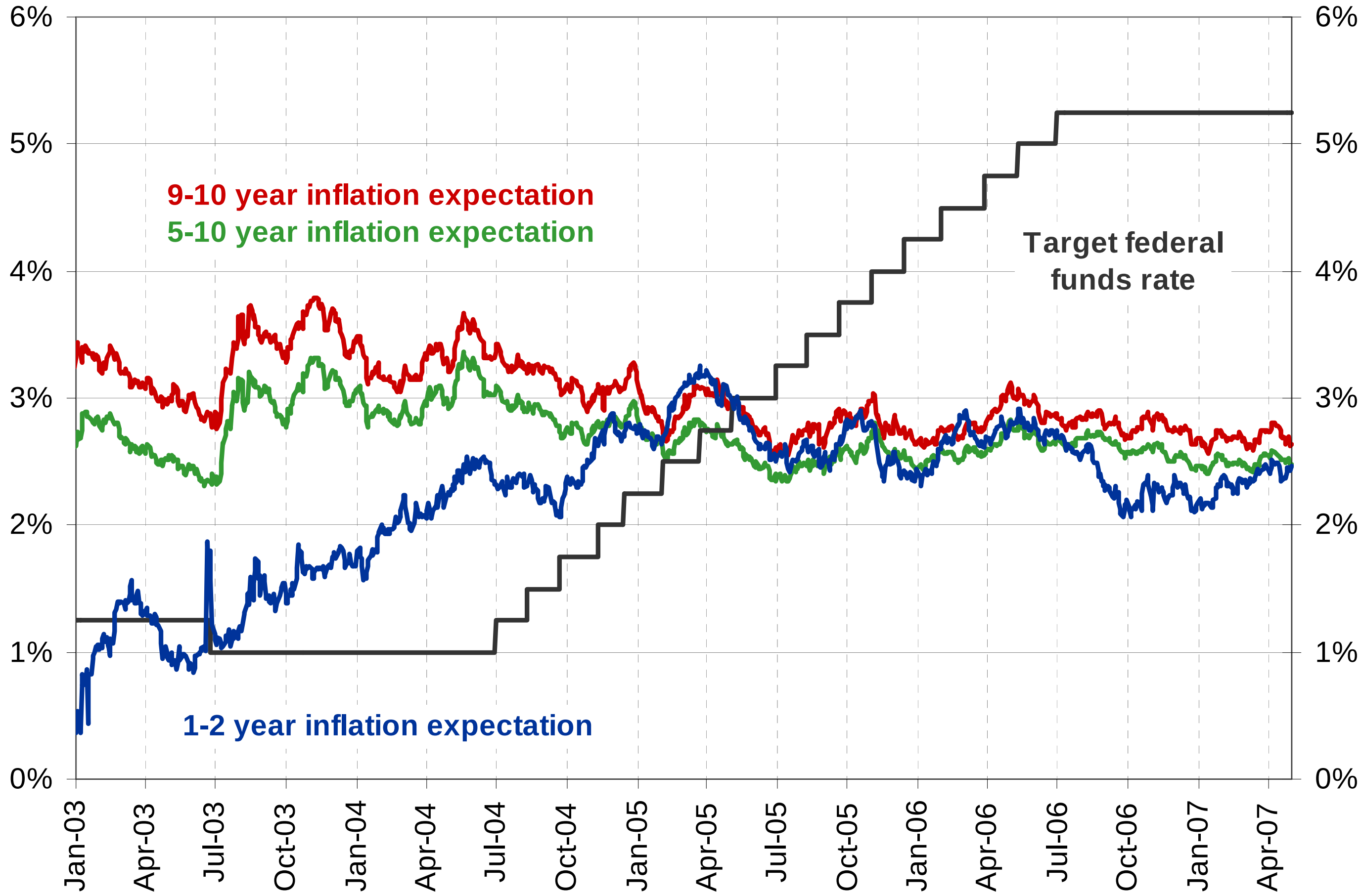
Note: Data are daily changes in 1-2, 5-10, and 9-10 year breakeven inflation rates from 2003 to 2007.

Asymmetric pass-through

Effect of four 0.25% changes in short-term inflation expectations on long-term expectations

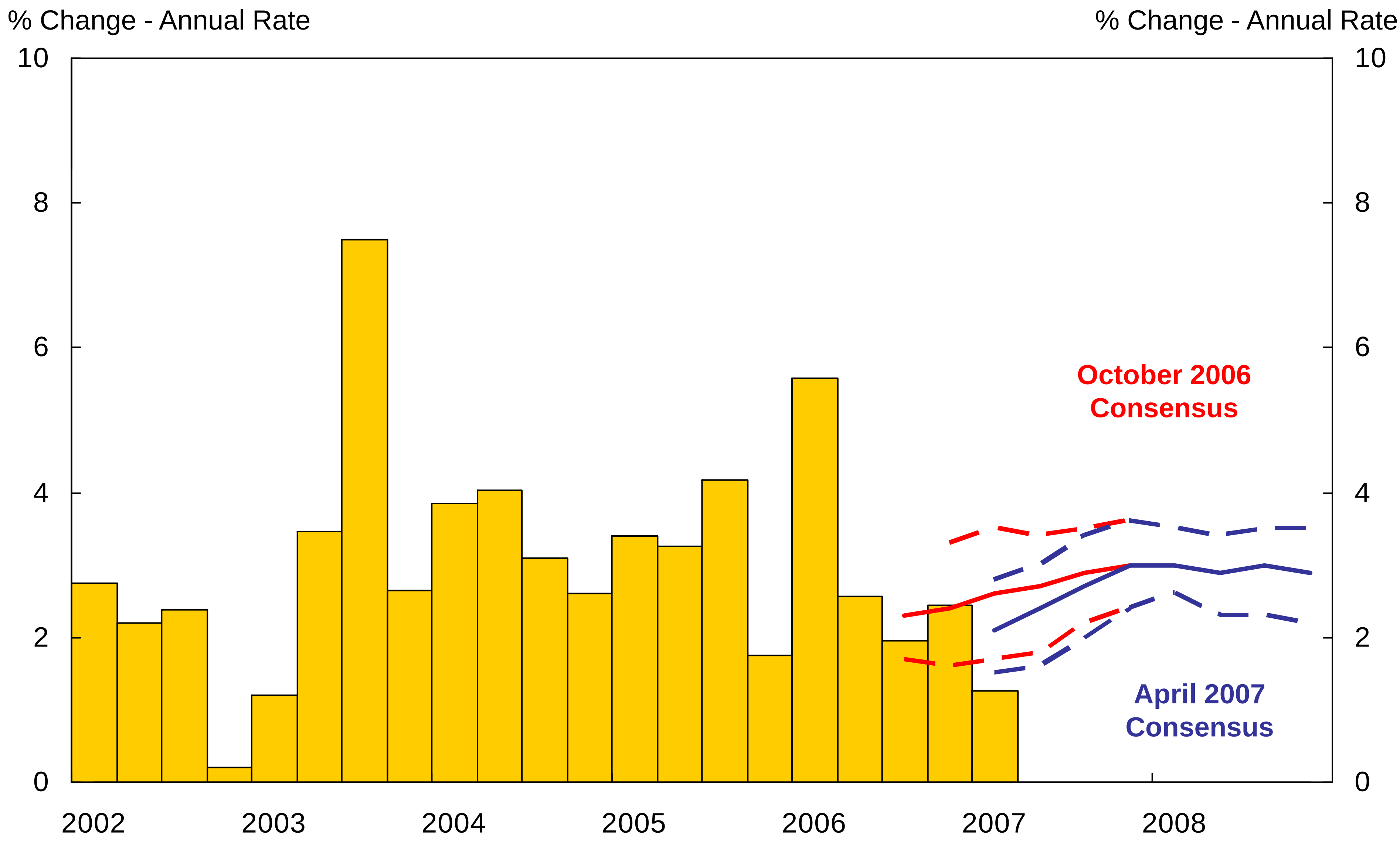


Inflation expectations with Fed Funds target



Reference Charts

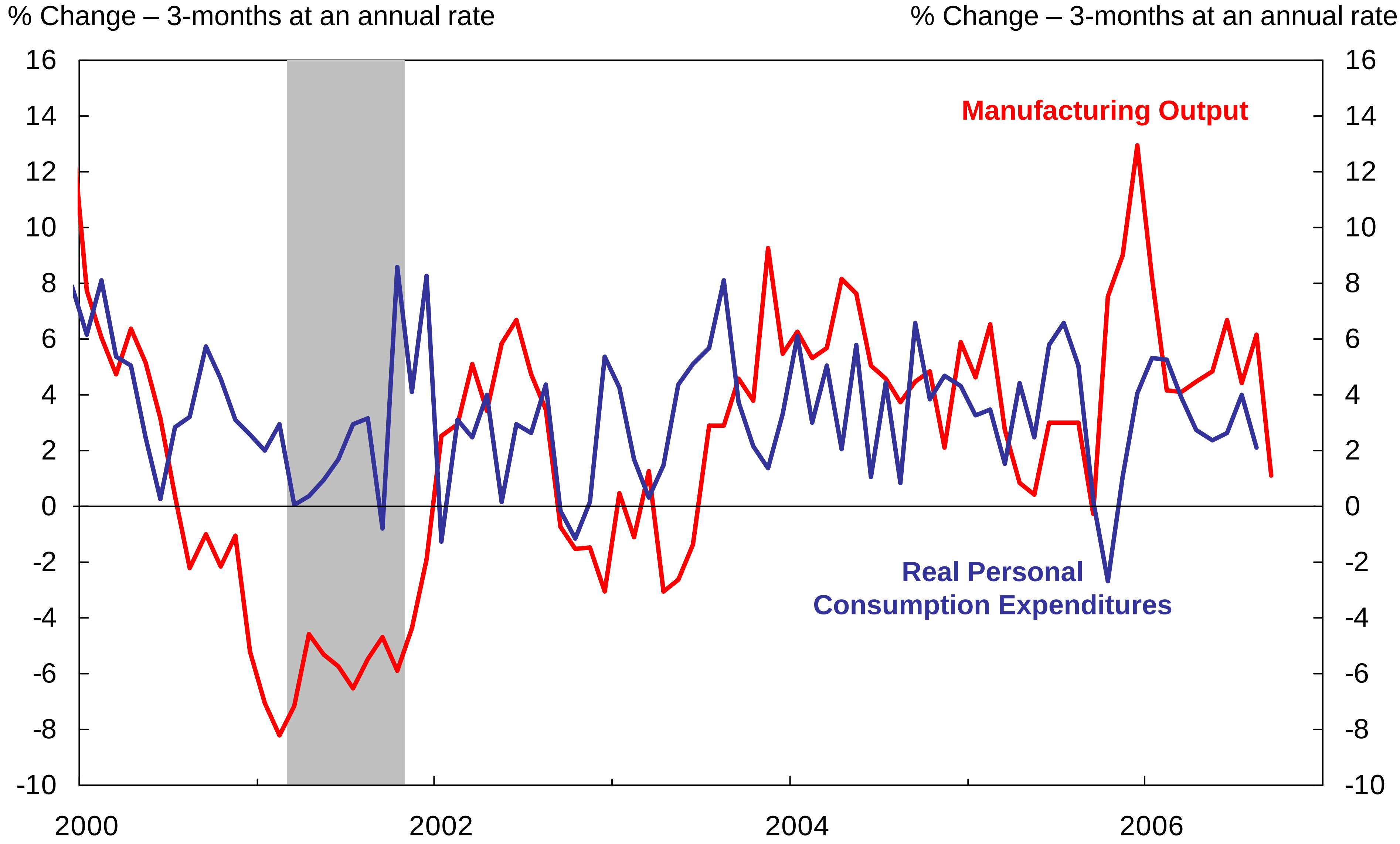
GDP growth has slowed, expected to recover



Source: Bureau of Economic Analysis and Blue Chips   Note: Dotted lines represent top and bottom ten forecasts.

Monthly indicators: PCE moderate, IP weaker

3-Month Moving Average



Source: Bureau of Economic Analysis and Federal Reserve Board

Note: Shading represents NBER recessions.

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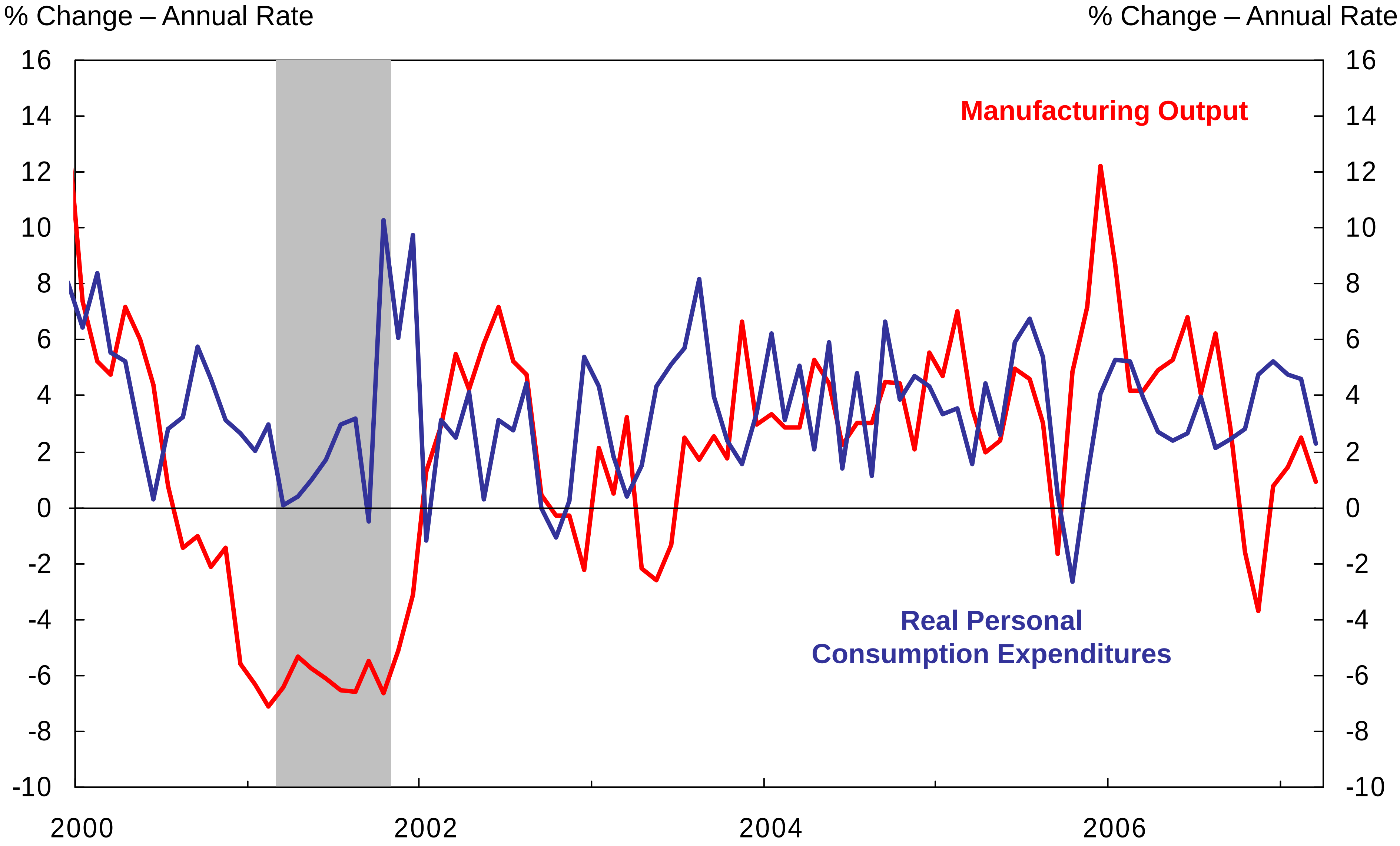
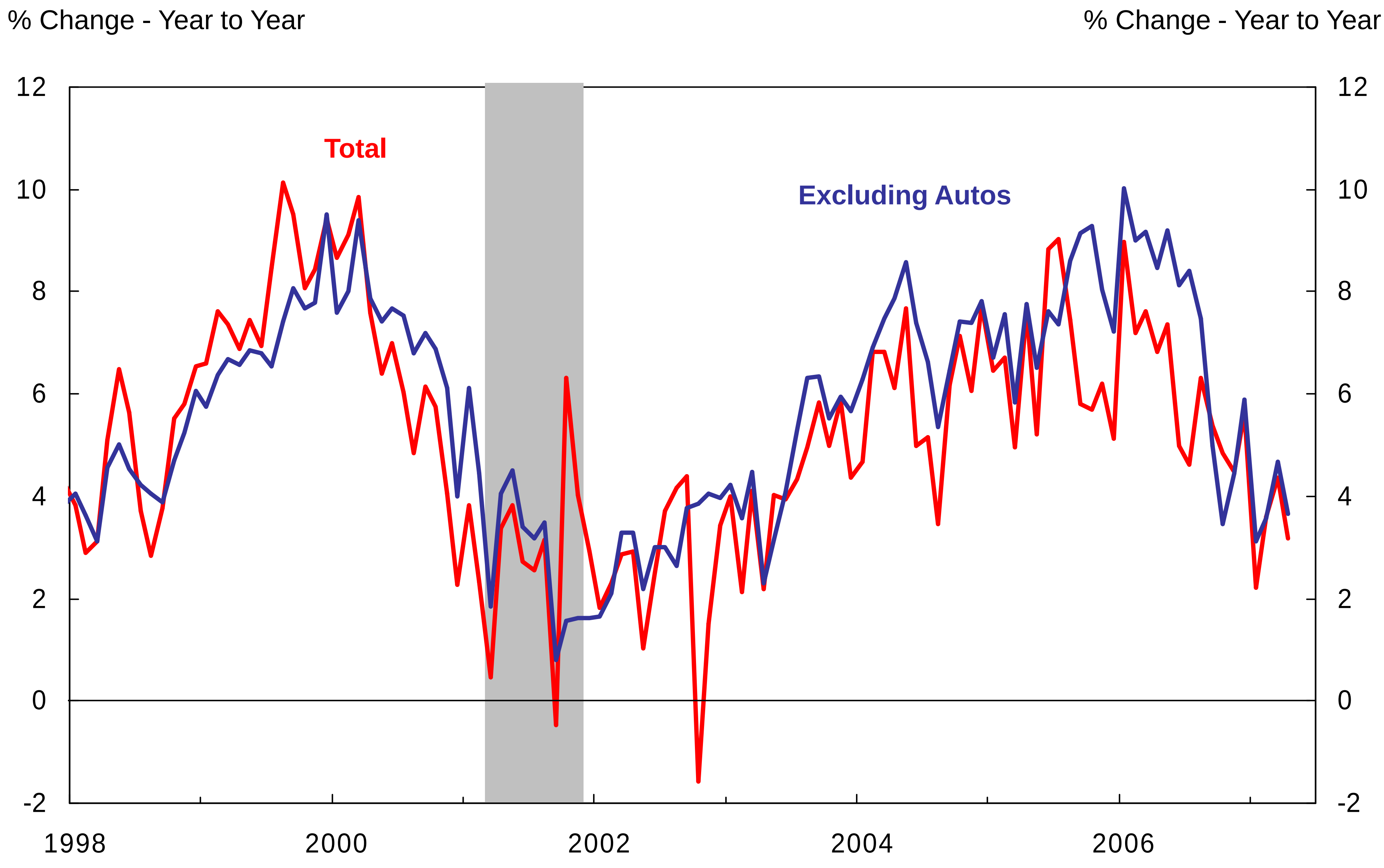


Source: Bureau of Economic Analysis and Federal Reserve Board

Note: Shading represents NBER recessions.

Retail Sales



Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.

PCE Deflator

(percent change at an annual rate)

	24 Month	12 Month	6 Month	3 Month	1 Month
PCE Deflator	3.1	3.2	3.8	2.9	3.2
Market-Based	3.0	3.1	3.9	2.7	3.0
Durable Goods	-0.7	-0.7	-0.5	-0.6	0.7
Motor Vehicles and Parts	1.4	1.3	0.6	0.8	1.3
Nondurable Goods	4.2	4.0	7.2	3.9	4.1
Clothing and Shoes	-0.6	-0.1	2.8	-0.9	13.9
Services	3.3	3.6	3.0	3.0	3.3
Housing	3.2	3.9	4.8	4.3	3.3
Transportation	4.0	3.7	4.0	3.8	-1.0
Medical Care	3.0	3.0	3.0	3.3	4.4
PCE Deflator Excluding Food and Energy	2.2	2.4	2.6	2.3	3.2
Market-Based	1.9	2.1	2.5	1.9	2.9
Personal Business Services-MB	2.0	0.9	-0.1	-2.8	5.8
Personal Business Services-NMB	2.2	2.2	1.3	0.4	3.8

Source: Bureau of Economic Analysis

Note: Data through March 2007.

Consumer Price Data

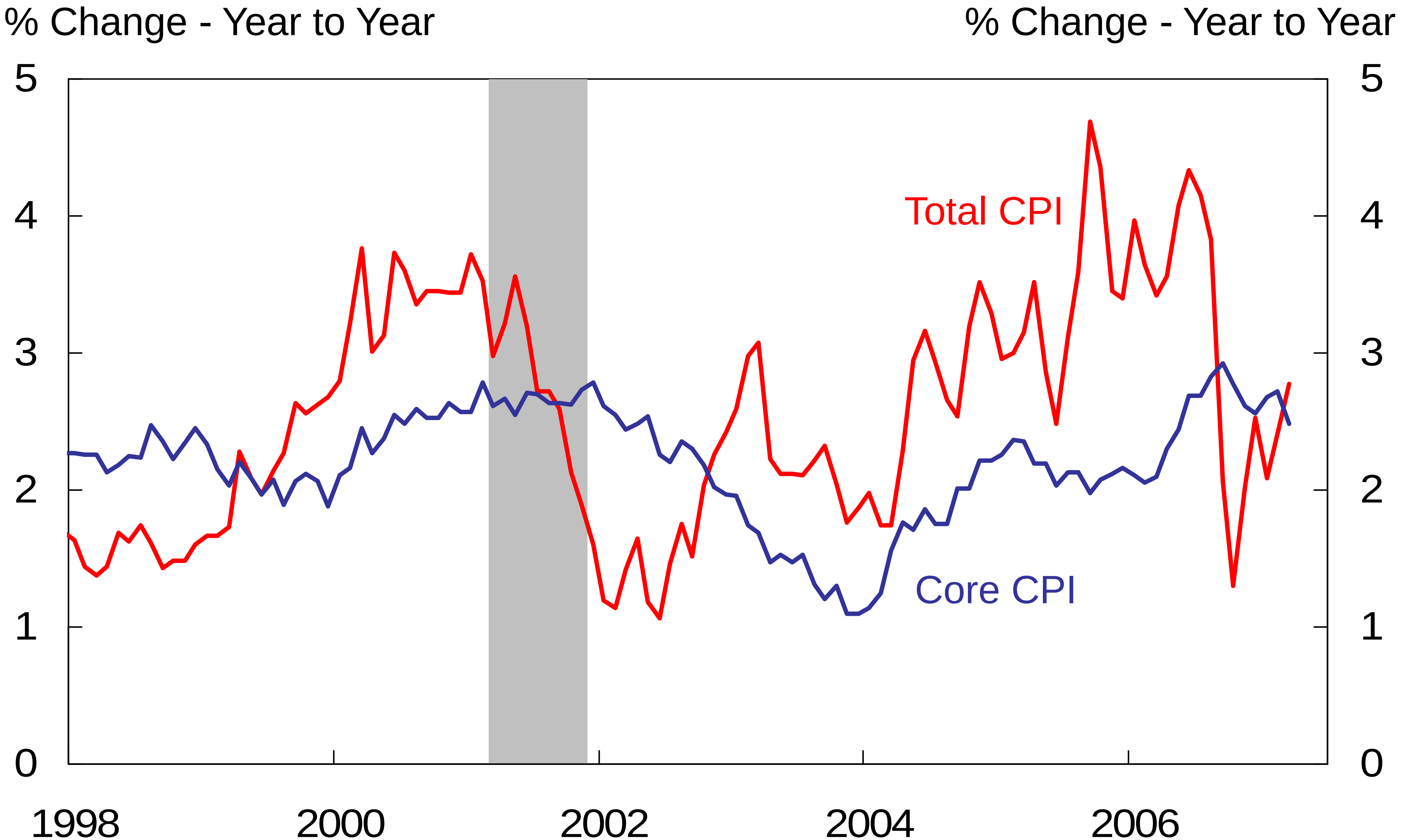
(percent change at an annual rate)

	Weights (December 2005) Total	Core	24 Month	12 Month	6 Month	3 Month	1 Month
Consumer Price Index	100.00		3.4	2.1	3.1	0.6	-6.3
Energy	8.69		13.6	-4.6	4.5	-17.1	-59.7
All Items Ex. Energy			2.5	2.9	3.0	2.8	2.4
Food	13.94		2.5	2.6	2.7	3.3	4.4
Food Away From Home (NSA)	5.95		3.0	3.0	3.0	2.6	1.8
All Items Ex. Food and Energy	77.37	100.00	2.5	2.9	3.1	2.7	2.3
Core Chain-Weight CPI (NSA)			2.2	2.6	2.0	2.1	3.2
Core Goods	22.25	28.76	0.5	0.5	0.6	0.3	0.0
Apparel	3.79	4.90	0.1	0.9	2.2	2.0	6.2
Medical Care Commodities	1.46	1.89	3.1	3.7	2.4	2.5	1.7
Durable Goods	11.58	14.97	-0.1	-0.7	-0.9	-1.0	-5.1
New Vehicles	5.16	6.67	0.5	0.4	-1.0	-0.6	-1.7
Used Vehicles	1.80	2.33	1.6	-0.4	1.4	-1.4	-11.2
Core Services	55.06	71.16	3.2	3.9	4.0	3.6	3.5
Rent of Primary Residence	5.83	7.54	3.4	3.9	4.5	4.5	4.9
Owners' Equivalent Rent	23.44	30.30	3.1	4.0	4.7	4.1	4.1
Lodging Away from Home	2.61	3.37	3.2	8.5	3.3	3.9	5.4
Medical Care Services	4.76	6.15	4.4	4.4	4.2	4.2	4.2
Transportation Services	5.71	7.38	2.6	2.1	2.5	1.7	1.0

Source: Bureau of Labor Statistics

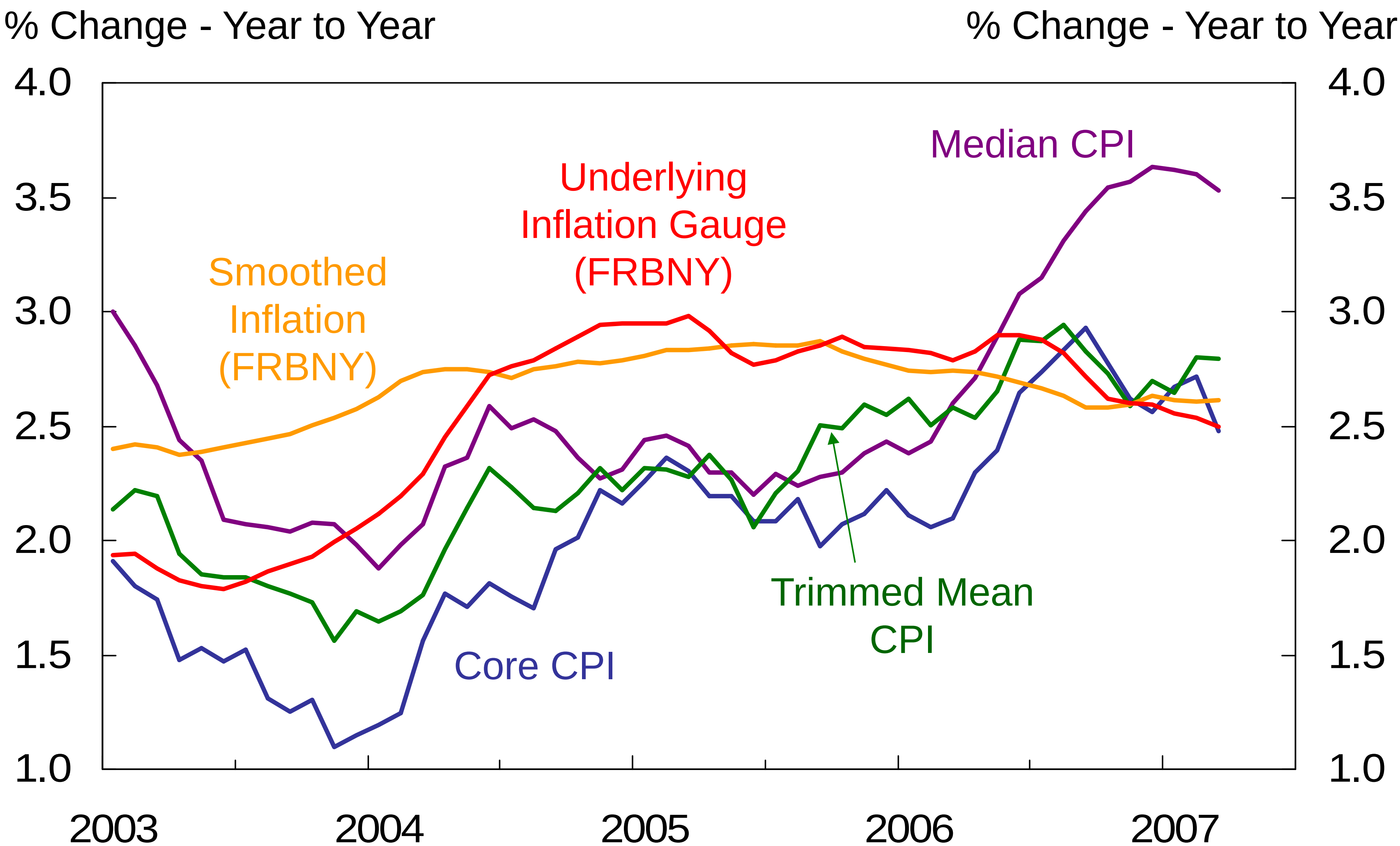
Note: Data through March 2007.

Total and Core CPI



Source: Bureau of Labor Statistics

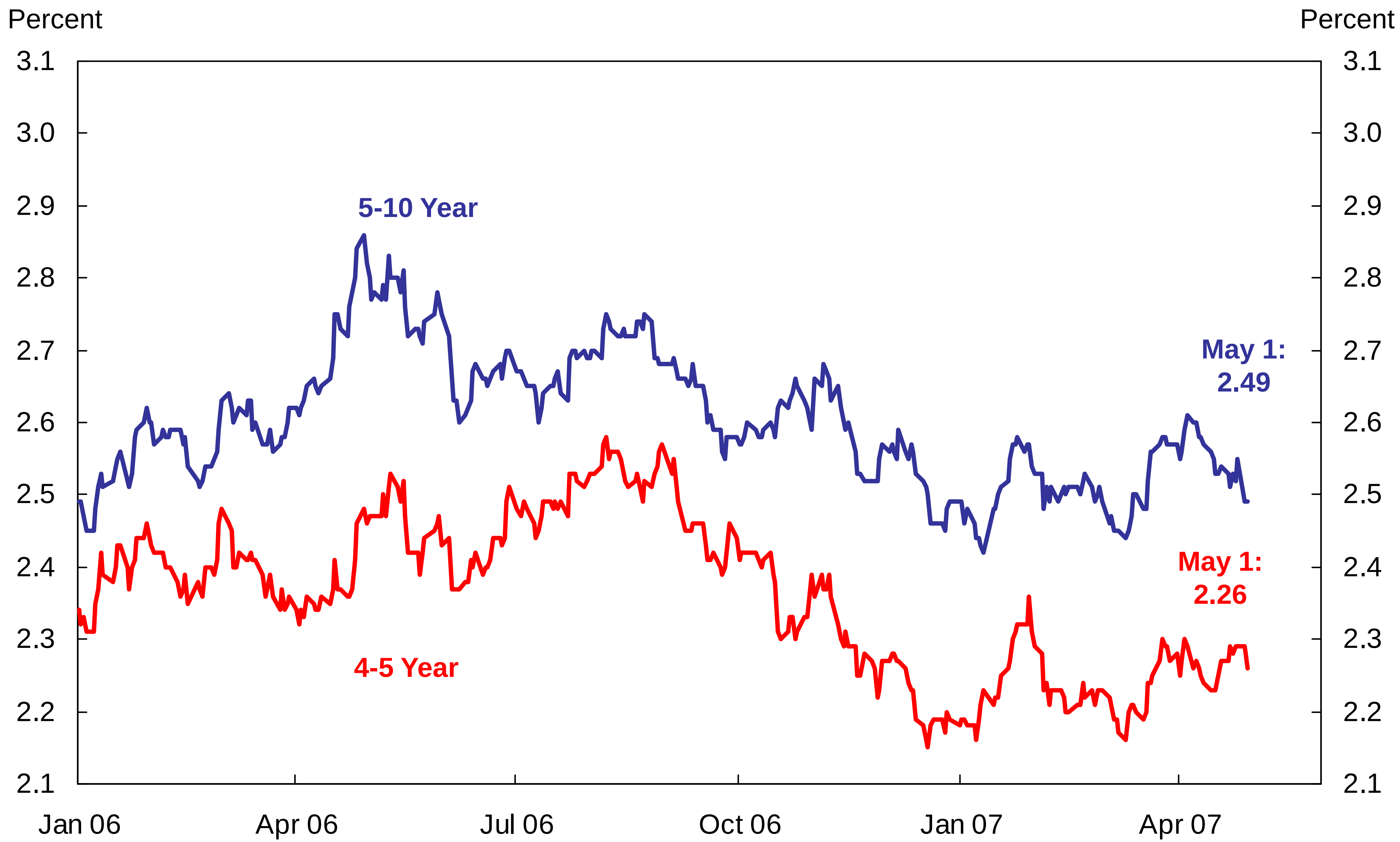
Alternative Measures of CPI



Source: Bureau of Labor Statistics, Cleveland Fed, and FRBNY

Expectations stable, but above "comfort zone"

5-Day Moving Average



Source: 8:40AM quotes and FRBNY Calculations

Producer Price Data

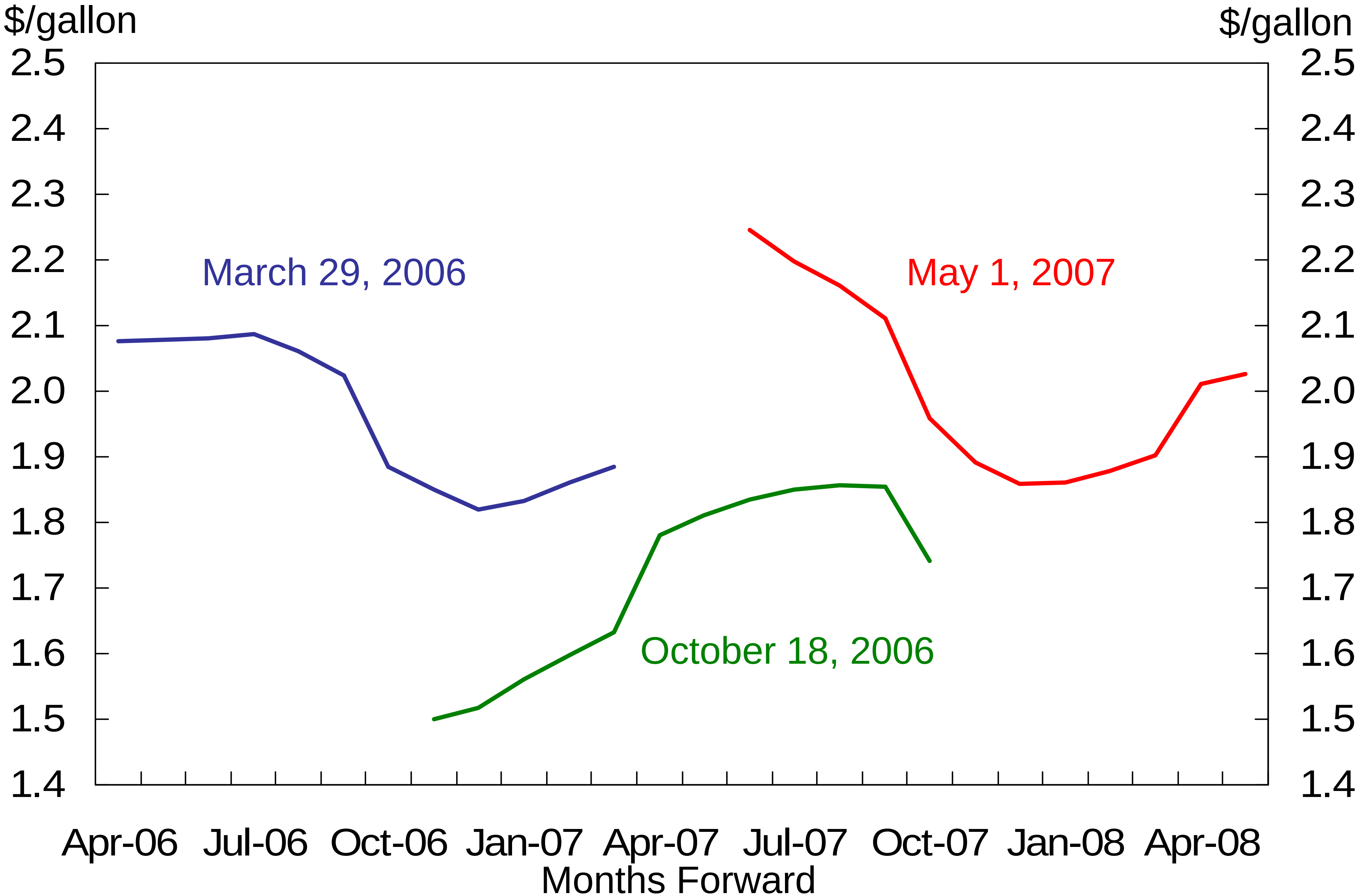
(percent change at an annual rate)

	24 Month	12 Month	6 Month	3 Month	1 Month
Finished Goods	3.8	0.8	1.1	-3.2	-11.9
Finished Consumer Goods	4.4	0.6	1.0	-4.5	-15.9
Finished Consumer Goods Ex. Food	5.3	0.1	-0.5	-8.3	-22.5
Nondurables Ex. Food	7.2	0.1	-0.7	-11.1	-30.7
Durables	0.7	0.0	0.1	-0.3	6.3
Capital Equipment	1.9	1.5	1.6	1.1	3.3
Electronic Computers (NSA)	-22.8	-23.3	-26.7	-25.3	-26.3
Communication and Related Equipment (NSA)	-0.2	0.5	1.2	0.0	0.0
Finished Goods Ex. Food & Energy	1.9	1.3	1.0	0.5	3.1
Finished Consumer Goods Ex. Food & Energy	2.0	1.2	0.6	0.2	2.9
Intermediate Materials	6.6	4.7	3.5	-2.9	-14.7
Intermediate Materials Ex. Food & Energy	5.4	7.3	6.7	3.7	0.0
Crude Materials	9.1	-8.2	6.1	5.9	-37.3
Crude Materials Ex. Food & Energy	13.5	20.7	27.6	-2.3	18.0

Source: Bureau of Labor Statistics

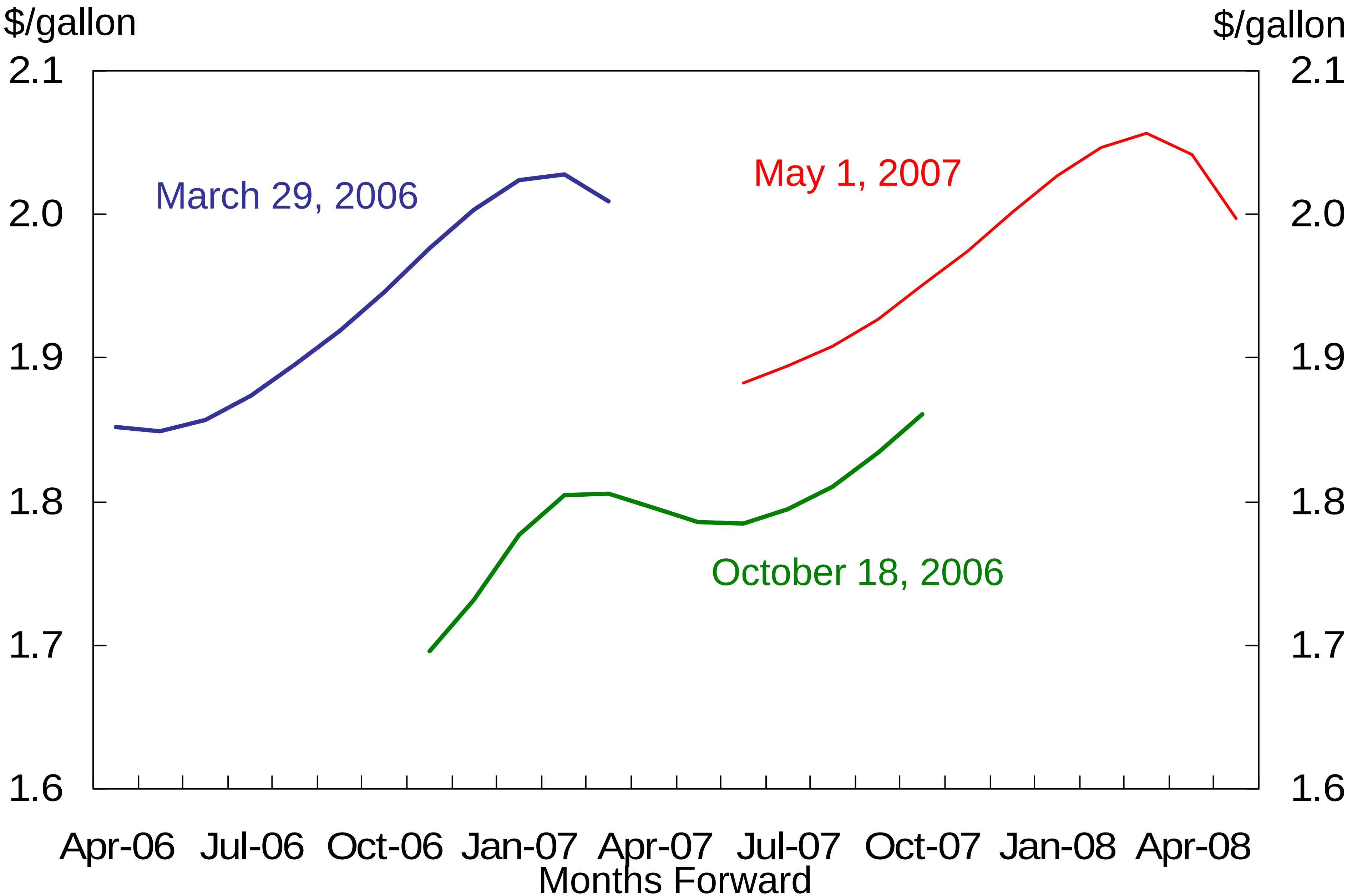
Note: Data through March 2007.

Gasoline Futures



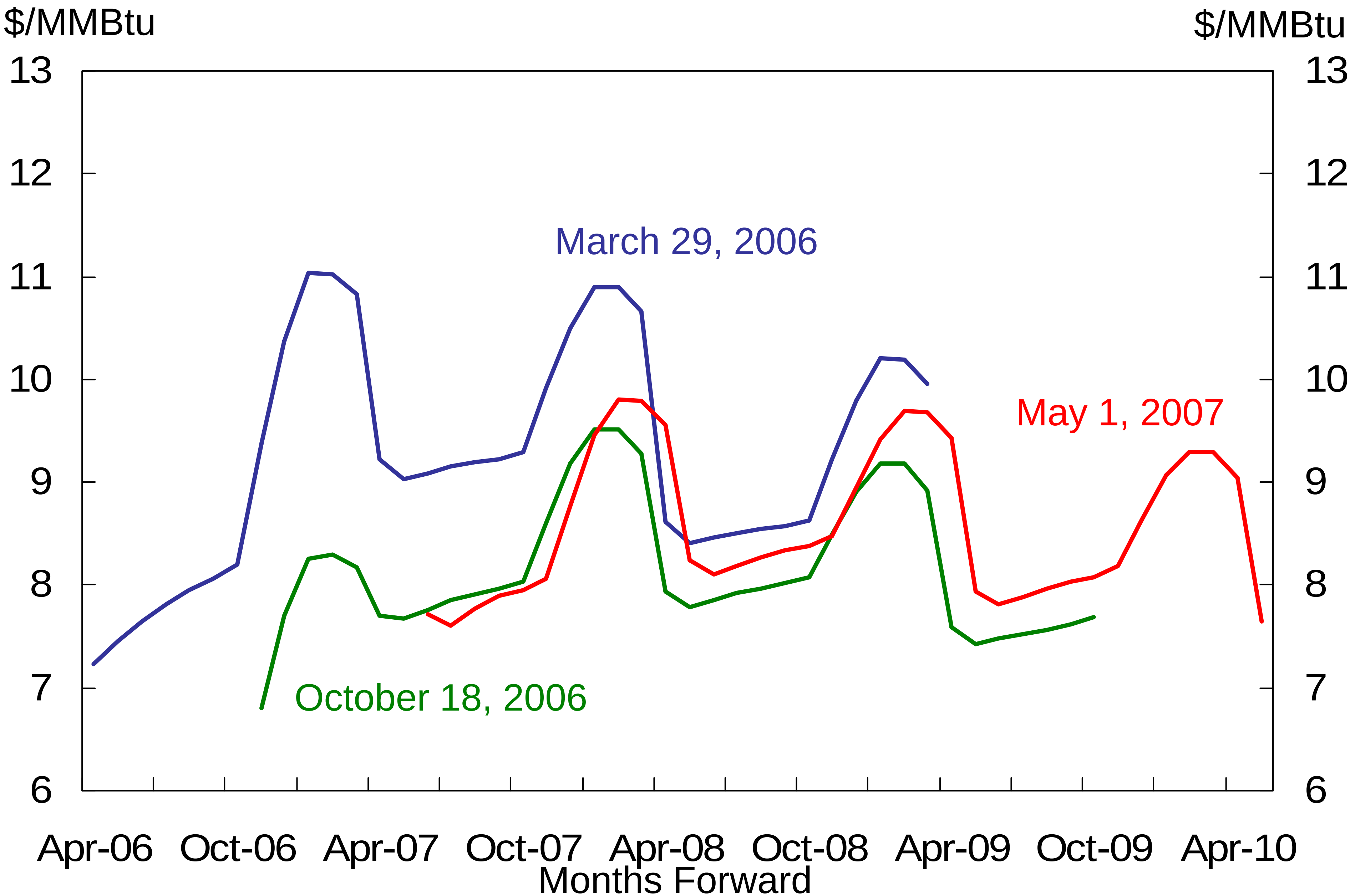
Source: Bloomberg, End-of-Day Quotes

Heating Oil Futures



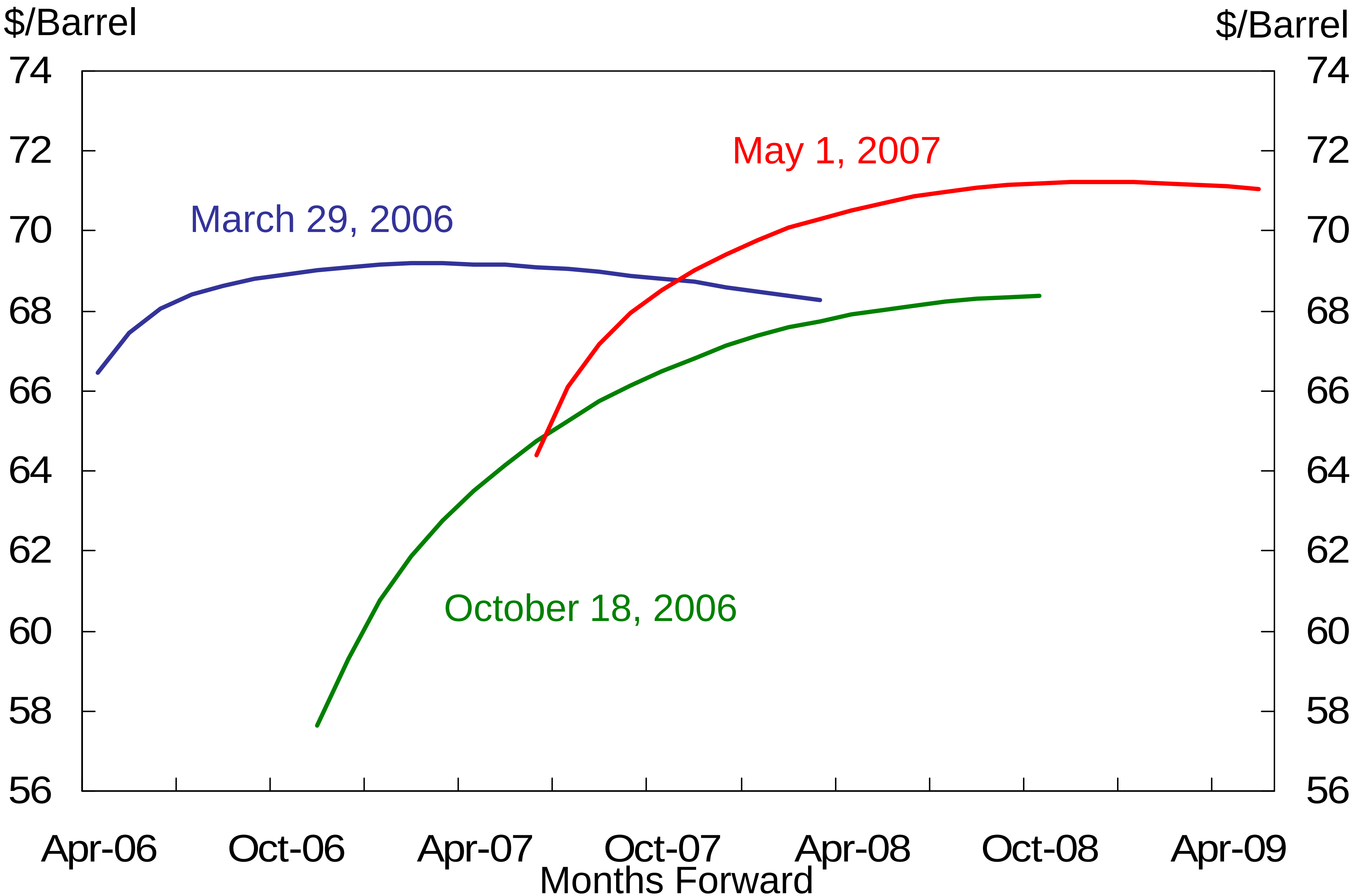
Source: Bloomberg, End-of-Day Quotes

Natural Gas Futures



Source: Bloomberg, End-of-Day Quotes

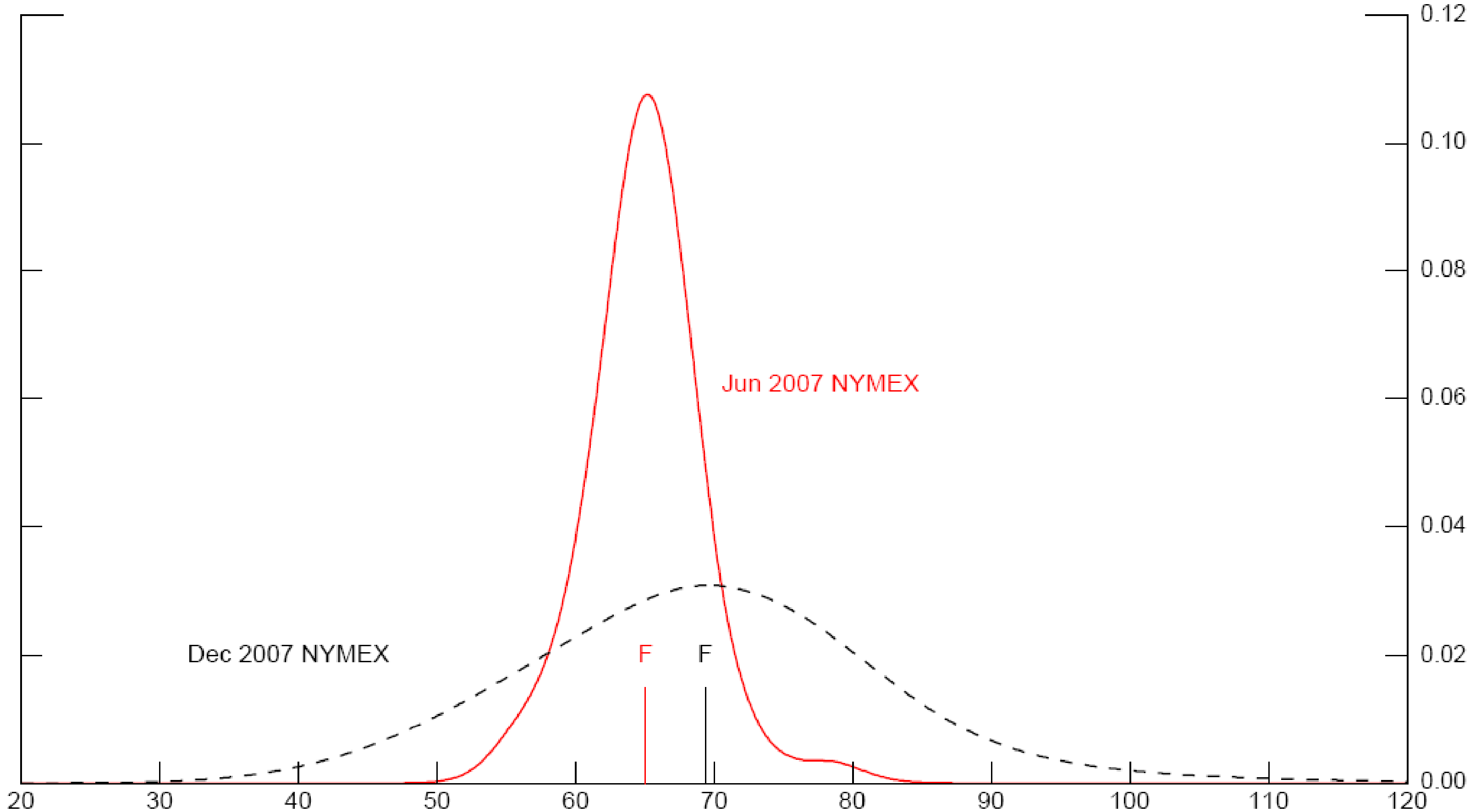
Crude Oil Futures



Source: Bloomberg, End-of-Day Quotes

Implied Distribution of Petroleum Prices

April 26, 2007



	Futures	Median	Implied Volatility	2/3 Bounds	Excess Skewness
Jun 2007 Contract	65.06	65.06	28.12	[61.21,68.71]	-0.03
Dec 2007 Contract	69.36	68.98	25.61	[56.36,81.07]	-0.09

*The implied distribution is calculated using the 'volatility smile' method. The implied volatility is an average of the volatilities comprising the smile. The 2/3 bounds are calculated directly from the distribution. The excess skewness is relative to the lognormal distribution.

Source: Federal Reserve Board

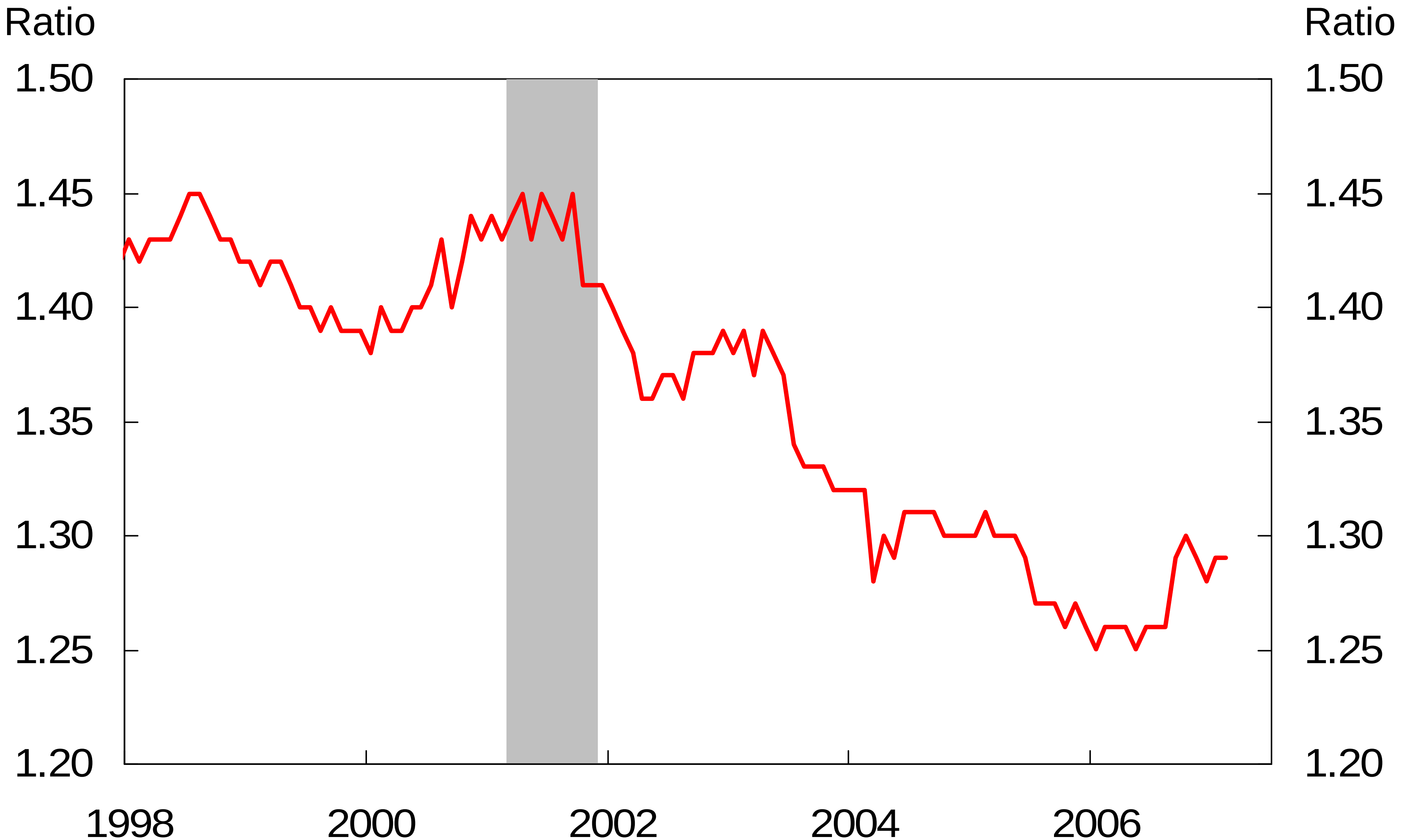
Real Personal Consumption Expenditures
(Quarterly Percent Change at Annual Rate)

	2006Q2	2006Q3	2006Q4	2007Q1
Personal Consumption Expenditures	2.6	2.8	4.2	3.8
Durable Goods	-0.1	6.4	4.4	7.3
Motor vehicles and parts	-1.3	8.6	-4.4	11.4
Furniture and household equipment	3.3	6.6	13.2	7.3
Other durable goods	-3.7	1.6	7.5	-0.7
Nondurable goods	1.4	1.5	5.9	2.9
Food	2.0	-0.7	6.6	0.8
Clothing and shoes	-3.7	5.5	6.8	6.8
Gasoline, fuel oil, and other energy goods	0.6	5.0	1.2	9.1
Other nondurable goods	3.5	1.9	6.5	2.1
Services	3.7	2.8	3.4	3.7
Housing services	2.4	2.5	3.2	2.1
Household operation services	8.4	9.6	3.6	5.9
Gas and electric	15.8	21.7	5.3	10.1
Other	3.4	1.7	2.3	2.8
Transportation services	1.7	1.4	3.8	2.5
Medical care services	2.6	2.1	3.5	4.6
Recreation services	0.8	2.9	3.3	-0.5
Other	6.1	1.6	3.4	4.8
Energy goods and services	6.2	11.0	2.6	9.6
PCE less food and energy	2.4	2.8	4.0	4.0

Source: Bureau of Economic Analysis

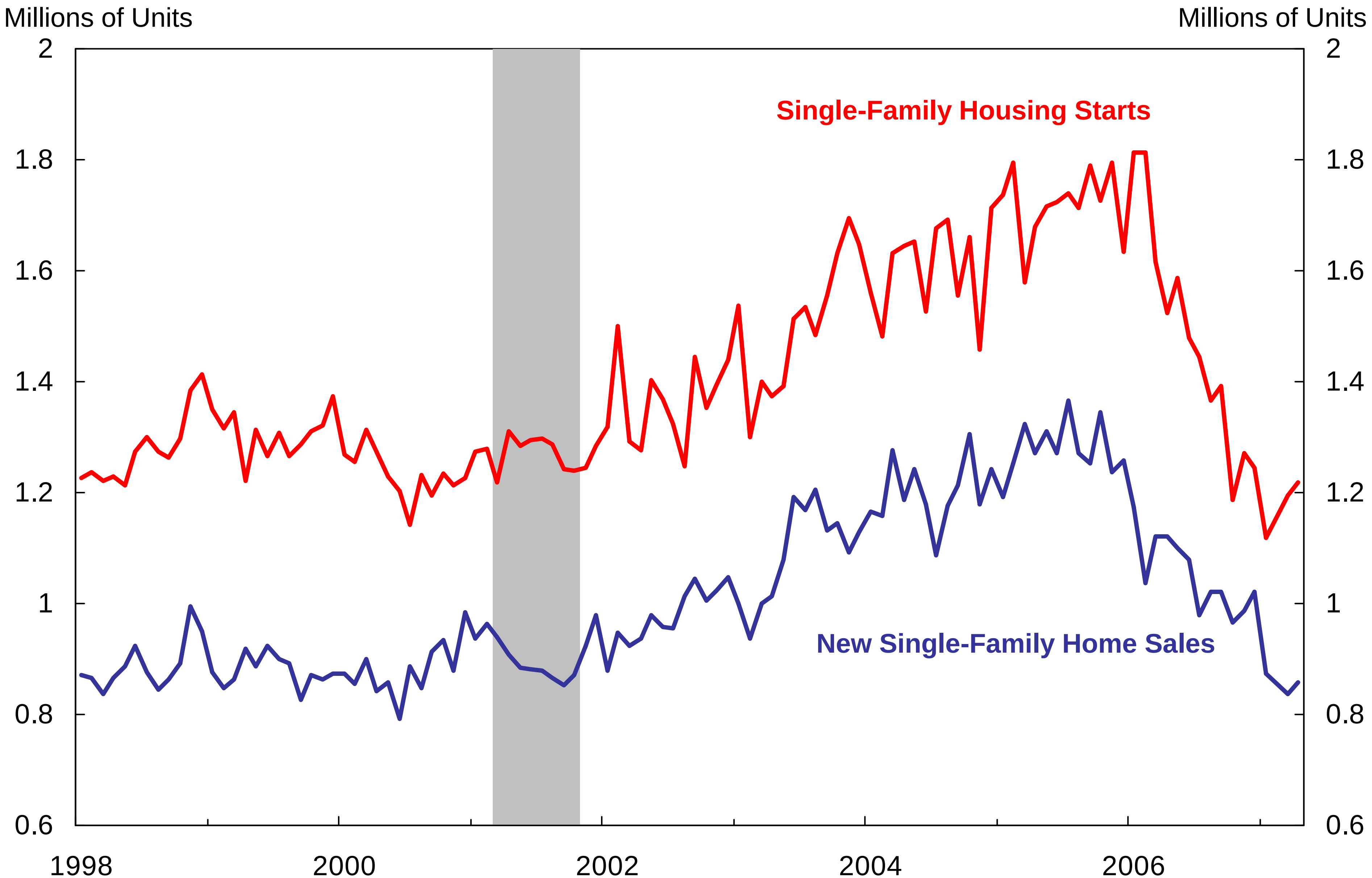
Data through March 2007

Total Business Inventory-Sales Ratio



Source: Census Bureau

Housing: Starts and sales both down 20%+

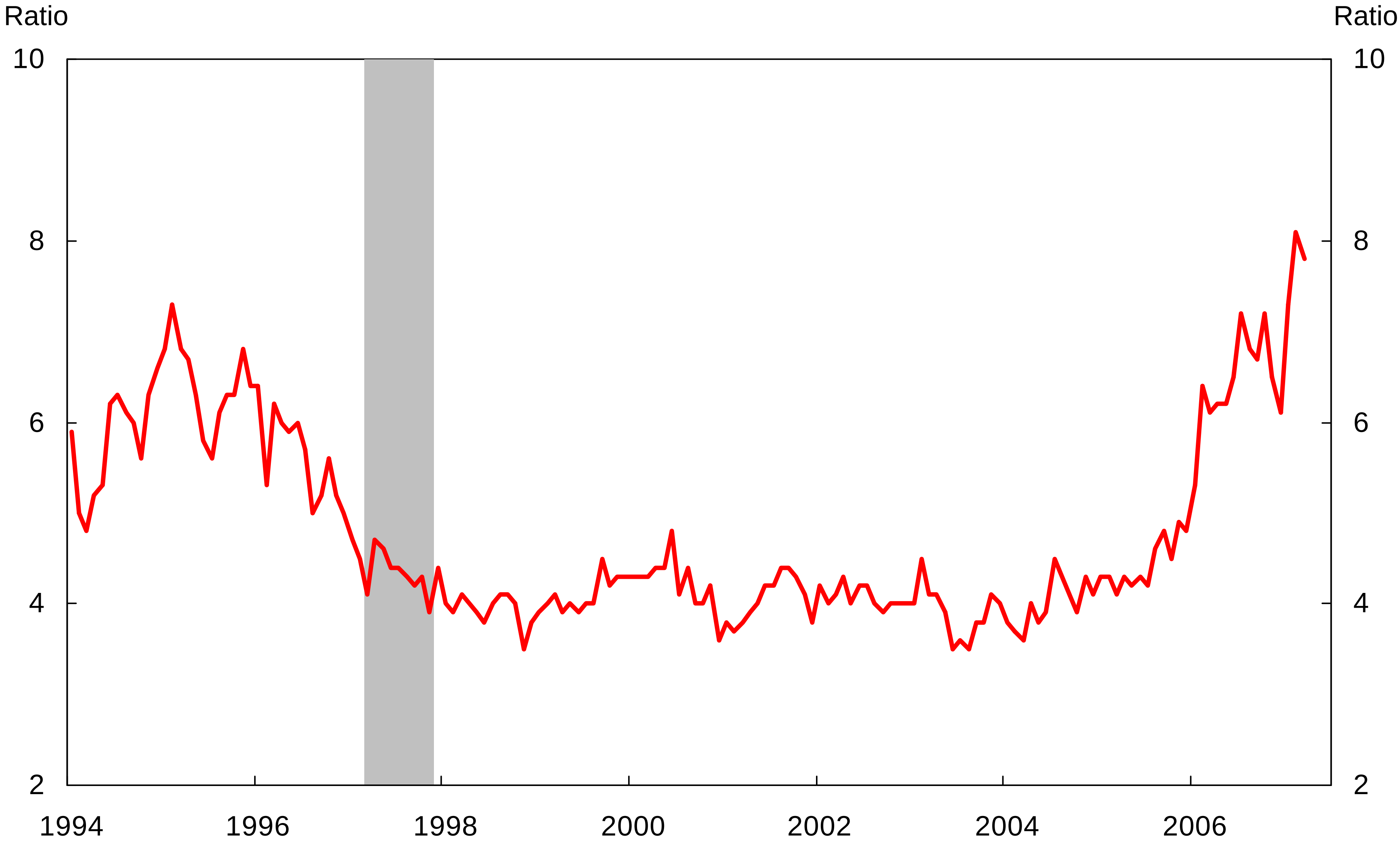


Source: Census Bureau

Note: Shading represents NBER recessions.

Inventories soared, but are now down from peak

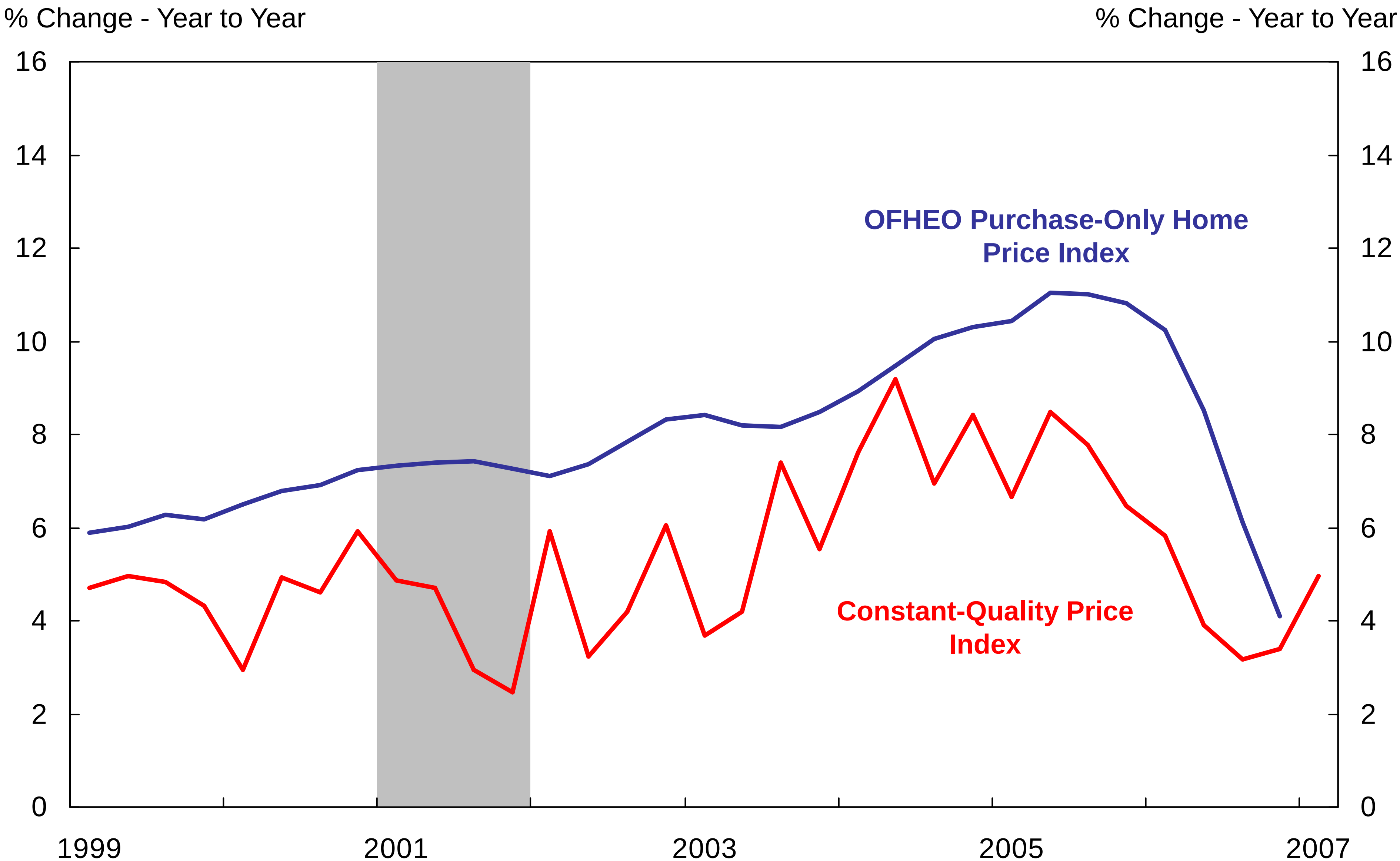
Ratio of New Homes for Sale to New Homes Sold (1-family)



Source: Census Bureau

Note: Shading represents NBER recessions.

Price appreciation has slowed

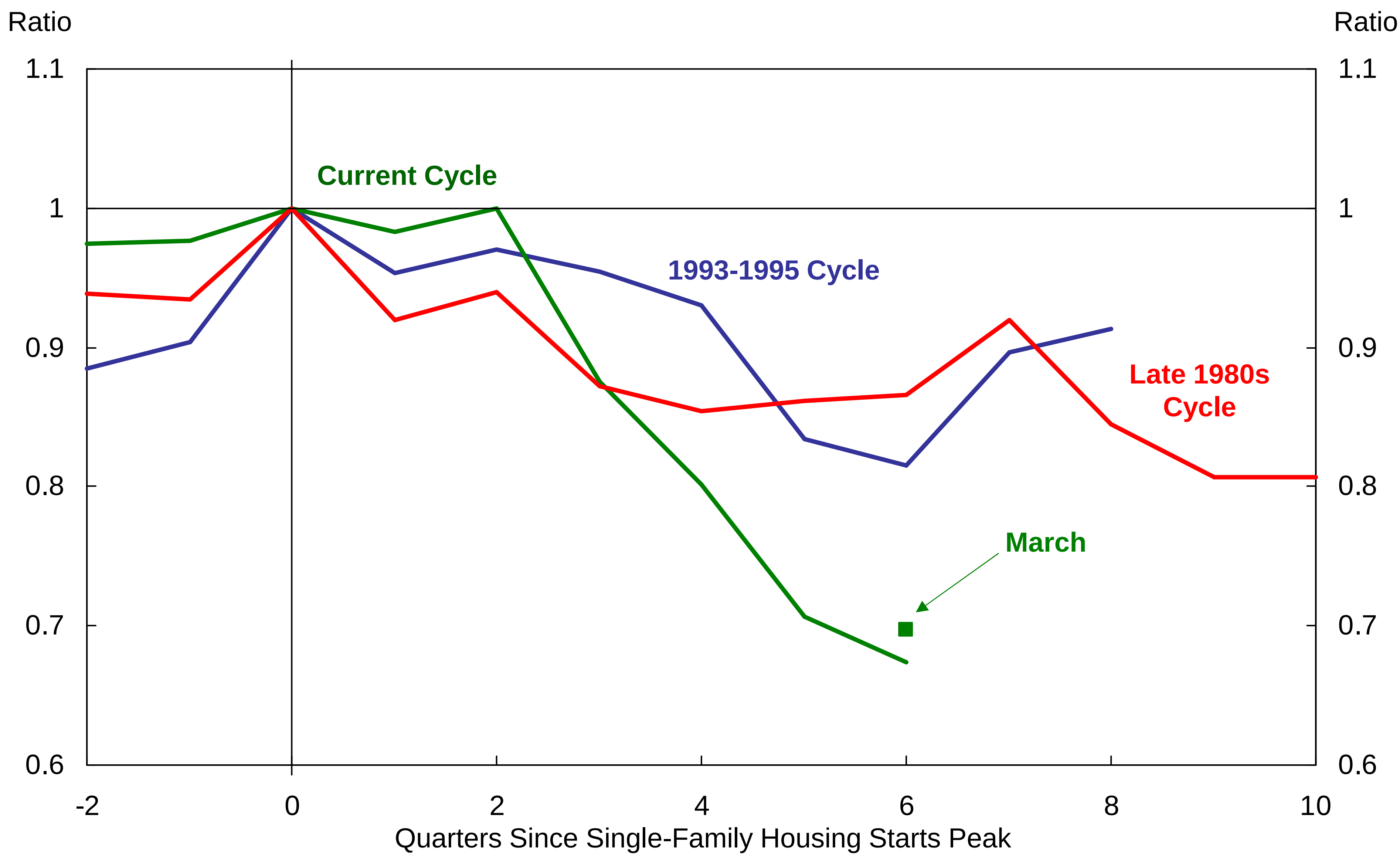


Source: Census Bureau and Office of Federal Housing Enterprise Oversight

Note: Shading represents NBER recessions.

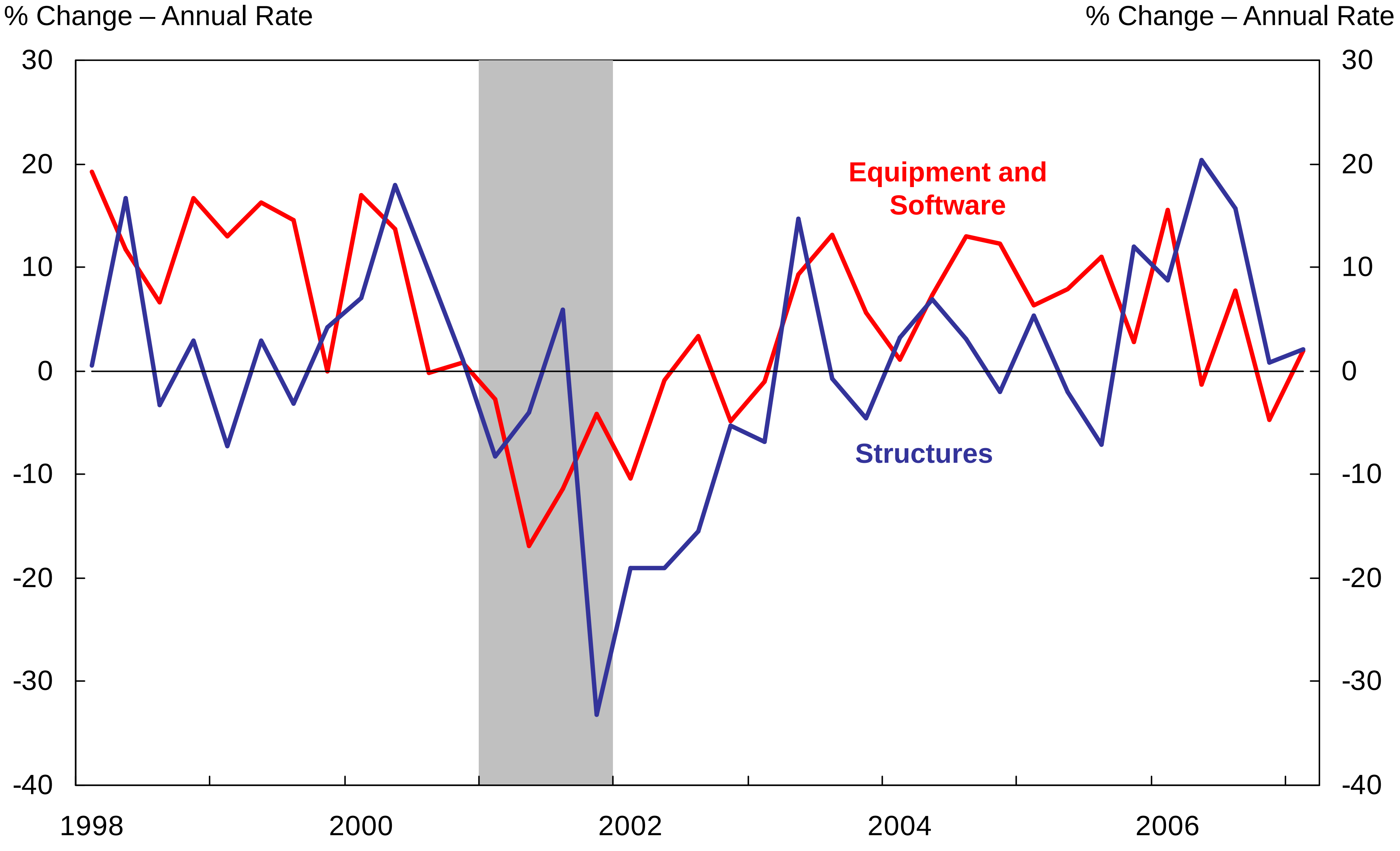
Downturn somewhat steeper than in mid-90s

1-family housing starts--Series set to 1.0 at housing start peak



Source: Census Bureau

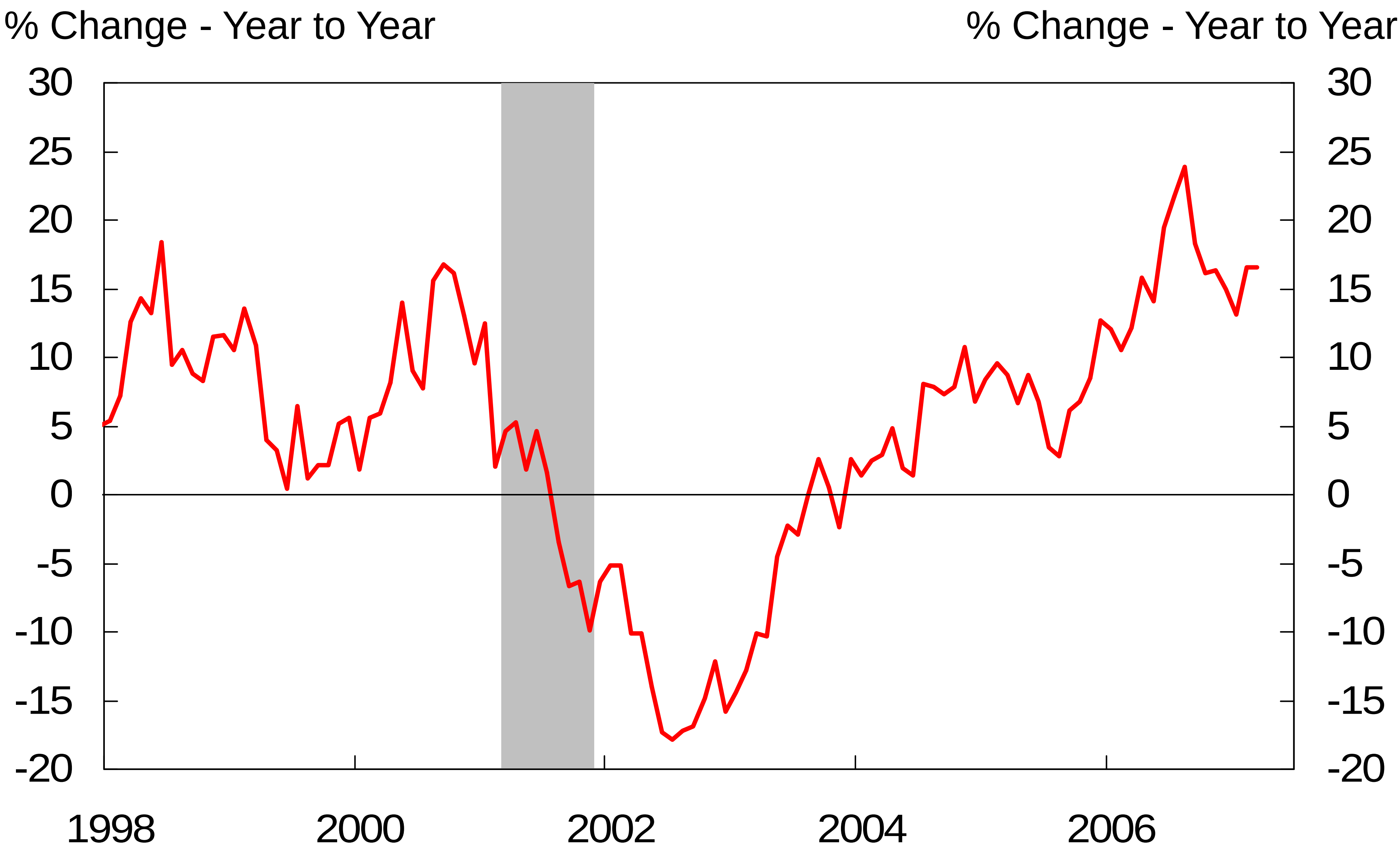
Business investment solid, boosted by structures



Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions.

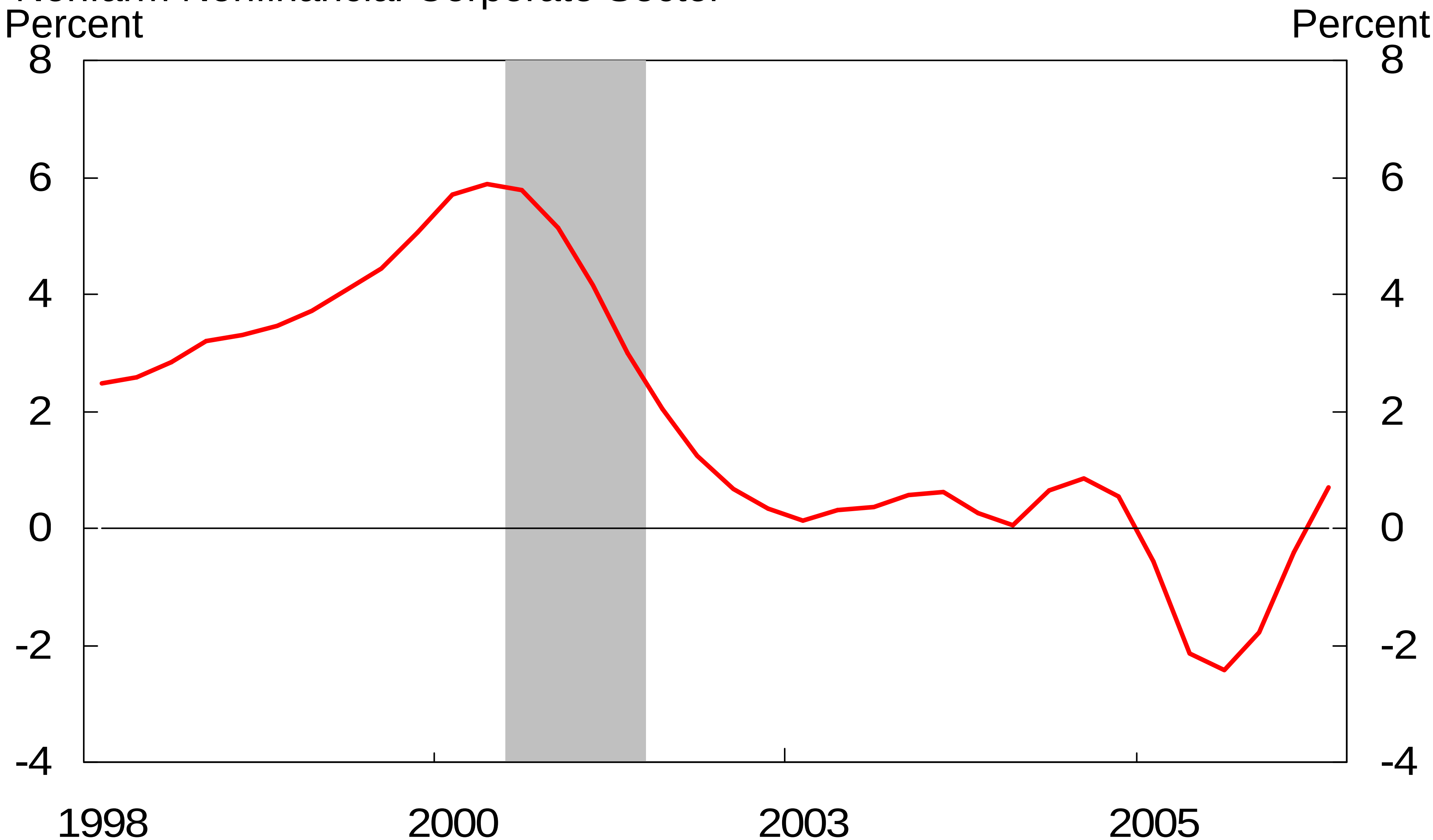
Private Nonresidential Construction



Source: Census Bureau

Financing Gap as a Percent of Value Added

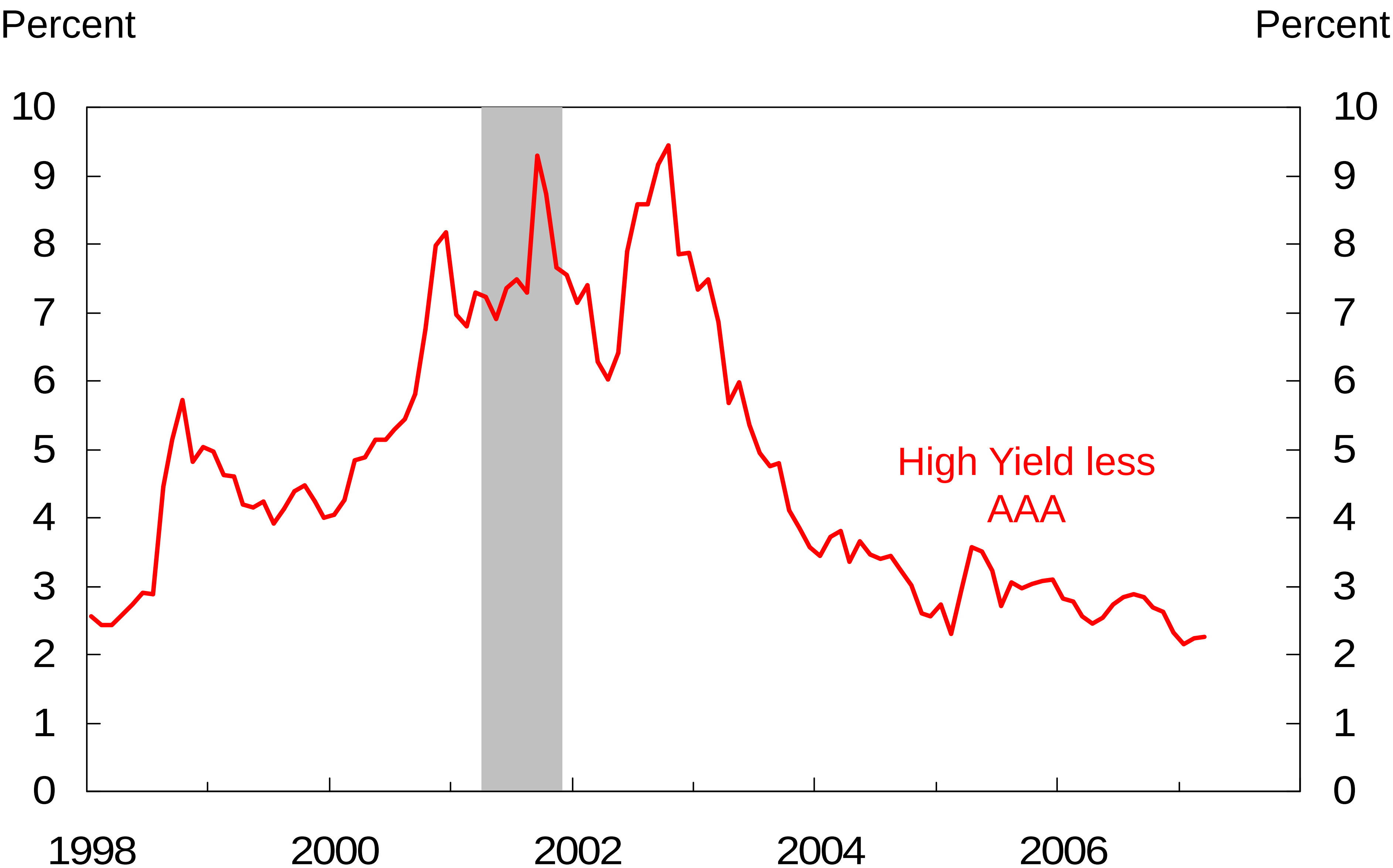
Nonfarm Nonfinancial Corporate Sector



Financing gap is capital expenditures less the sum of U.S. internal funds and inventory valuation adjustment (IVA).

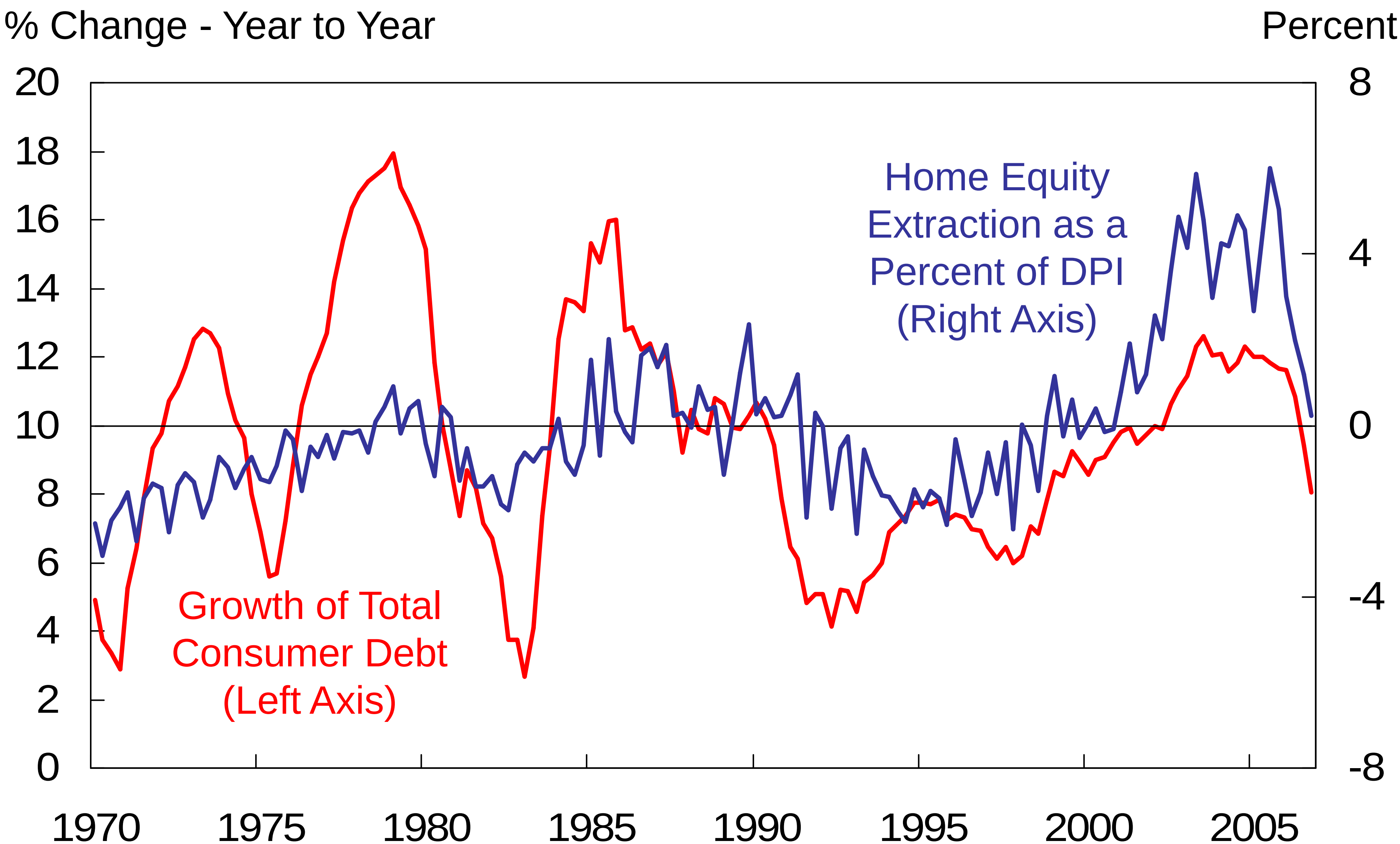
Source: Flow of Funds, Federal Reserve Board, and BEA

Corporate Bond Yield Spread



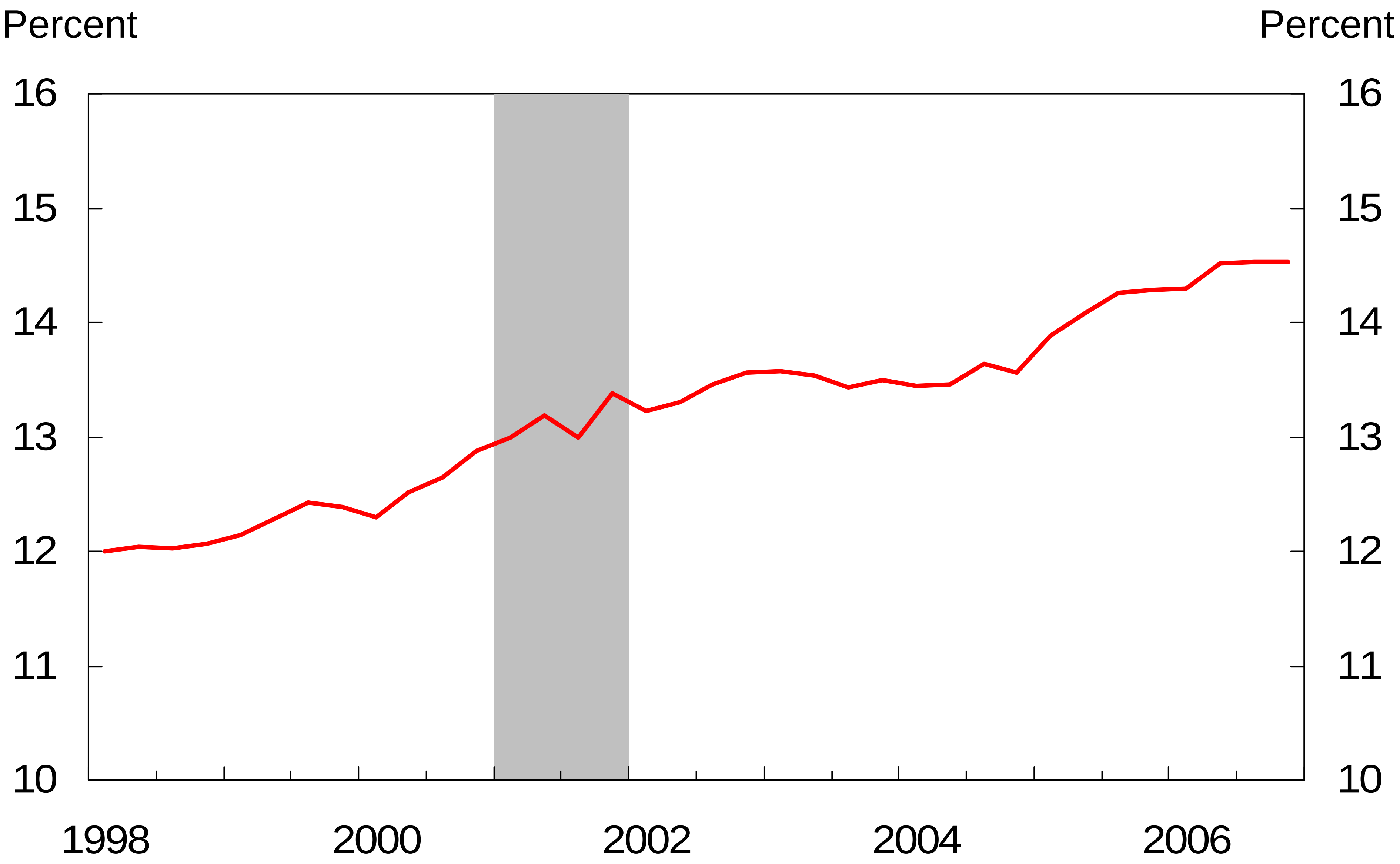
Source: Bloomberg

Consumer Debt and Home Equity Extraction



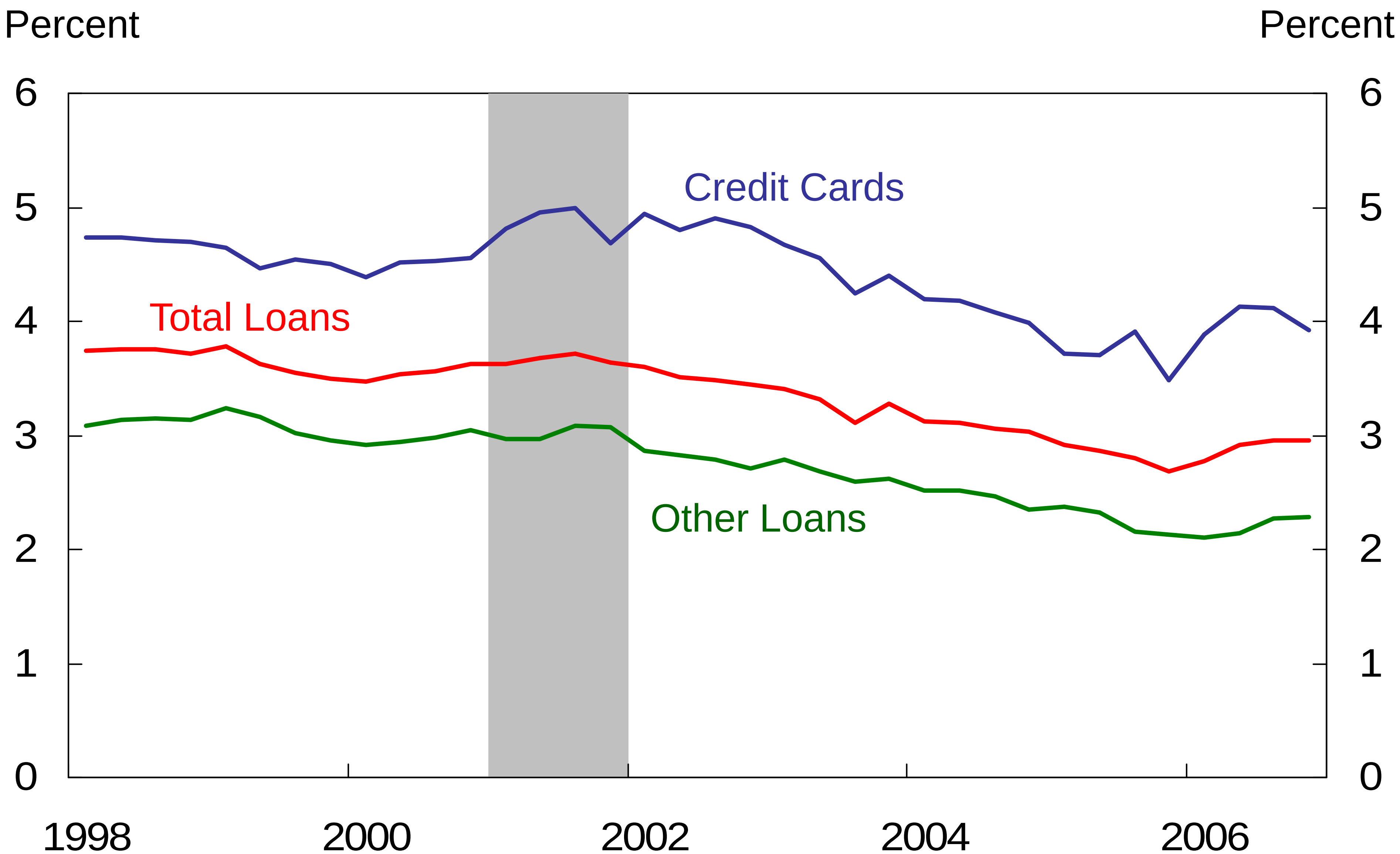
Source: Flow of Funds and Bureau of Economic Analysis

Consumer Debt Service over DPI



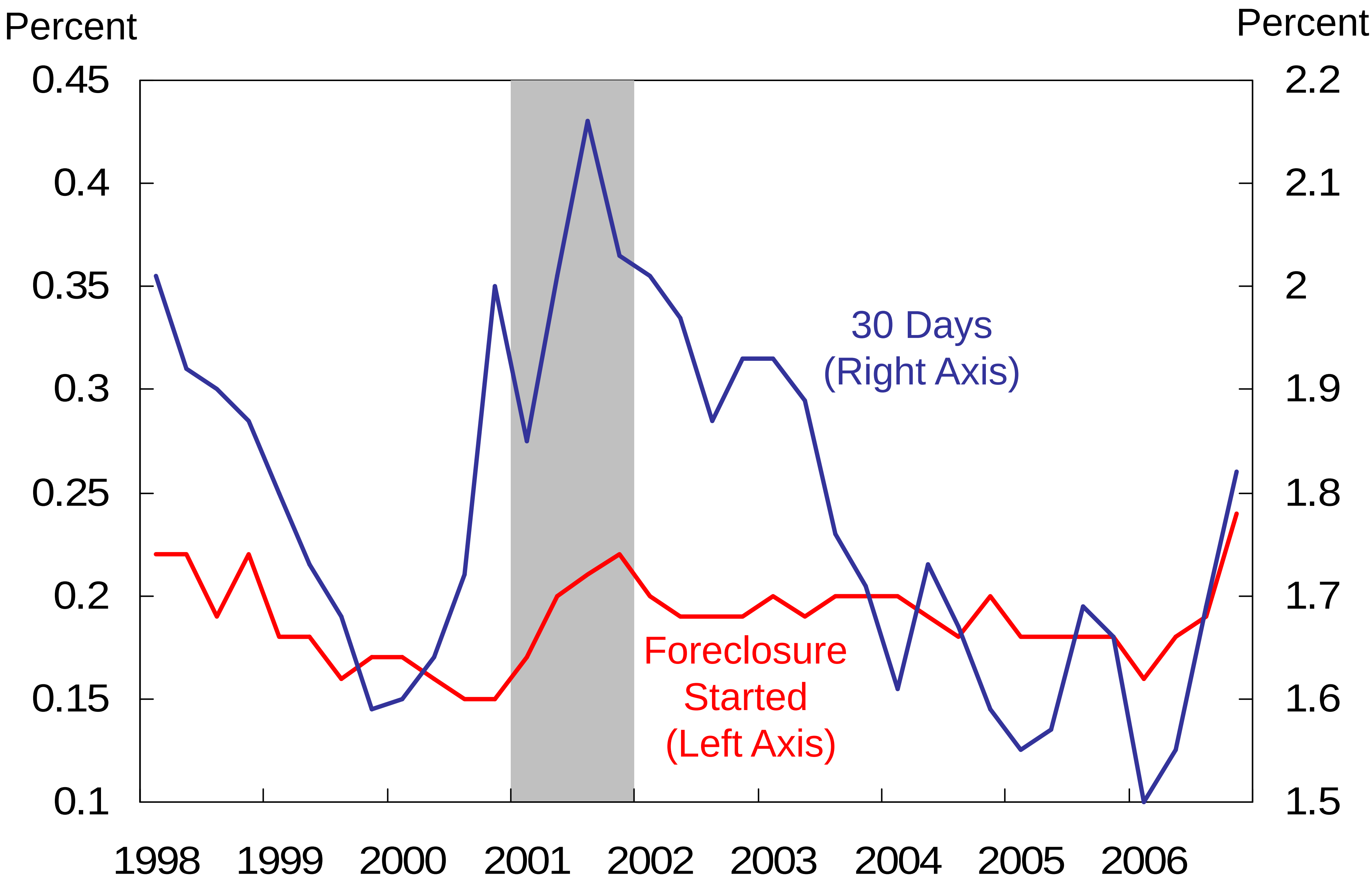
Source: Federal Reserve Board

Consumer Installment Debt Delinquency Rates



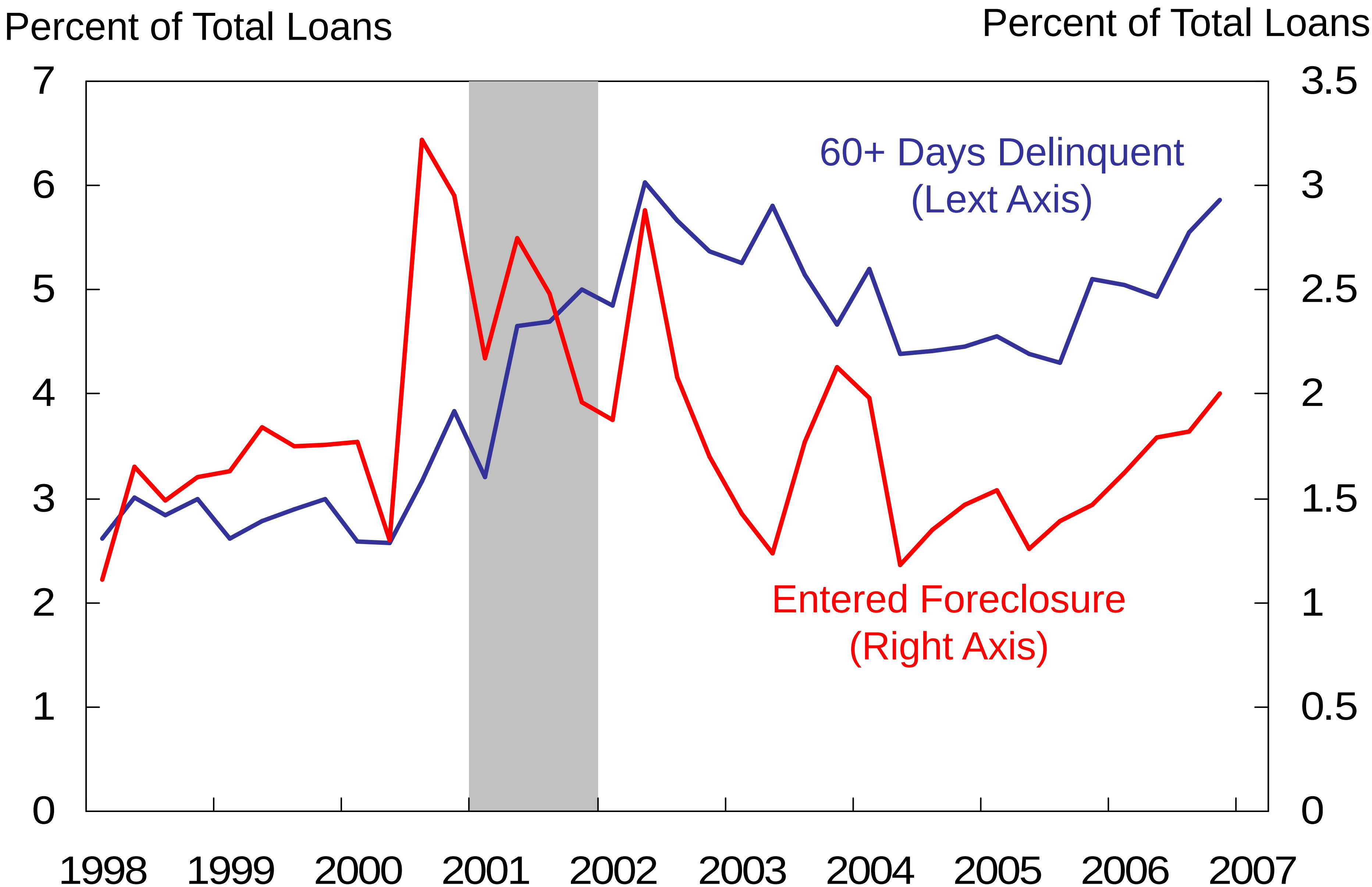
Source: Federal Reserve Board

Mortgage Delinquency Rates - Prime Loans



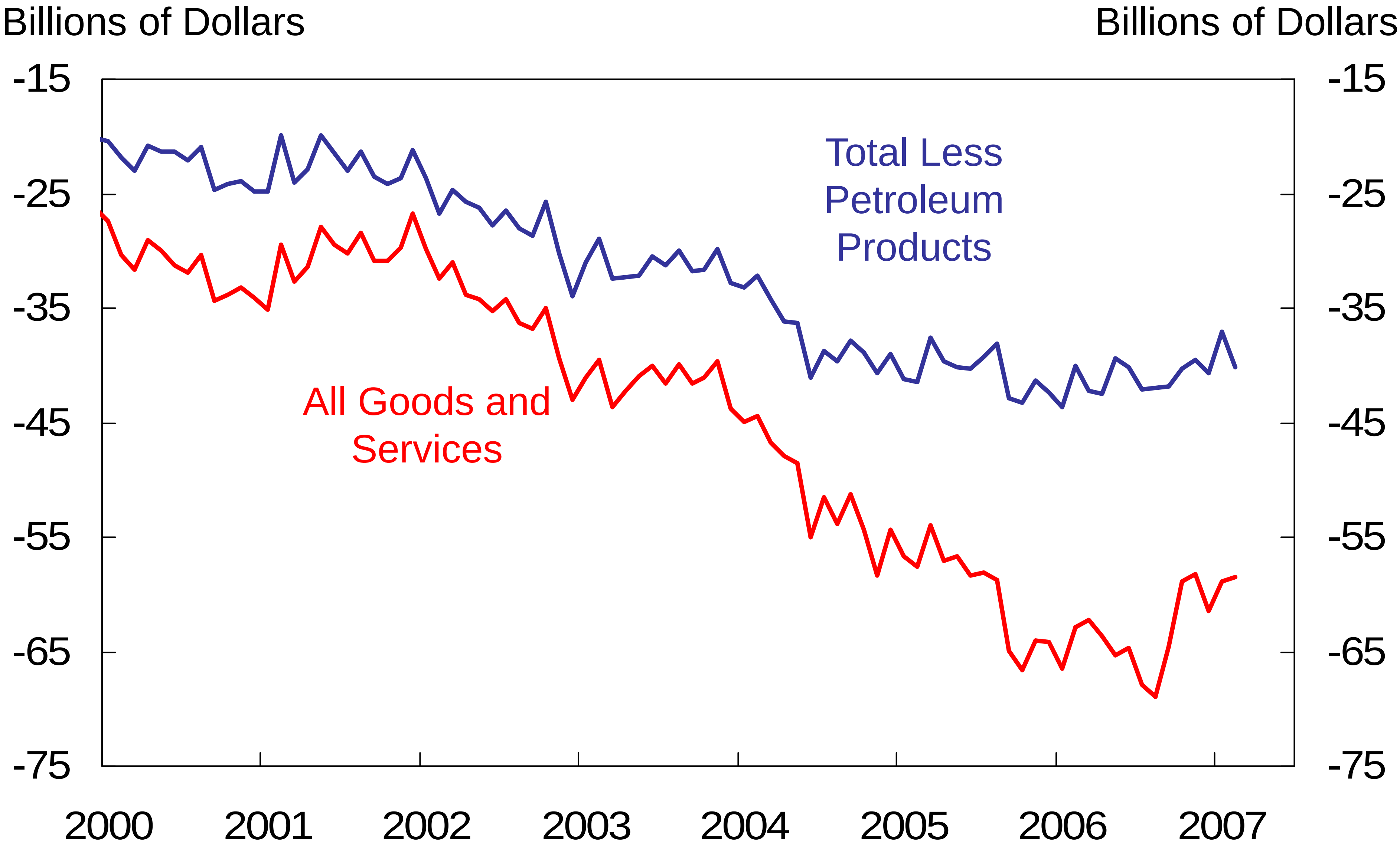
Source: Mortgage Bankers Association

Subprime Delinquencies and Foreclosures



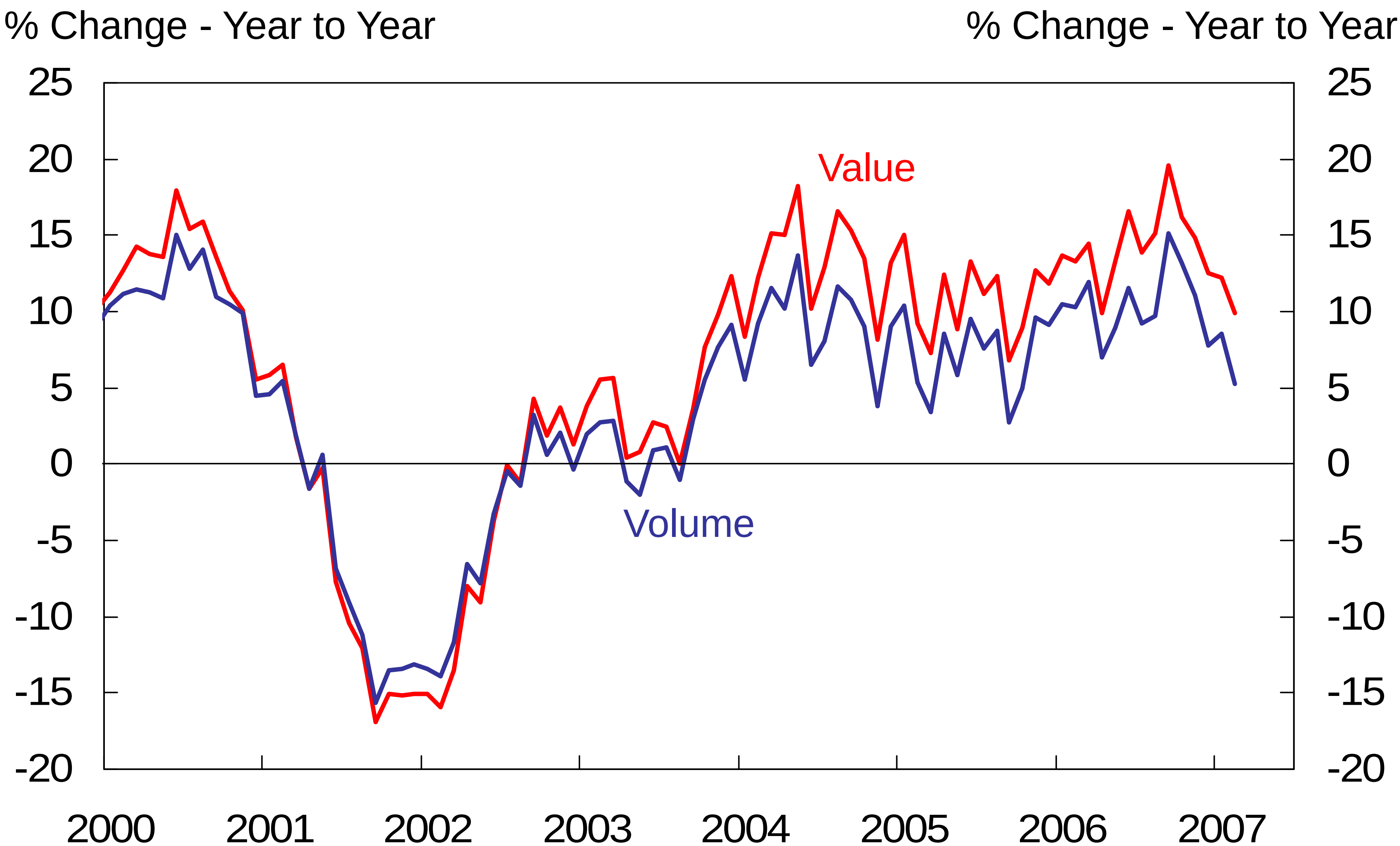
Source: Mortgage Bankers Association and Economy.com

Trade Balance in Goods and Services



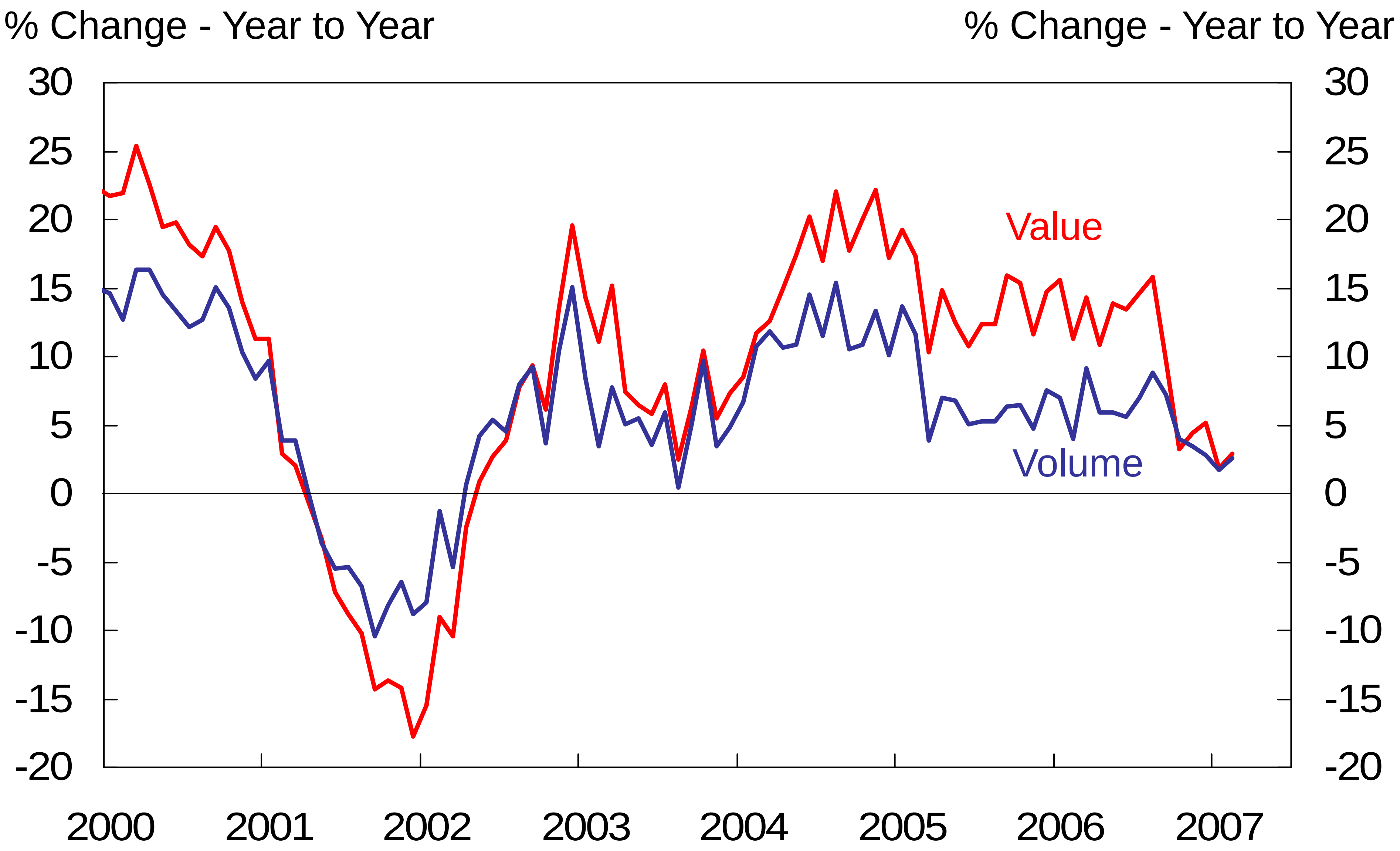
Source: Census Bureau

Exports of Goods



Source: Census Bureau

Imports of Goods



Source: Census Bureau

Labor Market: Nonfarm Payroll Employment

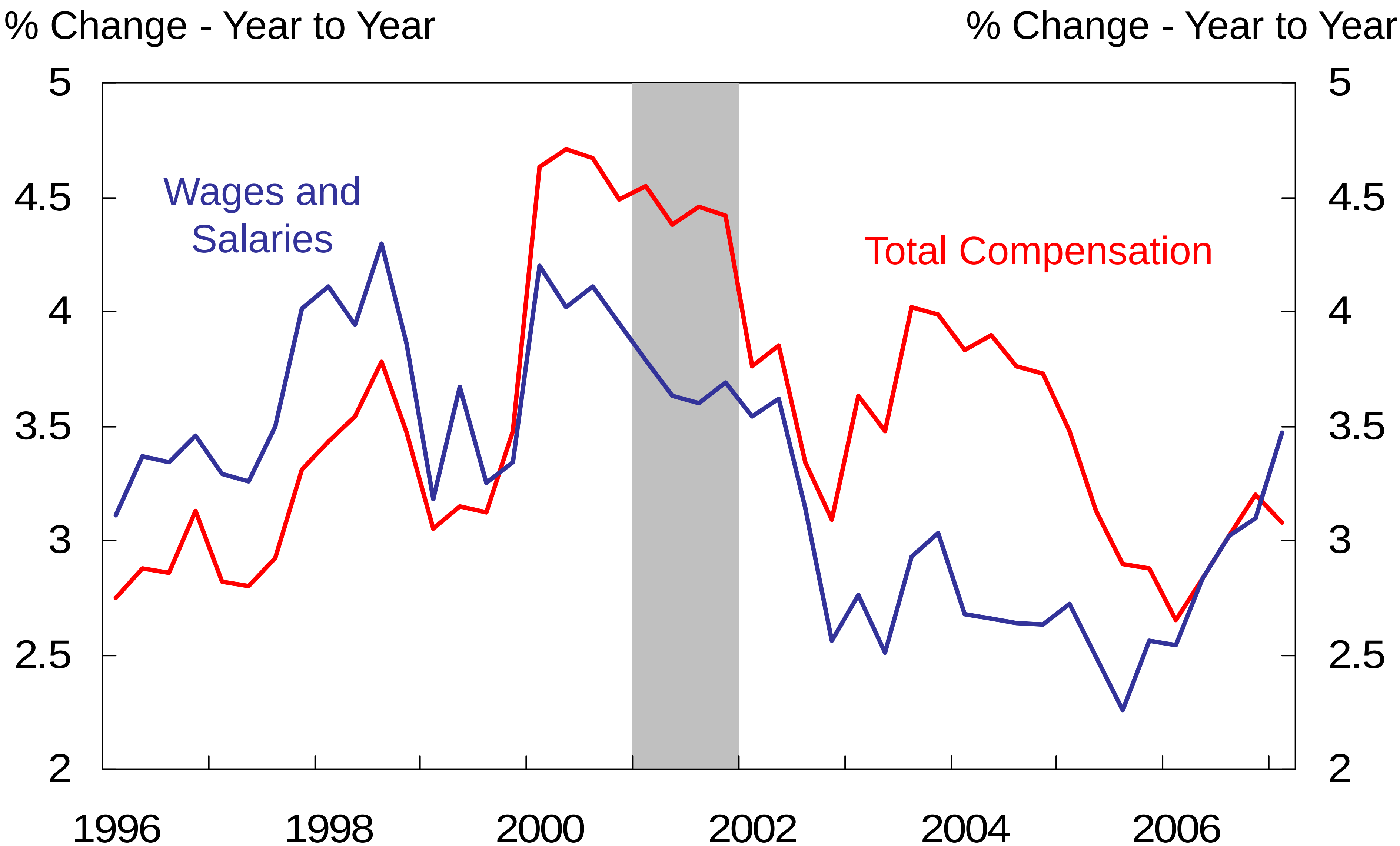
Annualized Growth of Nonfarm Payroll Employment
(percent change at an annual rate)

	24 Month	12 Month	6 Month	3 Month	1 Month
Total	1.7	1.4	1.4	1.0	0.8
Private	1.8	1.4	1.4	1.0	0.7
Goods-Producing	0.8	-0.6	-0.9	-1.4	-1.5
Construction	2.9	-0.2	-0.7	-2.0	-1.7
Manufacturing	-0.6	-1.1	-1.3	-1.5	-1.6
Durables	-0.2	-1.1	-1.7	-1.5	-1.7
Nondurables	-1.3	-0.9	-0.5	-1.5	-1.4
Private Service Providing	2.1	1.9	2.0	1.6	1.2
Wholesale Trade	2.1	1.6	1.9	1.8	2.5
Retail Trade	0.4	0.2	1.0	0.4	-2.0
Transportation and Warehousing	2.0	1.8	1.3	0.0	0.0
Utilities	-0.4	0.3	1.4	1.3	2.0
Information	0.2	0.9	2.0	1.7	1.2
Financial Activities	2.0	1.1	0.5	-0.2	-1.6
Professional and Business Services	3.1	2.4	2.4	1.5	1.6
Temporary Help Services	2.3	-0.4	0.1	-2.9	-2.8
Education and Health Services	2.8	2.8	3.0	3.1	3.6
Leisure and Hospitality	2.7	3.2	3.2	2.1	2.0
Food and Drinking Places	3.1	3.6	3.7	2.9	3.2
Other Services	0.8	1.0	1.0	2.4	2.9
Government	1.0	1.4	1.1	1.4	1.4
Federal Government	-0.2	-0.4	-0.3	0.4	1.8
State Government	1.2	1.6	1.4	2.1	2.1
Local Government	1.2	1.6	1.2	1.4	1.0

Source: Bureau of Labor Statistics

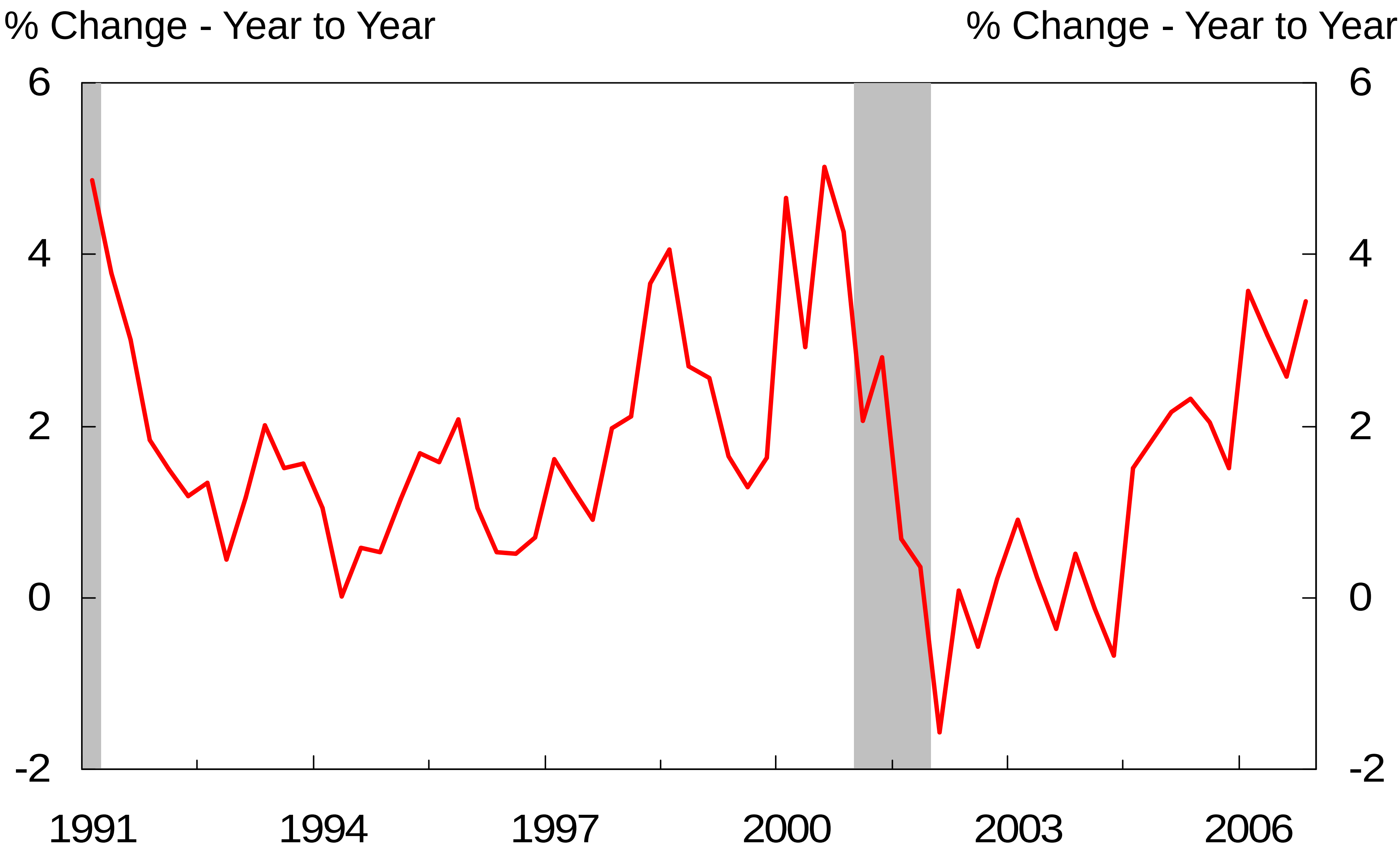
Note: Data through April 2007.

Employment Cost Index: Private Industry



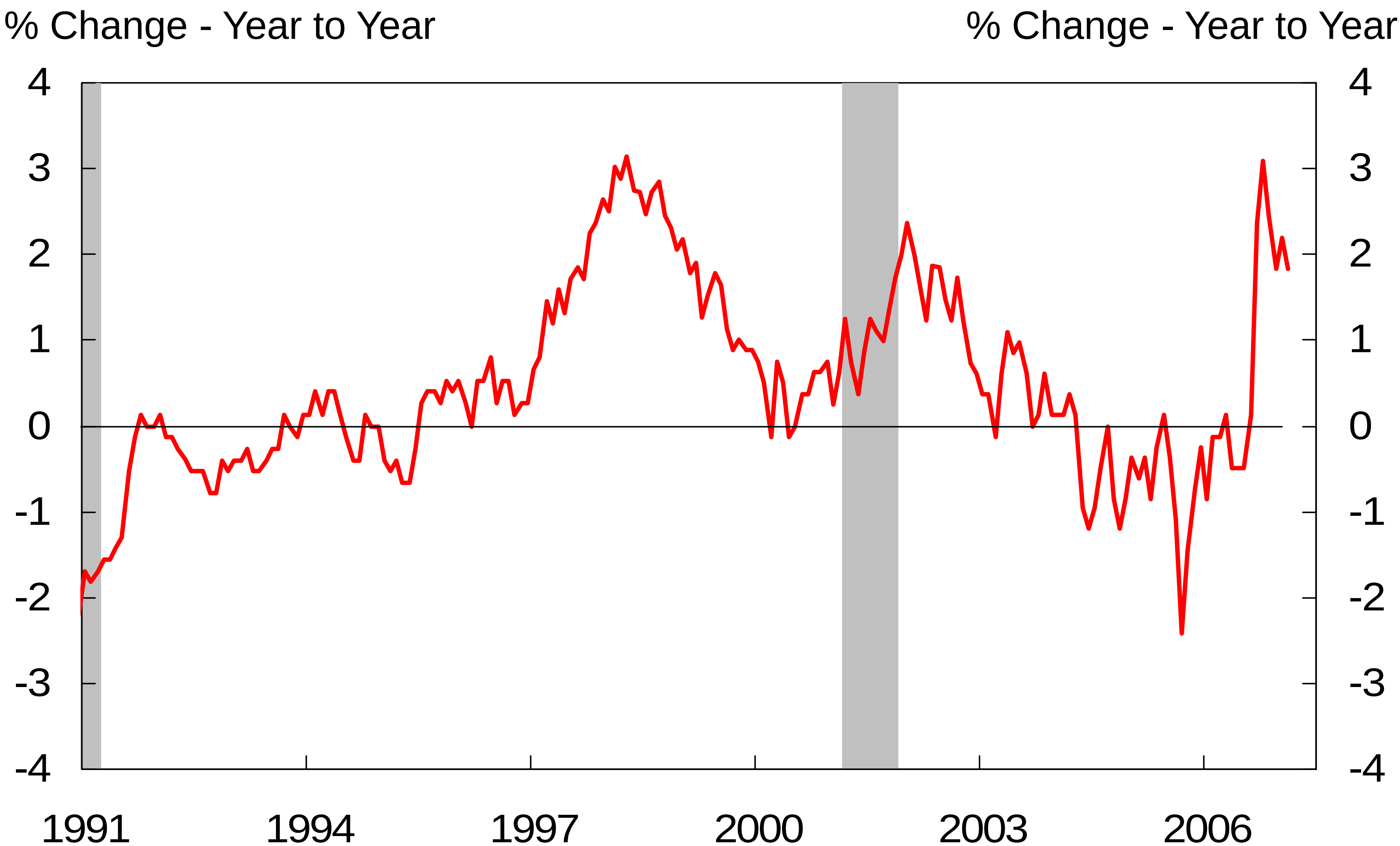
Source: Bureau of Labor Statistics

Nonfarm Business Sector: Unit Labor Cost



Source: Bureau of Labor Statistics

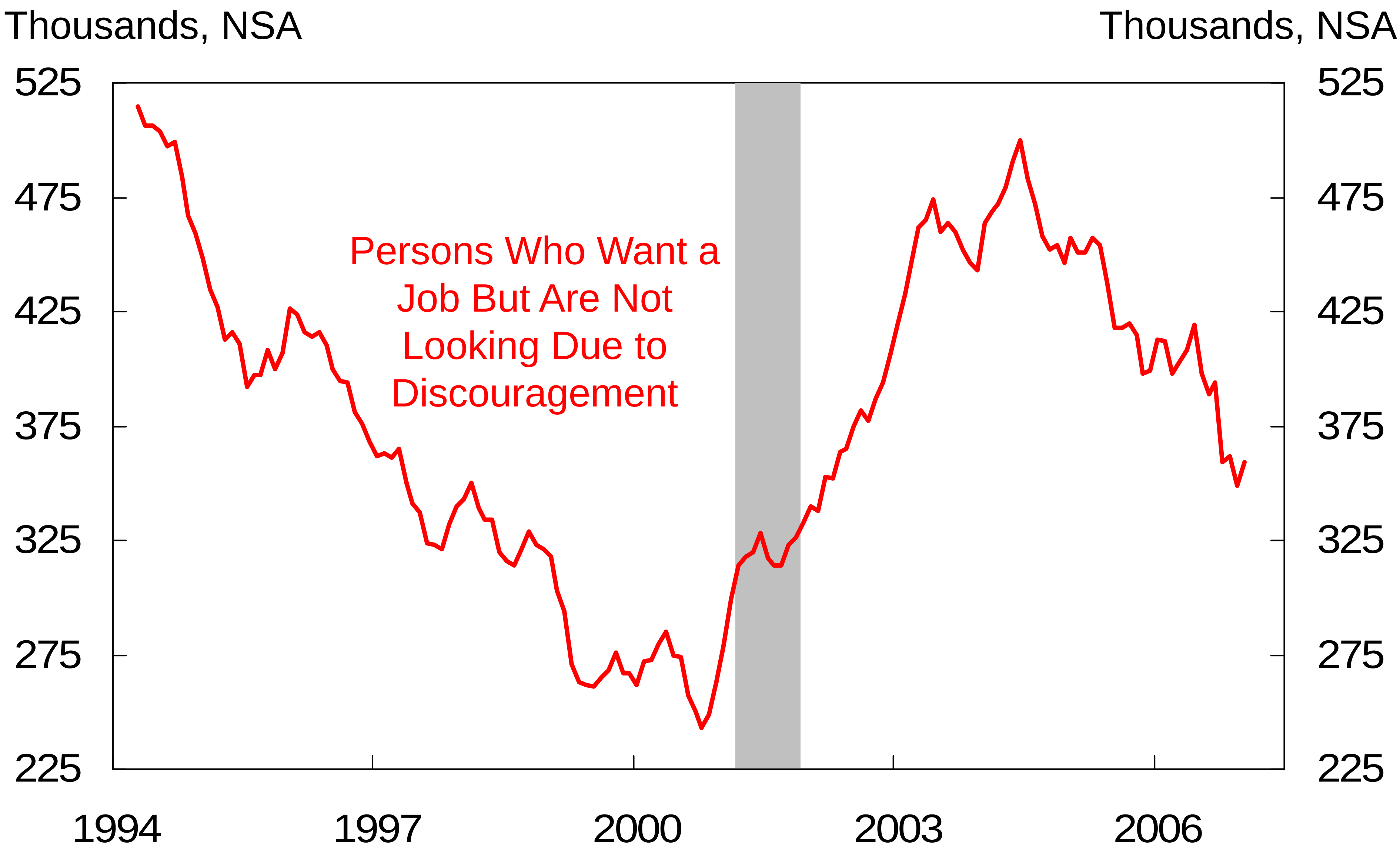
Real Average Hourly Earnings



Source: Bureau of Labor Statistics

Persons Not in the Labor Force

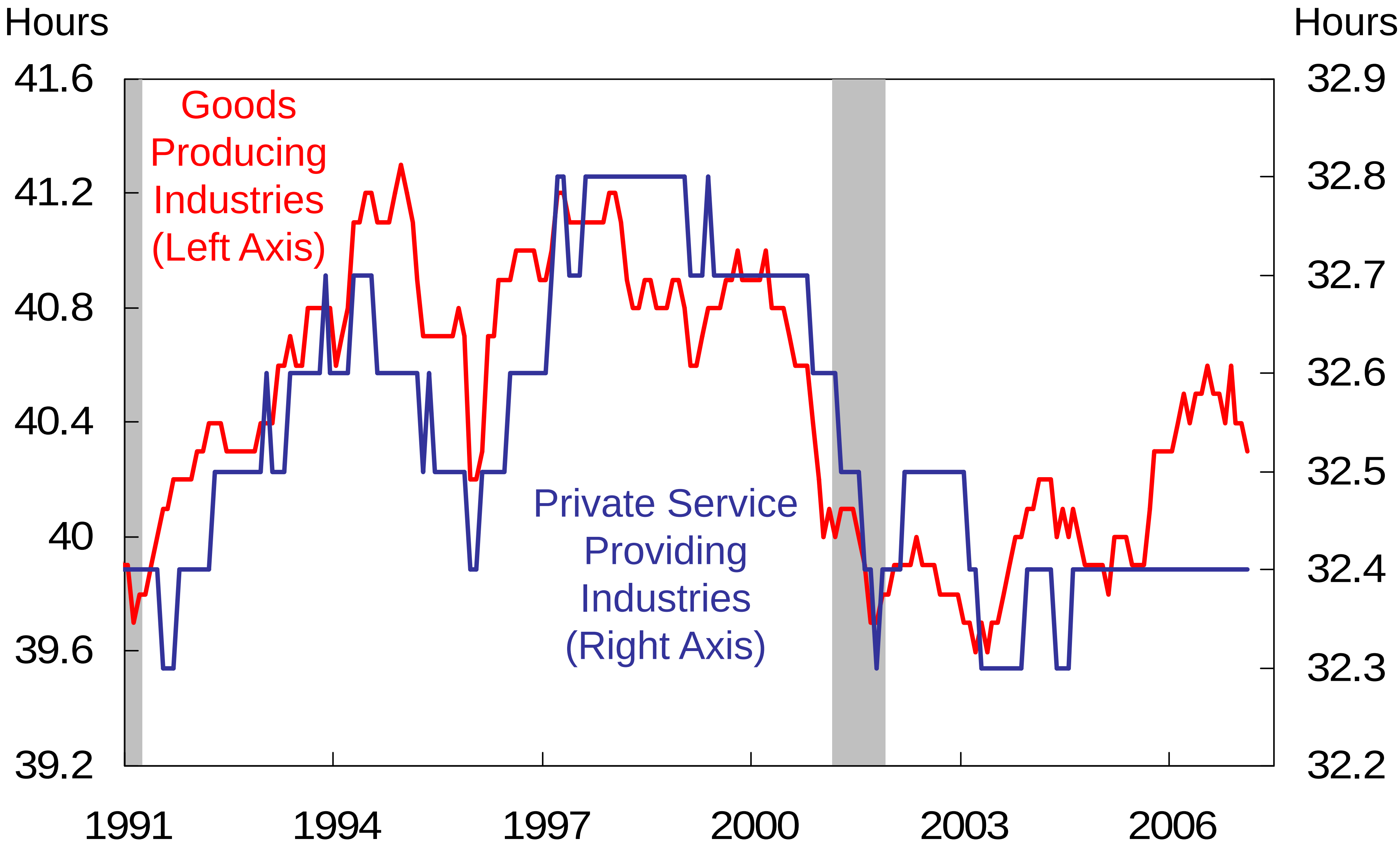
Six- Month Moving Average



Source: Bureau of Labor Statistics

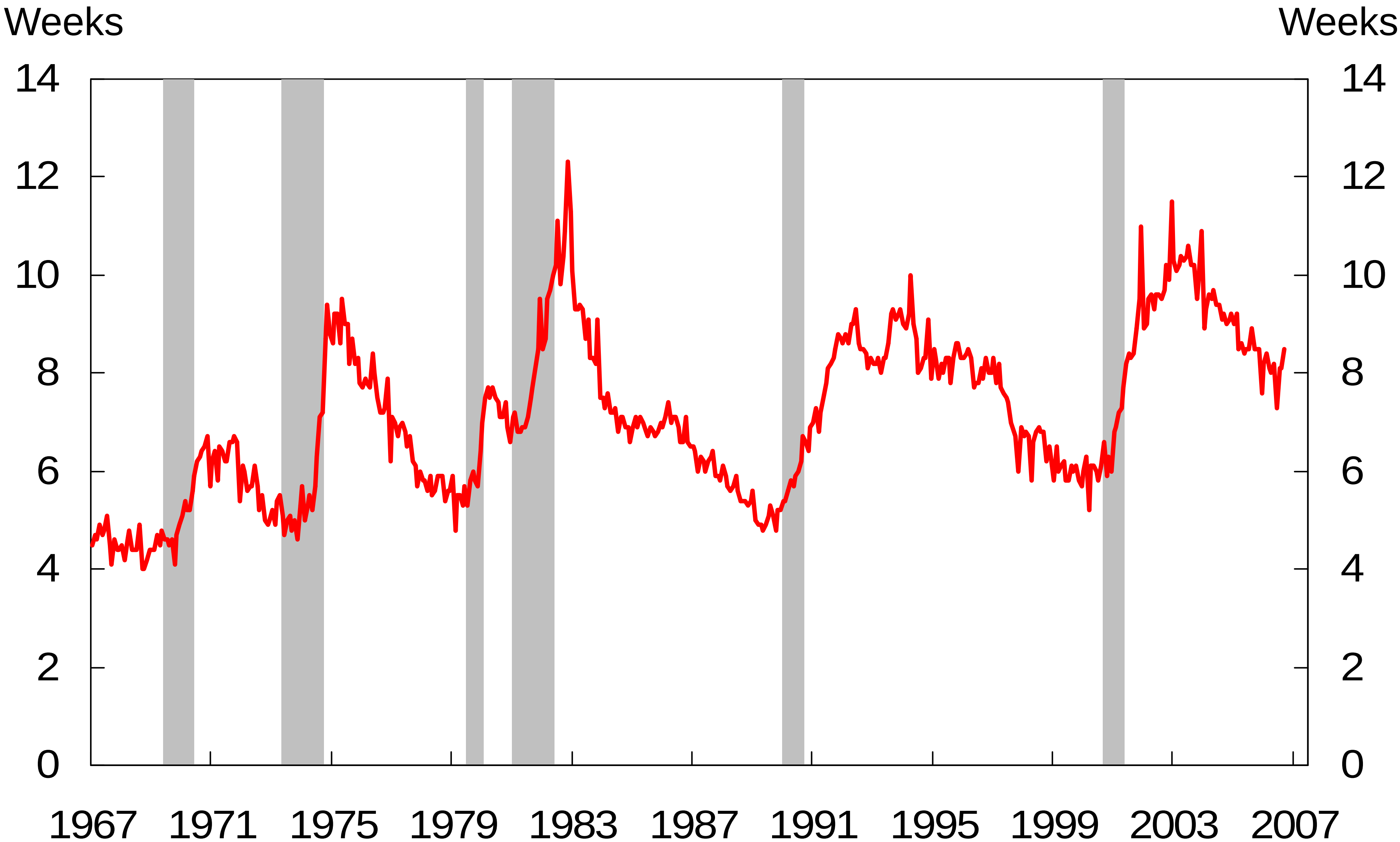
Average Weekly Hours

Three Month Moving Average



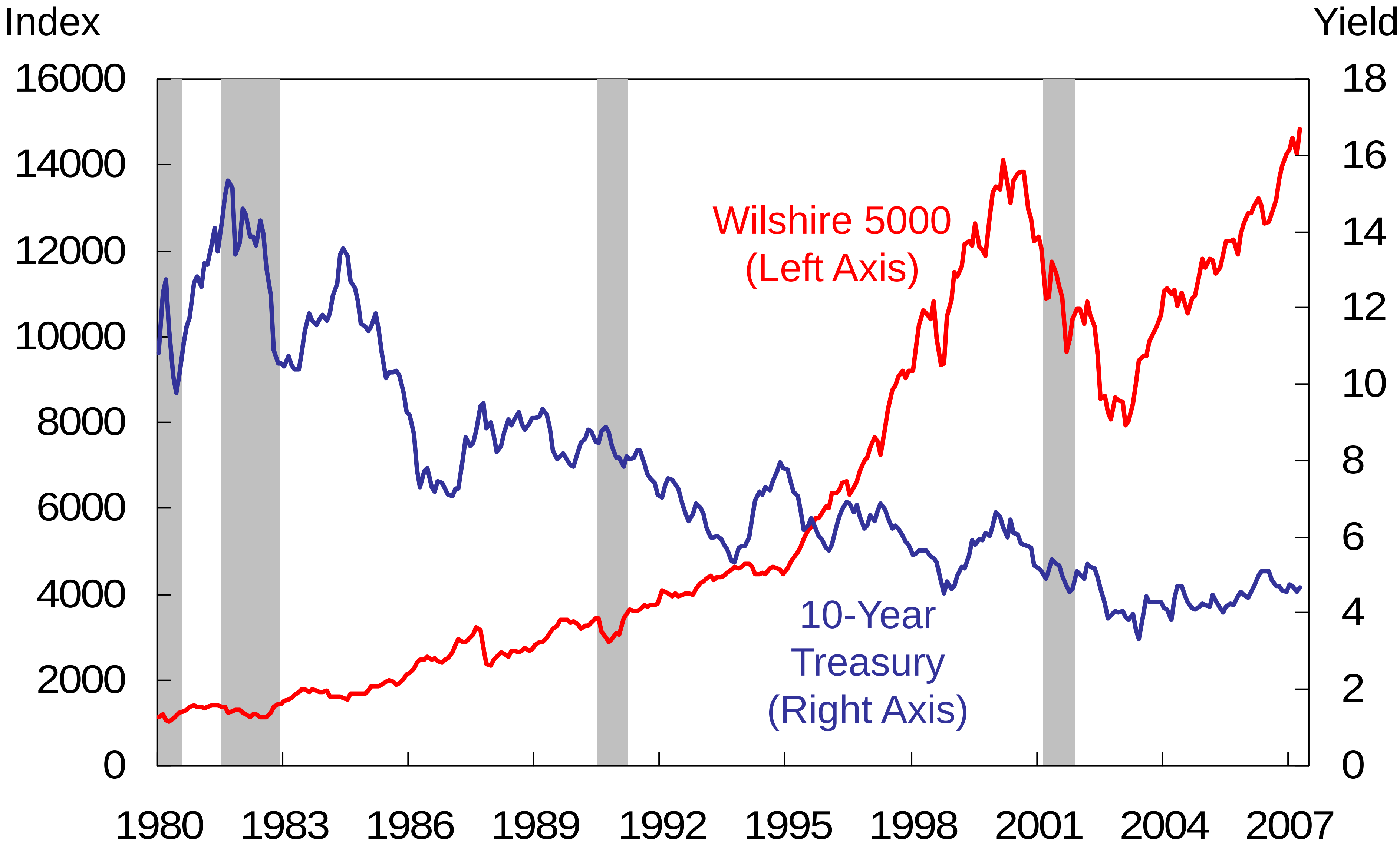
Source: Bureau of Labor Statistics

Median Duration of Unemployment



Source: Bureau of Labor Statistics

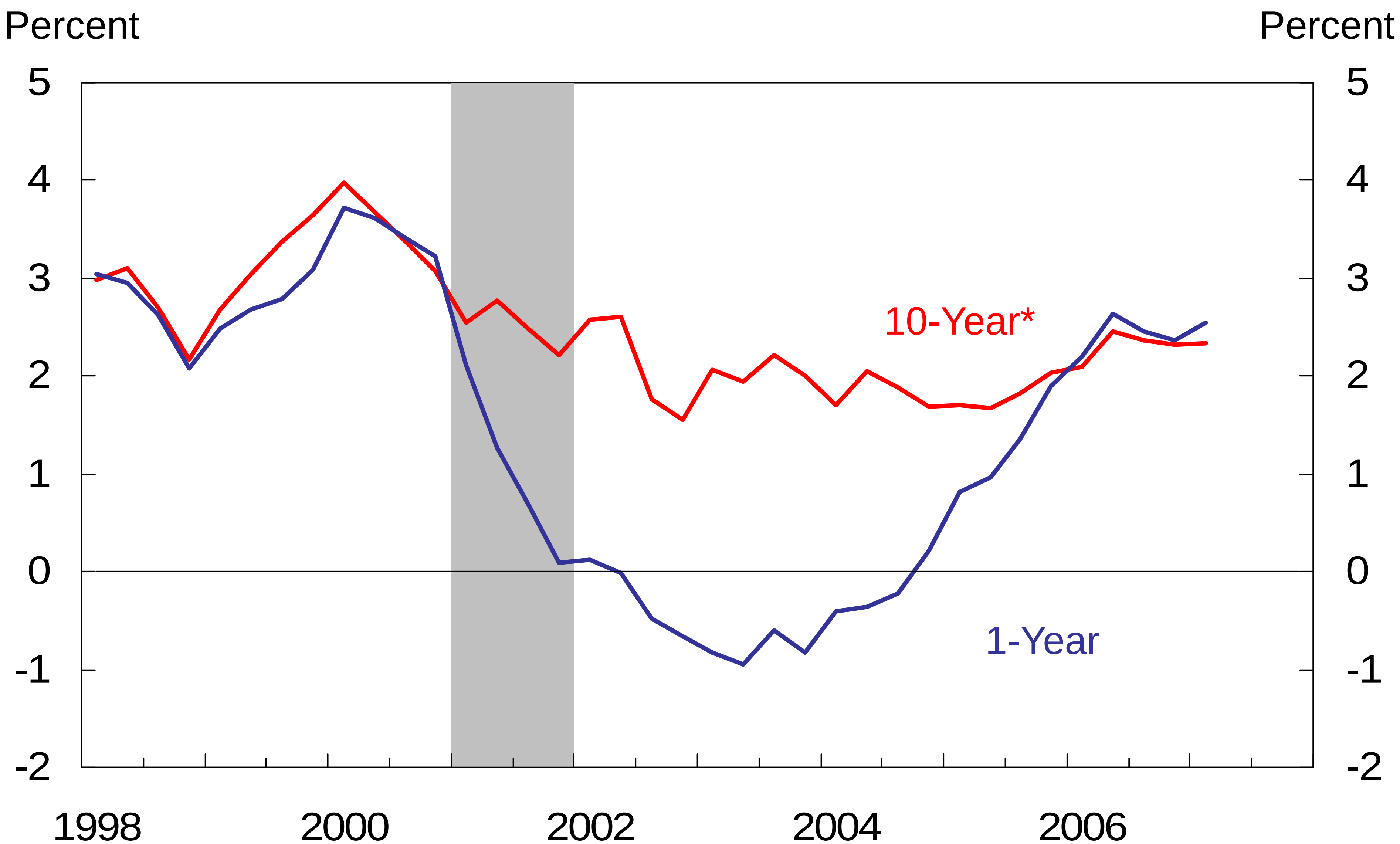
Ten-Year Treasury Bond and Wilshire 5000 Index



Source: Federal Reserve Board

Real Interest Rates

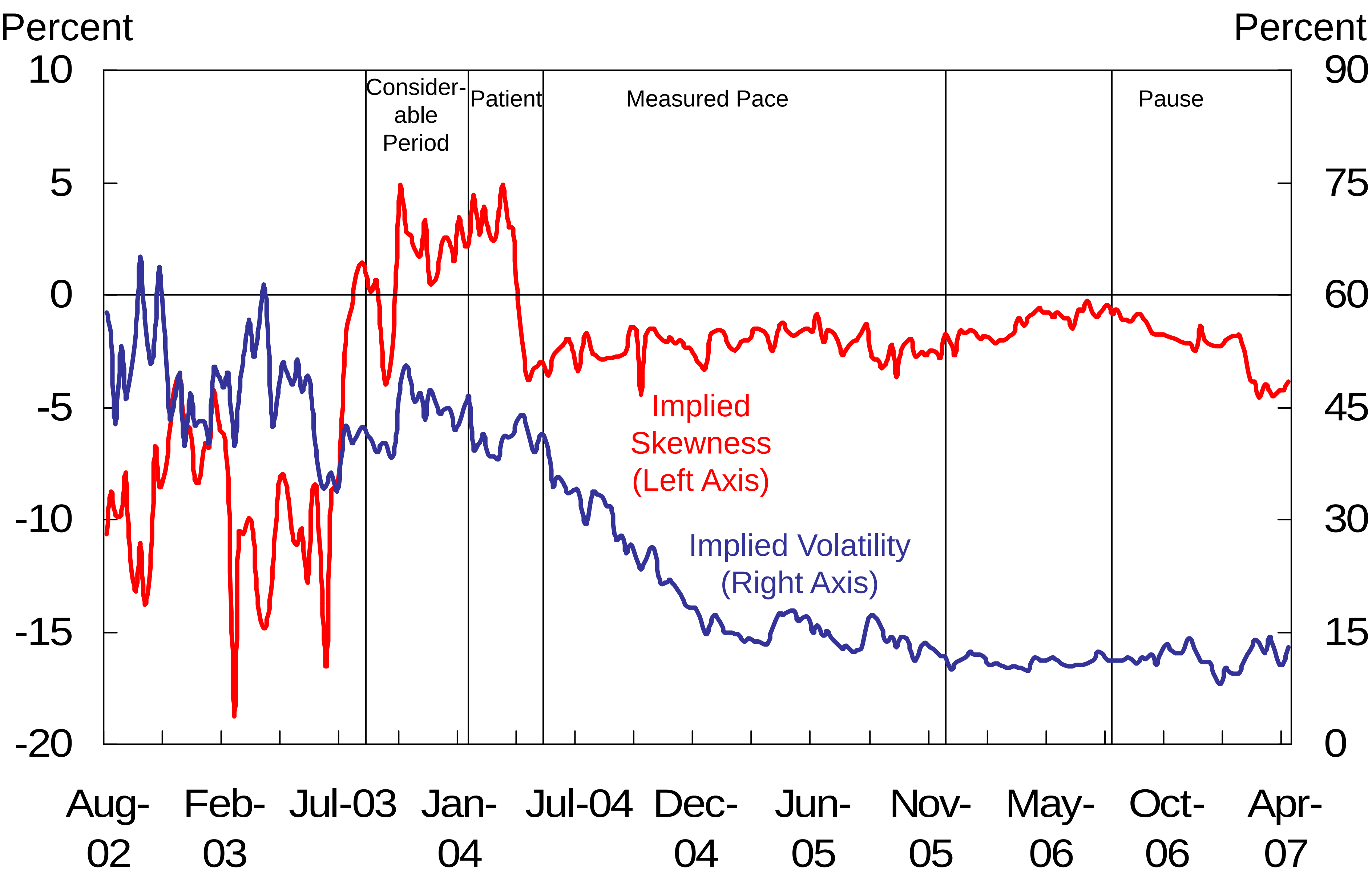
Treasury Yield minus Philadelphia Fed Survey Inflation Expectations



Source: Federal Reserve Board and Philadelphia Fed

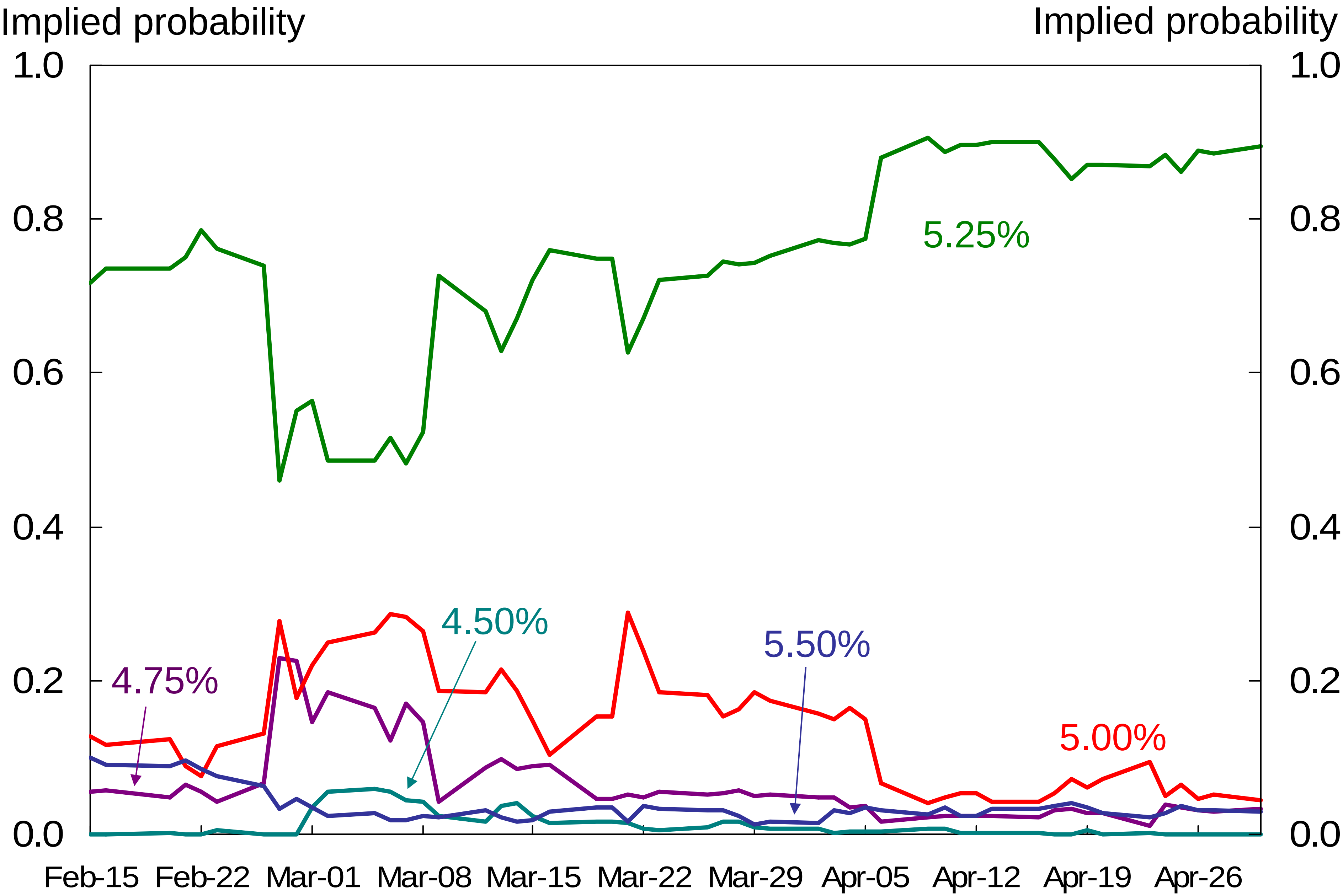
*After 2003, calculated using inflation-indexed bonds

Implied Skewness and Volatility of Fed Funds Rate

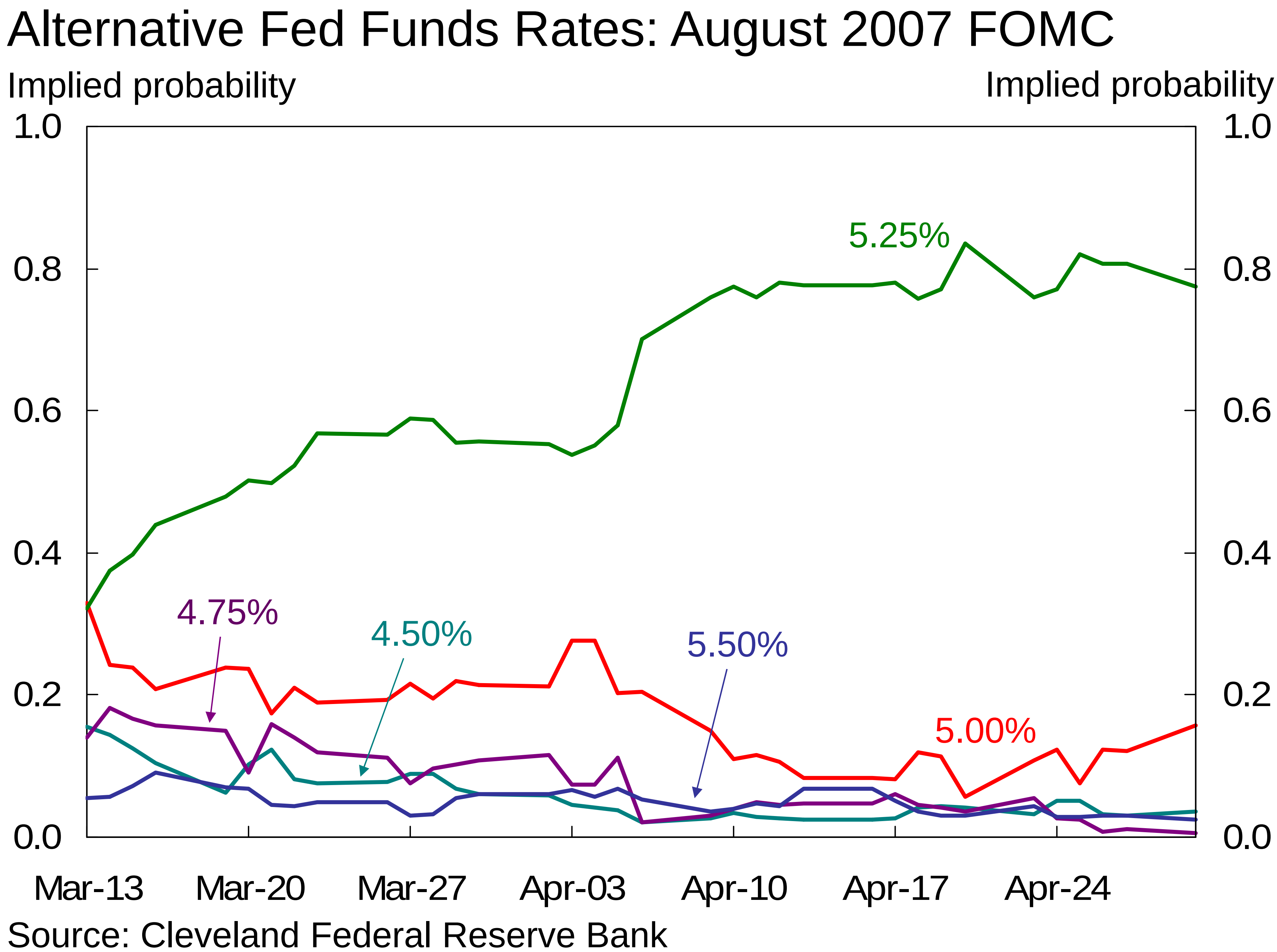


Source: CME and FRBNY Calculations

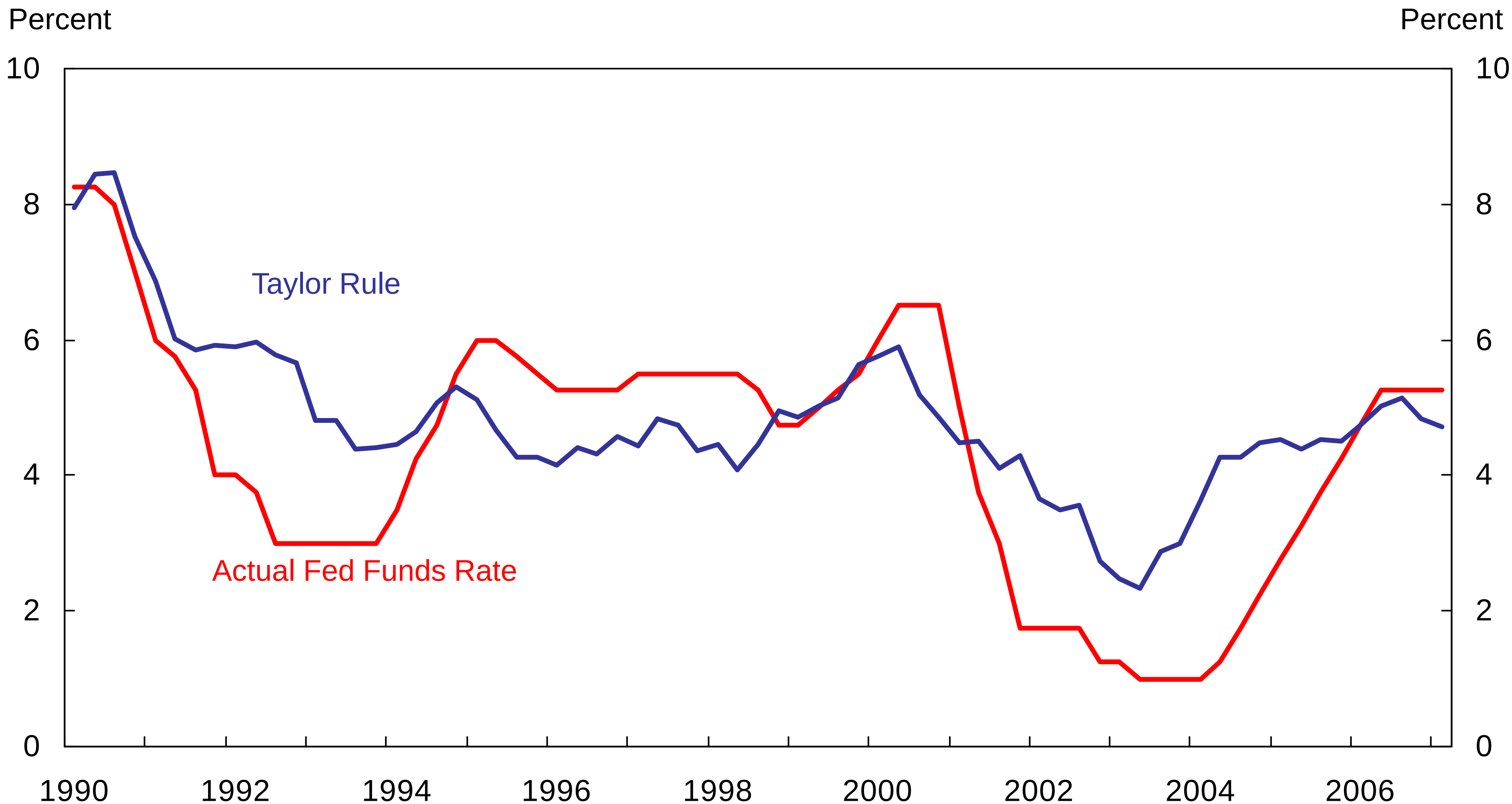
Alternative Fed Funds Rates: June 2007 FOMC



Source: Cleveland Federal Reserve Bank


Alternative Fed Funds Rates: August 2007 FOMC
Implied probability
Implied probability
1.0
0.8
0.6
0.4
0.2
0.0
5.25%
4.75%
4.50%
5.50%
5.00%
Mar-13
Mar-20
Mar-27
Apr-03
Apr-10
Apr-17
Apr-24
Source: Cleveland Federal Reserve Bank

By conventional Taylor rule, policy is somewhat tight

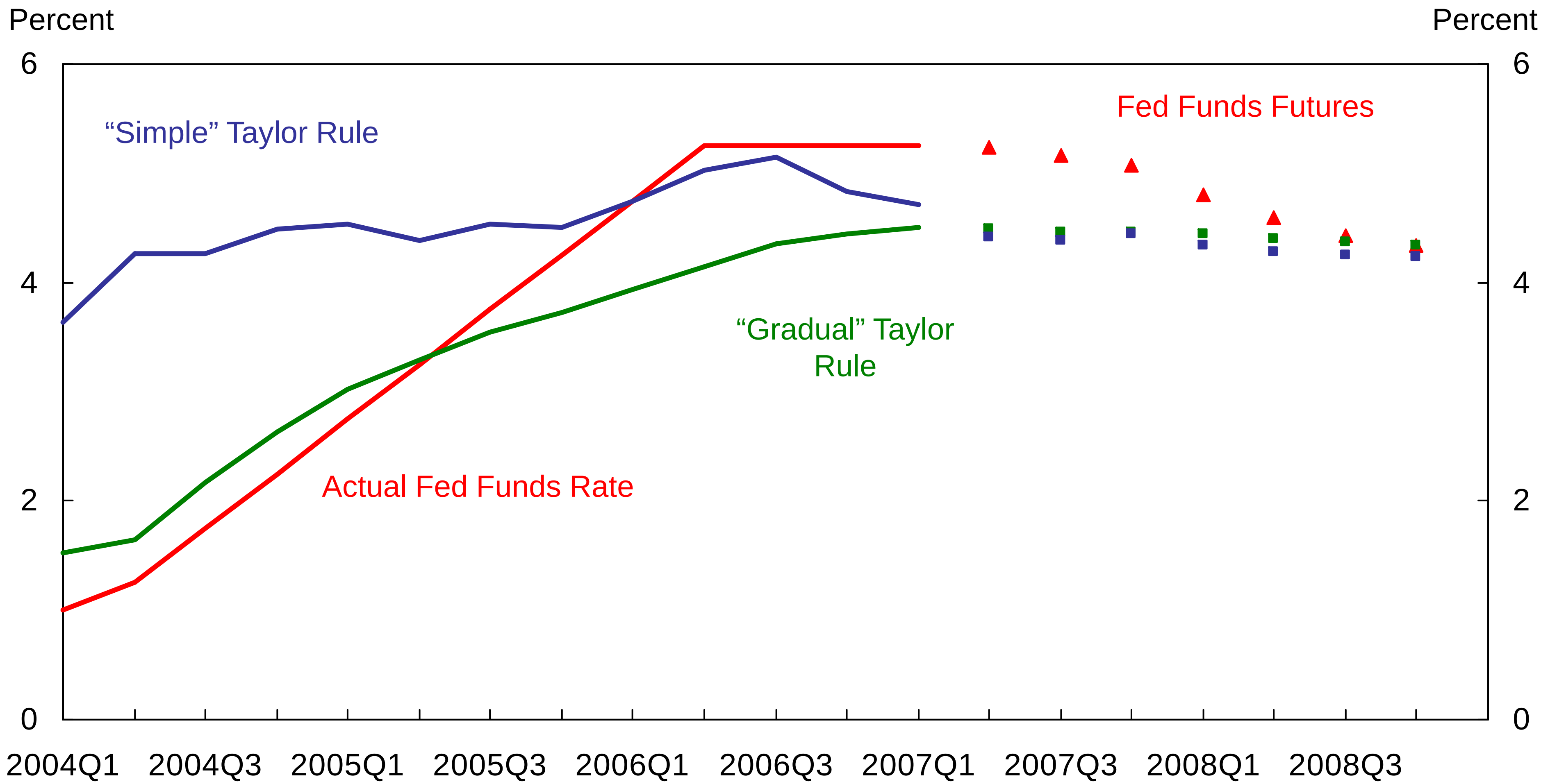


“Simple” Taylor Rule: $i_t^*=[4.0+1.5(\Pi_t - 1.5)+.5(y_t - y_t^*)]$

4.0% is the assumed steady state nominal interest rate, Π_t is the yr/yr Core PCE deflator, 1.5% is the assumed target inflation rate, y_t is the log of real GDP and y_t^* is the log of the Congressional Budget Office’s estimate of potential GDP.

Source: FRBNY and Author’s Calculations. Future Taylor Rule calculations are based on FRBNY forecasts for output and inflation.

Tightening phase was not so "gradual"



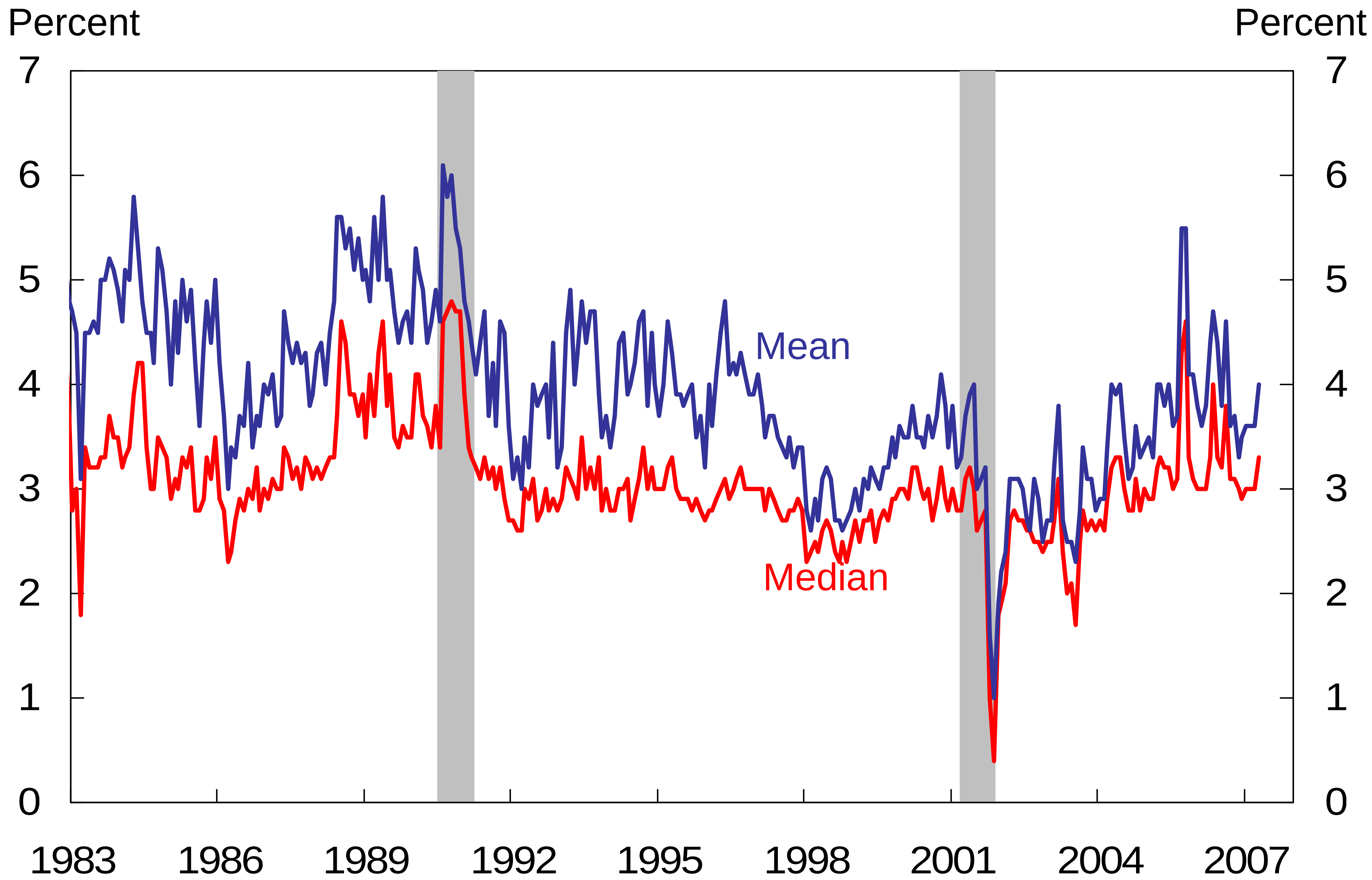
"Simple" Taylor Rule: $i_t^*=[4.0+1.5(\Pi_t - 1.5)+.5(y_t - y_t^*)]$ "Gradual" Taylor Rule: $i_t=.8i_{t-1}+.2\, i_t^*$

4.0% is the assumed steady state nominal interest rate, Π_t is the yr/yr Core PCE deflator, 1.5% is the assumed target inflation rate, y_t is the log of real GDP and y_t^* is the log of the Congressional Budget Office's estimate of potential GDP.

Future Taylor Rule calculations are based on FRBNY forecasts for output gap and inflation (indicated by dotted line). Gradual Taylor Rule uses lagged Fed Funds target through 2004Q2 and its own lagged value from then on.

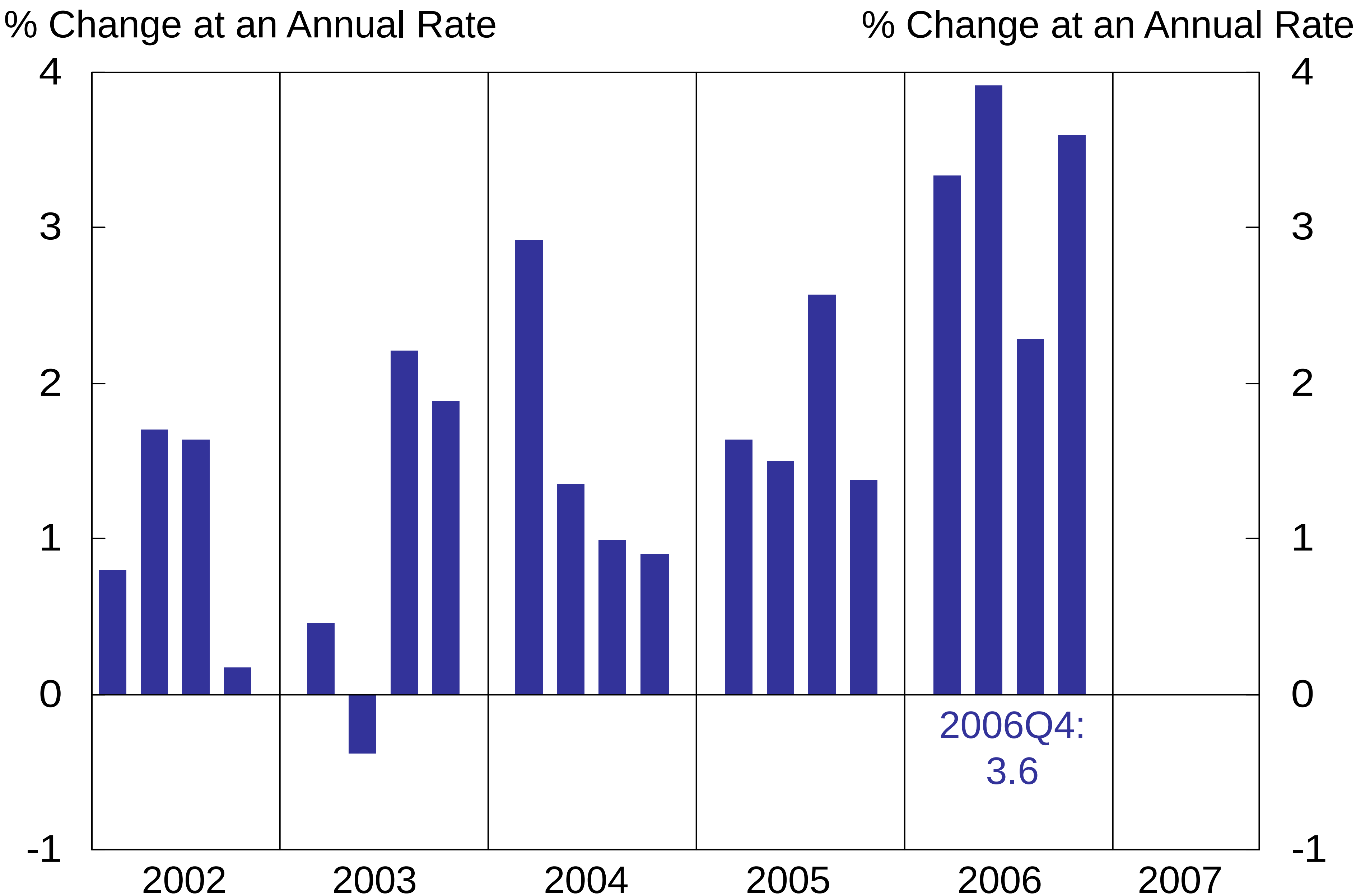
Source: FRBNY, Author's Calculations, and Federal Reserve Board.

Michigan Survey Inflation Expectations: One Year Ahead



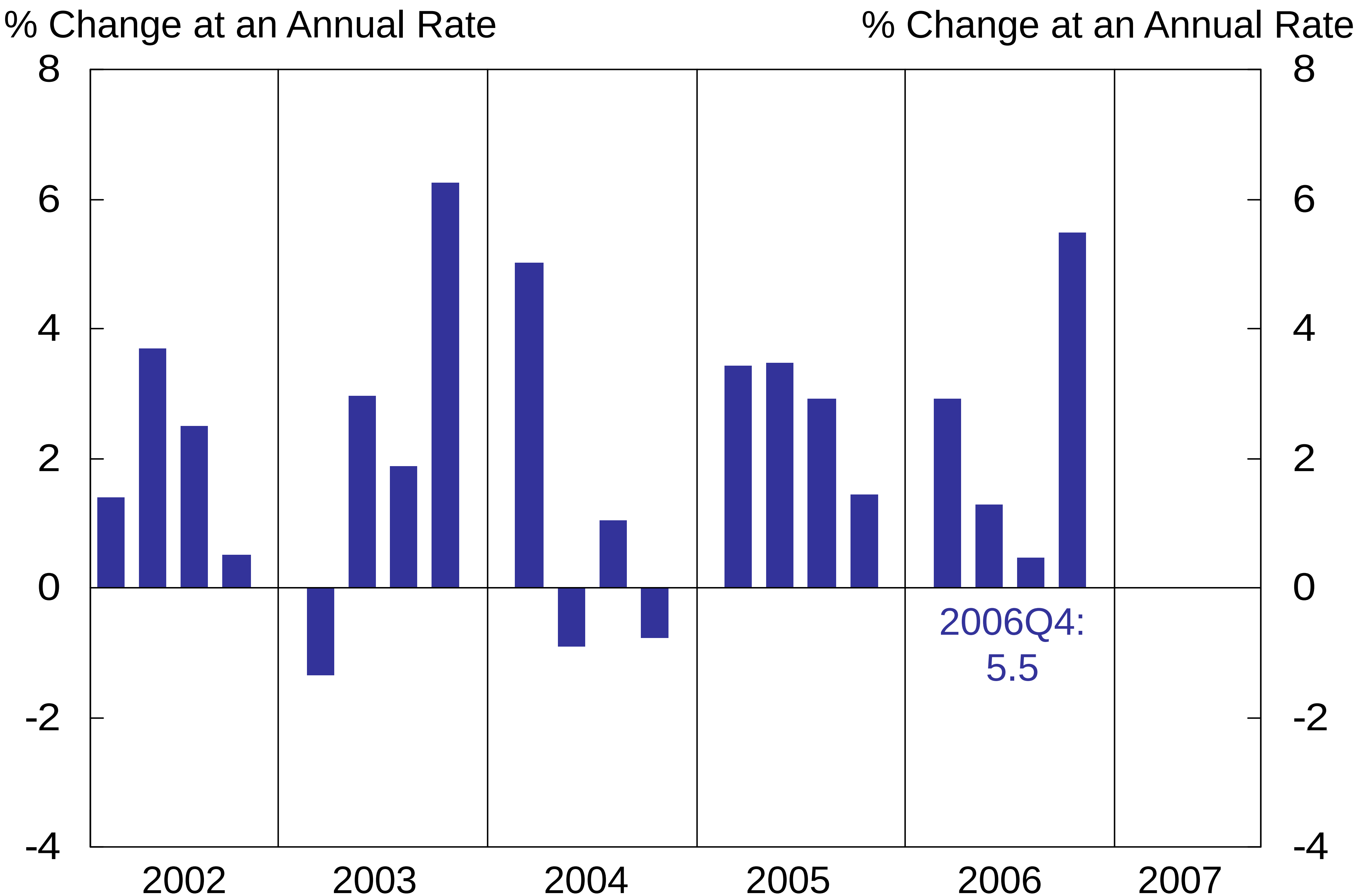
Source: University of Michigan

Euro Area Real GDP Growth



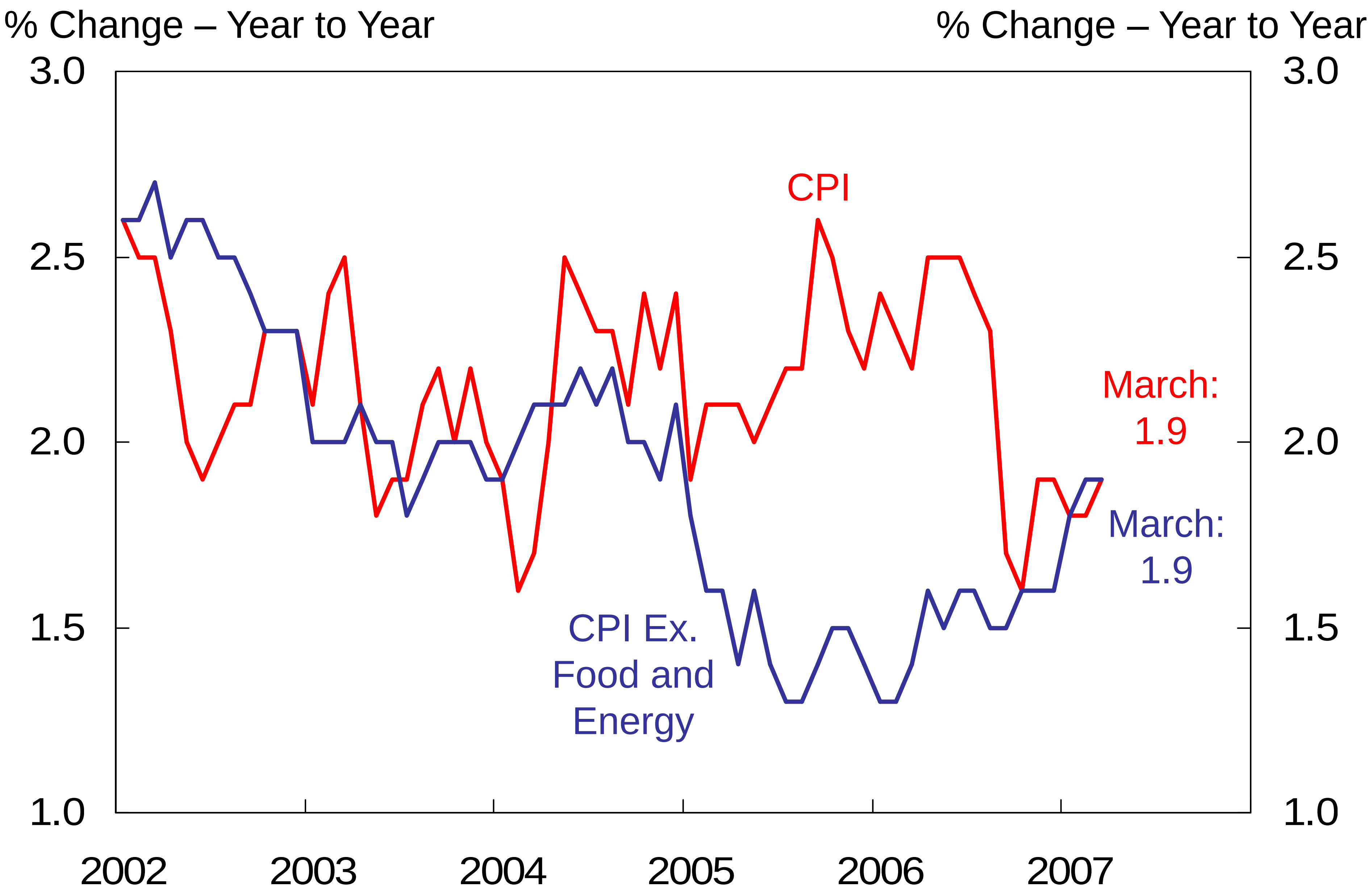
Source: Eurostat

Japan Real GDP Growth



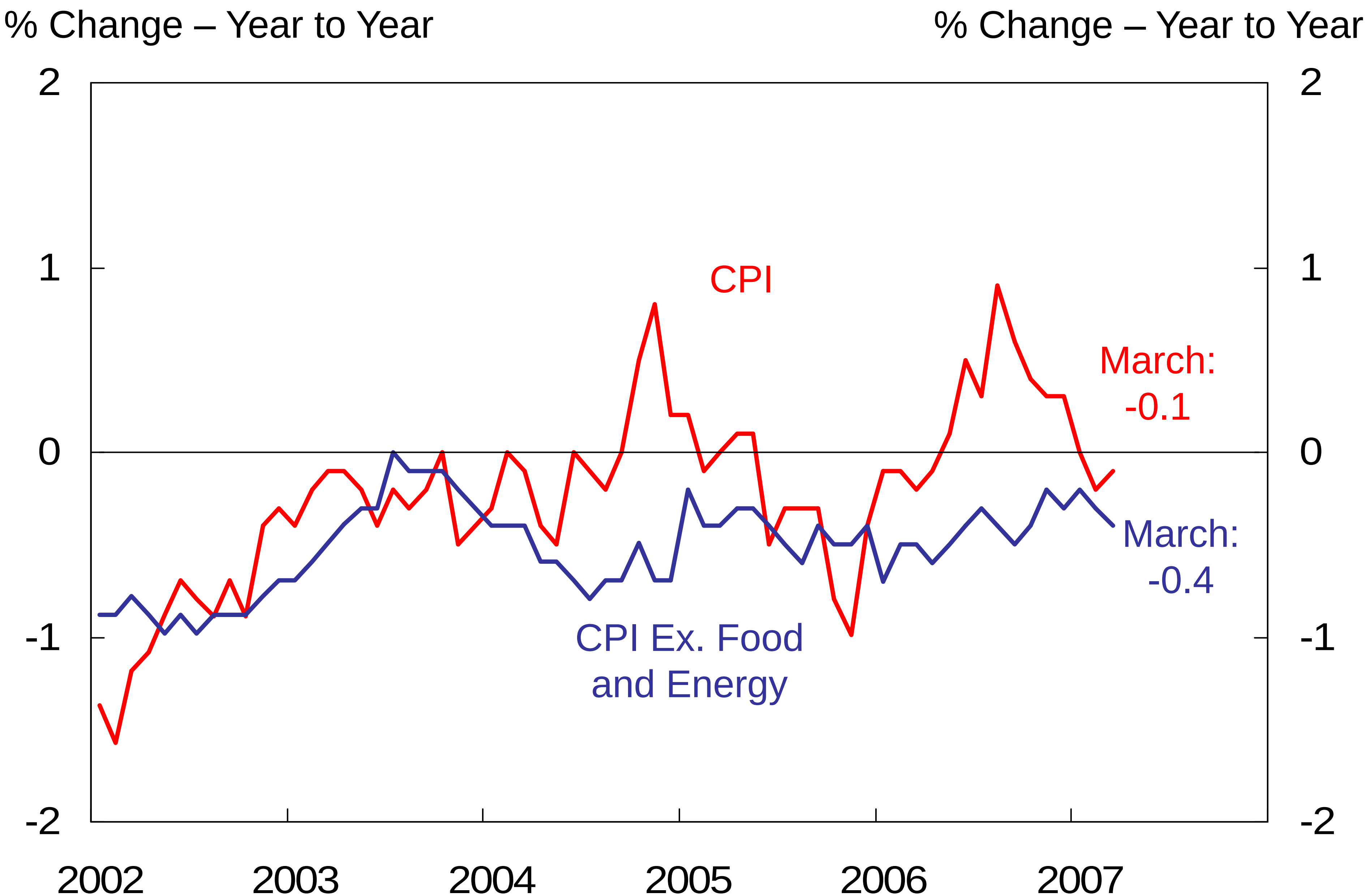
Source: BIS

Euro Area Inflation



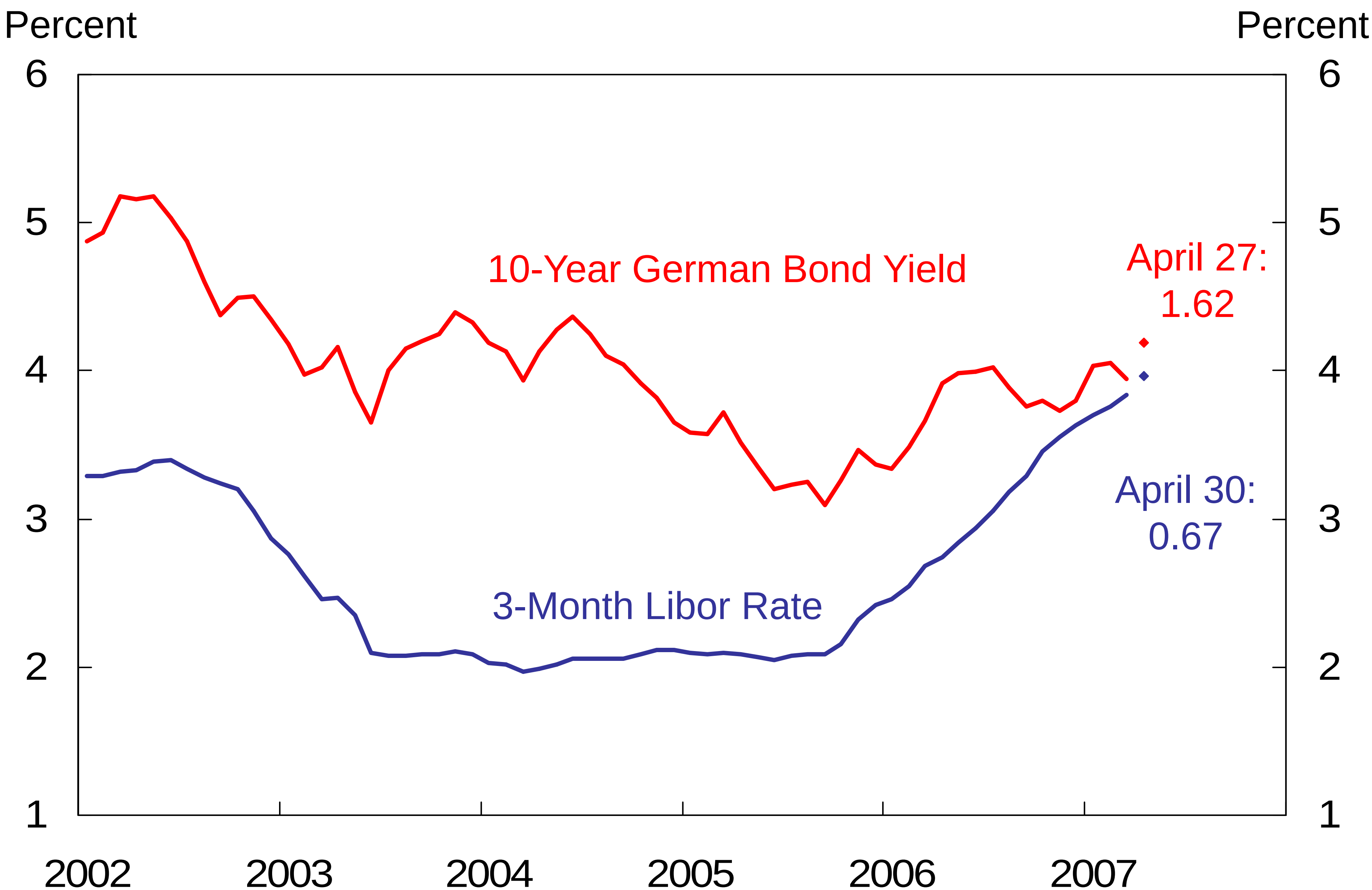
Source: BIS and Federal Reserve Board

Japan Inflation



Source: BIS and Federal Reserve Board

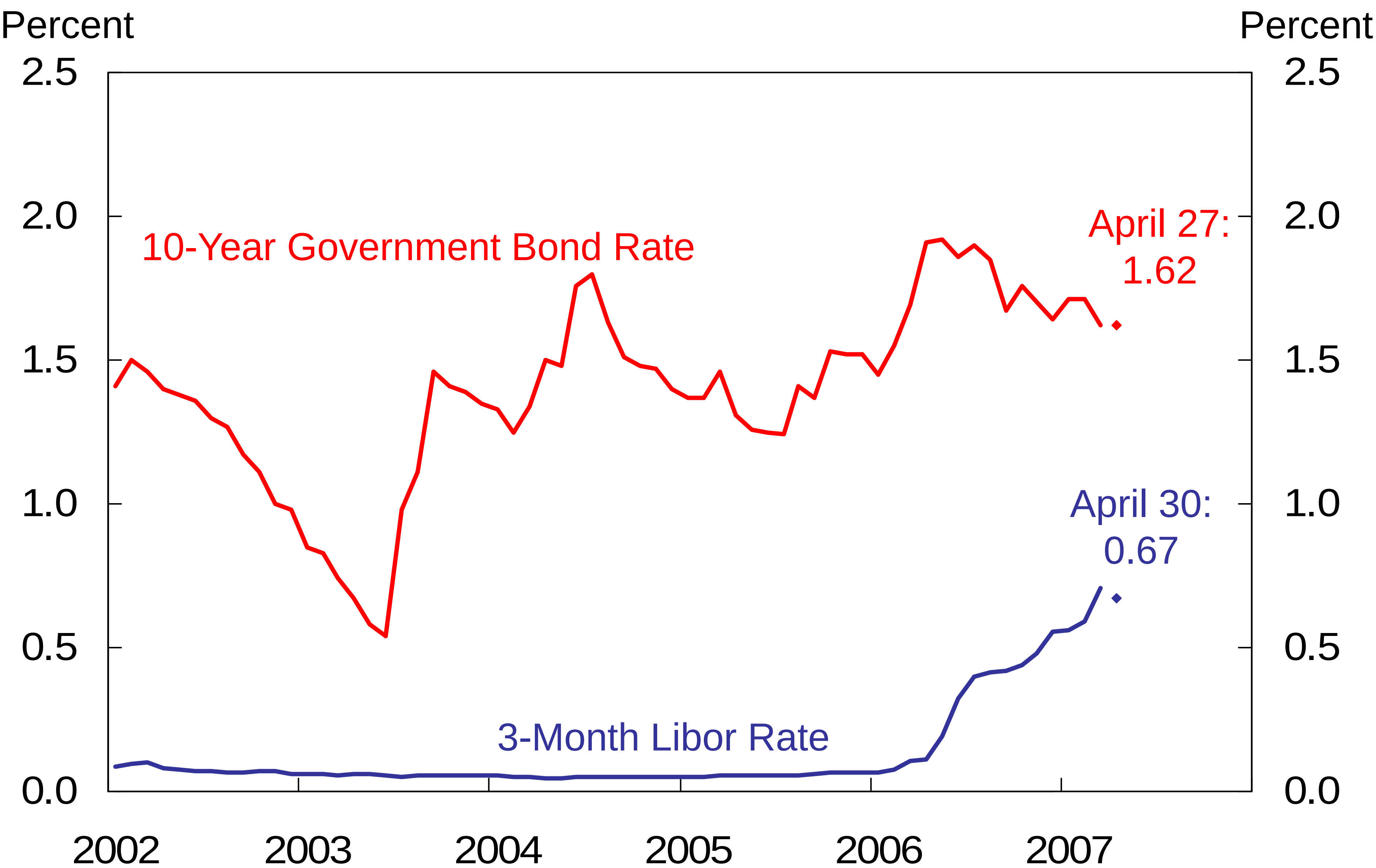
Euro Area Short-Term and Long-Term Interest Rates



Source: BIS and Federal Reserve Board

Note: Data are monthly averages.

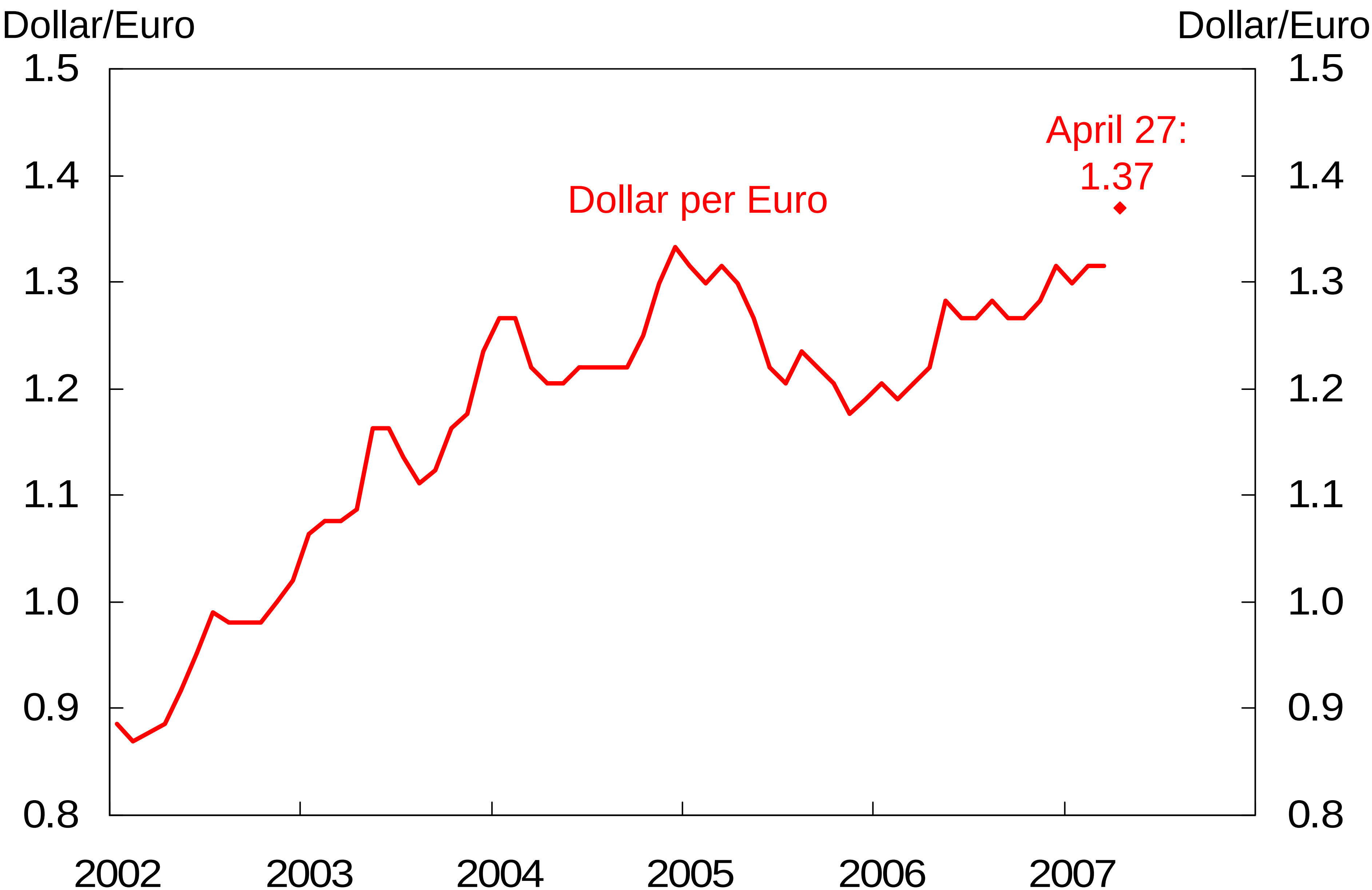
Japan Short-Term and Long-Term Interest Rates



Source: Bloomberg and Federal Reserve Board

Note: Data are monthly averages.

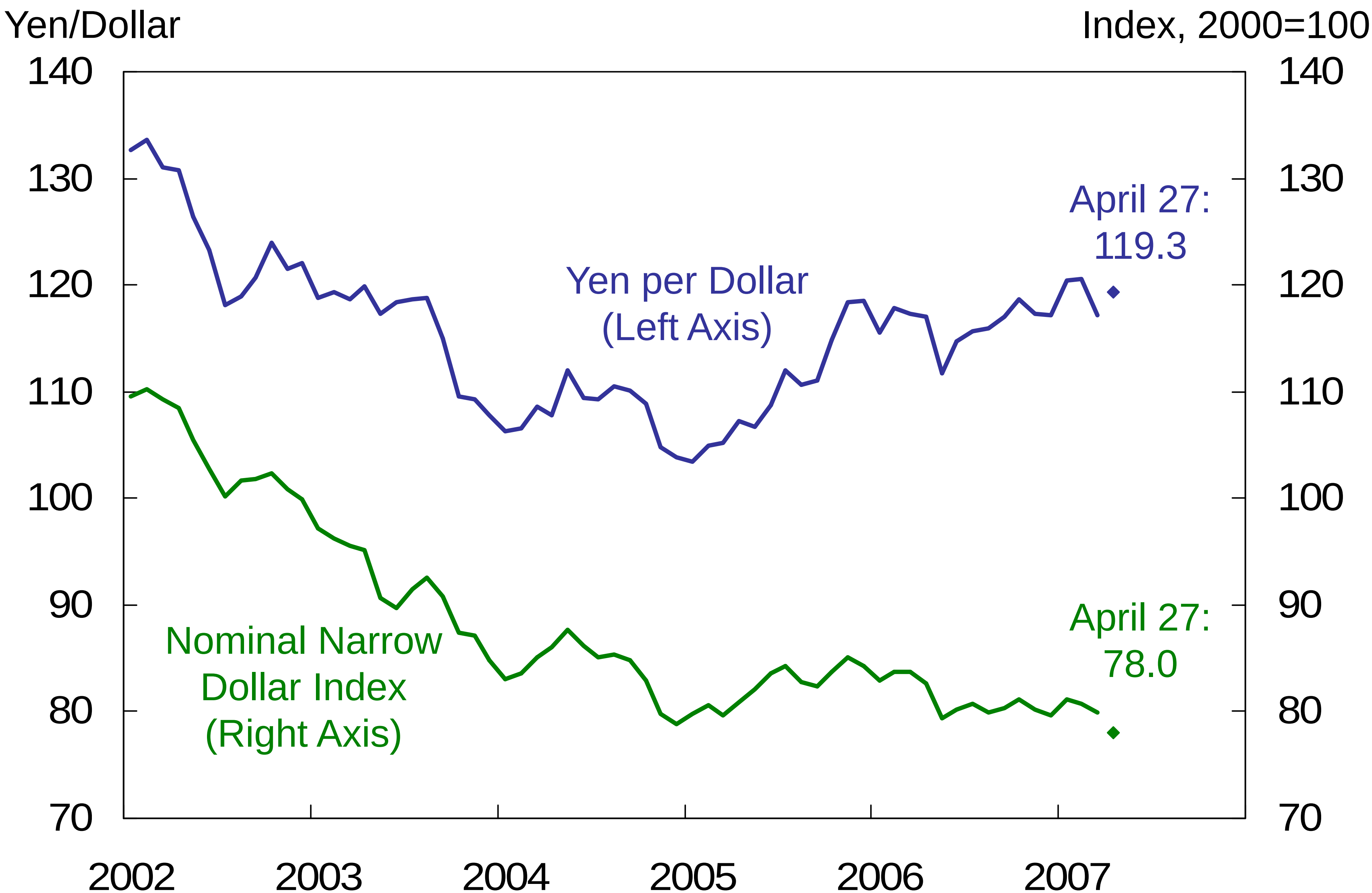
Euro-Dollar Exchange Rates



Source: BIS

Note: Data are monthly averages.

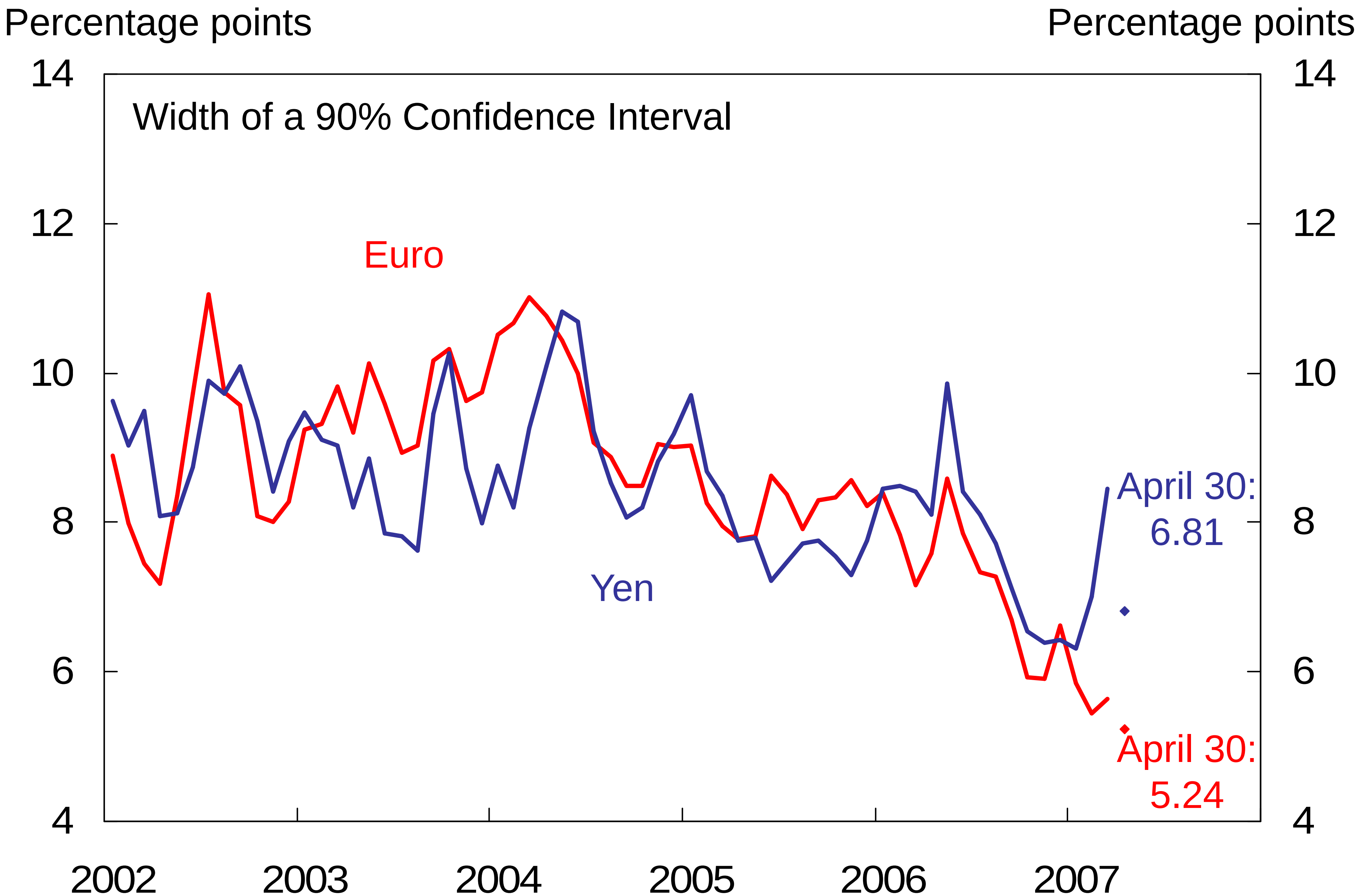
Yen-Dollar Exchange Rate and Narrow Dollar Index



Source: BIS and Federal Reserve Board

Note: Data are monthly averages.

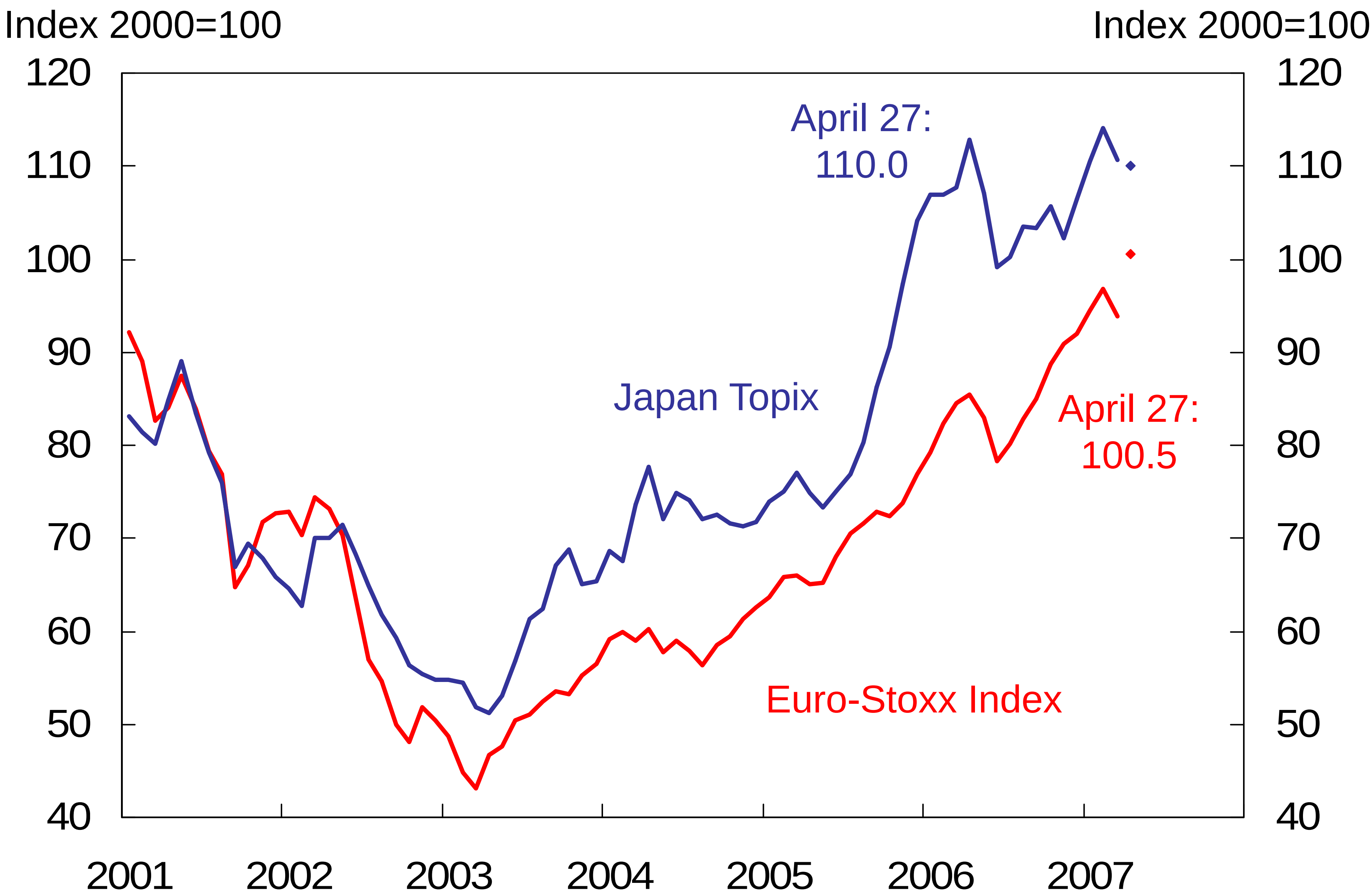
Euro and Yen One-Month Implied FX Option Volatility



Source: Reuters

Note: Data are monthly averages.

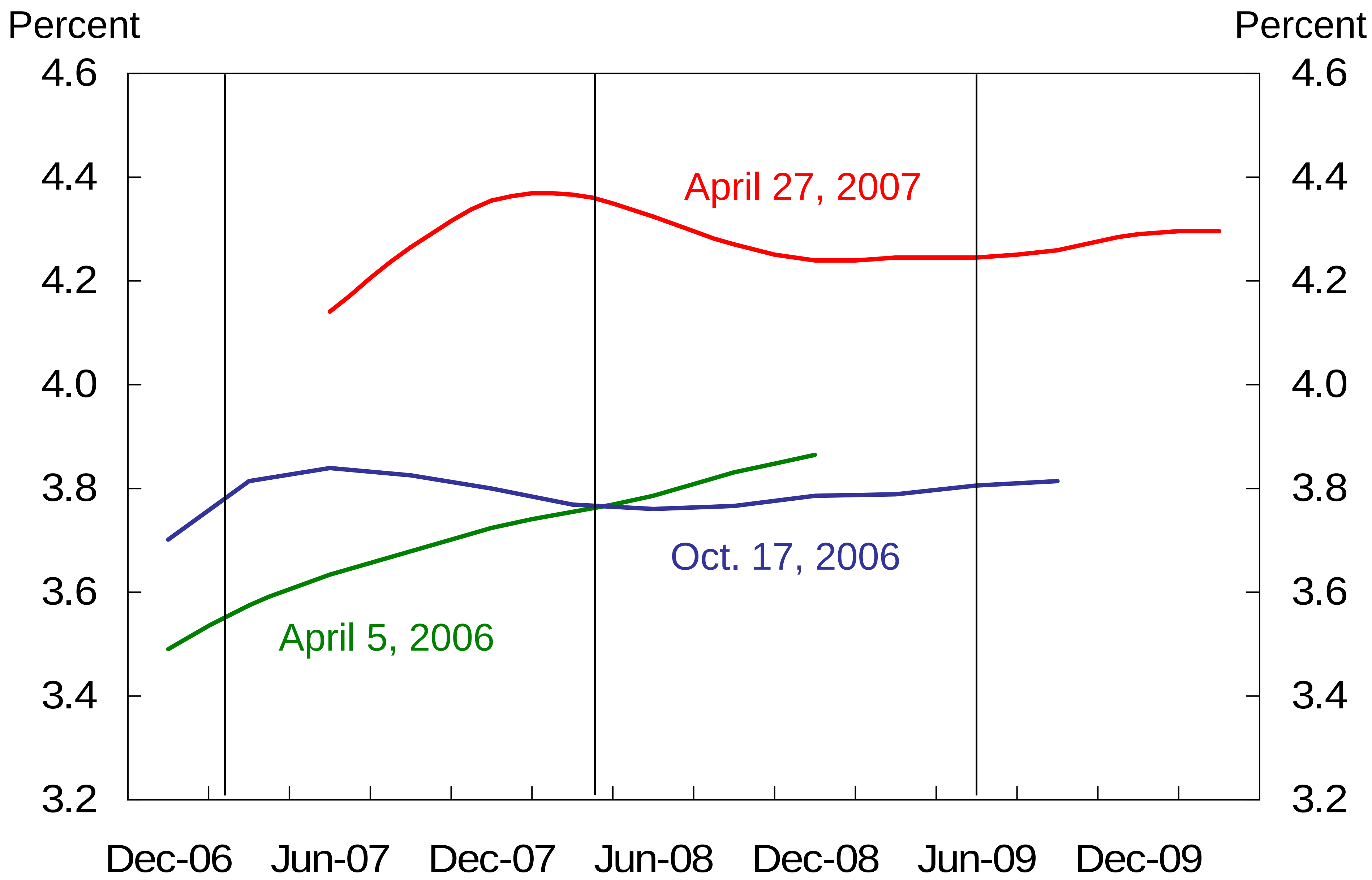
Euro Area and Japan Equity Indices



Source: BIS and Bloomberg

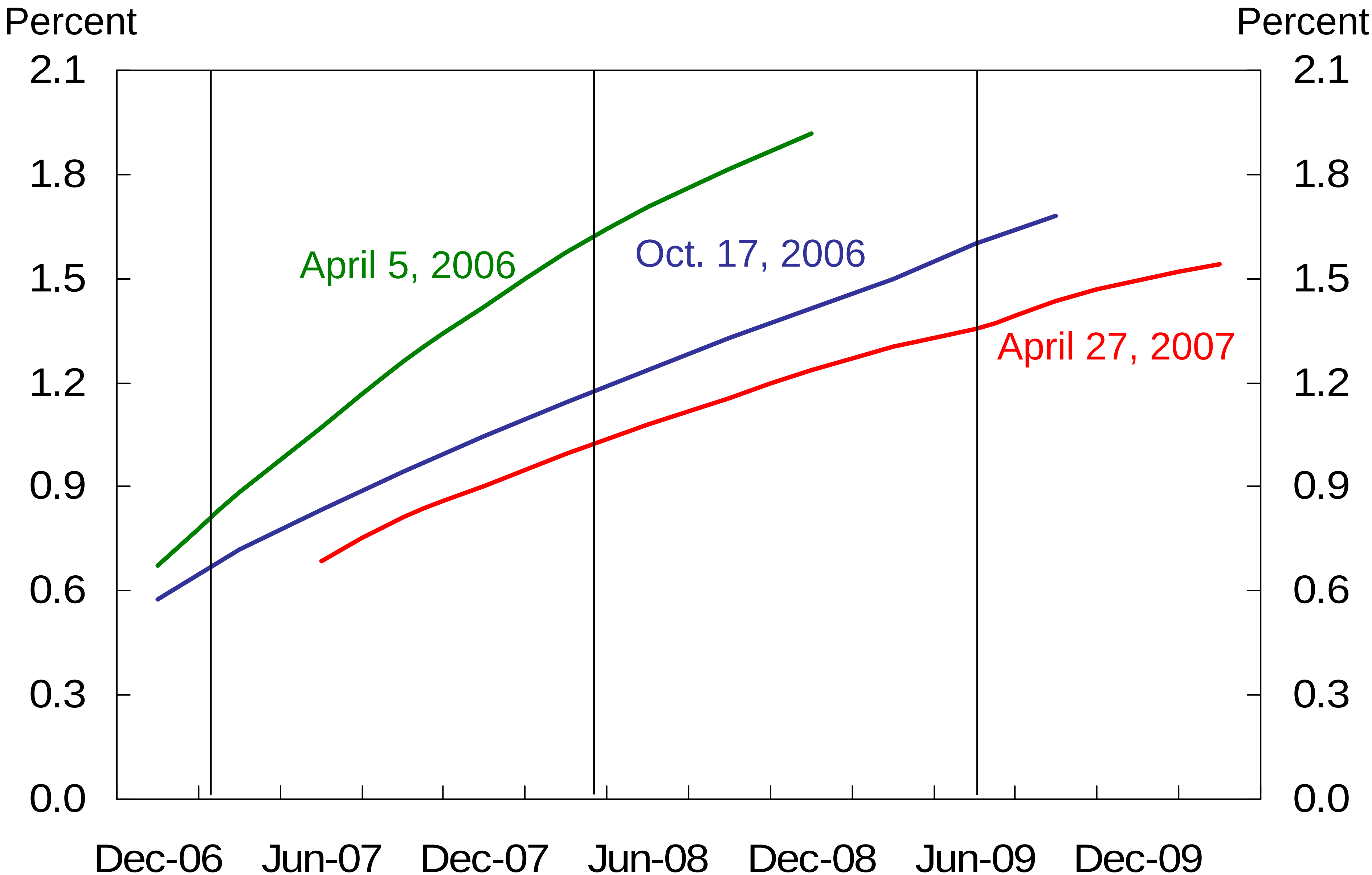
Note: Data are monthly averages.

Three-Month Eurocurrency Futures Rates: Euro



Source: Datastream

Three-Month Eurocurrency Futures Rates: Yen



Source: Datastream

Overview

- Inflation outlook shows slight improvement
  - Year-over-year core inflation remains elevated
  - Recent core numbers suggest moderation
- Real activity has decelerated since the first half of 2006
  - Employment and hours growth have slowed
  - Large housing ‘correction’
- We expect GDP growth to recover in ’07, with continued moderation in inflation