Economic Advisory Panel Meeting
May 14, 2010

Agenda:

**Overview of Forecast and Risks
(Dick Peach and Simon Potter)**

**Financial Stability: Monitoring and Policy
(Tobias Adrian)**

Go-round on Monetary Policy

Forecast Overview

Dick Peach

Key Features of FRBNY Modal Forecast

- Muted recovery of consumer spending
  - Shock to household net worth and restricted access to credit lead to gradual upward trend of the personal saving rate

- Muted recovery of residential investment
  - Substantial excess supply of housing; tightened underwriting standards

- Fiscal contraction in the state and local government sector

- Delayed recovery of business fixed investment

- Waning fiscal and monetary stimulus

- Stubbornly high unemployment rate
  - Rising participation rate and average weekly hours

- Persistent slack puts downward pressure on trend inflation

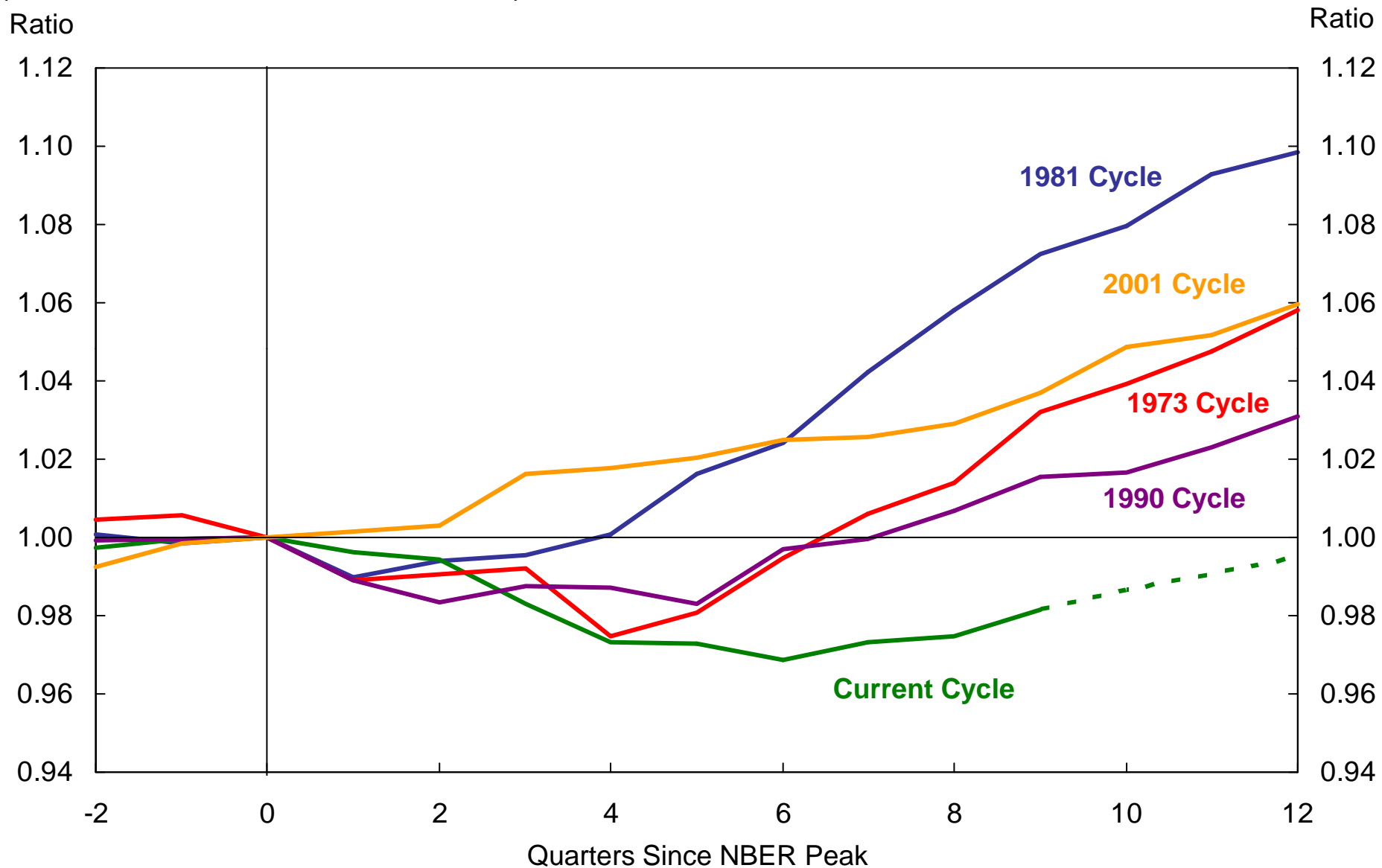- More robust cyclical recovery begins in 2011 as headwinds subside

FRBNY Outlook

Q4/Q4 growth rate	2010H1 (AR)	2010H2 (AR)	2009	2010	2011
GDP	3.1 (1.4)	3.0 (2.7)	0.1 (-0.1)	3.0 (2.0)	4.3 (4.0)
Total PCE Inflation	1.3 (1.3)	1.2 (1.5)	1.2 (1.0)	1.2 (1.4)	1.4 (1.7)
Core PCE Inflation	0.8 (1.0)	1.1 (1.2)	1.5 (1.4)	0.9 (1.1)	1.4 (1.5)
Unemployment (End of Period Level)	10.0 (10.3)	10.1 (10.2)	10.0 (10.0)	10.1 (10.2)	8.4 (8.6)
Personal Saving Rate (End of Period Level)	3.1 (3.8)	3.3 (4.2)	3.9 (3.7)	3.3 (4.2)	4.8 (5.4)
Productivity	2.4 (2.3)	1.4 (1.4)	5.6 (4.3)	1.9 (1.8)	1.8 (1.3)

Real PCE per capita
(Series Set to 1.0 at NBER Peak)

Ratio

Ratio

1981 Cycle

2001 Cycle

1973 Cycle

1990 Cycle

Current Cycle
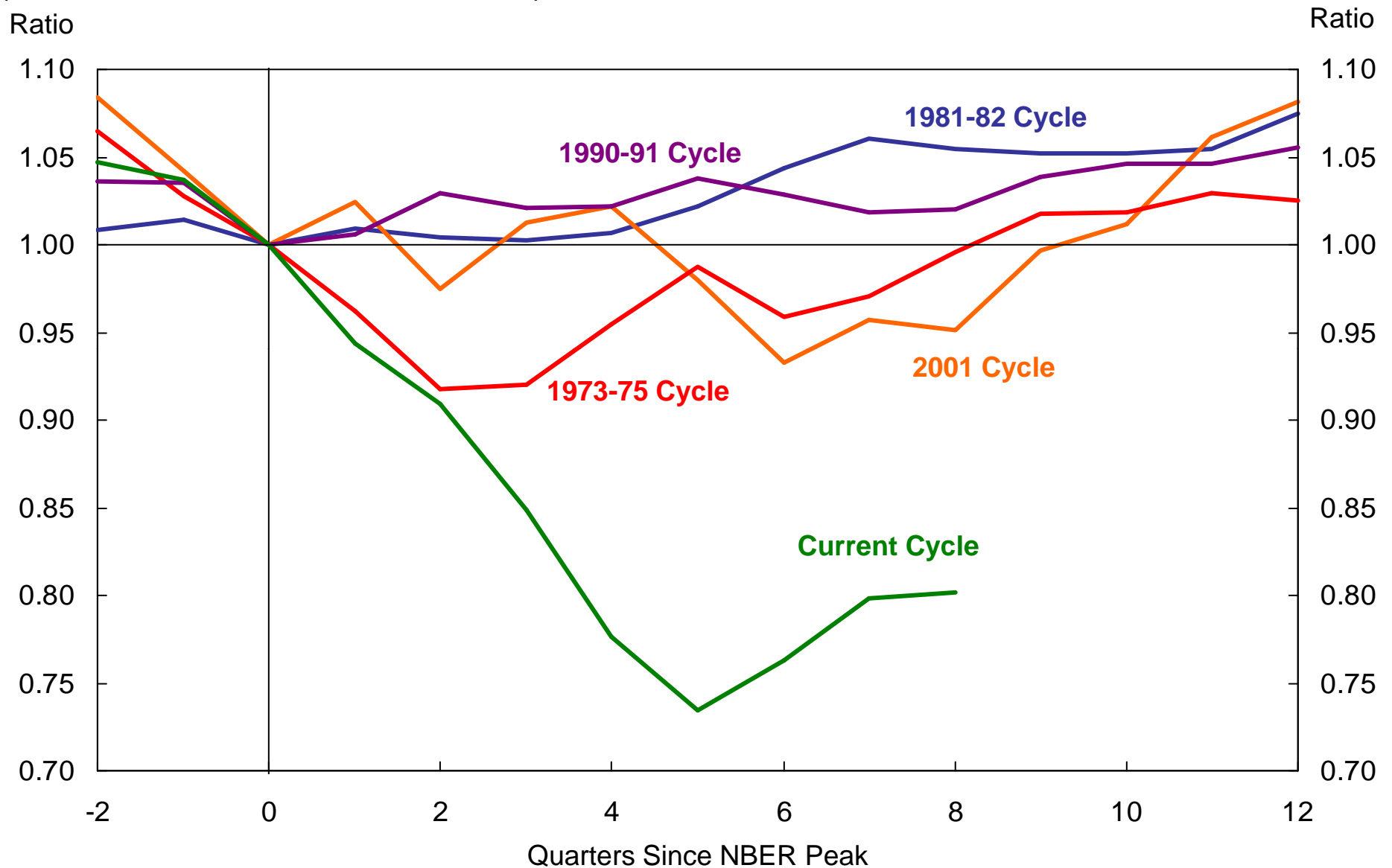
Quarters Since NBER Peak

Source: Bureau of Labor Statistics

Note: Dashed line represents FRBNY forecast.
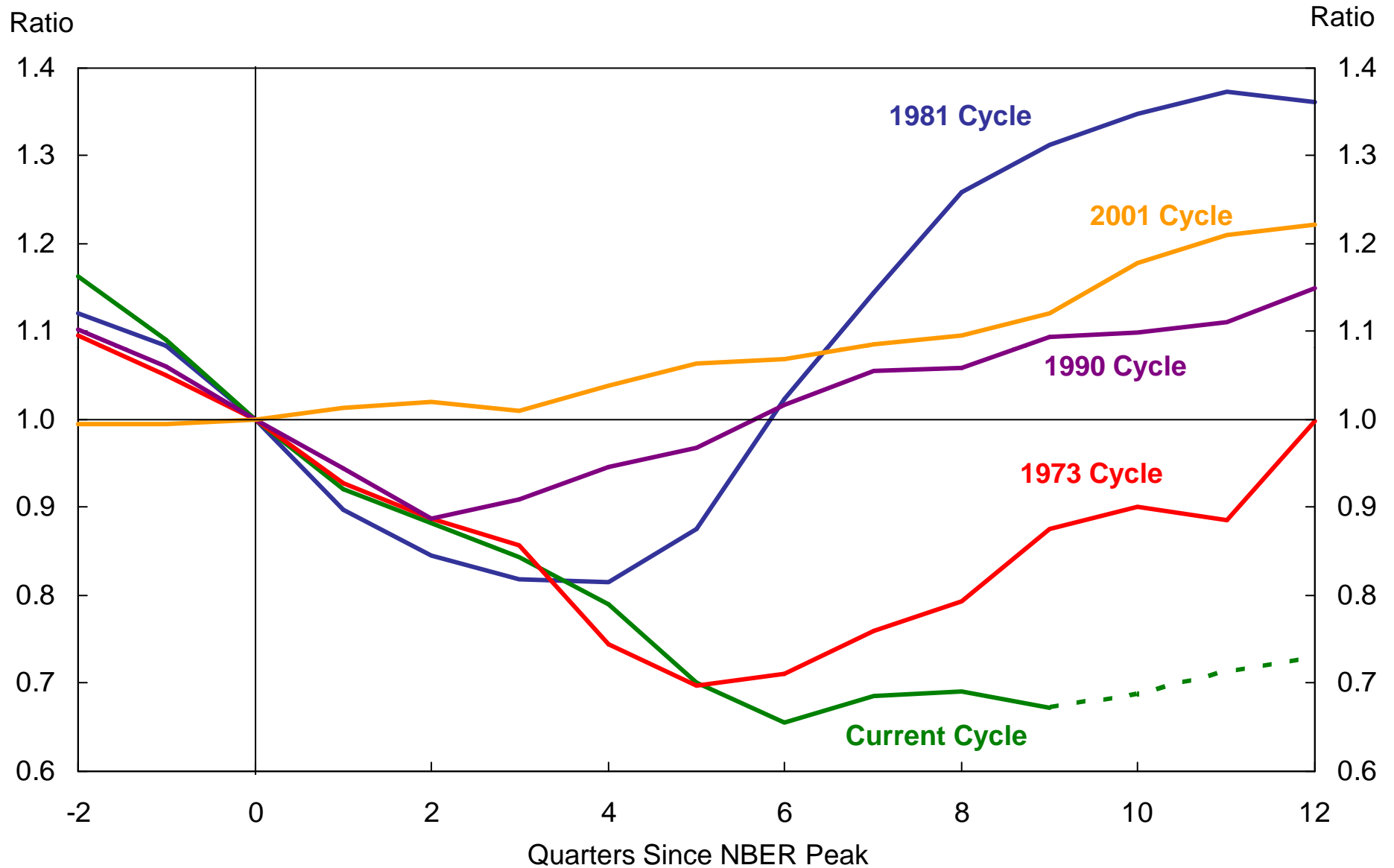
Real Per Capita Household Net Worth

(Series Set to 1.00 at NBER Peak)

Source: Federal Reserve Board, Bureau of Economic Analysis, Census Bureau
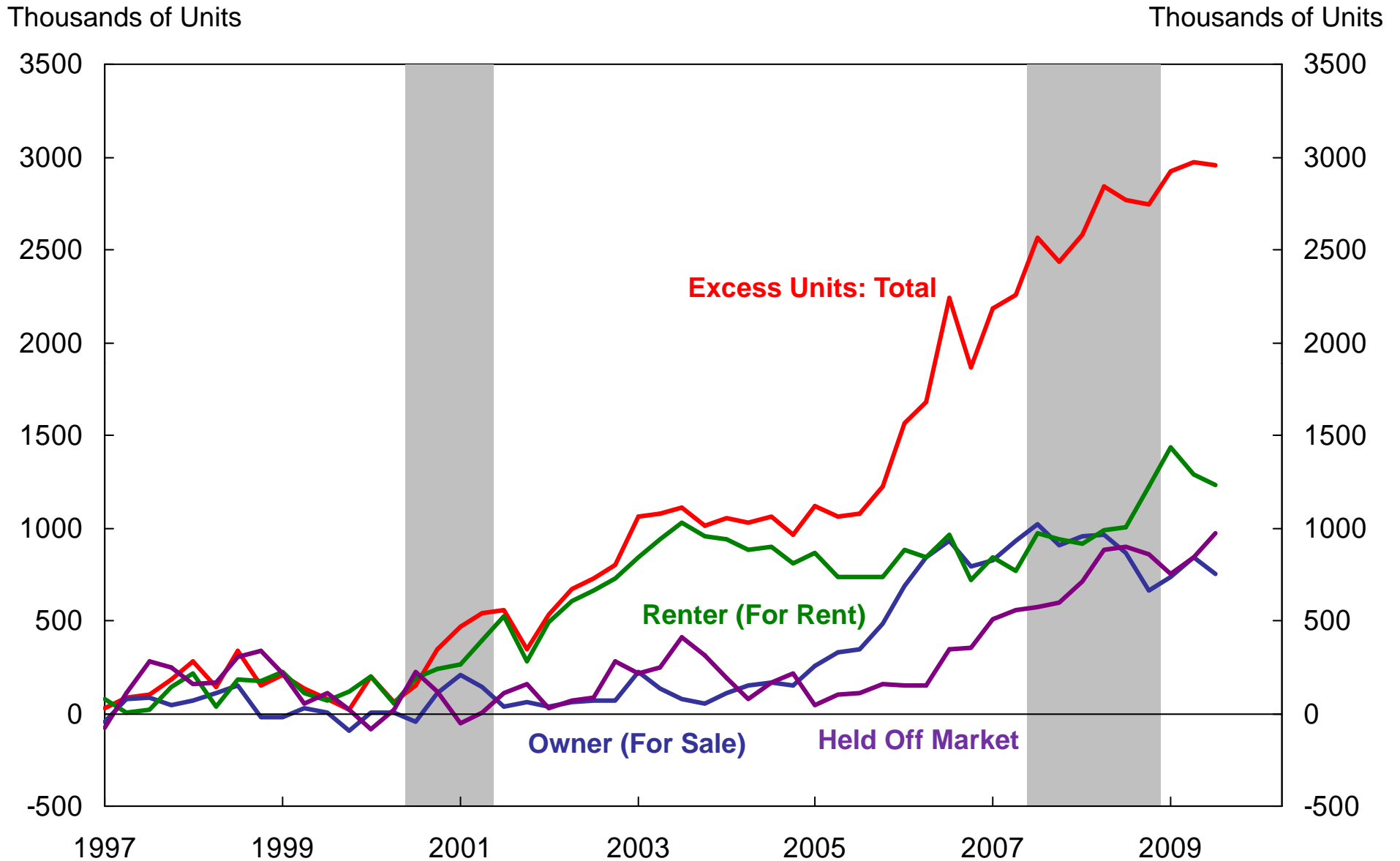
Real Residential Investment
(Series Set to 1.0 at NBER Peak)

Ratio

1981 Cycle

2001 Cycle

1990 Cycle

1973 Cycle

Current Cycle

Quarters Since NBER Peak

Source: Bureau of Labor Statistics

Note: Dashed line represents FRBNY forecast.

Excess Supply of Housing

Thousands of Units
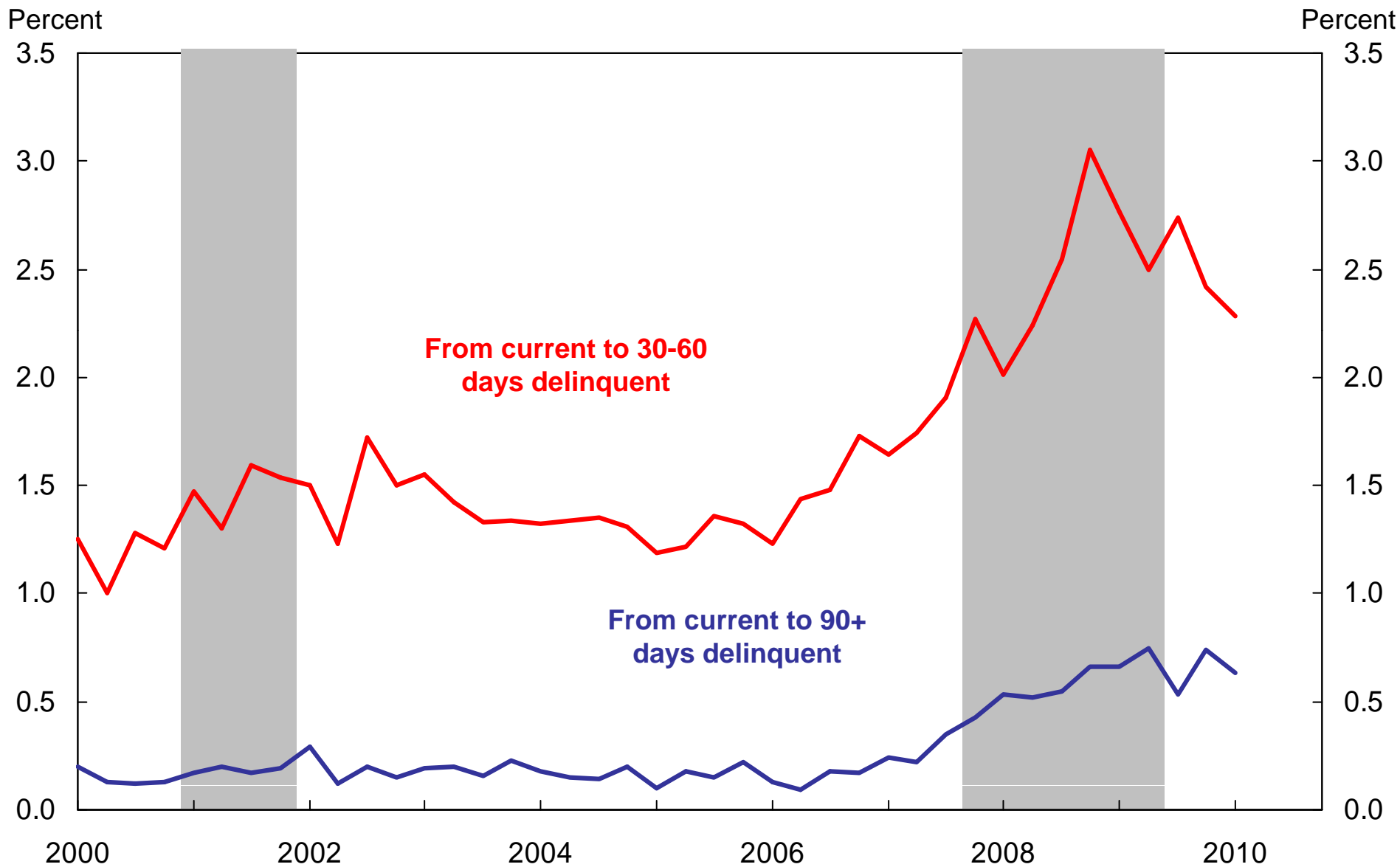
Thousands of Units

Excess Units: Total

Renter (For Rent)

Owner (For Sale)

Held Off Market

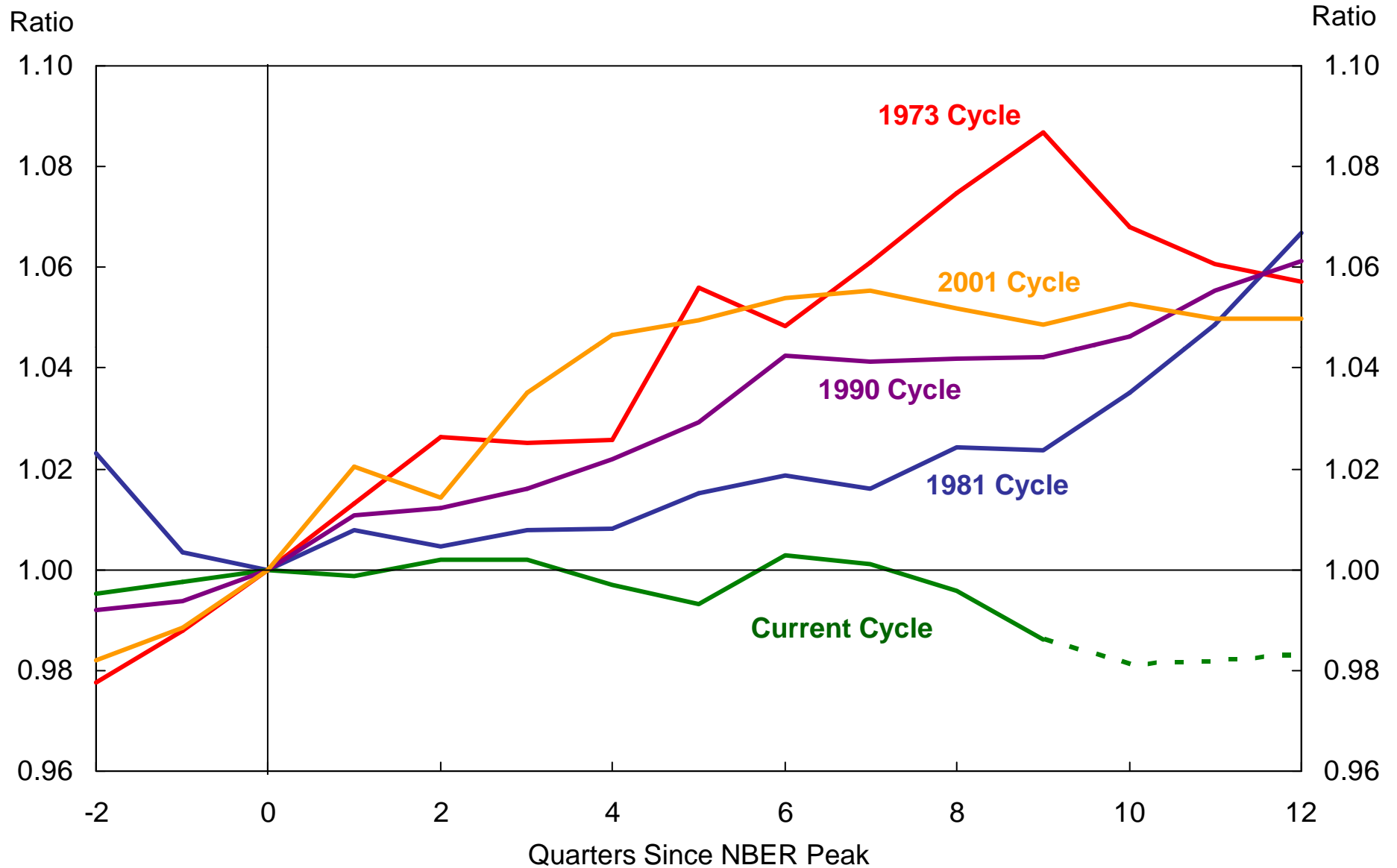Note: Shading represents NBER recessions.

First Mortgage New Delinquency Transition Rate

Balance Weighted

Source: FRBNY Equifax Dataset

Real State and Local Government
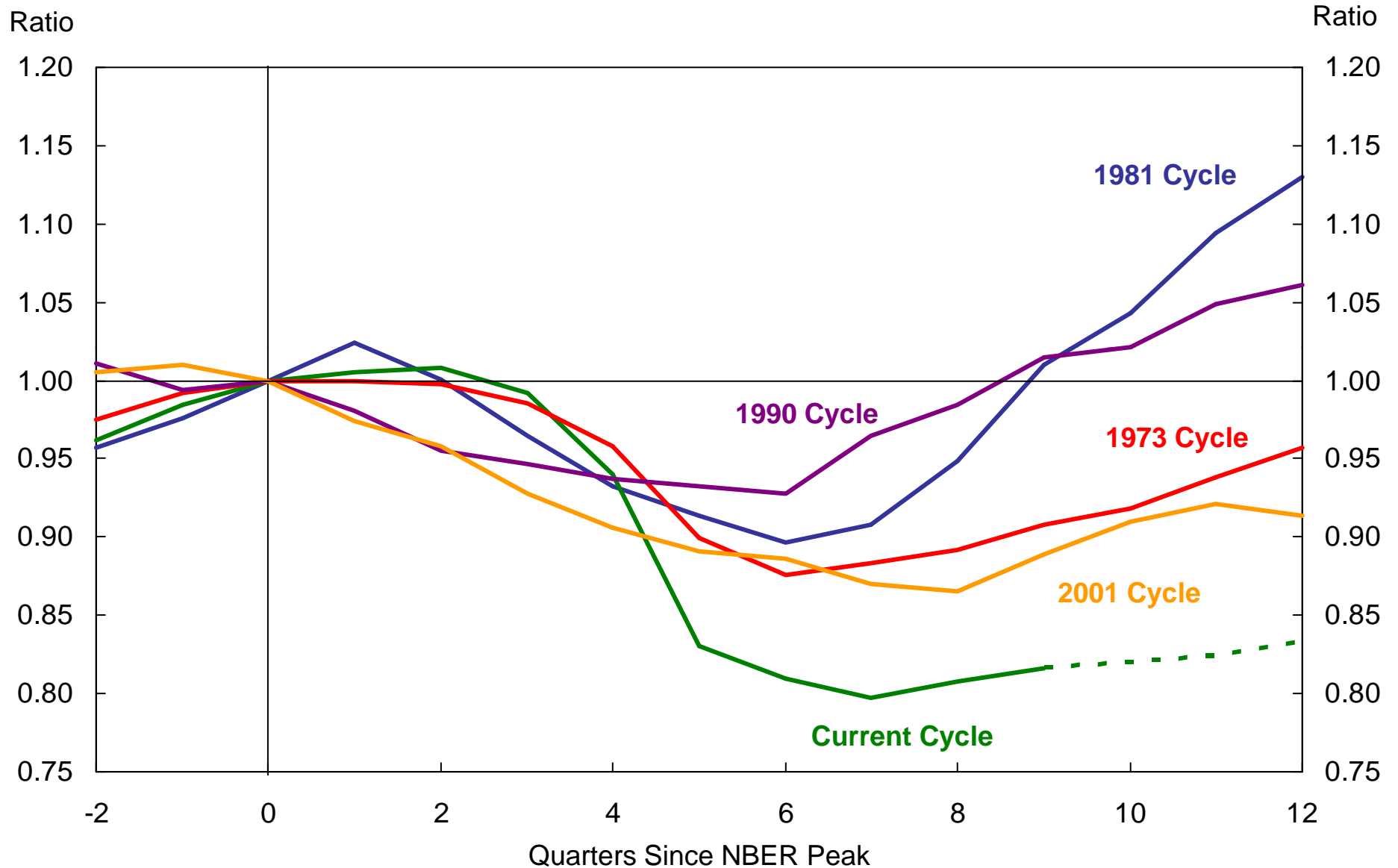(Series Set to 1.0 at NBER Peak)

Ratio

1.10

1.08

1973 Cycle

1.06

2001 Cycle

1.04

1990 Cycle

1.02

1981 Cycle

1.00

Current Cycle

0.98

0.96

-2   0   2   4   6   8   10   12

Quarters Since NBER Peak

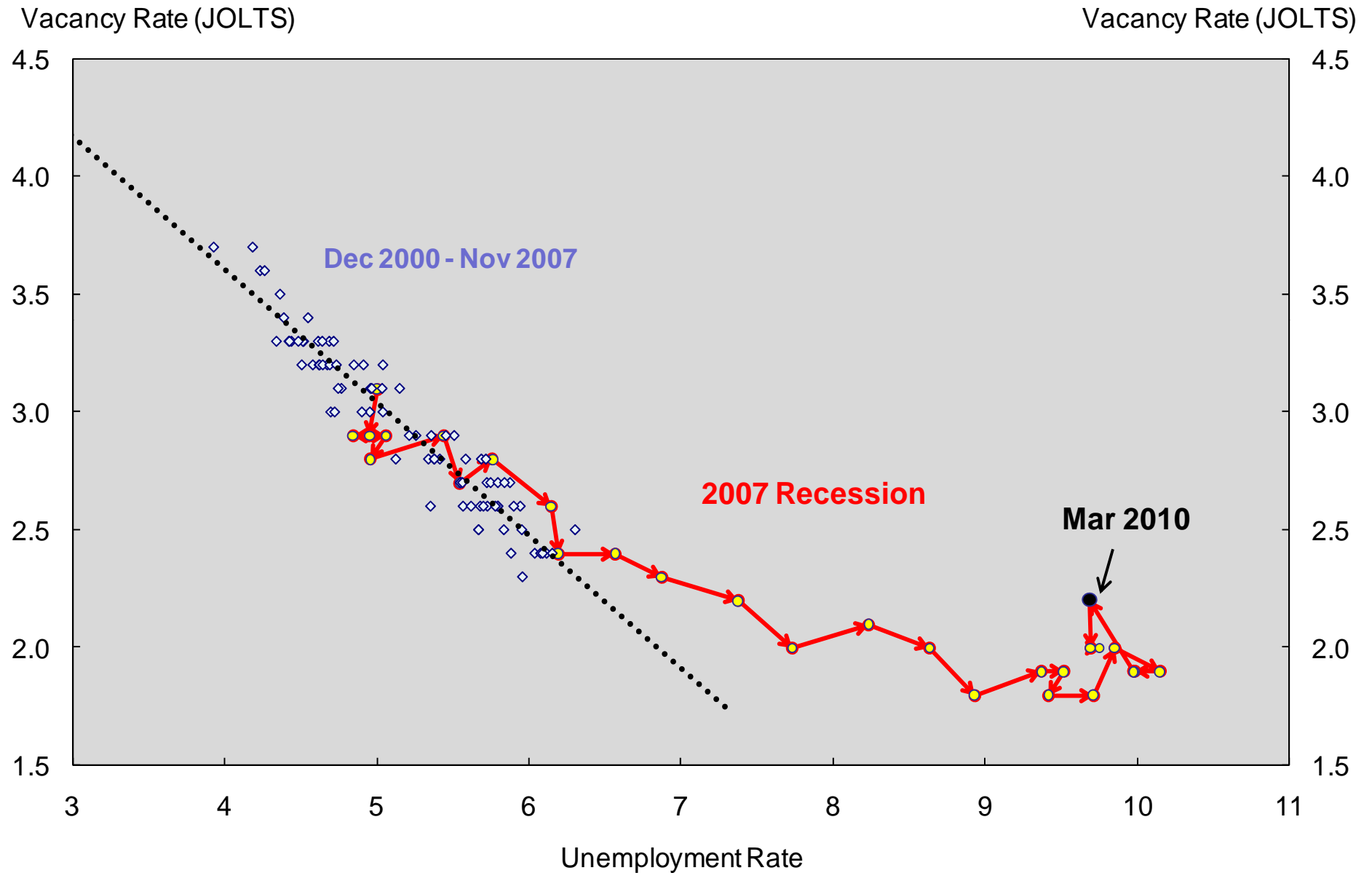Note: Dashed line represents FRBNY forecast.

Real Business Fixed Investment

(Series Set to 1.0 at NBER Peak)

Source: Bureau of Labor Statistics

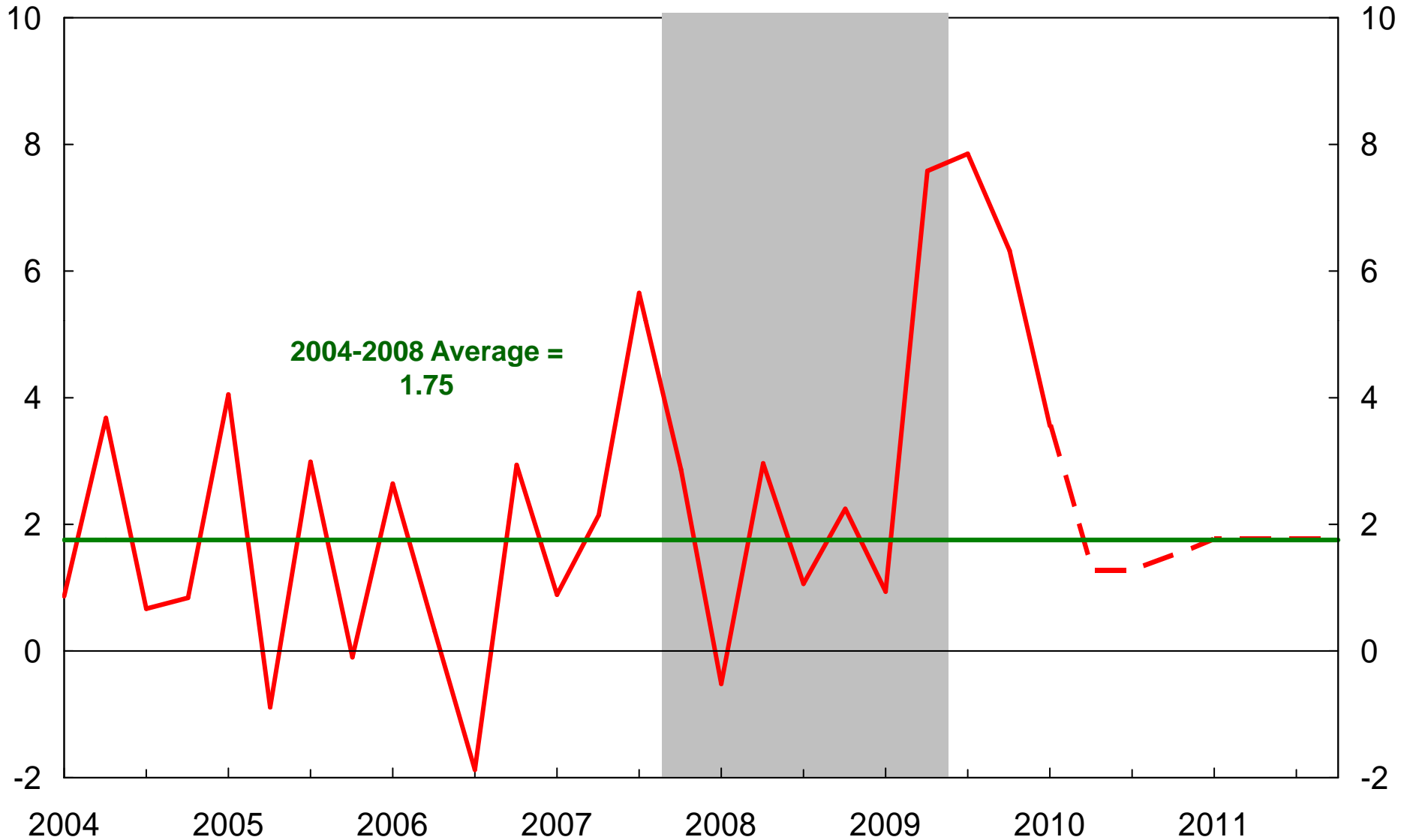Note: Dashed line represents FRBNY forecast.

Beveridge Curve

Vacancy Rate (JOLTS)

Vacancy Rate (JOLTS)

Dec 2000 - Nov 2007

2007 Recession

Mar 2010

Unemployment Rate

Source: Bureau of Labor Statistics, Sahin et al. (2010)

Productivity: Nonfarm Business Sector

% Change – Annual Rate

% Change – Annual Rate

2004-2008 Average = 1.75
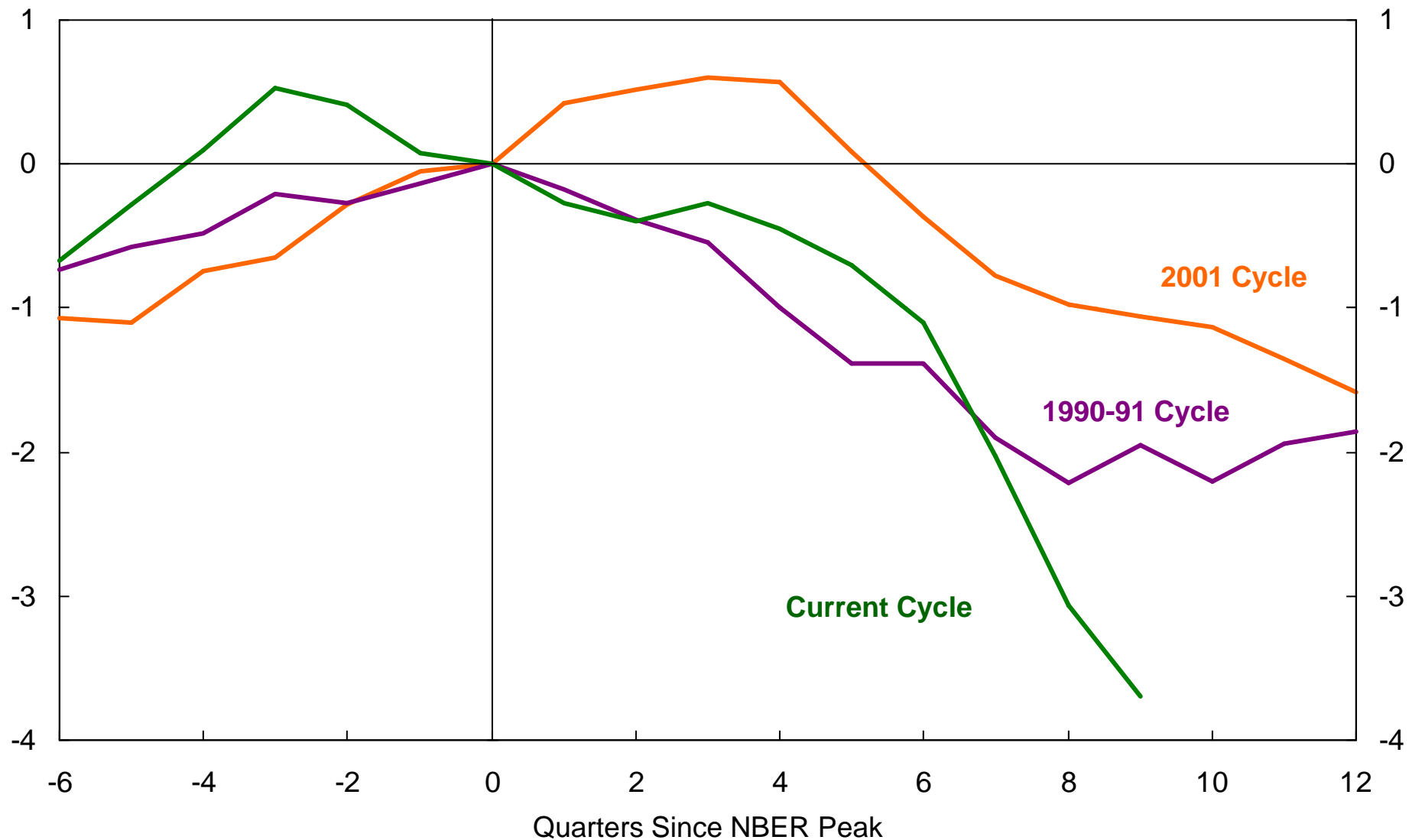

Source: Bureau of Labor Statistics

Note: Dashed line represents FRBNY forecast.

Rent of Primary Residence Inflation
(Series Set to 0.0 at NBER Peak)

Difference in Year-to-Year Inflation Rate

Difference in Year-to-Year Inflation Rate

2001 Cycle

1990-91 Cycle

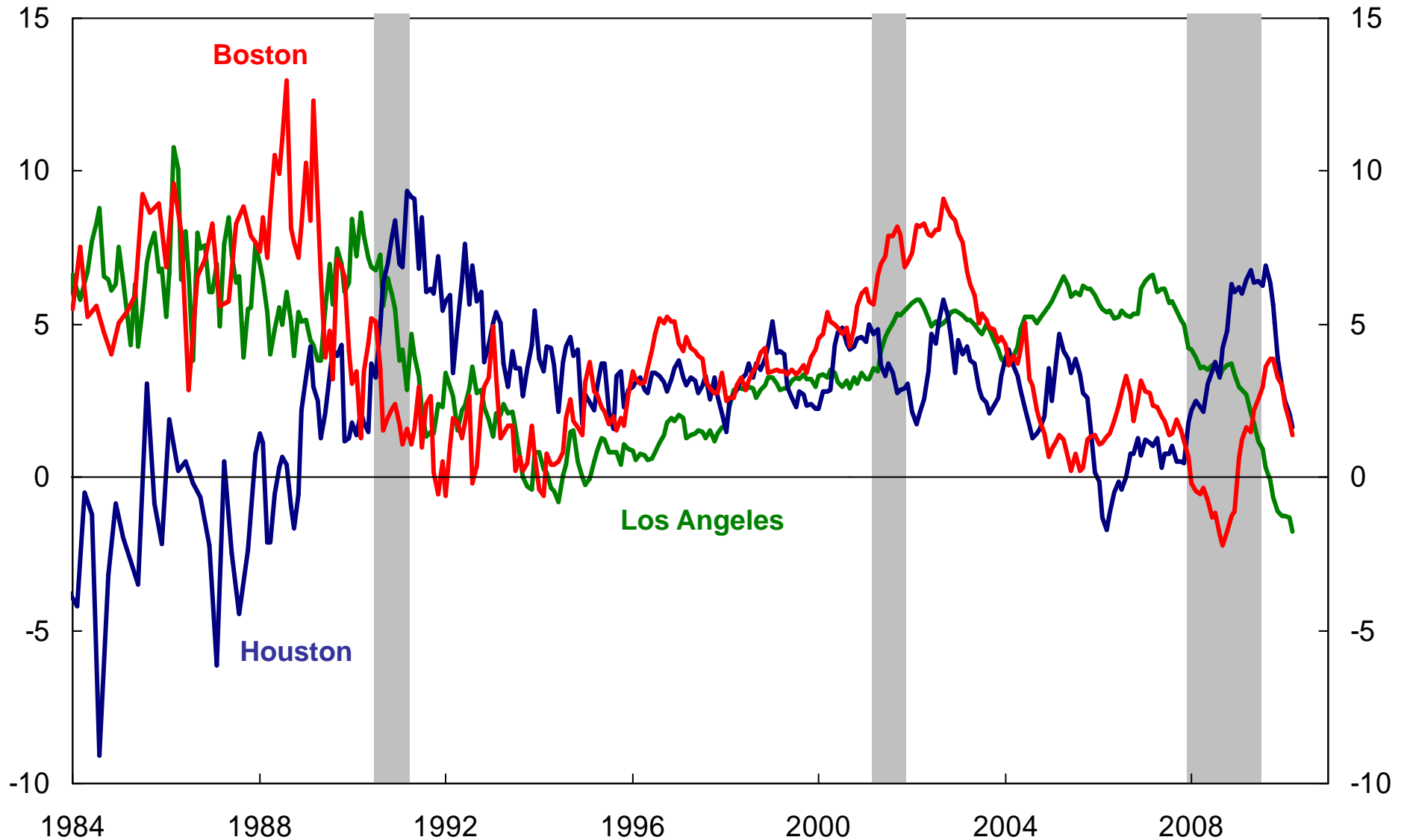**Current Cycle**

Quarters Since NBER Peak

Source: Federal Reserve Board, Bureau of Economic Analysis, Census Bureau

Owner's Equivalent Rent for Various Cities

% Change – Year to Year

% Change – Year to Year
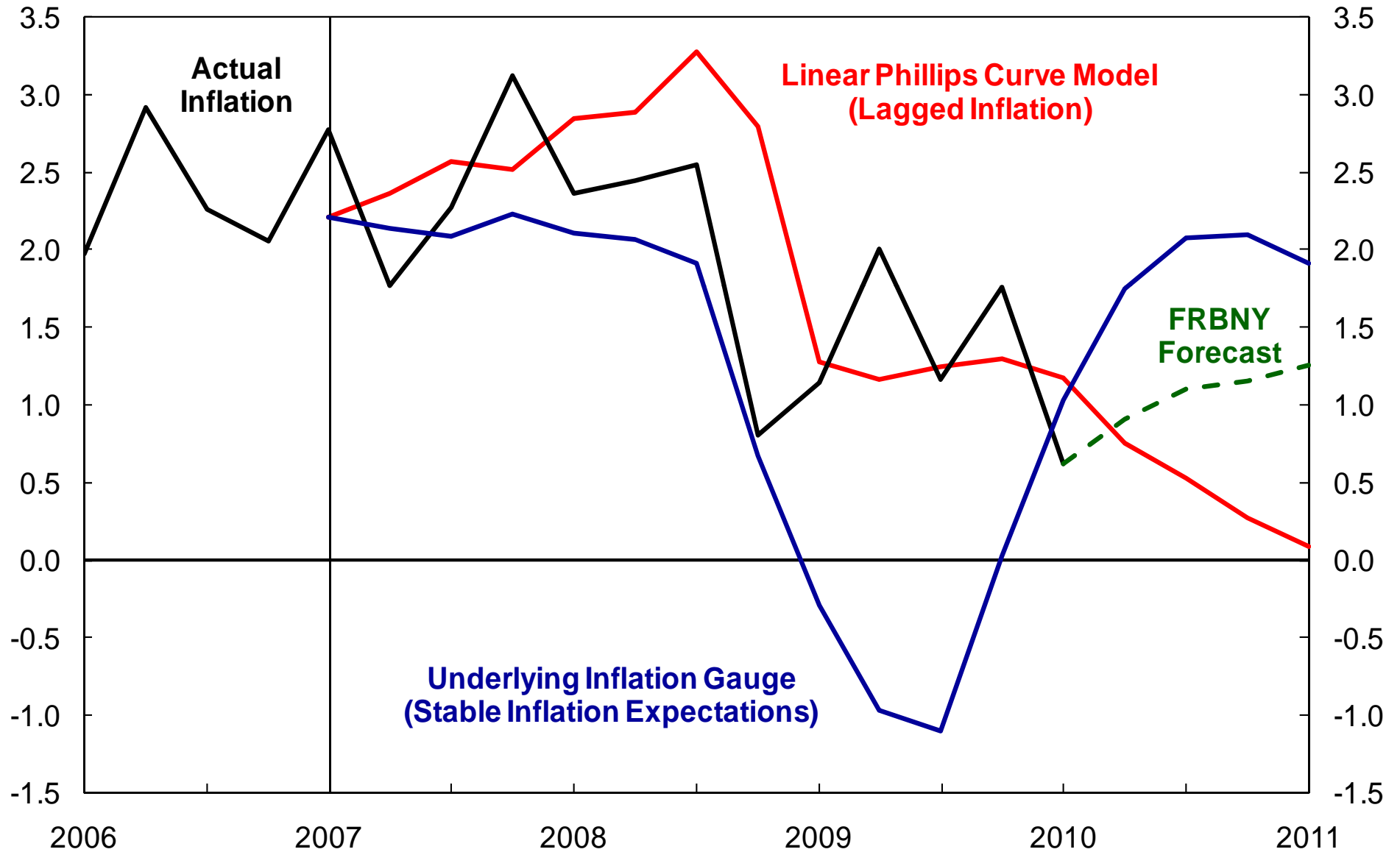

Source: Bureau of Labor Statistics

Alternative Inflation Forecasts

Core PCE Inflation - Annual Rate

Core PCE Inflation - Annual Rate

Actual Inflation

Linear Phillips Curve Model (Lagged Inflation)

FRBNY Forecast

Underlying Inflation Gauge (Stable Inflation Expectations)
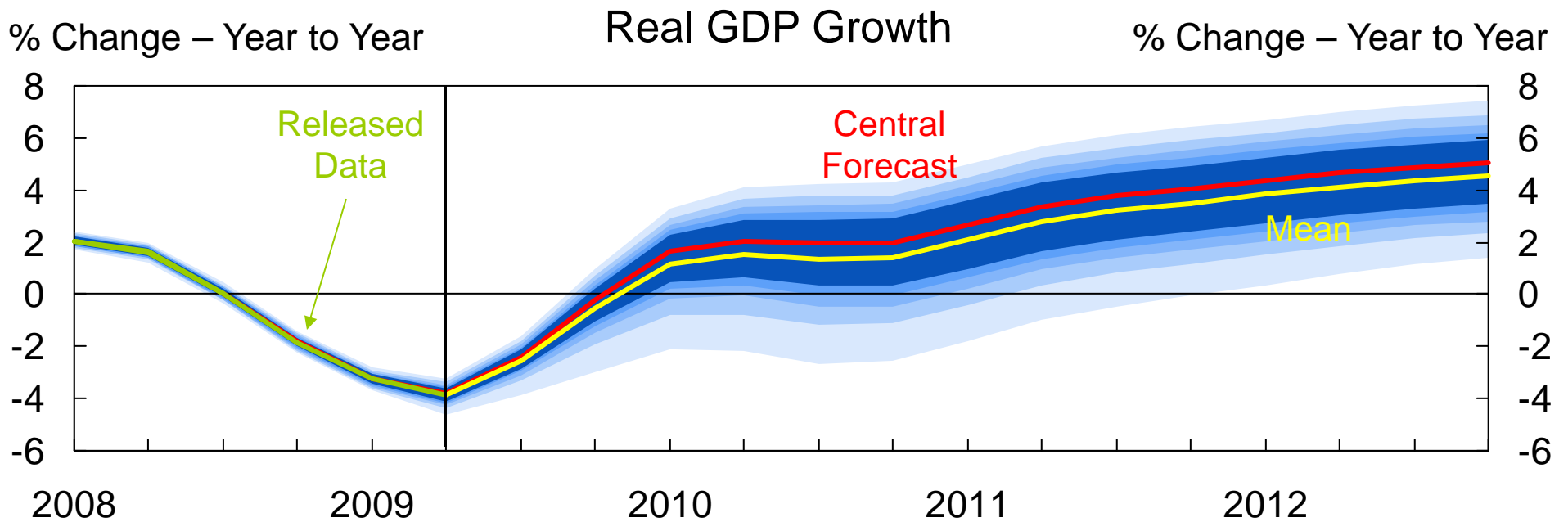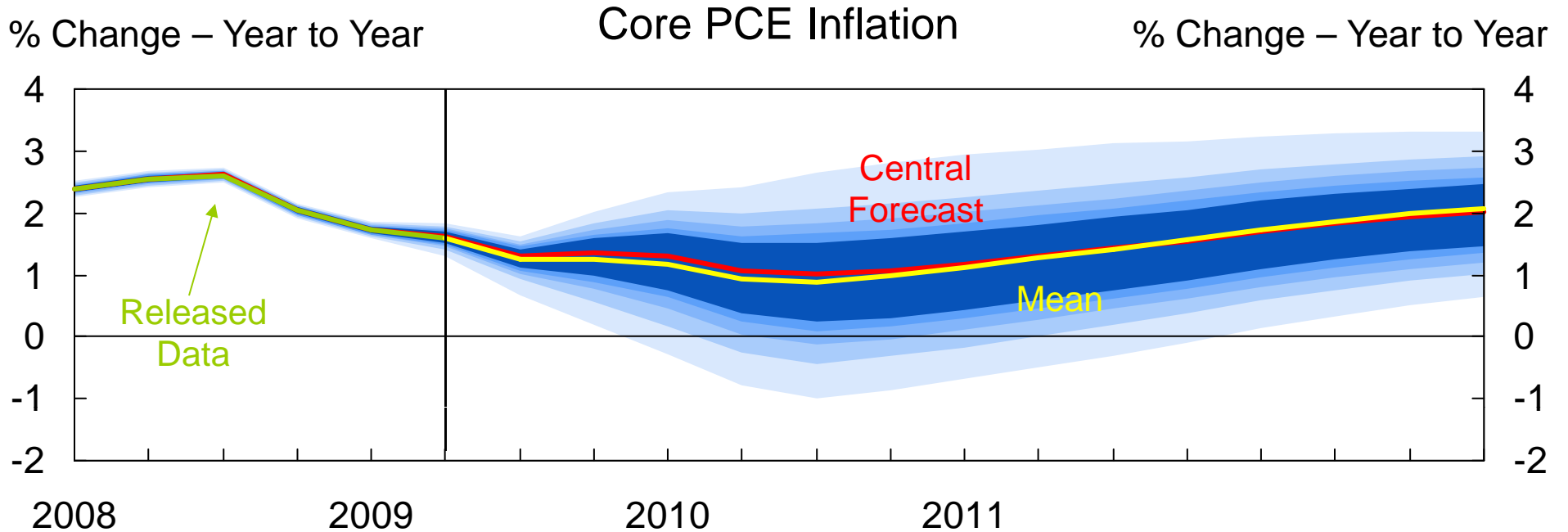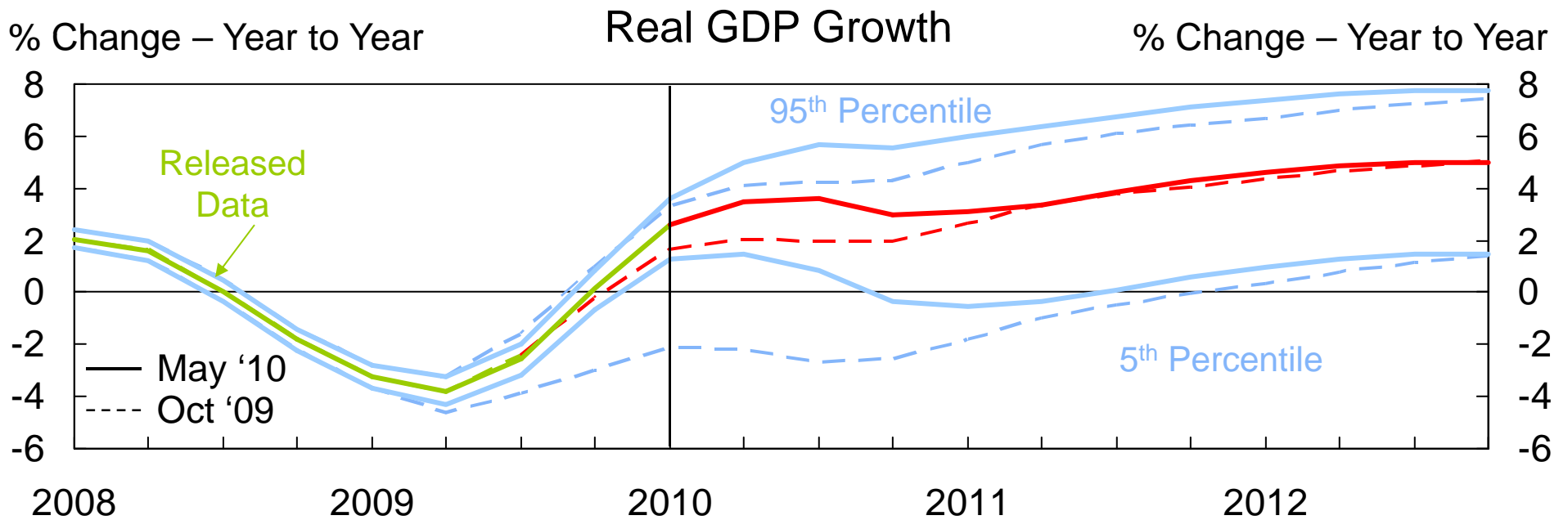
Risks and Stance of Policy

Simon Potter

Oct '09 Forecast Distributions

Core PCE Inflation

% Change – Year to Year

% Change – Year to Year

Central Forecast

Mean

Released Data

2008   2009   2010   2011

Real GDP Growth

% Change – Year to Year

% Change – Year to Year

Released Data

Central Forecast

Mean

2008   2009   2010   2011   2012

Change from Oct '09 to May '10

Core PCE Inflation

% Change – Year to Year

% Change – Year to Year

95th Percentile

Released Data

May '10
Oct '09

5th Percentile

2008   2009   2010   2011   2012

Real GDP Growth

% Change – Year to Year

% Change – Year to Year

95th Percentile

Released Data

May '10
Oct '09

5th Percentile

2008   2009   2010   2011   2012

May '10 Forecast Distributions

Core PCE Inflation

% Change – Year to Year

% Change – Year to Year

Central
Forecast

Released
Data

Mean

2008   2009   2010   2011   2012

Real GDP Growth

% Change – Year to Year

% Change – Year to Year

Released
Data

Central
Forecast

Mean

2008   2009   2010   2011   2012

Scale of Recovery Through End of 2011

Percent

Percent

May '10

Oct. '09

Probability of recovery at least as strong as post-1981-82 recovery:
10% (May '10)
8% (Oct '09)

Modal Forecast

1981-2

1973-5

1990-1

2001

Maximum 4-Quarter Change in Real GDP after Trough
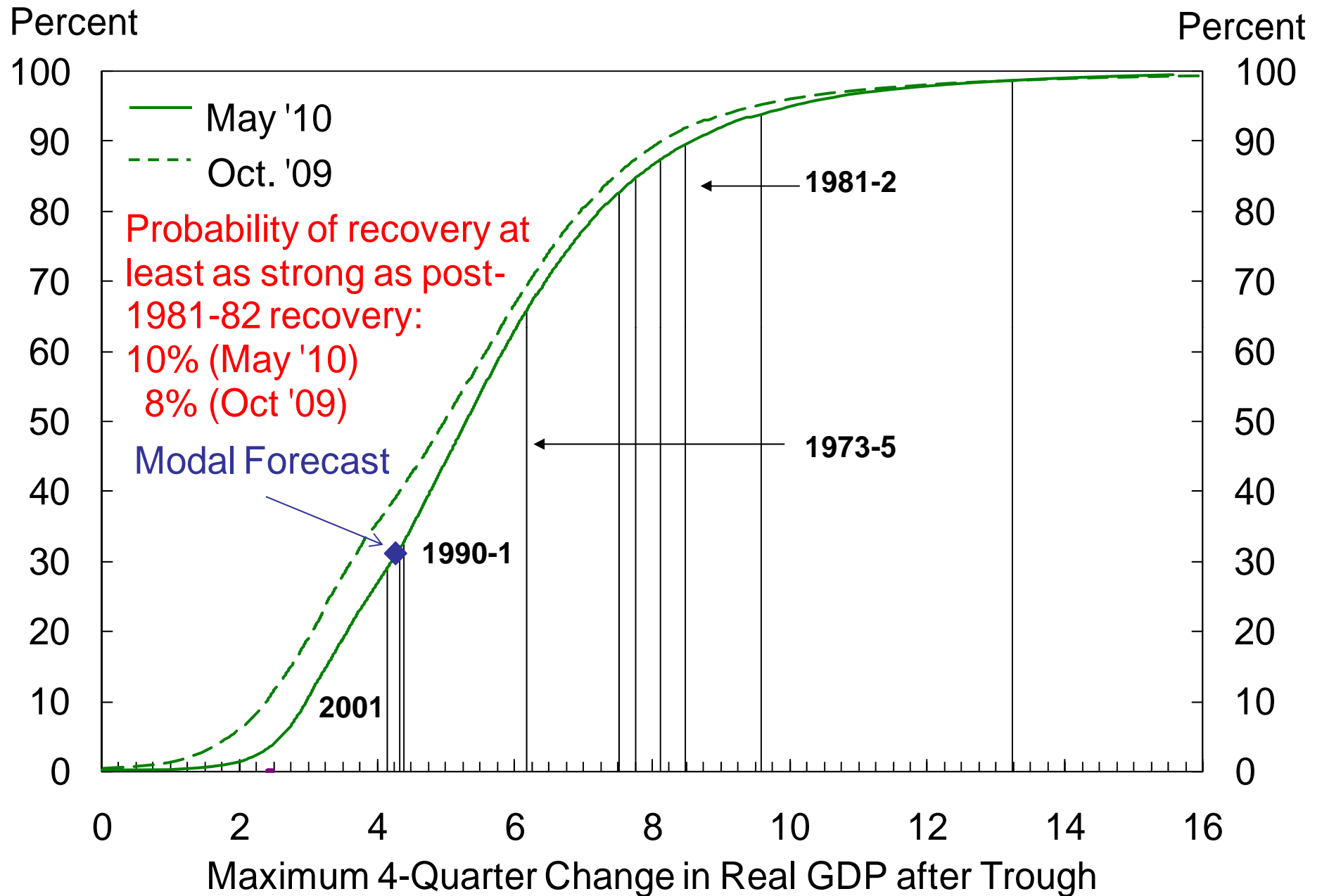
Current Stance of Policy

Policy Rule	Rate Prescription
Taylor rule, Contemporaneous Feedback	-0.8 to 0.7
Taylor rule, Forecast-Based	-0.9 to 0.6
Taylor rule, Forecast-Based with Risks	-1.1 to 0.4
Contemporaneous Difference Rule	0.1 increase
Forecast-Based Difference Rule	0.4 increase
Counterfactual with DSGE-VAR	0.5
Counterfactual with DSGE	0 to 1
Optimal Rate in DSGE with credit frictions	0 to 0.9

Lower Bound and Monetary Policy

Current Policies

- Commit to hold interest rates at the lower bound for longer than conventional rule would imply along certain paths the economy could take
  - Requires a credible commitment that inflation can temporarily over-shoot the objective

- Buy long duration assets and through a "portfolio balance effect" directly lower long-term yields on private liabilities
  - Requires a credible commitment not to sell the assets immediately when economy improves
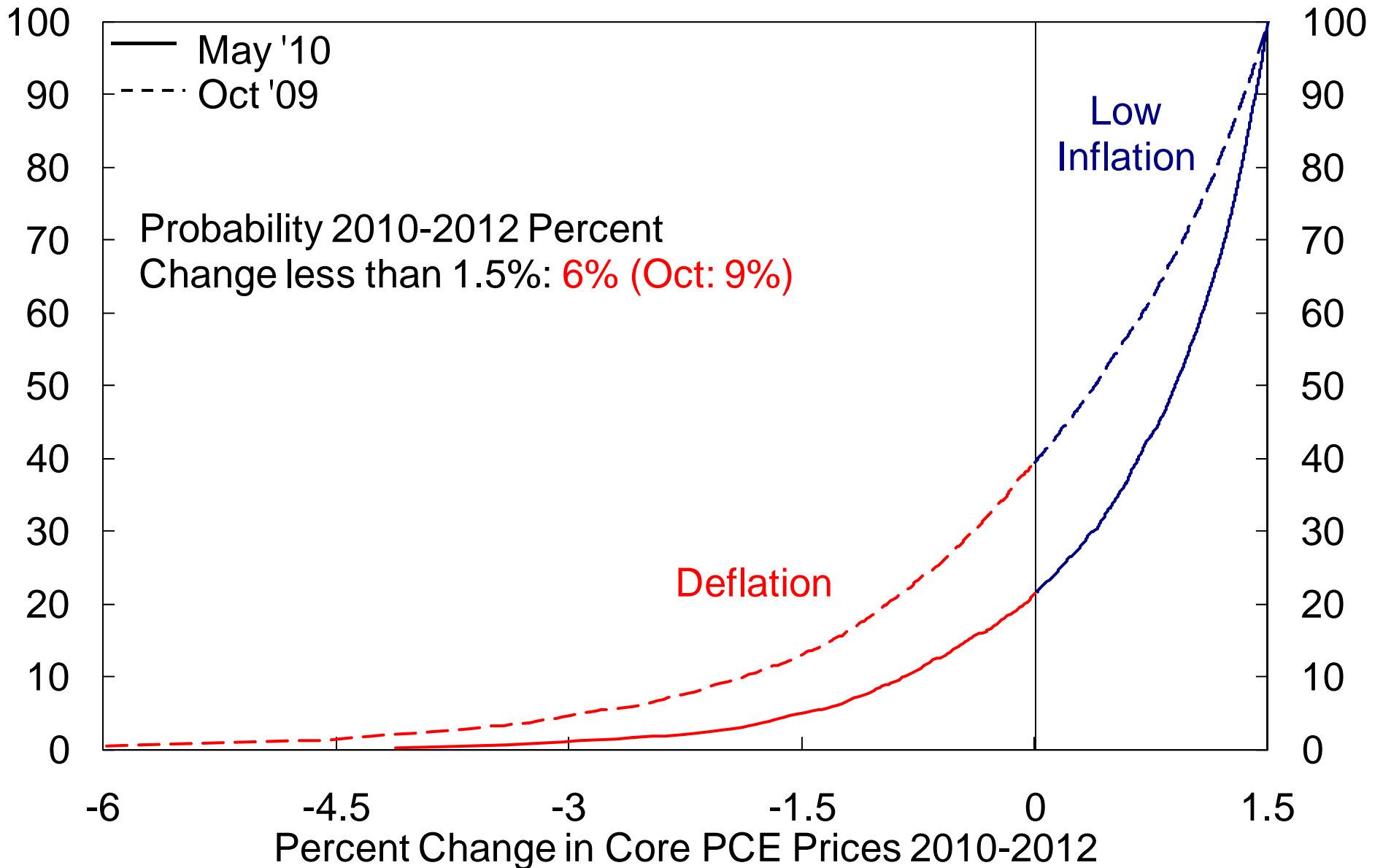
"Blanchard Proposal"

- Conduct interest rate policy with a higher average nominal rate
  - Requires a credible commitment to hold at the new higher inflation objective

Large Downward Price Level Deviations
Conditional on Average Inflation Below 0.5%

Percent

——	May '10
- - -	Oct '09

Probability 2010-2012 Percent
Change less than 1.5%: 6% (Oct: 9%)

Low
Inflation

Deflation

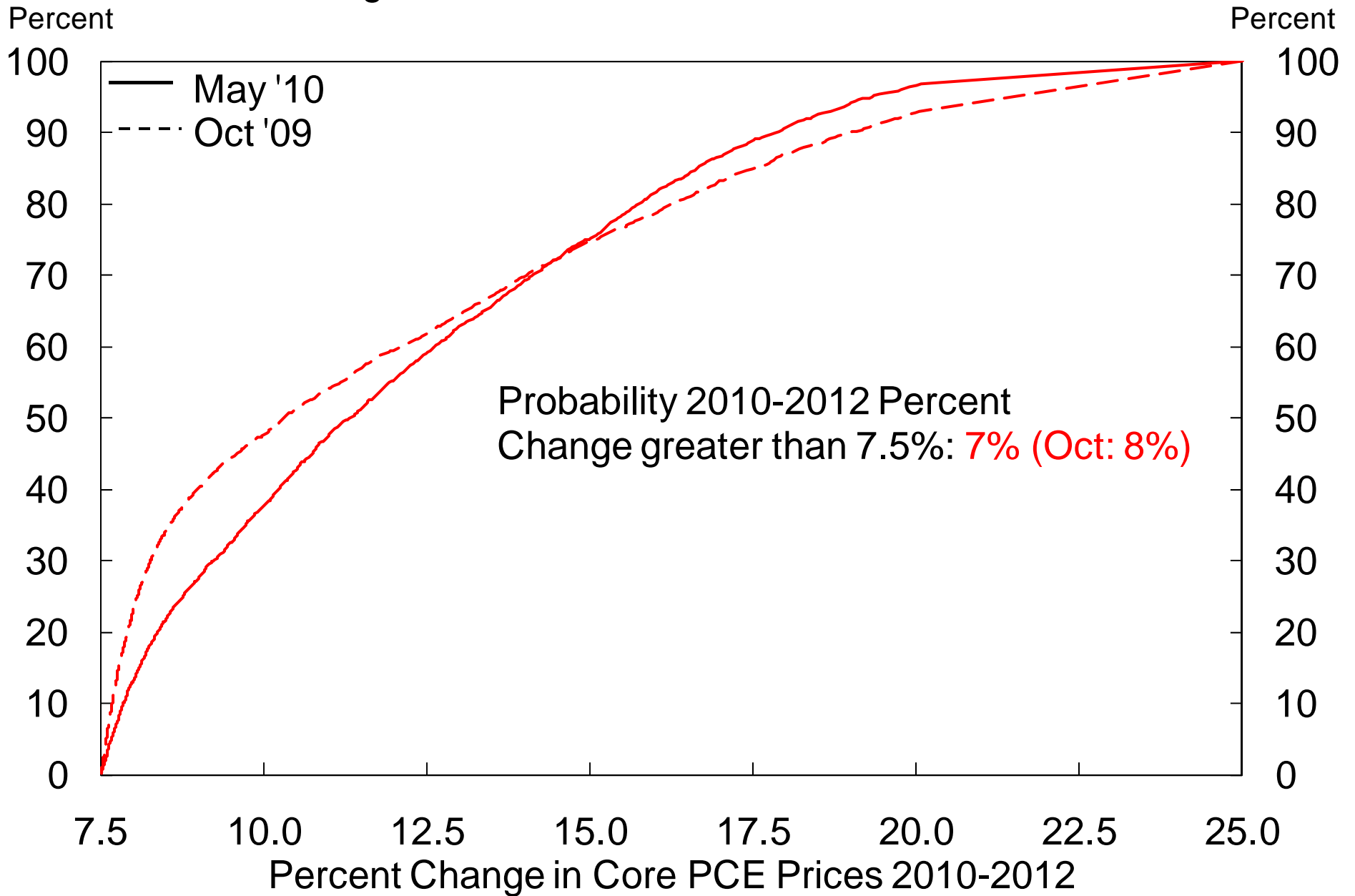Percent Change in Core PCE Prices 2010-2012

The aftermath of the Lehman crisis traced out a startlingly larger negative tail than most anybody had earlier imagined. I assume, with hope more than knowledge, that that was indeed the extreme of possible *financial* crisis that could be experienced in a market economy.

-Alan Greenspan

Large Upward Price Level Deviations
Conditional on Average Inflation Above 2.5%

Percent

100
90
80
70
60
50
40
30
20
10
0

— May '10
- - - Oct '09

Probability 2010-2012 Percent
Change greater than 7.5%: 7% (Oct: 8%)

Percent

100
90
80
70
60
50
40
30
20
10
0

Percent Change in Core PCE Prices 2010-2012

7.5   10.0   12.5   15.0   17.5   20.0   22.5   25.0

Financial Stability: Monitoring and Policy

Tobias Adrian

FEDERAL RESERVE BANK *of* NEW YORK

# Quantitative Surveillance in the Federal Reserve

- ## Bank supervision: microprudential

- ## Macro-finance linkages (lessons from the SCAP)
  - Stress scenarios for the financial system
  - Feedback from the financial system to the real economy

- ## Financial markets and institutions
  - Asset price misalignments and bubbles detection
  - Balance sheet leverage and haircut monitoring
  - Shadow banking and hedge funds

- ## Systemic risk monitoring
  - Via direct exposures among financial institutions
  - Between diverse market participants, such as the CDS market

Funding Liquidity

- Funding liquidity fuels the leverage of intermediaries

- Leverage amplifies shocks (margin calls, limited liability)

- Potentially leading to systemic risk

Growth in Funding Liquidity
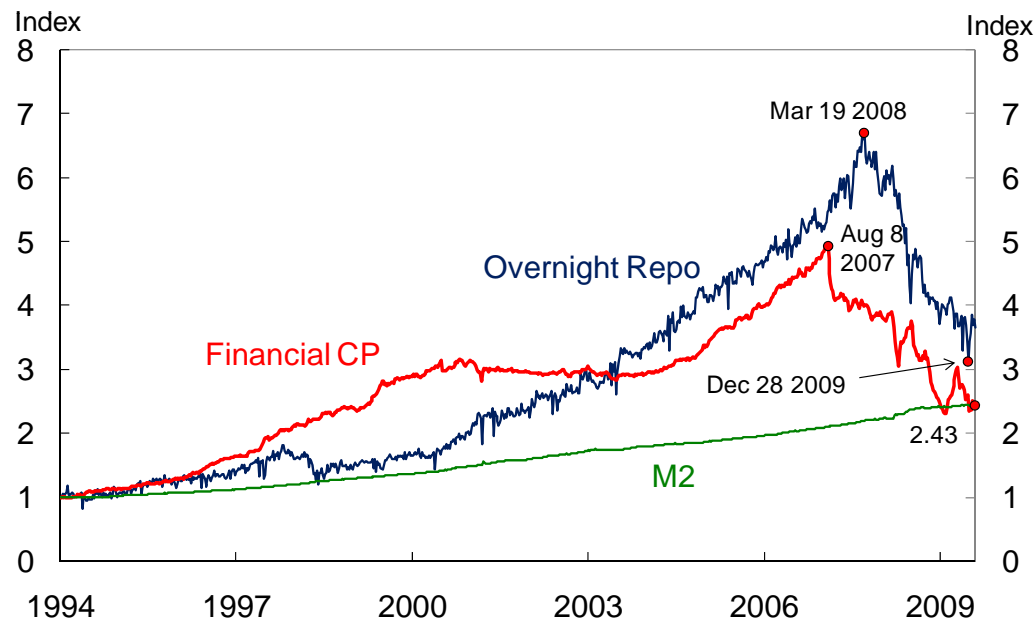
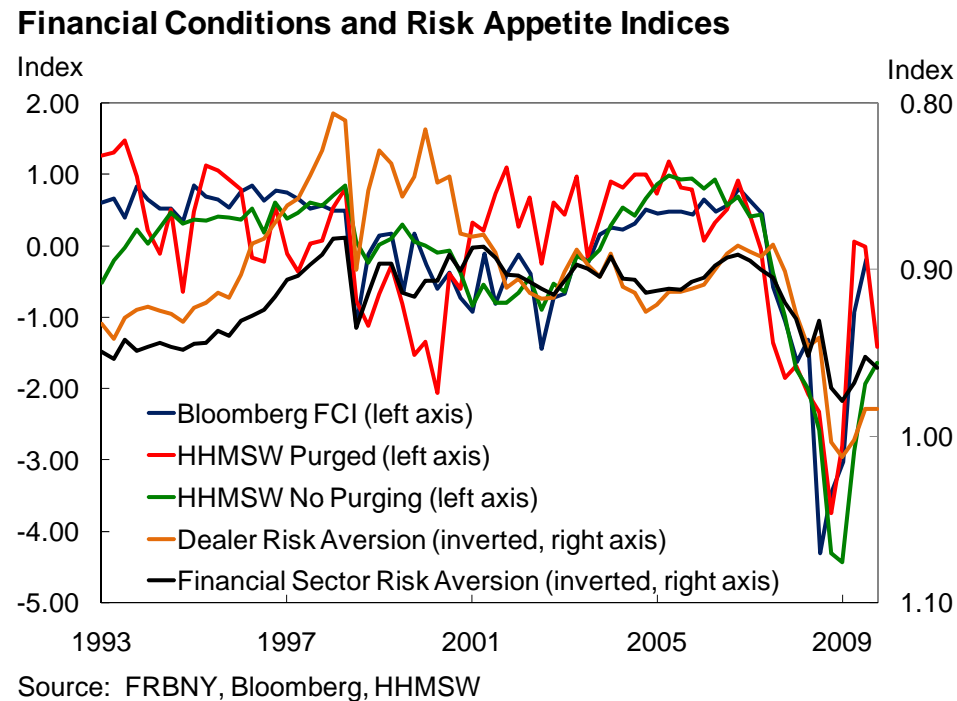- Particularly in the shadow banking sector

Shadow Banking Credit Transformation

- The pricing and availability of funding fuels both regulated and unregulated institutions

- Key contributors: credit insurance and short term funding

Institution	Direct Public Enhancement		Indirect Public Enhancement		Unenhanced
	Explicit	Implicit	Explicit	Implicit	
Federal Loan Programs	Loan guarantees				
GSEs		Agency Debt	Agency MBS		
Depository Institutions	Insured deposits Other debt		Conduit lines Commitments Tri-party clearing	Money market funds SIVs Finance companies Securities lending	
Insurance Companies	Annuities Insurance policies				Securities lending
Pensions	Unfunded liabilities				Securities lending
Diversified broker-dealers	ILC deposits		Hybrid ABCP Tri-party repo		Liquidity puts (ABS, VRDO, ARS) Credit hedge funds Money market funds Finance Companies
Monoline					Financial guarantees
Independent intermediaries					
Finance company			ABCP		Term ABS, Other debt, Ext ABCP
SIV			ABCP		MTN
Credit hedge funds					Bi-lateral repo
Multi-seller conduit			ABCP		
Money market fund					Stable NAV
European banks			Conduit lines		

# Financial Conditions and Risk Appetite

- Financial Condition Indices are atheoretical summary statistics

- 'Risk appetite' indicators estimate risk aversion directly from models

- Challenge: neither FCIs nor risk appetite measures identify credit boom

Financial Conditions and Risk Appetite Indices

Index (left axis): 2.00, 1.00, 0.00, -1.00, -2.00, -3.00, -4.00, -5.00

Index (right axis): 0.80, 0.90, 1.00, 1.10

Legend:
— Bloomberg FCI (left axis)
— HHMSW Purged (left axis)
— HHMSW No Purging (left axis)
— Dealer Risk Aversion (inverted, right axis)
— Financial Sector Risk Aversion (inverted, right axis)

Years: 1993, 1997, 2001, 2005, 2009

Source: FRBNY, Bloomberg, HHMSW

- More quantification of shadow banking activity needed

Credit Growth Monitoring

- Financial intermediary leverage (both on and off balance sheet) interacts with household and potentially public sector leverage

- There is also a strong interaction with the current account

Real U.S. Private Credit Growth vs Real GDP Growth

Source: Haver, Bloomberg
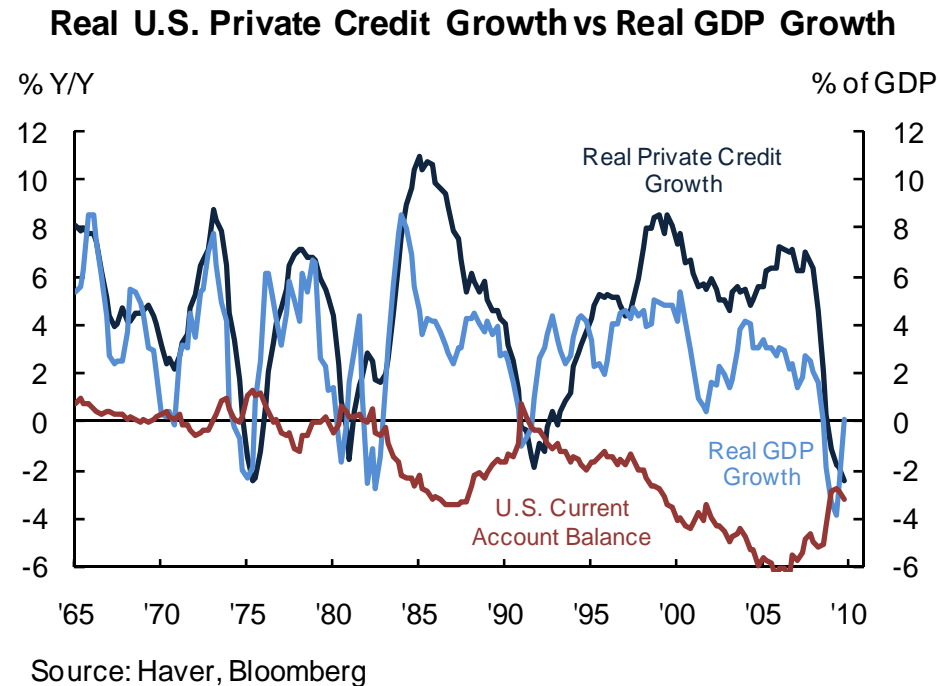
- Decomposition of the credit growth – GDP gap into sectors

Policy Tools for Financial Stability I: Macroprudential Regulation

- Capital reform
  - Level and quality of capital (common equity in Tier 1)
  - Risk weighting including off-balance sheet exposures
  - Macroprudential aspects: time series and cross section

- Liquidity regulation
  - Hold assets against stress scenarios on the liability side

- Challenge: regulatory arbitrage in the shadow banking system
  - Address this by using other tools: haircuts, margins, LTVs
  - Targeting asset prices is not appropriate

Policy Tools for Financial Stability II: Monetary Policy

- The FCI of HHMSW has a strongly positive correlation with the Fed Funds target in response to crises (`87, `98, `08), and a strongly negative relationship otherwise

Correlation of FCI with Fed Funds

Source: HHMSW, Federal Reserve Board
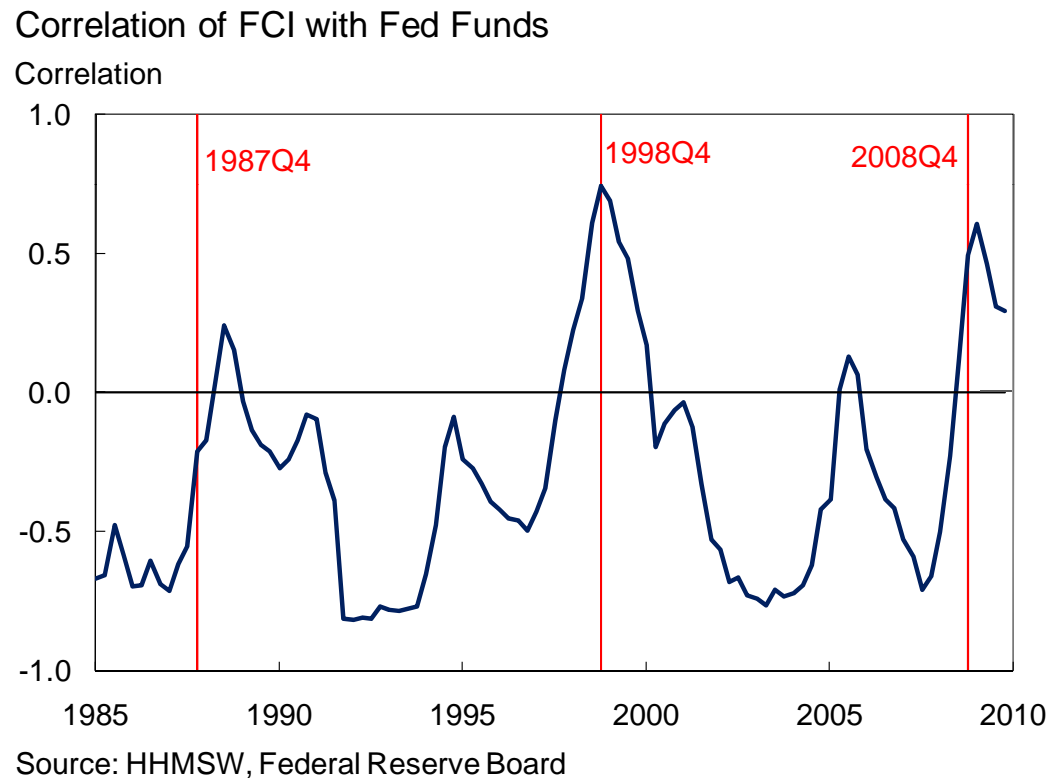
- Should monetary policy pre-empt?

Financial Stability and Monetary Policy

- Challenge is to integrate financial sector into monetary transmission

    - Macroprudential tools clearly affect financial conditions and are most appropriate line of defense against asset price misalignments

    - Liquidity facilities might have to complement interest rate policy

- Should monetary policy be ruled out to pre-empt bubbles?

    - The level of the Fed Funds rate is not a sufficient indicator of financial conditions

    - Monetary policy should be forward looking relative to financial conditions

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Financial Stability: Monitoring and Policy
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Go-round on Monetary Policy

FRBNY Outlook: Contributions to GDP Growth

May '10
(October '09)

Q4/Q4 growth rate	2009	2010	2011
GDP	0.1 (-0.1)	3.0 (2.0)	4.3 (4.0)
Consumption	0.7 (0.8)	2.0 (0.8)	2.0 (1.7)
Residential Investment	-0.4 (-0.3)	0.1 (0.2)	0.5 (0.5)
Business Fixed Investment	-1.6 (-1.8)	0.3 (0.1)	1.1 (1.1)
Inventory Investment	0.1 (0.1)	0.6 (0.7)	0.2 (0.4)
Net Exports	1.0 (0.9)	0.1 (0.1)	0.2 (0.0)

	Real GDP Growth		
	Release Date	2010 Q4/Q4	2011 Q4/Q4
FRBNY	5/14/2010	3.0	4.3
Blue Chip	5/10/2010	3.1	3.1
Macro Advisers	5/10/2010	3.7	3.9
	Core PCE Inflation		
	Release Date	2010 Q4/Q4	2011 Q4/Q4
FRBNY	5/14/2010	0.9	1.4
Blue Chip	5/10/2010	n/a	n/a
Macro Advisers	5/10/2010	0.8	0.9
	Unemployment Rate		
	Release Date	2010 Q4 Avg.	2011 Q4 Avg.
FRBNY	5/14/2010	10.1	8.4
Blue Chip	5/10/2010	9.4	8.6
Macro Advisers	5/10/2010	9.3	8.0
	Personal Saving Rate		
	Release Date	2010 Q4 Avg.	2011 Q4 Avg.
FRBNY	5/14/2010	3.3	4.8
Blule Chip	5/10/2010	n/a	n/a
Macro Advisers	5/10/2010	2.4	2.6

Survey Results: Government Debt and Inflation Expectations

Exhibit 12: Perceptions of Consumers and Financial Experts
A. Consider the following scenario: over the next 12 months, the government debt ends up growing substantially more than the administration has predicted BECAUSE tax revenues are lower than expected while the level of government spending remains on target. Under this scenario, how would this change your forecast for the rate of inflation over the next 12 months?
B. Now consider this alternative scenario: over the next 12 months, the government debt ends up growing substantially more than the administration has predicted BECAUSE the level of government spending is much higher than expected while tax revenues remain on target. Under this alternative scenario, how would this change your forecast for the rate of inflation over the next 12 months?

Number (percentage) responding:	Question A		Question B	
	Consumers	Experts	Consumers	Experts
I would expect much lower inflation	8 (2%)	1	12 (3%)	0
I would expect somewhat lower inflation	41 (10%)	5	37 (9%)	0
I don't believe that it would have an effect on inflation	74 (18%)	4	94 (23%)	1
I would expect somewhat higher inflation	245 (60%)	1	196 (48%)	10
I would expect much higher inflation	37 (9%)	0	69 (17%)	0
Total responses	409	11	408	11

Exhibit 13: Consumer Expectations
In percentage terms, by how much do you expect the level of government debt to be [higher/lower] twelve months from now?

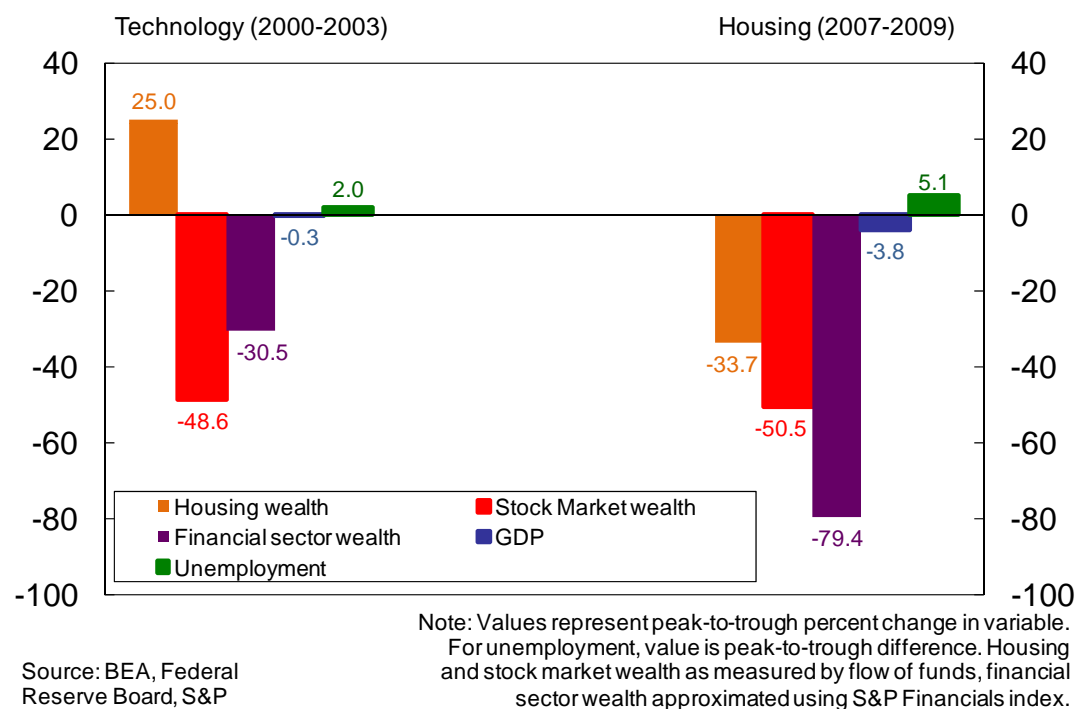| Quartiles of distribution of expected percentage change in government debt	**All**	**College**	**Less than College**
25th percentile	**+5%**	**+5%**	**+5%**
Median	**+10%**	**+10%**	**+12%**
75th percentile	**+20%**	**+20%**	**+25%**
Total responses	**1,198**	**615**	**583**

Background: Asset Bubbles

- Hetereogenous beliefs and short-sale constraint
  - Investors strictly prefer assets that can be resold

- Limits to arbitrage: Noise trader risk, synchronization risk
  - Ride the bubble "as long as the music plays" (since single trader can't bring down bubble, all trades wait for each other to attack bubble)
  - Small (non-fundamental) news can lead to large price swings

- "Greater fool theory"
  - Hold overpriced assets in the hope to sell it at an even higher price to someone else

- Rational bubbles – symmetric info
  - i. Violation of transversality condition
  - ii. Fiat money is a bubble

- Asymmetric information bubbles

Bursting of the Technology and Housing Bubbles

- **Housing is ultimately illiquid collateral**

- **Housing debt held on highly levered household and financial institution balance sheets**

Technology (2000-2003)   Housing (2007-2009)

Source: BEA, Federal
Reserve Board, S&P

Note: Values represent peak-to-trough percent change in variable.
For unemployment, value is peak-to-trough difference. Housing
and stock market wealth as measured by flow of funds, financial
sector wealth approximated using S&P Financials index.

- **Who holds what matters**

Real Durable PCE

(Series Set to 1.0 at NBER Peak)

Ratio

1.3
1.2
1.1
1.0
0.9
0.8

1981 Cycle
2001 Cycle
1973 Cycle
1990 Cycle
Current Cycle

Quarters Since NBER Peak

-2   0   2   4   6   8   10   12
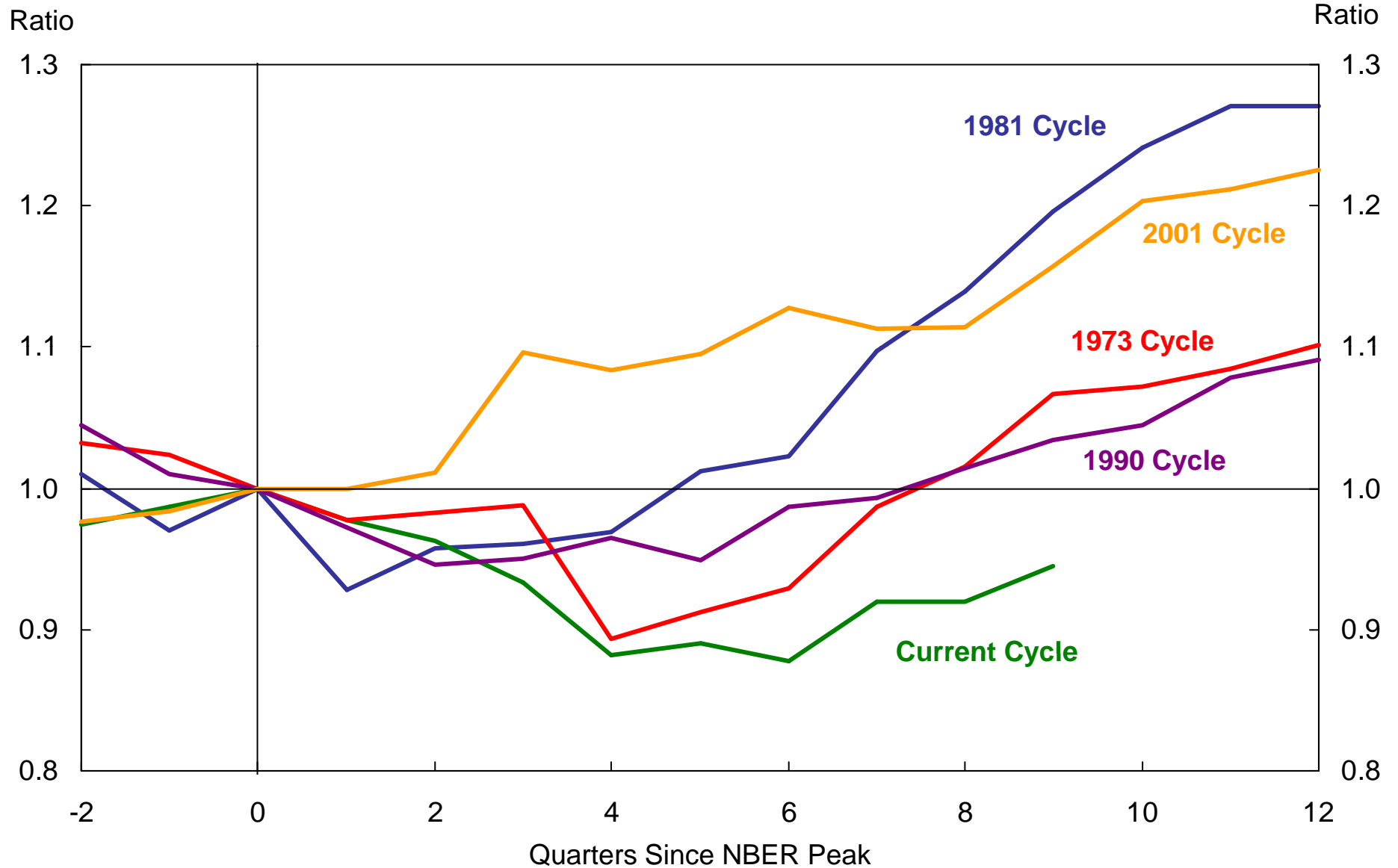
Source: Bureau of Labor Statistics

Personal Saving Rate

(Series Set to 1.00 at NBER Peak)

Difference

Difference

1990-91 Cycle

Current Cycle

2001 Cycle

1973-75 Cycle

1981-82 Cycle

Quarters Since NBER Peak
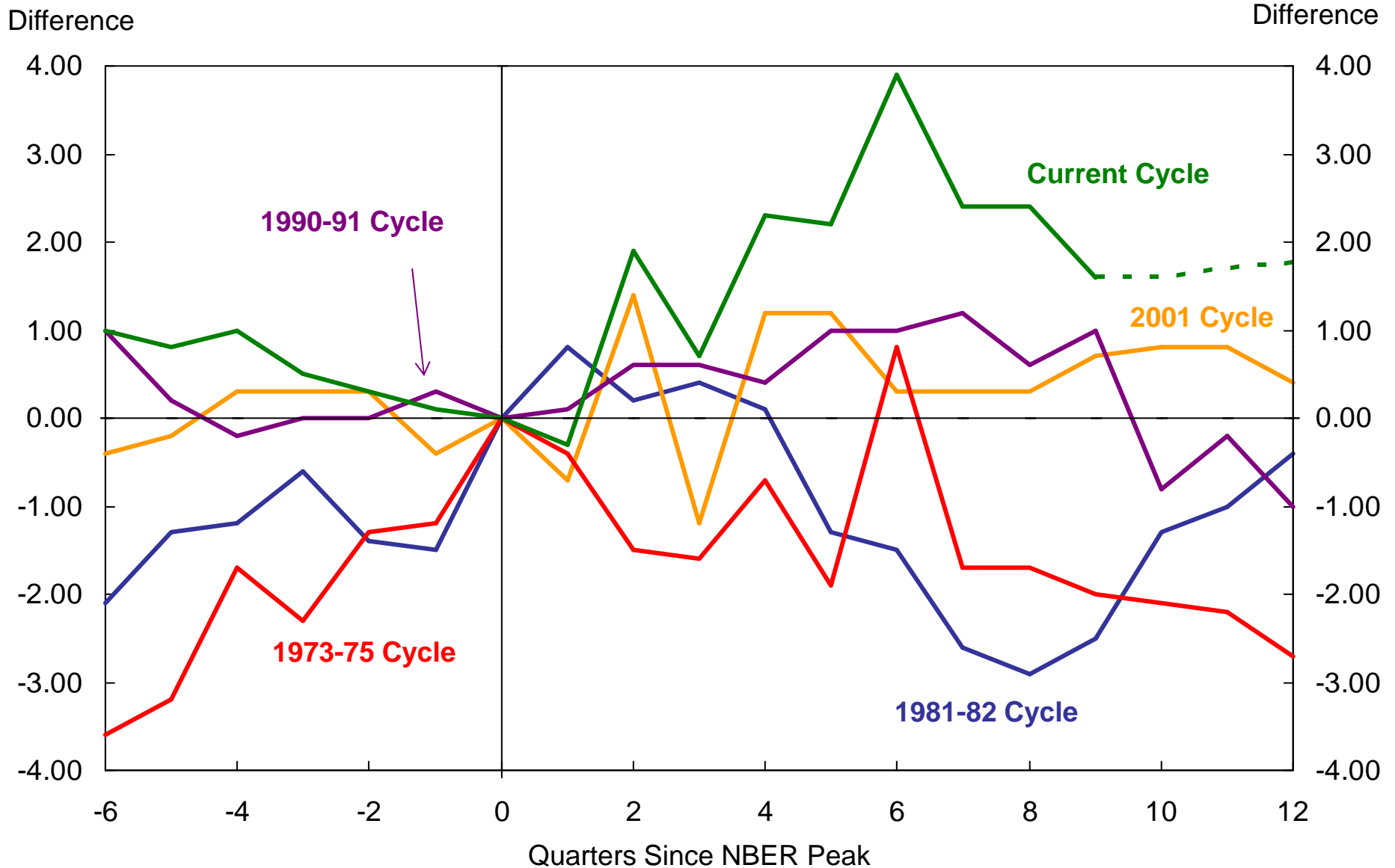
Source: Bureau of Economic Analysis

Note: Dashed line represents FRBNY forecast.

Personal Saving Rate

(Series Set to 1.00 at NBER Trough)
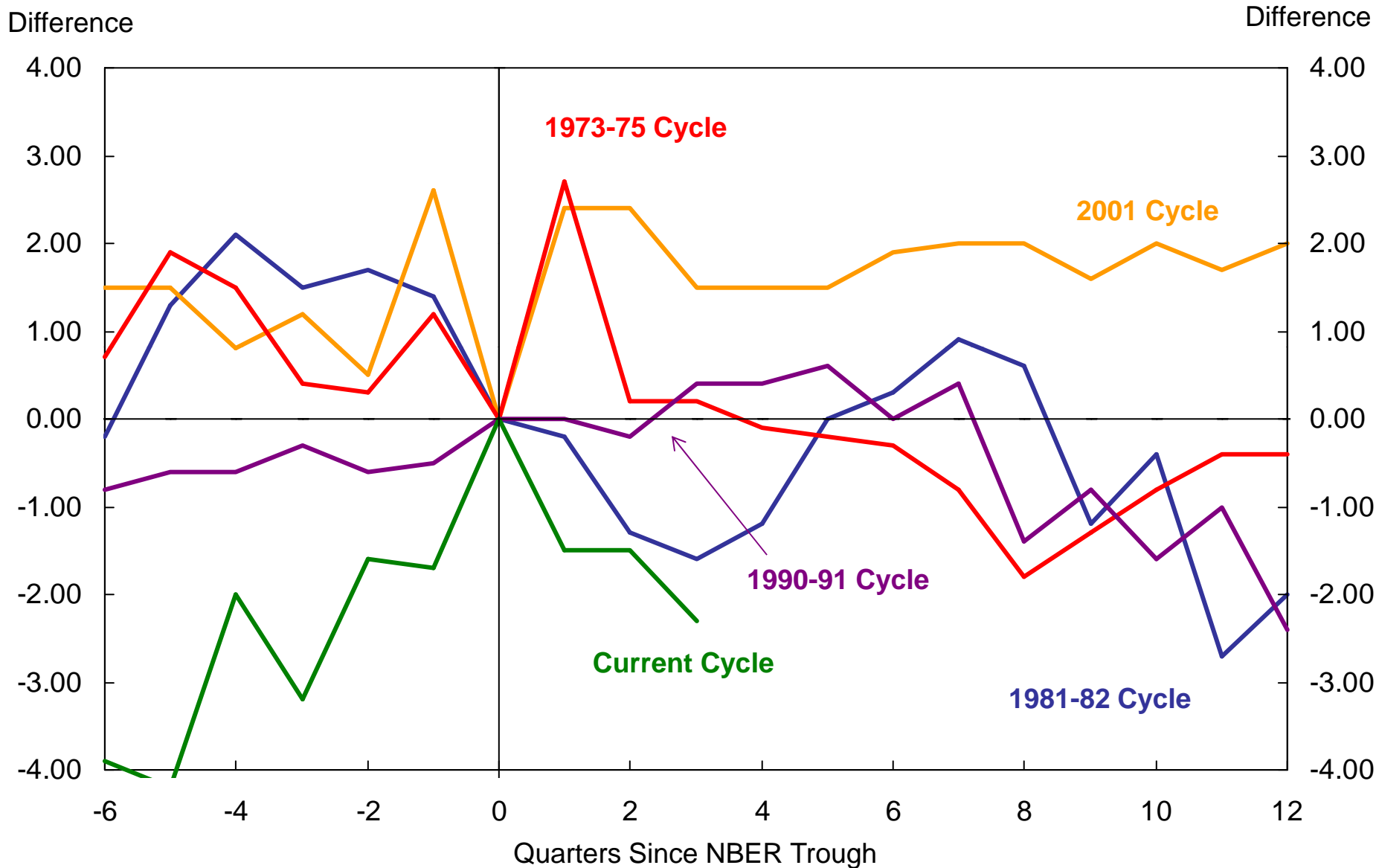
Source: Bureau of Economic Analysis

Asset Income as a Percent of Disposable Income

(Series Set to 1.0 at NBER Peak)
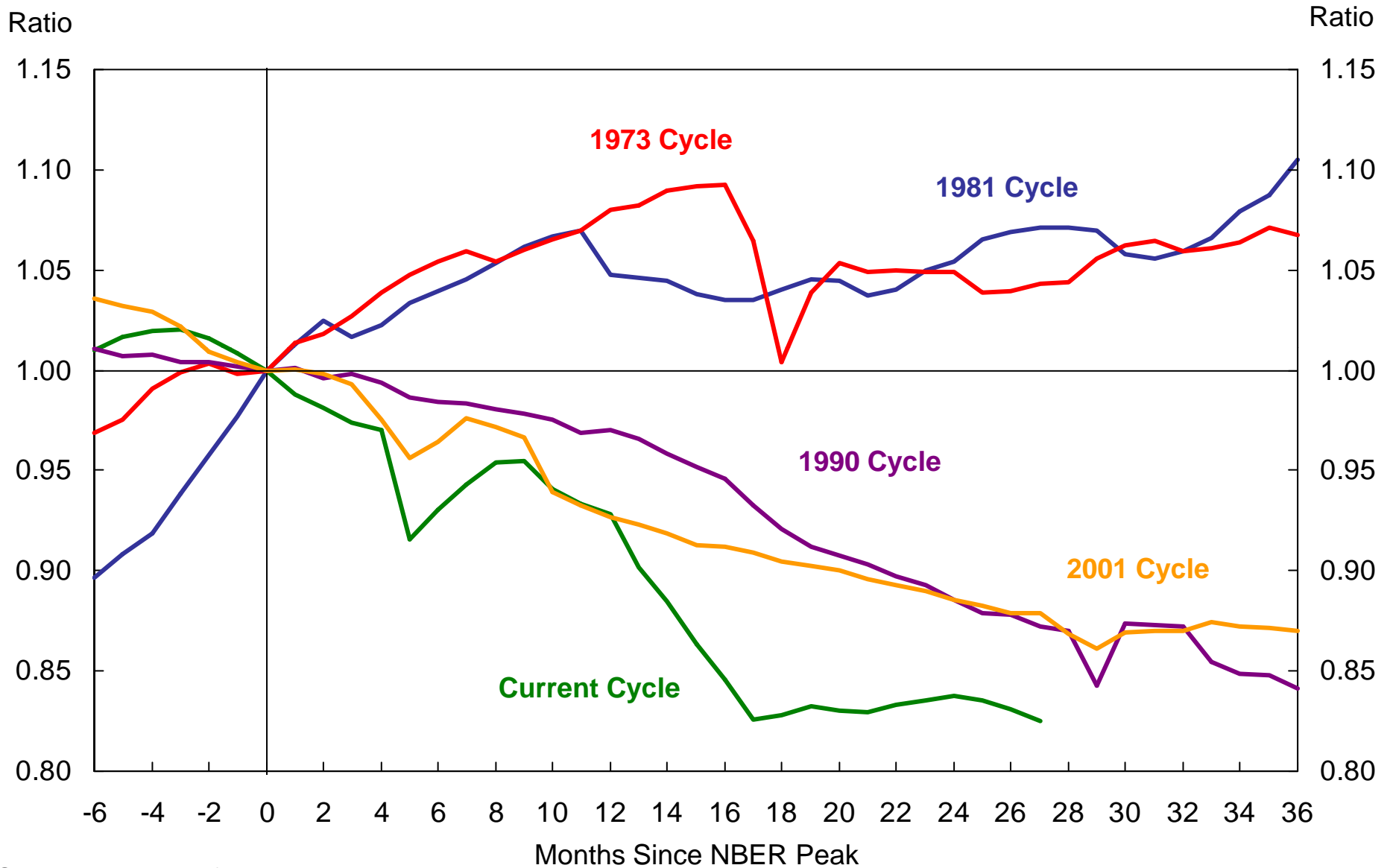
Source: Bureau of Economic Analysis

Government Transfers as a Percent of Disposable Income

(Series Set to 1.0 at NBER Peak)

Ratio   Ratio

1973 Cycle

Current Cycle

1990 Cycle

2001 Cycle

1981 Cycle

Months Since NBER Peak
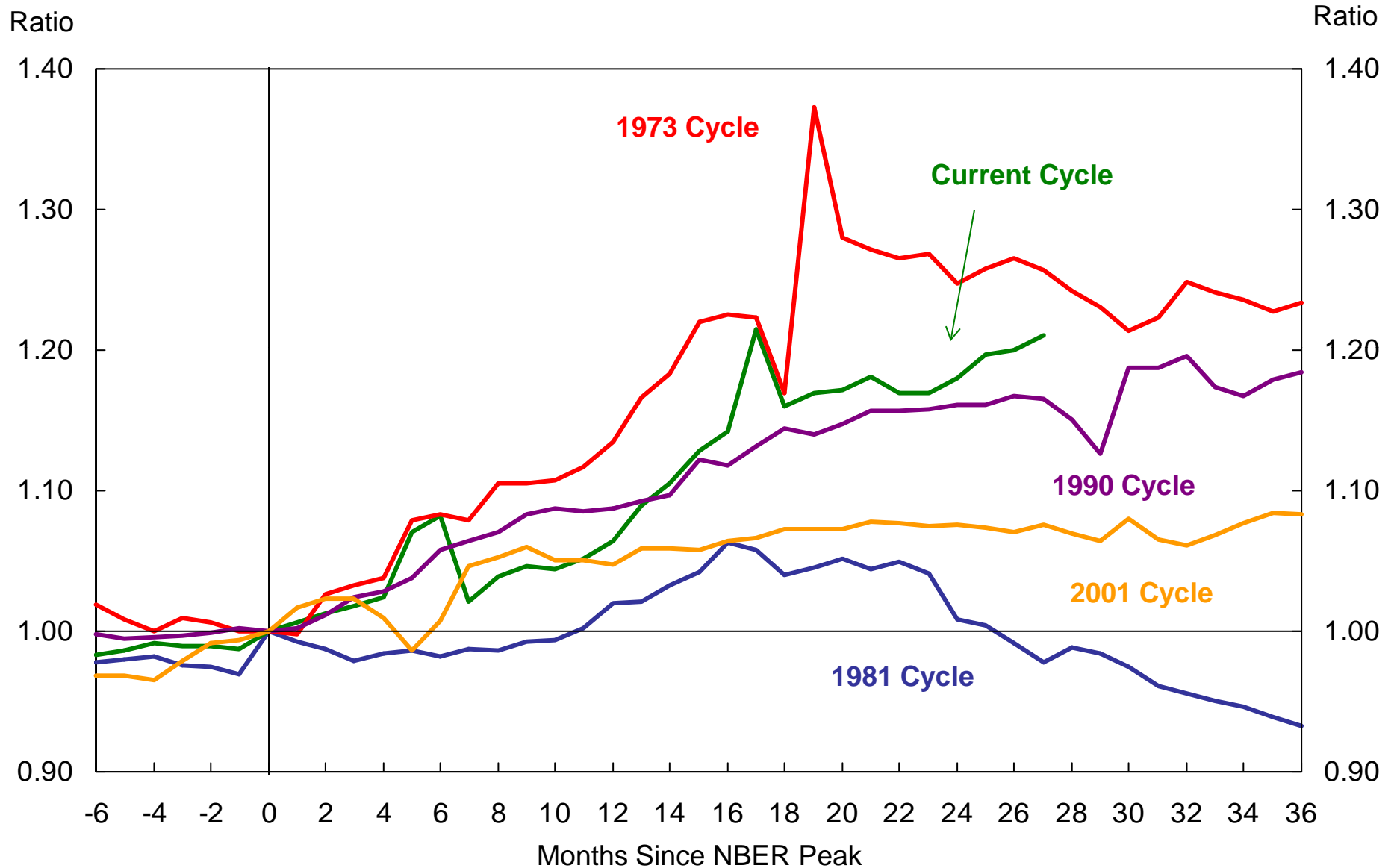
Source: Bureau of Economic Analysis

Private Nominal Wage and Salary Disbursements
(Series Set to 1.0 at NBER Peak)
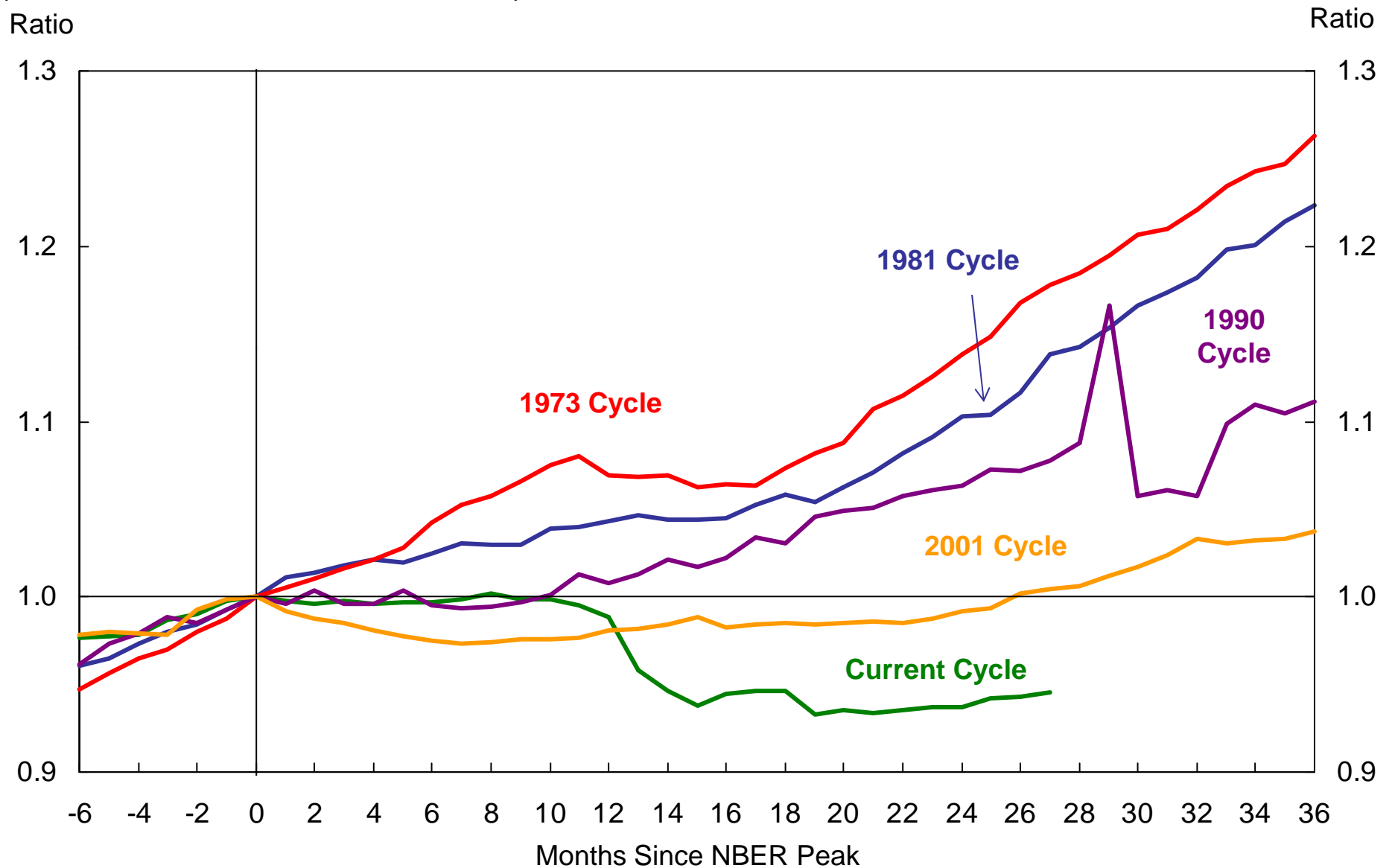
Source: Bureau of Economic Analysis

BAA Spread
(Series Set to 1.0 at NBER Peak)
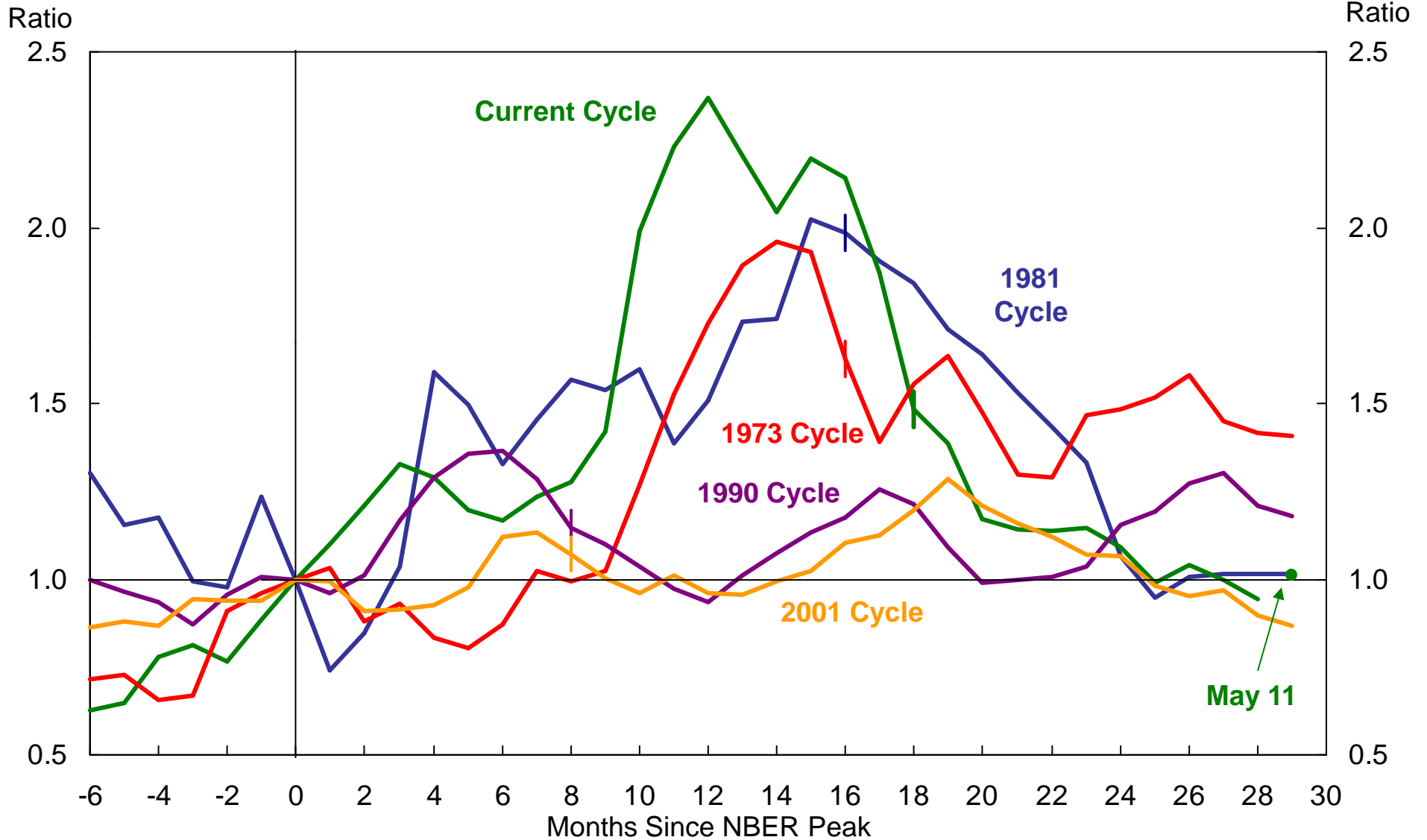
Note: Vertical lines represent end of NBER recessions.
Current recession assumed to end in 2009Q2.

Source: Bureau of Labor Statistics

Level of Real GDP
(Series Set to 1.00 at NBER Peak)
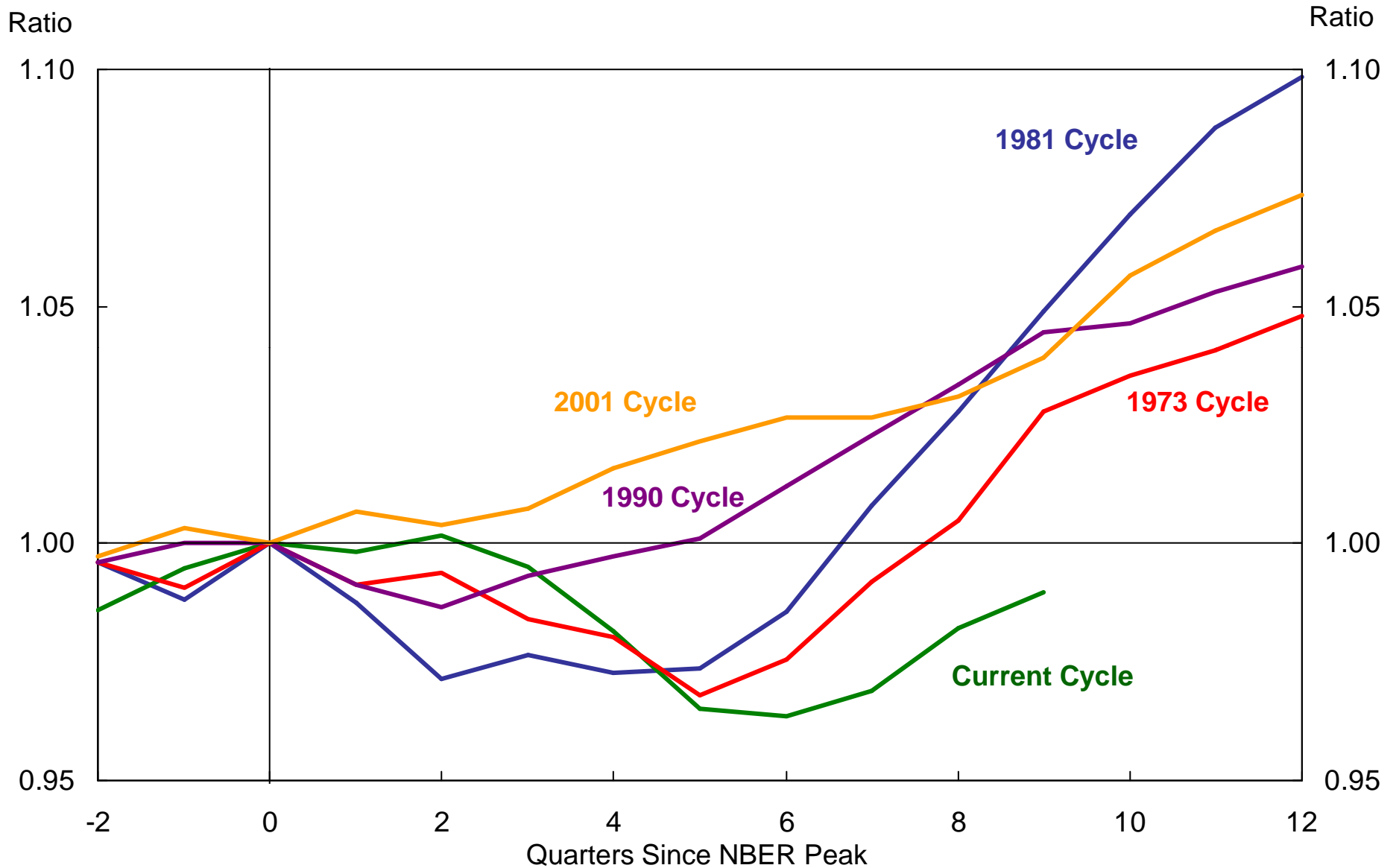
Source: Bureau of Labor Statistics

Inventories and Industrial Production

6-Month % Change - Annualized

6-Month % Change - Annualized

Inventories: Total Business

Industrial Production: Manufacturing
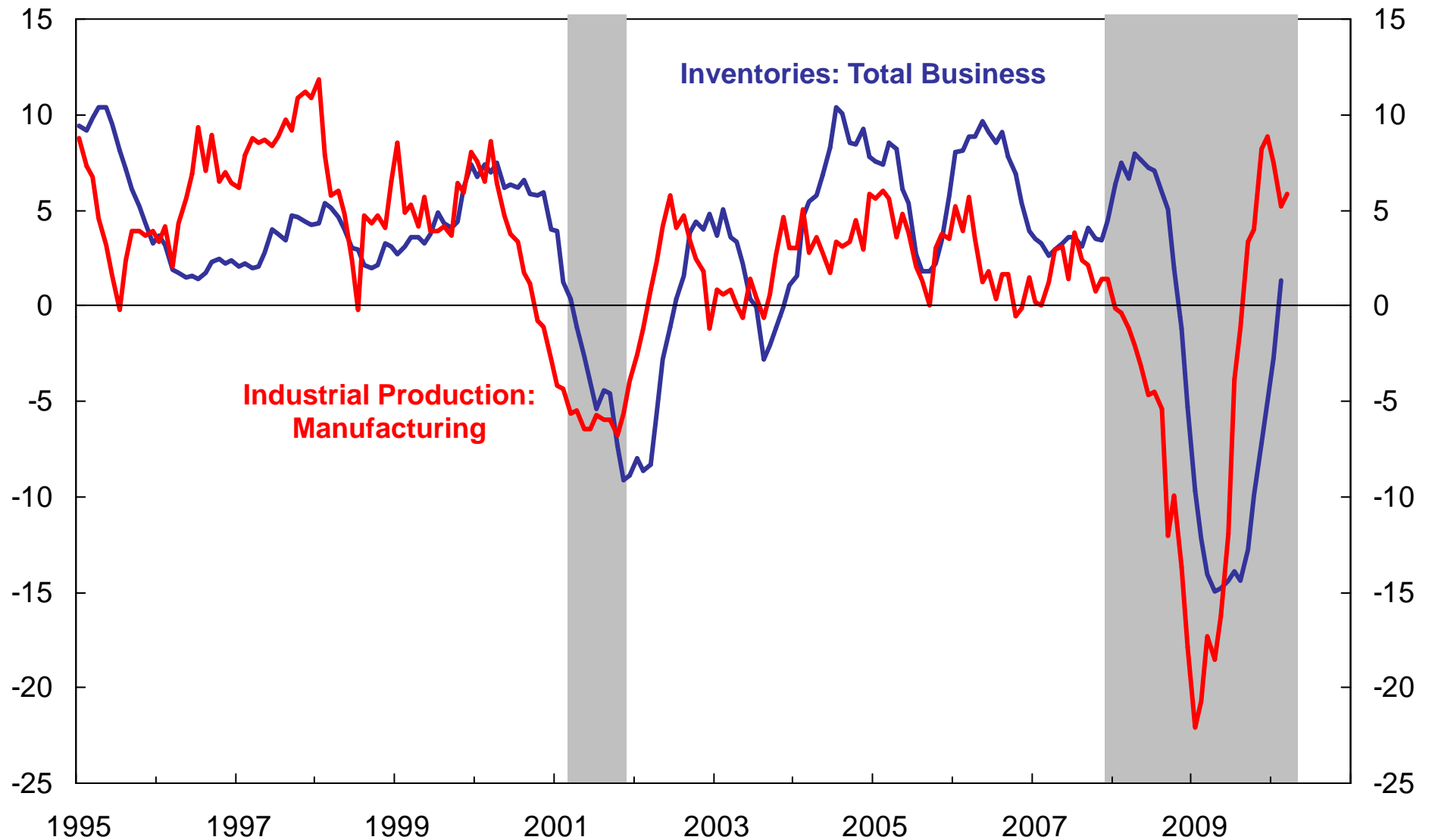
Source: Federal Reserve Board and Bureau of the Census

Note: Shading represents NBER recessions.

Total Hours of All Persons: Nonfarm Business Sector

(Series Set to 1.0 at NBER Peak)

Ratio — Ratio

1981 Cycle

1990 Cycle

1973 Cycle

2001 Cycle

Current Cycle

Months Since NBER Peak
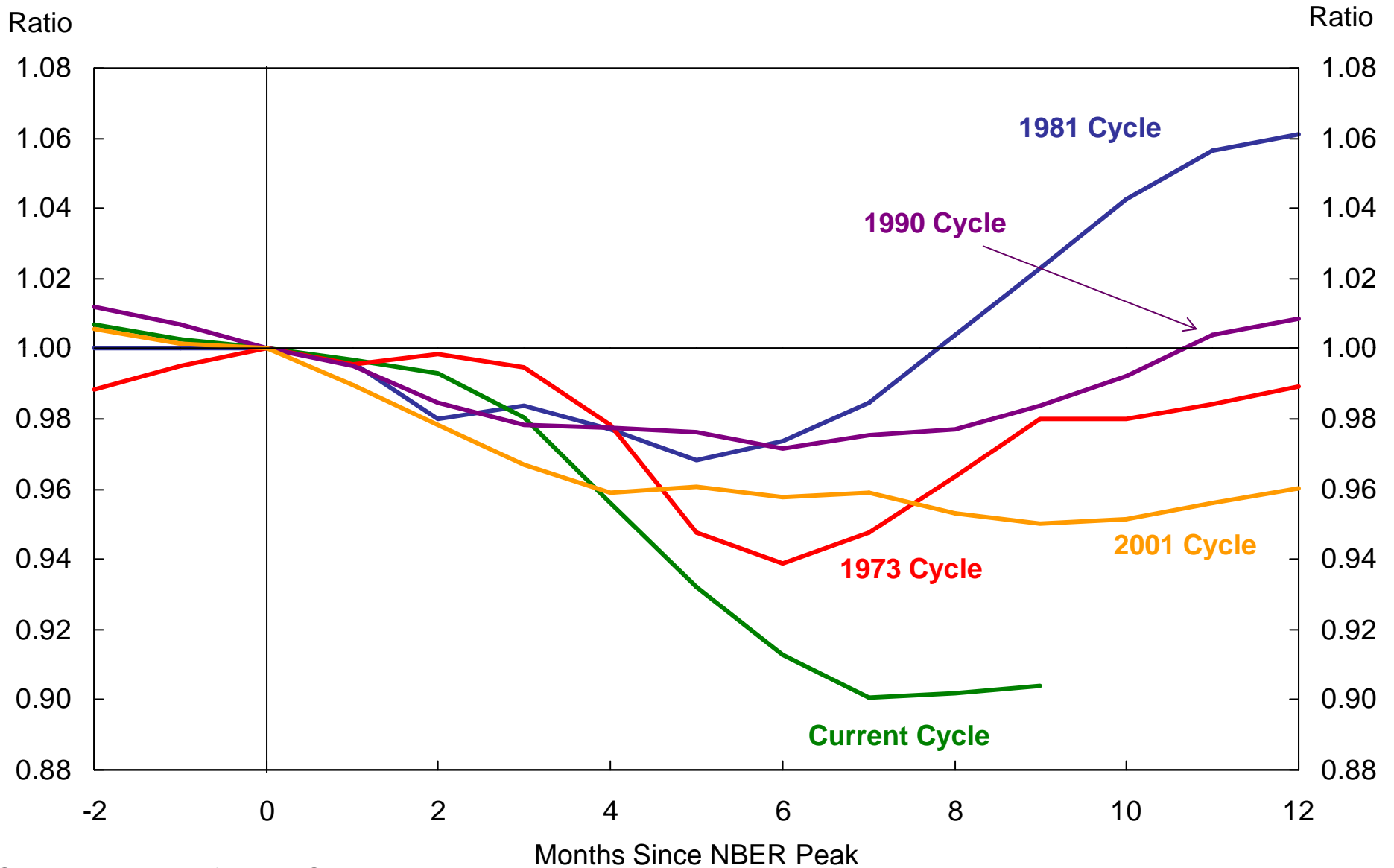
Source: Bureau of Labor Statistics

LoanPerformance Home Price Index

Level
(left axis)

-32%
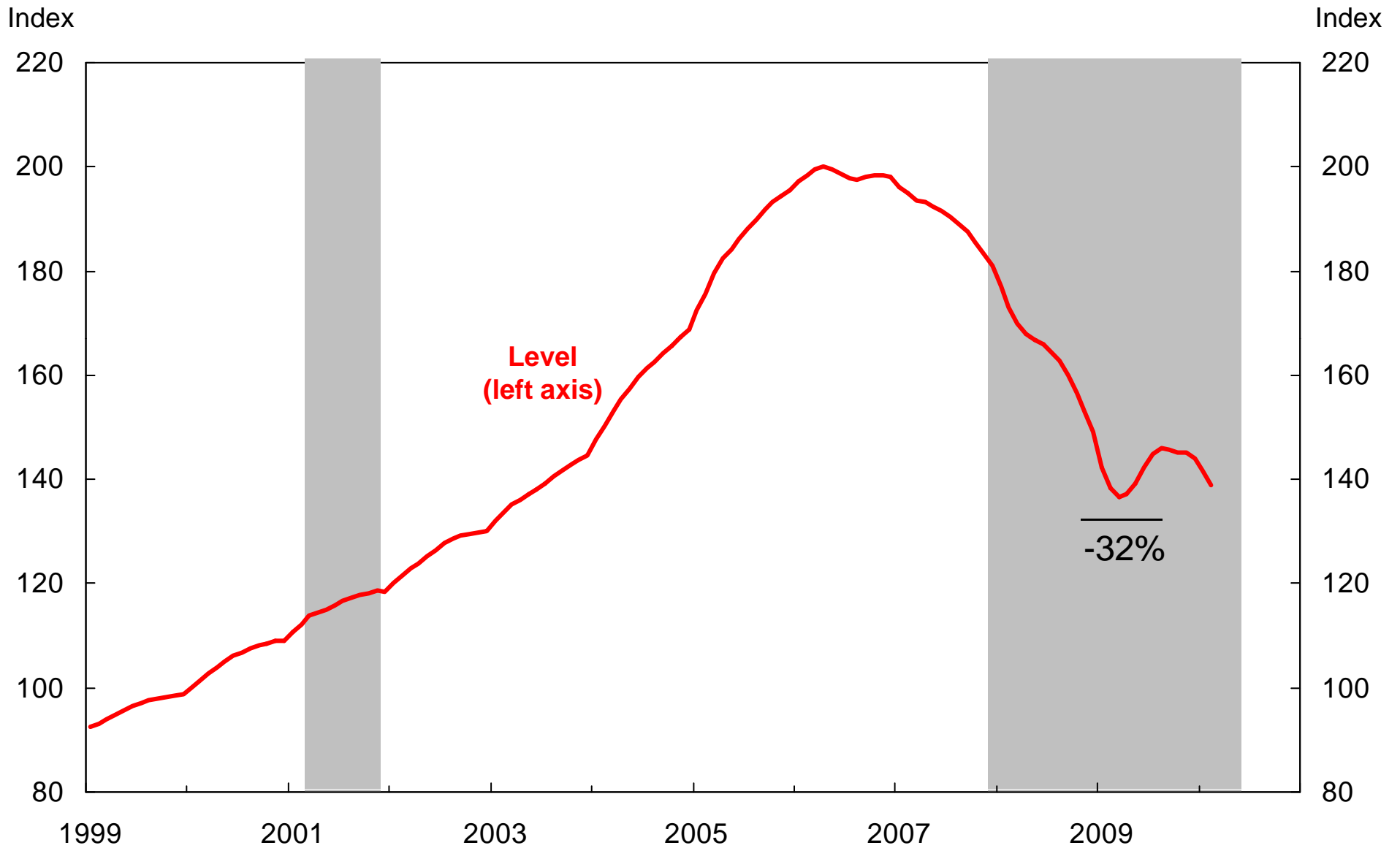
Note: Shading represents NBER recessions.

Actual and Projected House Price Indices

Index, 2000Q1 = 100

Index, 2000Q1 = 100

Radar Logic

**Radar Logic Futures
as of May 2010**

**Radar Logic Futures
as of Feb. 2009**

	Peak	Peak to Trough	Trough to 2009Q4	2009Q4 to 2013Q4
Radar Logic	2007 Q2	-33%	3%	1%
Radar Logic (Feb '09)	2007 Q2	-42%	n/a	9%

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
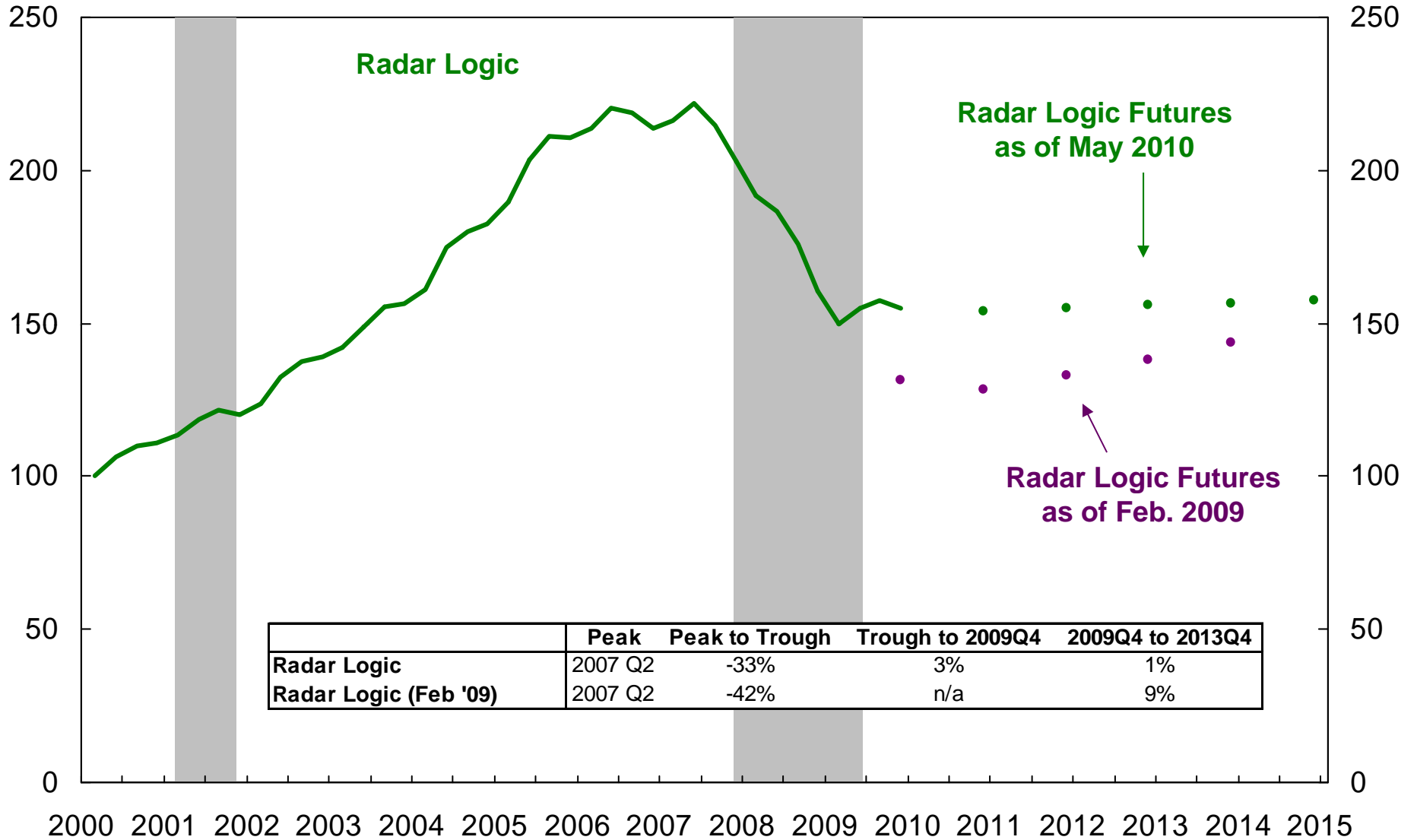
Note: Current futures suggest RL trough occurred in 2009Q1.
Feb. 2009 futures suggested trough would occur in 2010Q4.

Source: Radar Logic

Nonfarm Payroll Employment

(Series Set to 1.0 at NBER Peak)

Ratio

Ratio

1981 Cycle

1973 Cycle

1990 Cycle

2001 Cycle

Current Cycle

Months Since NBER Peak
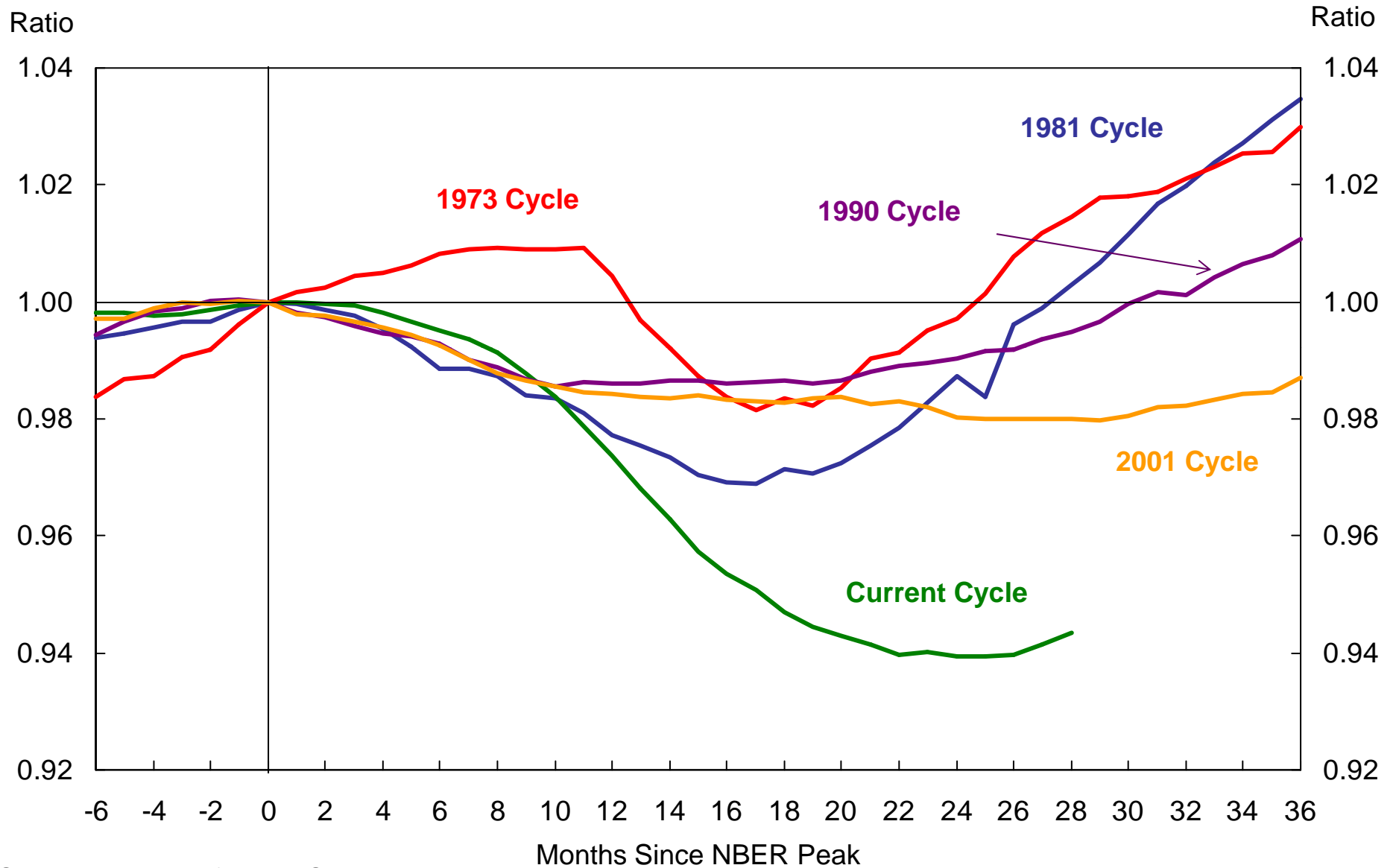
Source: Bureau of Labor Statistics

Real Business Fixed Investment

(Series Set to 1.0 at NBER Peak)
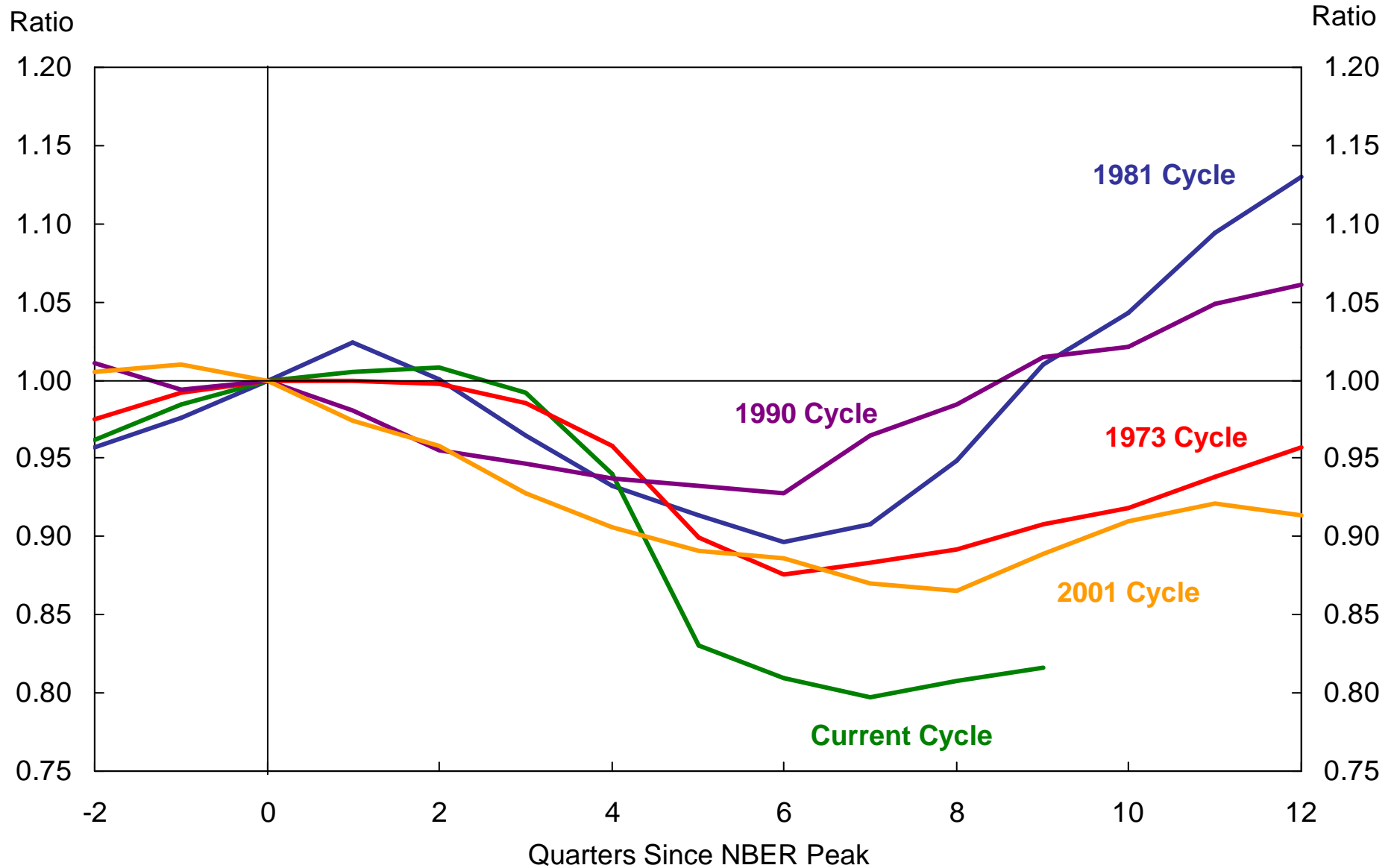
Source: Bureau of Labor Statistics

Real Exports

(Series Set to 1.0 at NBER Peak)

Ratio

Ratio

1990 Cycle

1973 Cycle

Current Cycle

2001 Cycle

1981 Cycle

Quarters Since NBER Peak
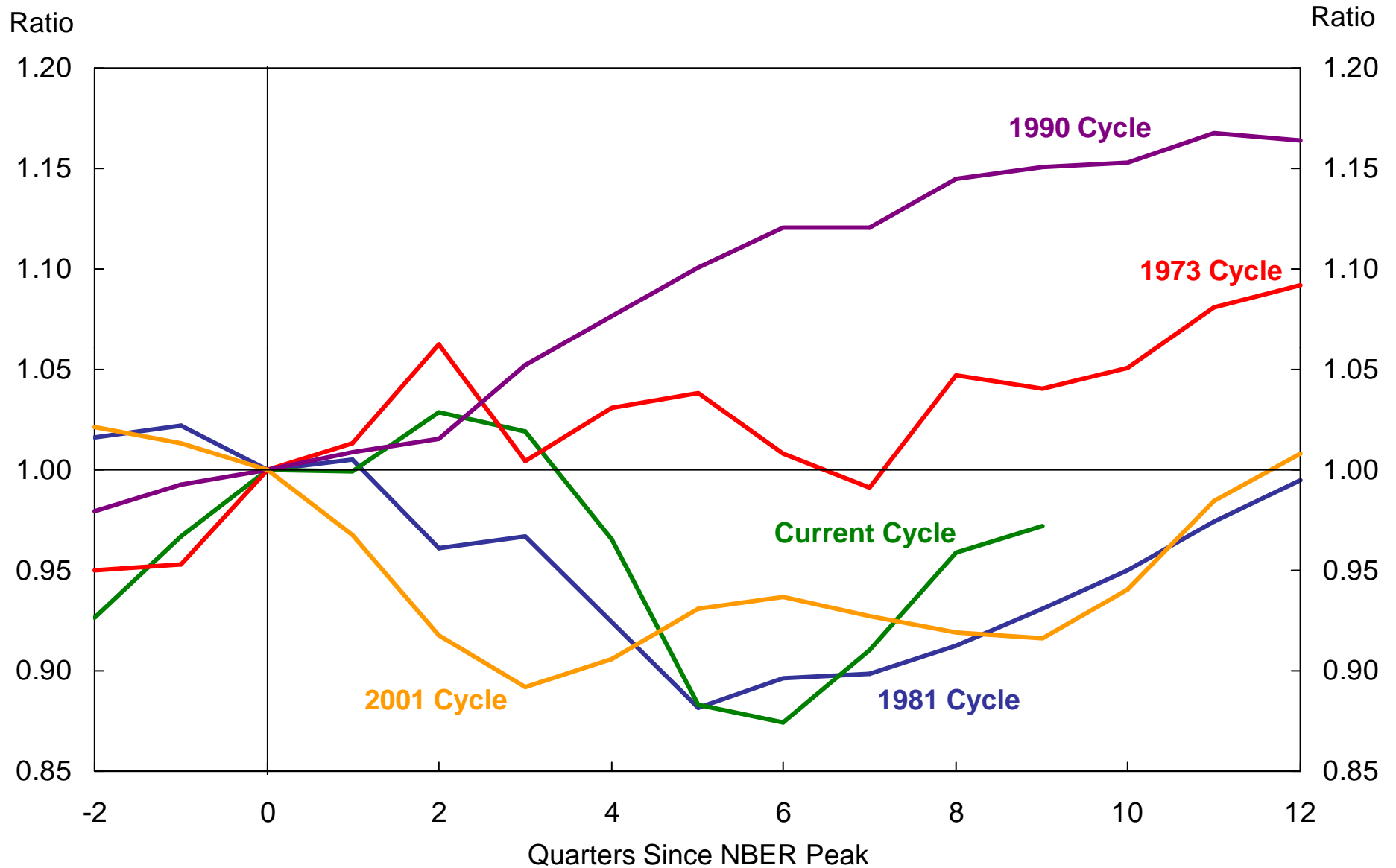
Source: Bureau of Labor Statistics

Total and Core CPI

% Change - Year to Year
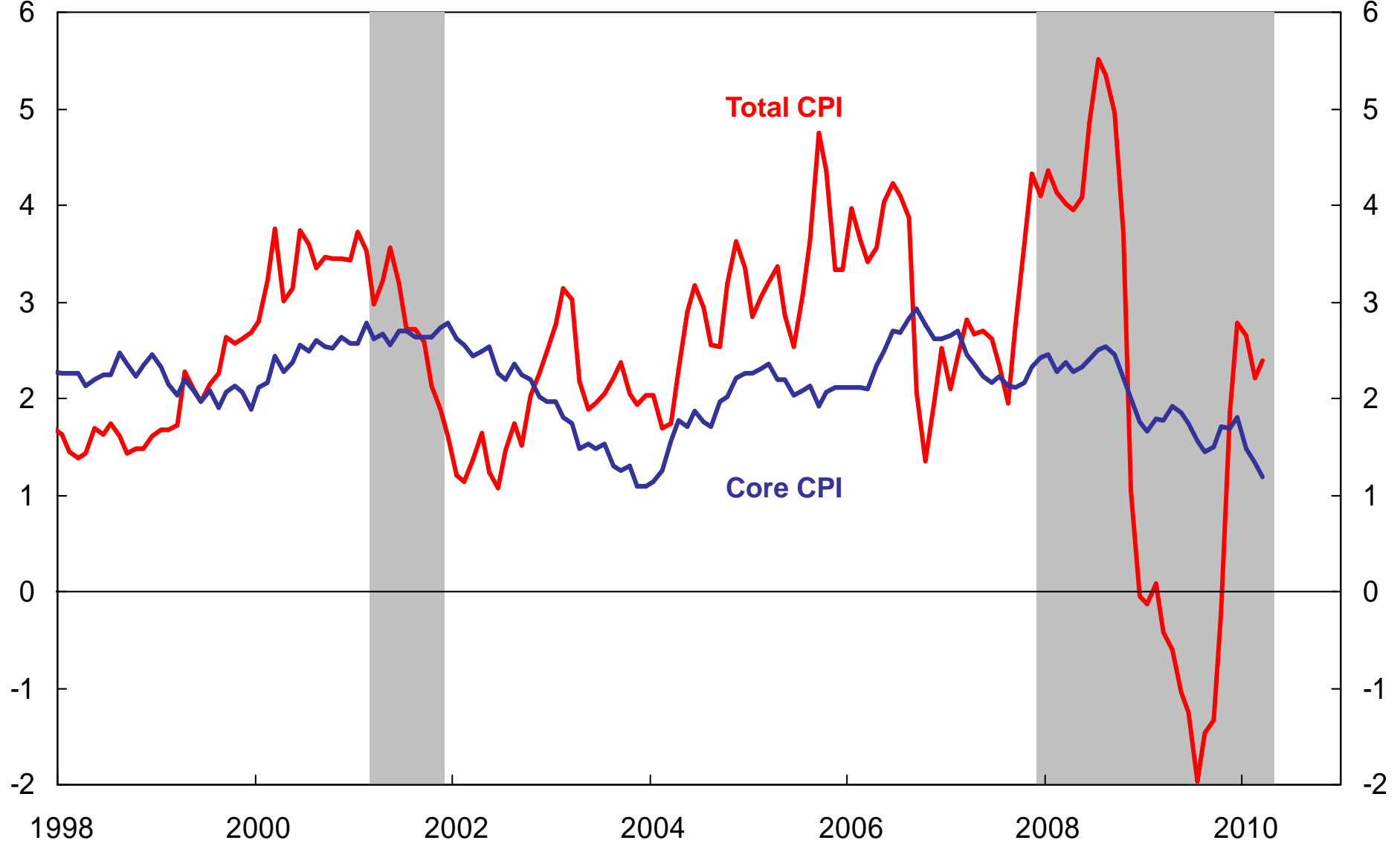
% Change - Year to Year

Source: Bureau of Labor Statistics
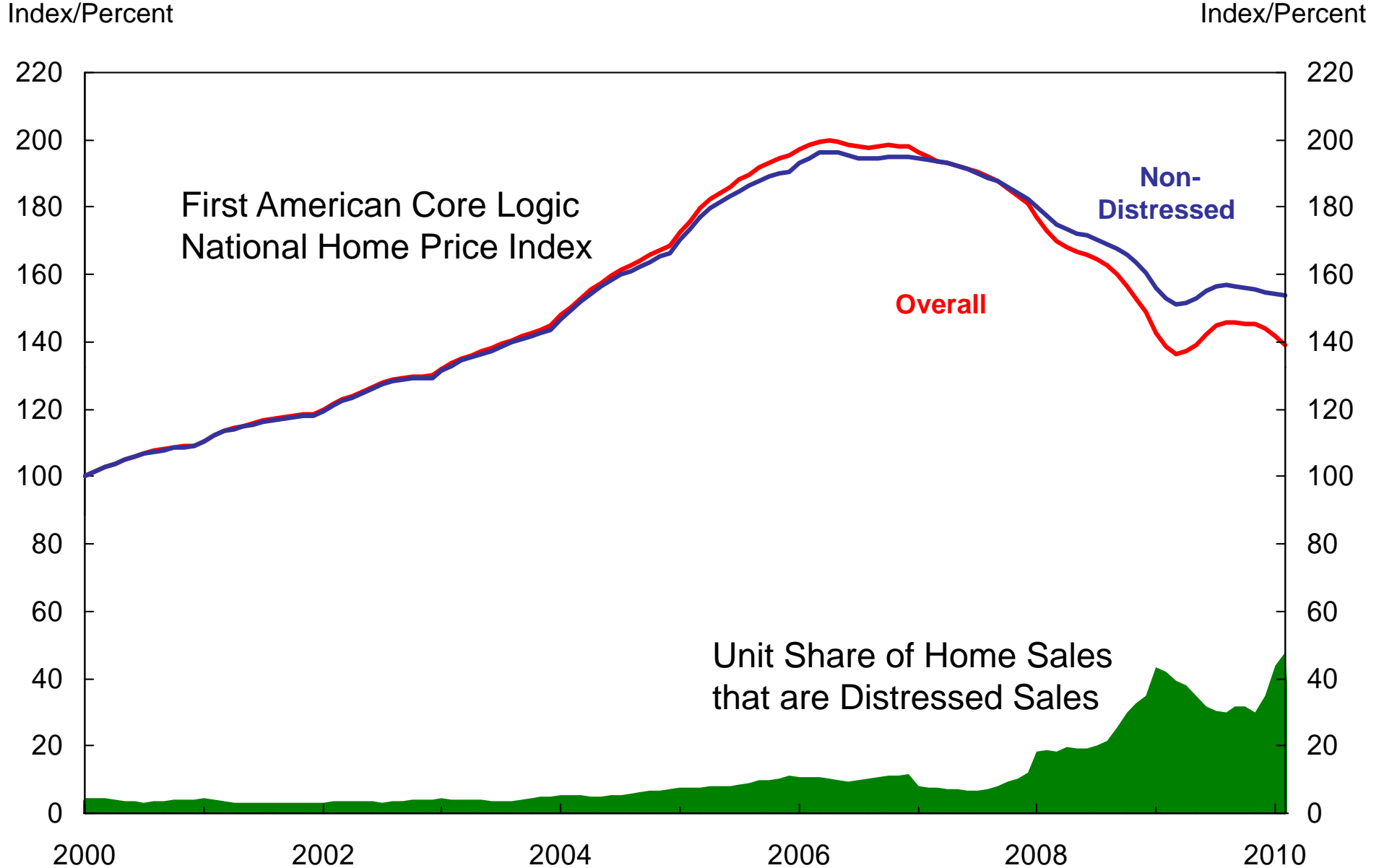
Note: Shading represents NBER recessions.

CPI: Core Goods and Core Services Inflation

% Change – Year to Year

% Change – Year to Year

Core Services

Core Goods
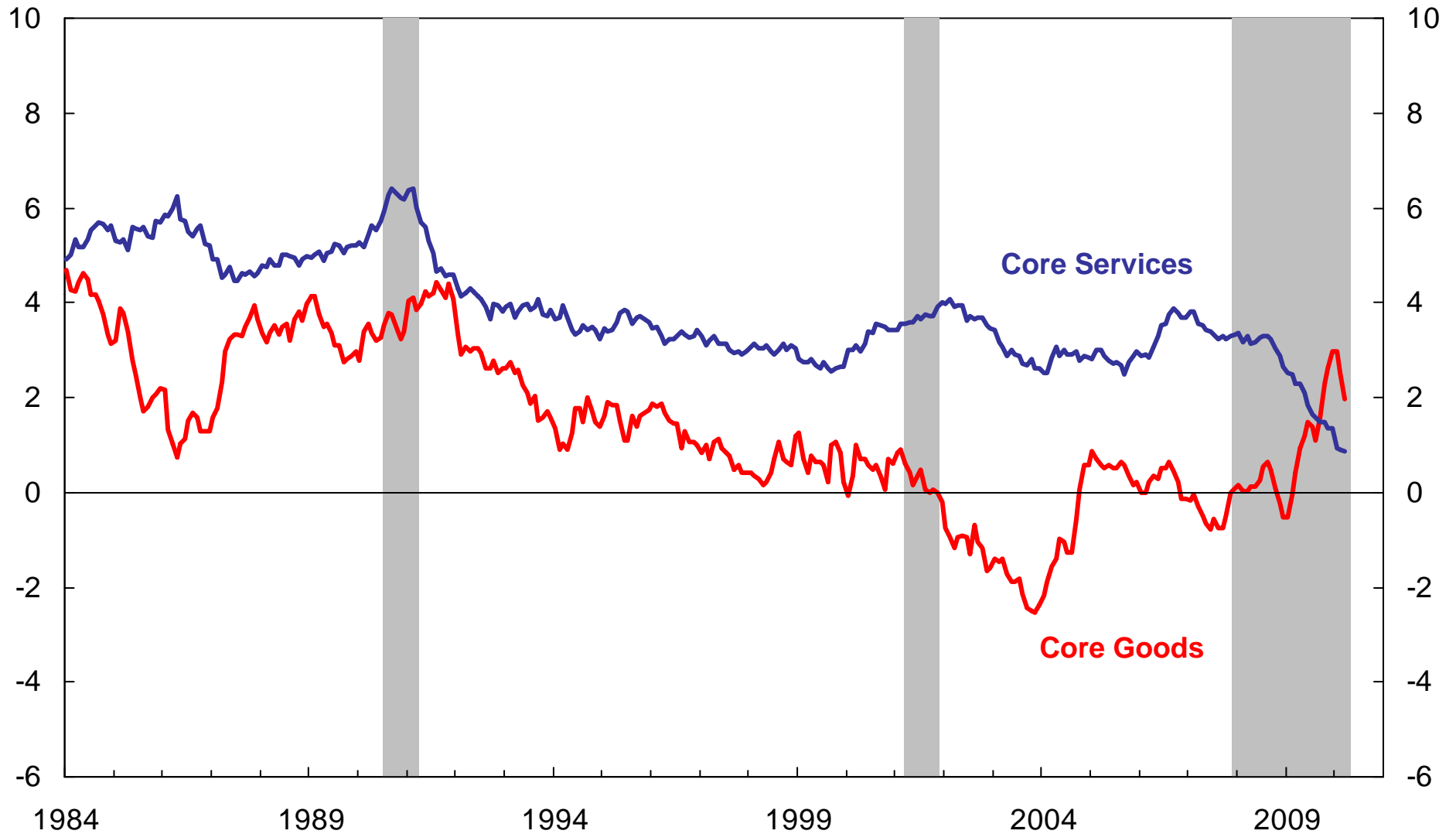
Source: Bureau of Labor Statistics

Rent Inflation

Tenant Rent (8%)

Owners' Equivalent Rent (31%)
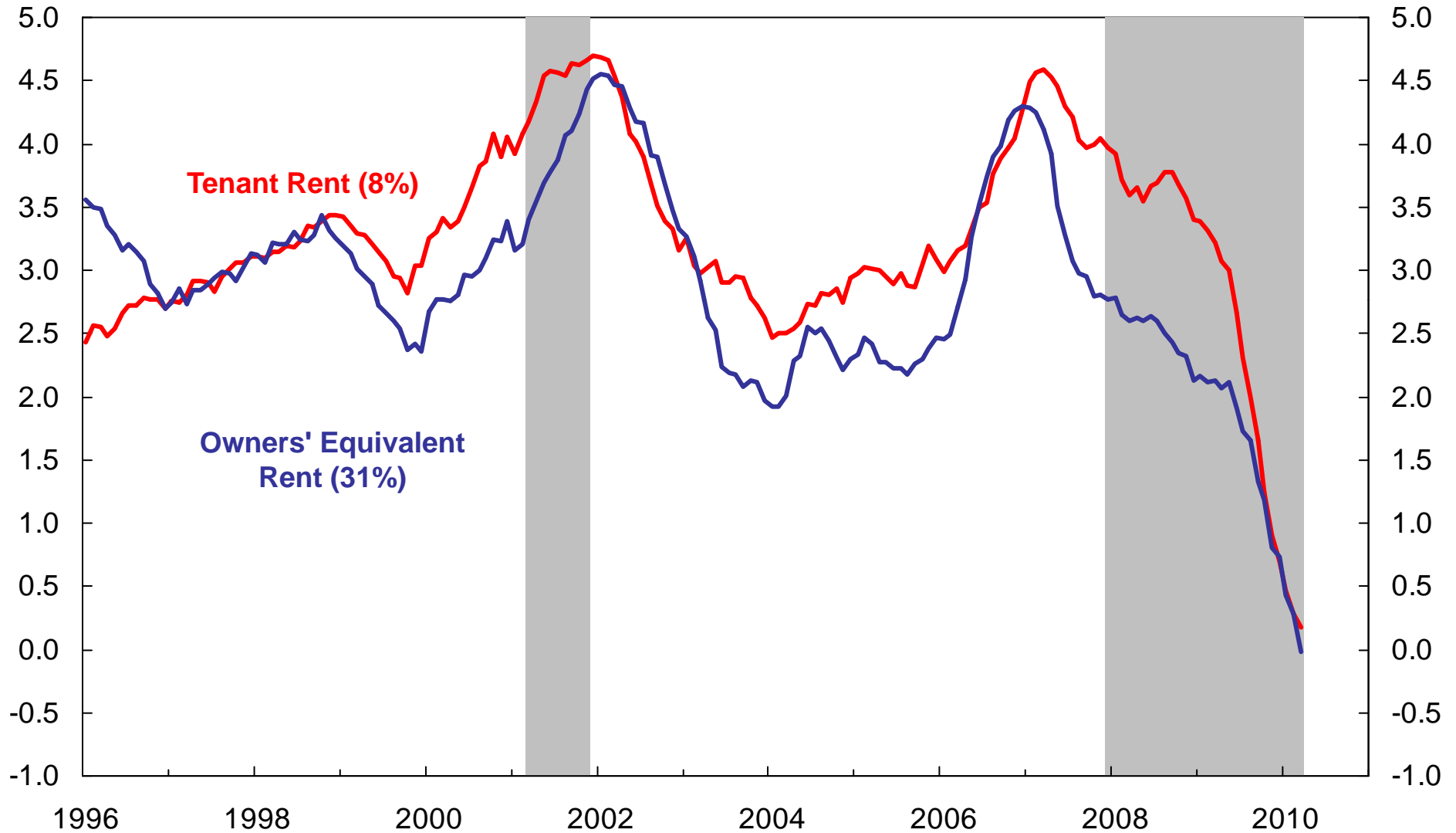
Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.
Number in parentheses represents share of core CPI.

Productivity, Compensation, and Unit Labor Costs
Nonfarm Business Sector

% Change - Year to Year

% Change - Year to Year

Compensation per Hour

Output per Hour

Unit Labor Costs
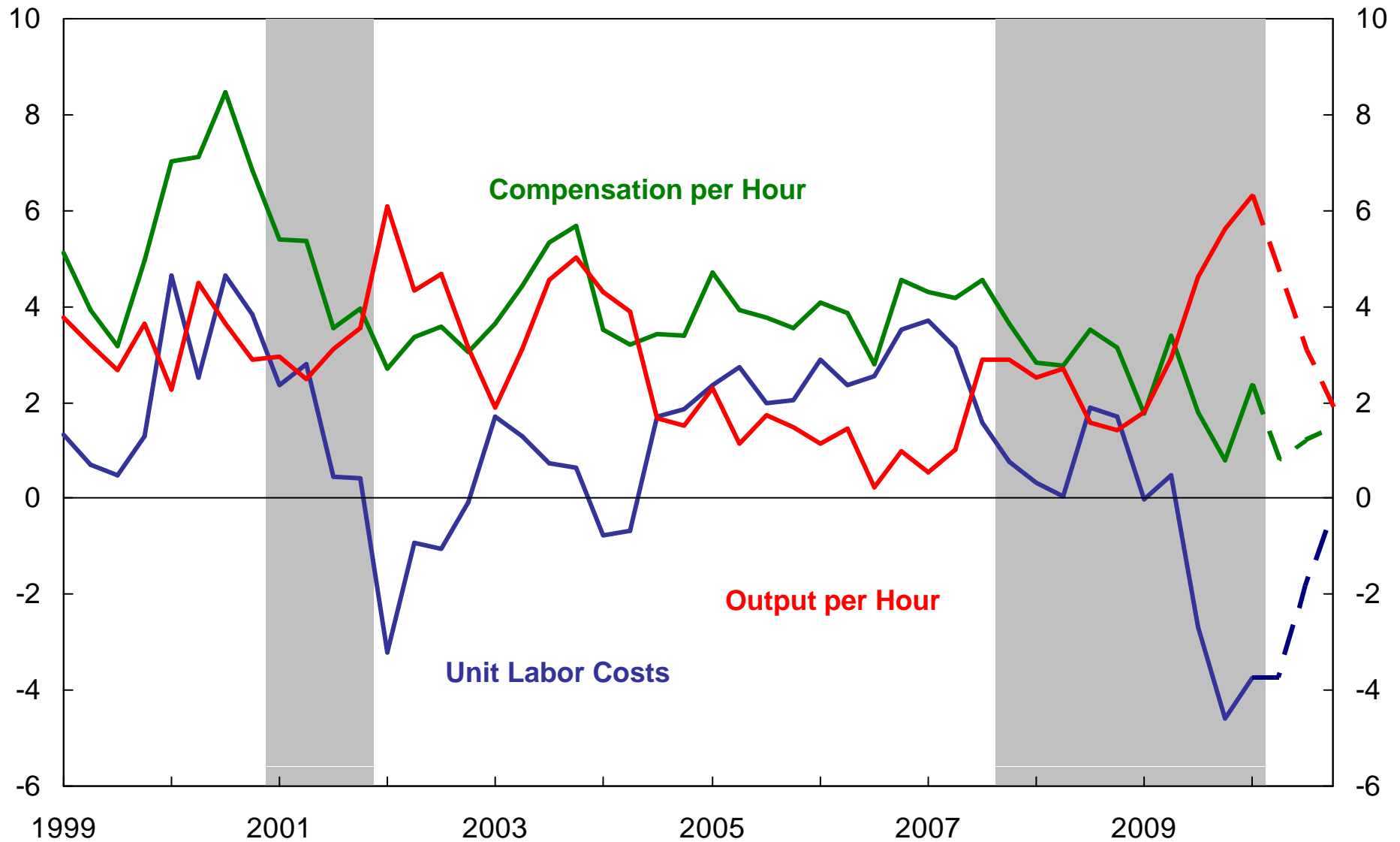
Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.
Dashed line represents FRBNY forecast.

TIPS Implied Inflation Compensation:2-3,4-5,5-10 Year Horizons

Percent

Percent

May 12: 3.12

5-10 Year

4-5 Year

2-3 Year

May 12: 2.67

May 12: 1.98

4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0

Jun-07 Aug-07 Nov-07 Feb-08 May-08 Aug-08 Nov-08 Feb-09 May-09 Jul-09 Oct-09 Jan-10 Apr-10
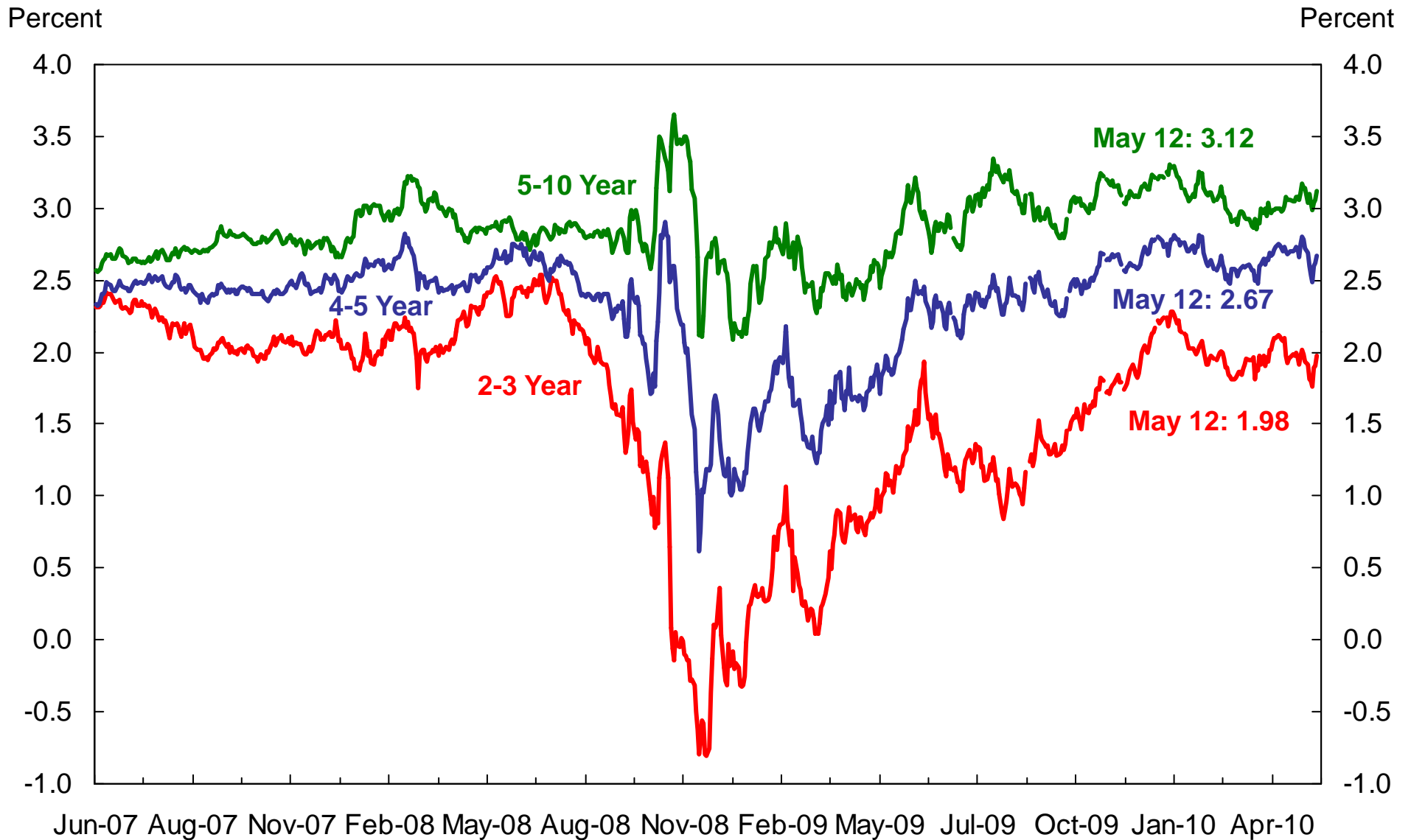
Note: Carry Adjusted.

Home Prices and Distressed Sales

Index/Percent

Index/Percent

First American Core Logic
National Home Price Index

Non-Distressed

Overall

Unit Share of Home Sales
that are Distressed Sales

220 — 220
200 — 200
180 — 180
160 — 160
140 — 140
120 — 120
100 — 100
80 — 80
60 — 60
40 — 40
20 — 20
0 — 0

2000   2002   2004   2006   2008   2010

Source: First American Core Logic

Equity Price Assumption

Index

Index

S&P 500

1800

1600

1400

1200

1000

800

600

2006 2007 2008 2009 2010
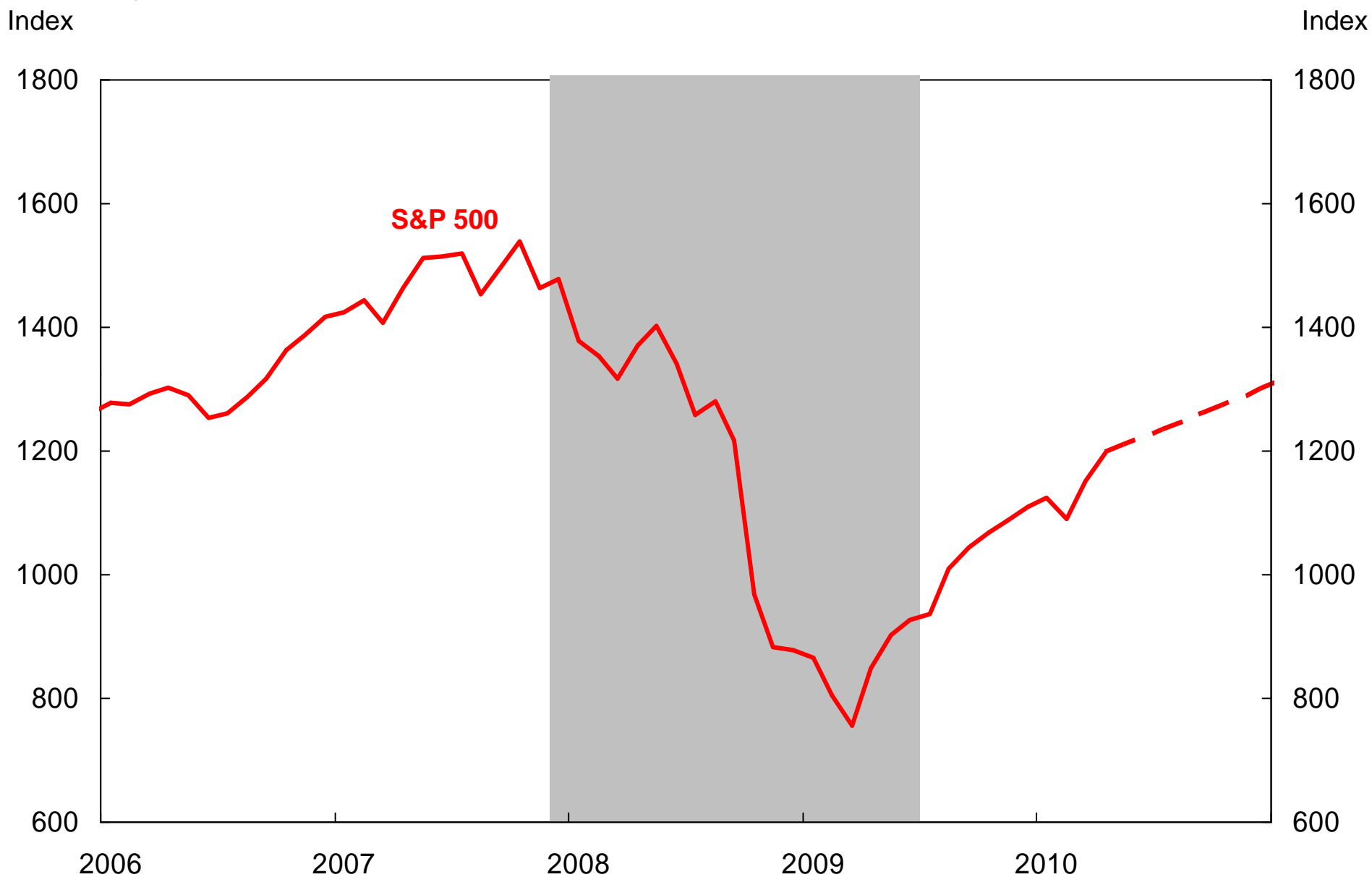
Note: Dashed line represents FRBNY assumption.

Transition Rates from 30-60 Day Delinquency (Balance Weighted)

Percent

Percent

Cure Rate

Non-Performing Rate (90+)
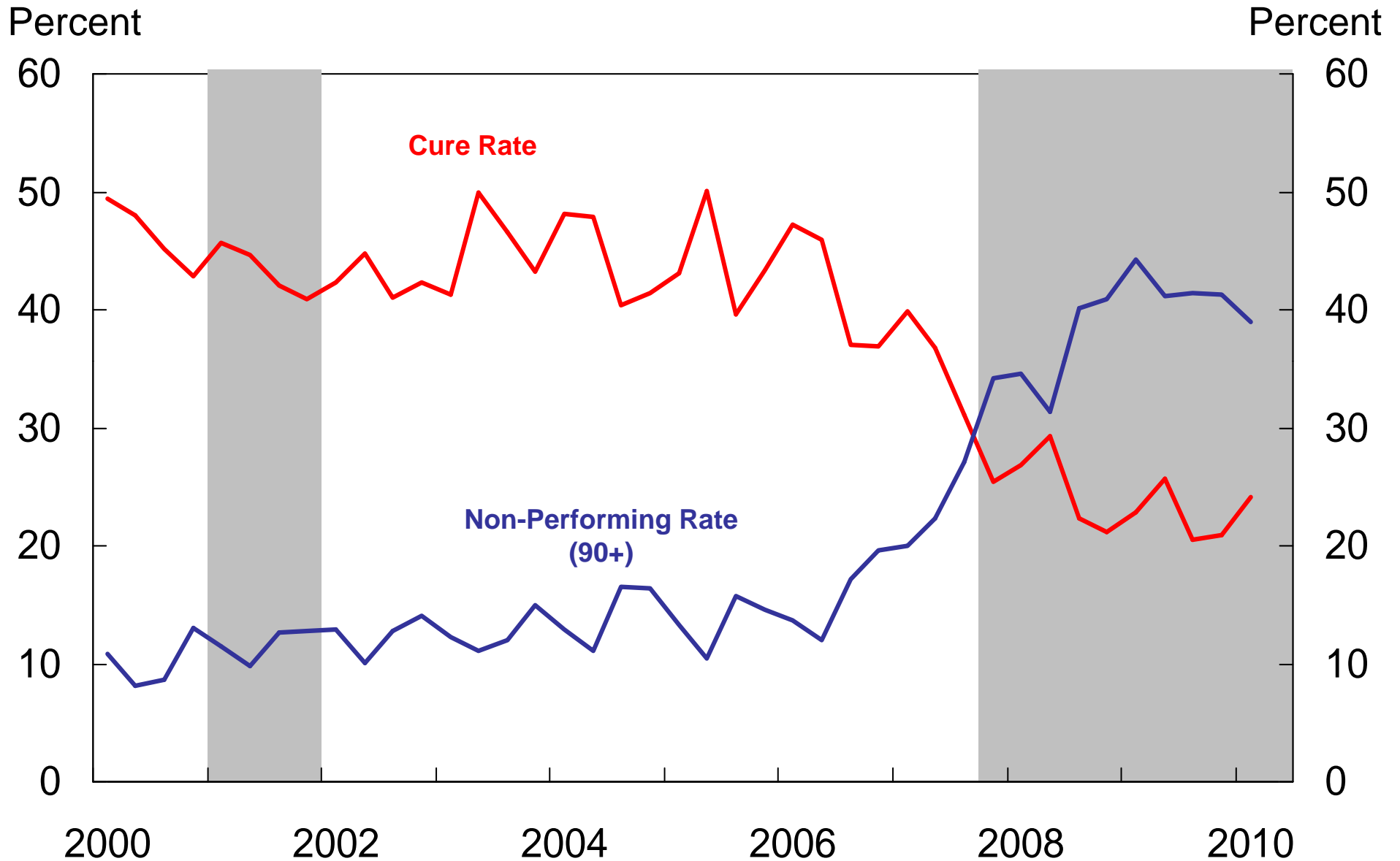
Source: FRBNY Equifax Dataset

Short- and Long-Term Rates

Percent

Percent

May 12:
3.57

10-Year

2-Year

May 12:
0.87

3-Month

May 12:
0.16

Mar-08 Jun-08 Sep-08 Dec-08 Mar-09 Jun-09 Sep-09 Dec-09 Mar-10 Jun-10
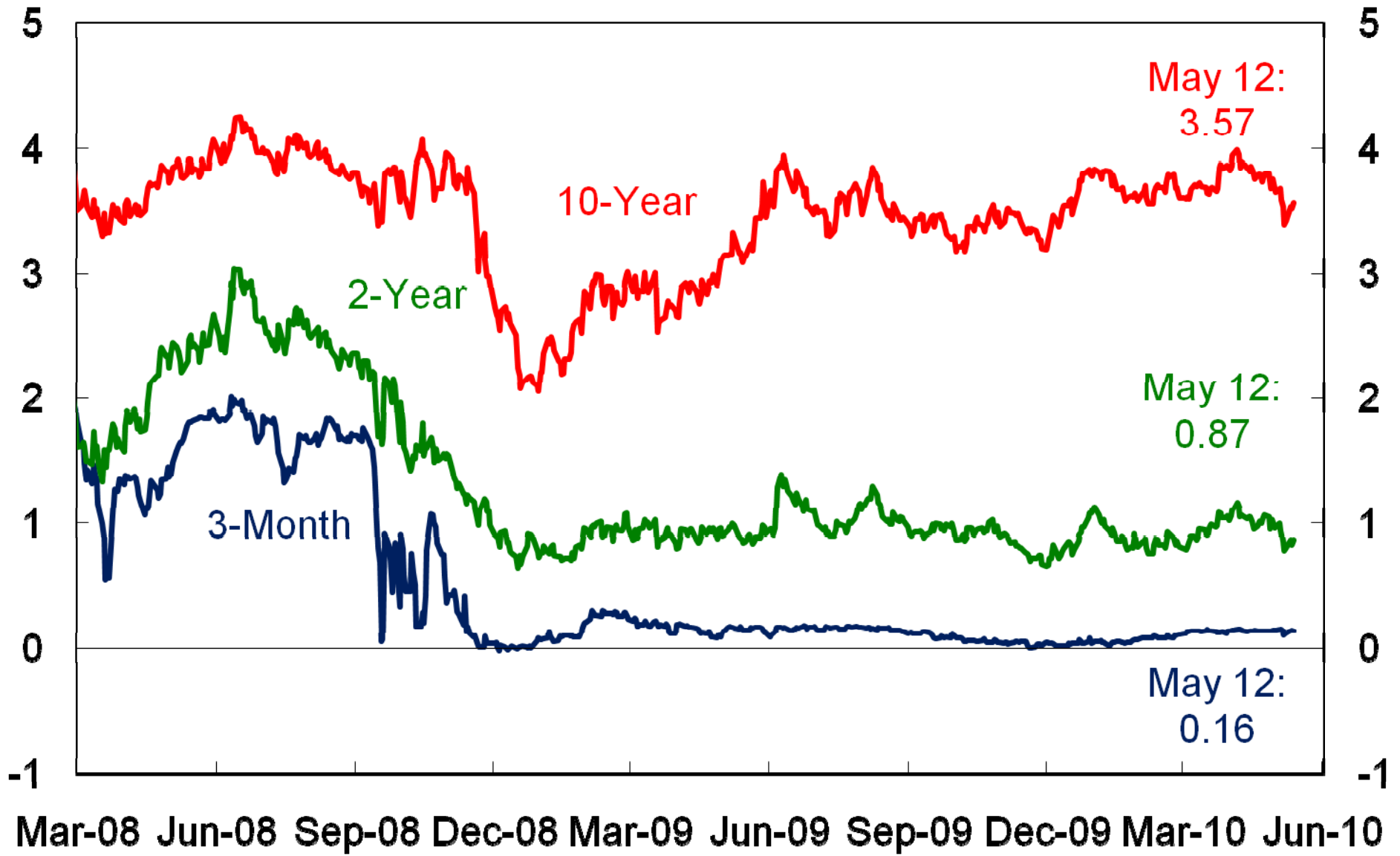
Source: Bloomberg

Note: Yields of on-the-run securities.

Implied Inflation from Inflation Swaps: 0-5, 5-10 Year Horizon

Percent (left and right axes)

5-10 years

0-5 years

Apr 30: 3.25

Apr 30: 2.30

Source: Barclays

Commercial and Industrial Loans Outstanding

% Change - Year to Year

% Change - Year to Year

Mar: -24.2
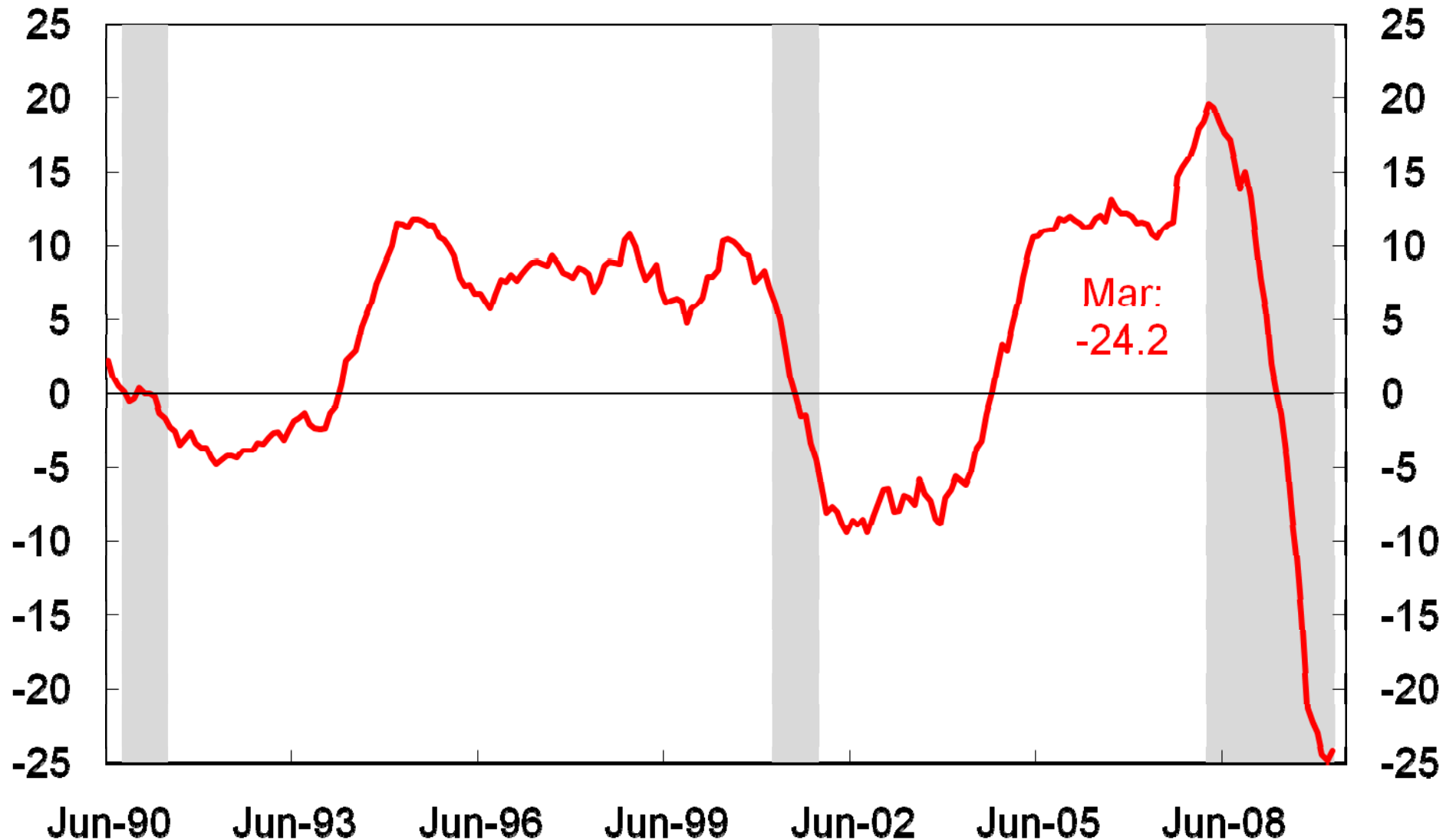
Source: Federal Reserve Board

Bank Lending Practices

Net % of Respondents

Net % of Respondents

Increasing Spreads

Tightening Standards

Weaker Demand

Q2: 7.1

Q2: -7.1

Q2: -7.1

Jun-90 Jun-93 Jun-96 Jun-99 Jun-02 Jun-05 Jun-08
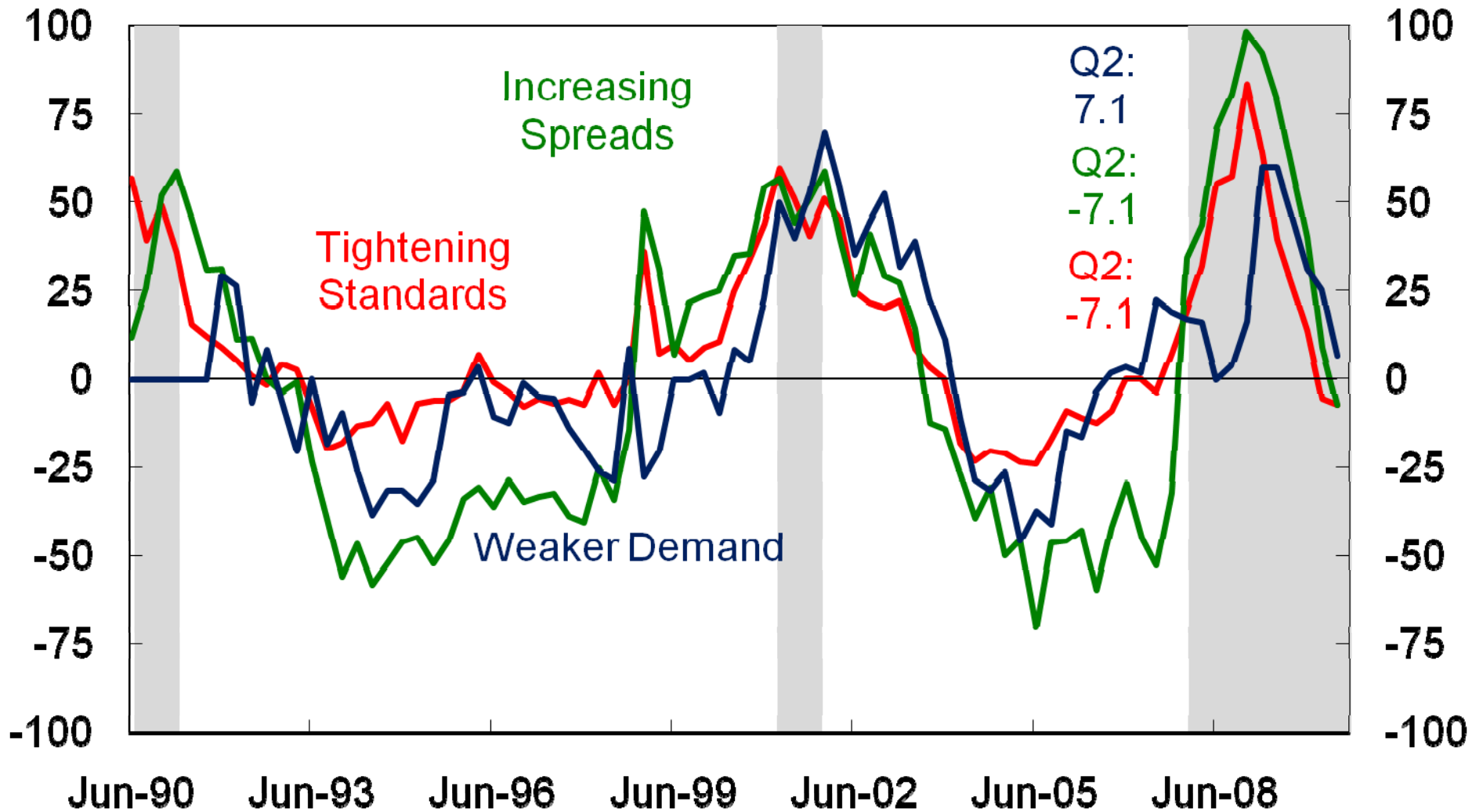
Source: Federal Reserve Board

Note: Data cover C&I loans to large- and medium-sized firms.

Nondefense Capital Goods Excluding Aircraft

% Change - 3 months (AR)

% Change - 3 months (AR)

New Orders
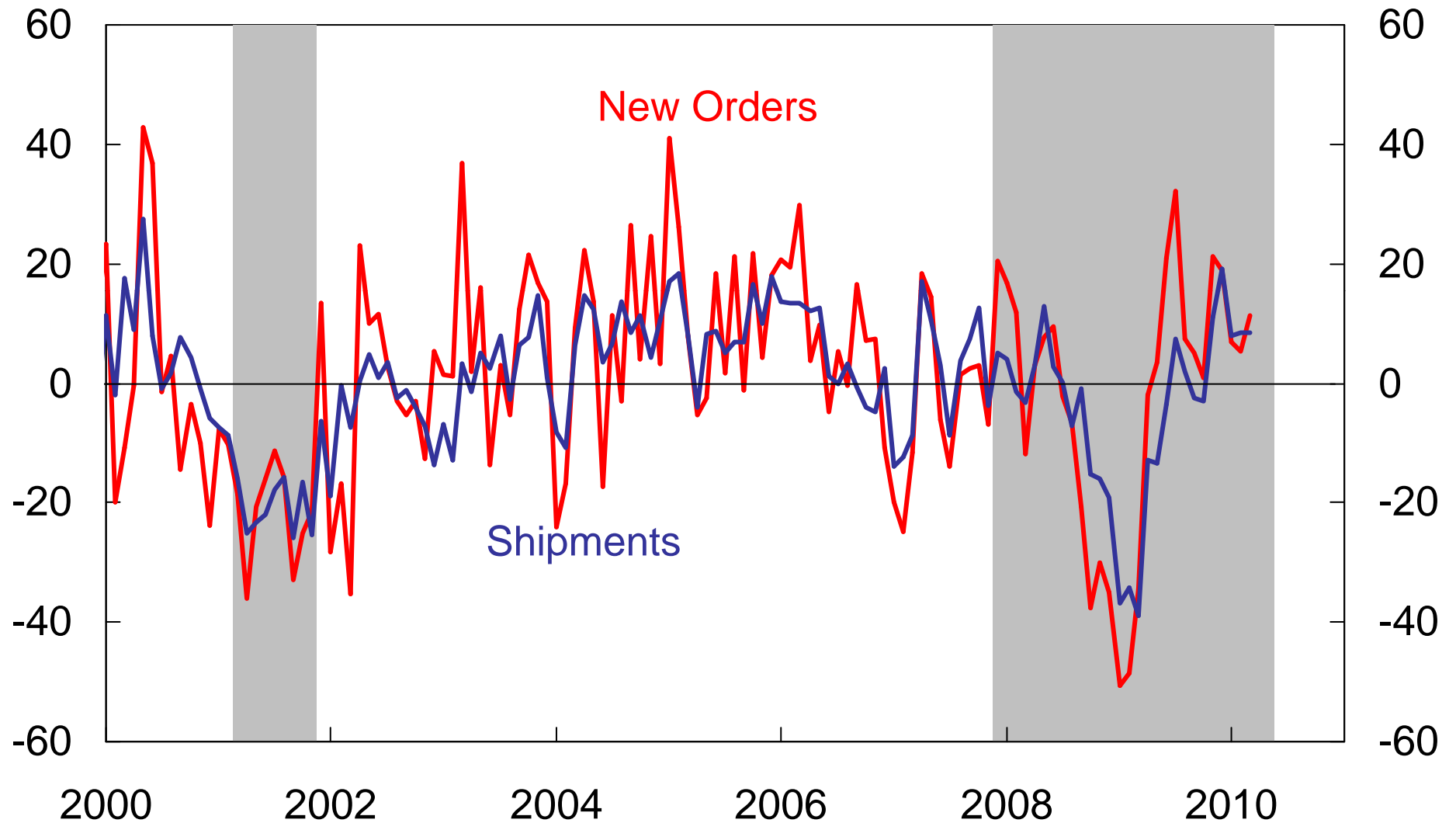
Shipments

Source: Census Bureau

Nondefense Capital Goods Excluding Aircraft

% Change - Year to Year   % Change - Year to Year
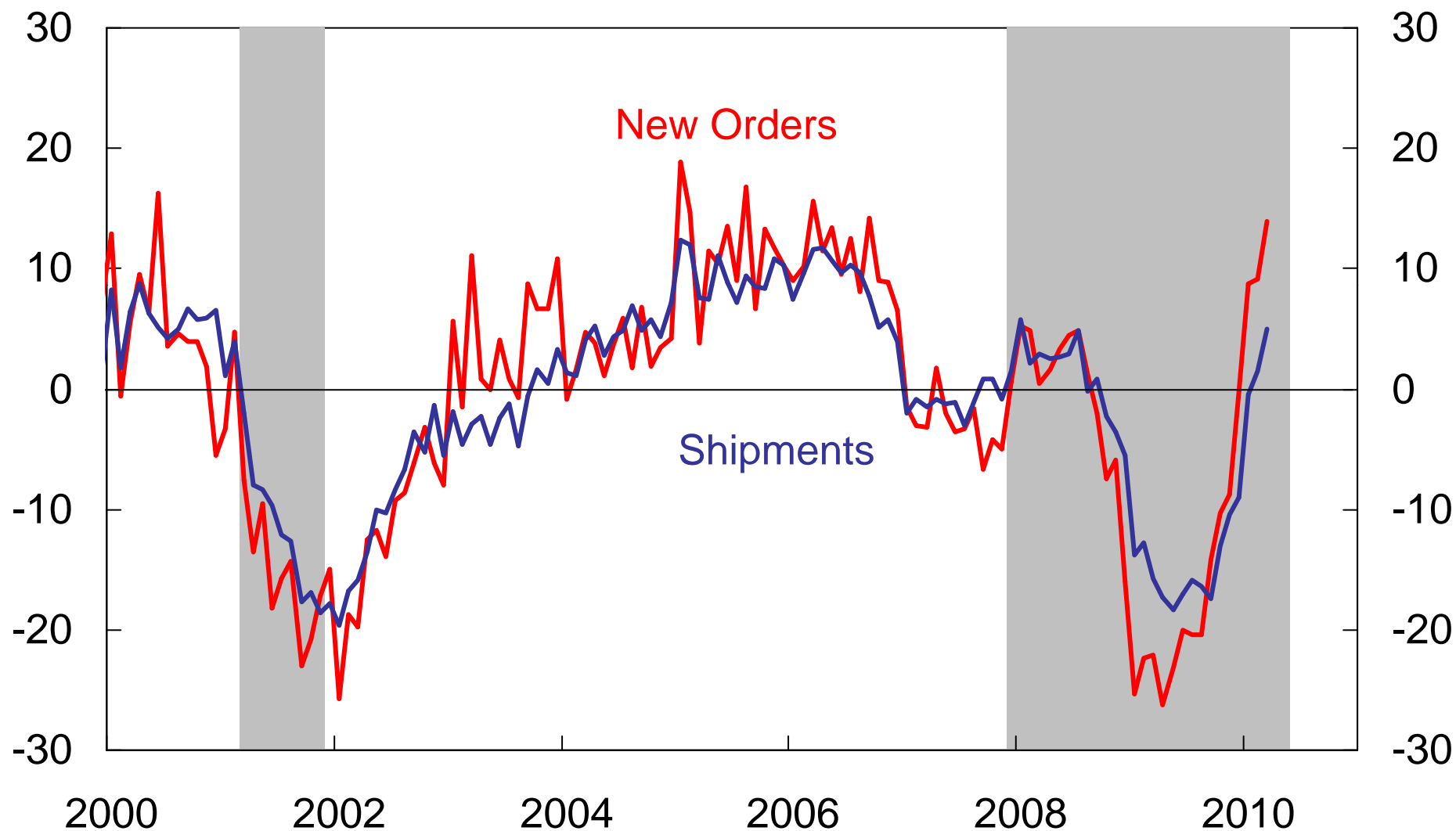
Source: Census Bureau

Unfilled Orders/Shipments: Durable Goods
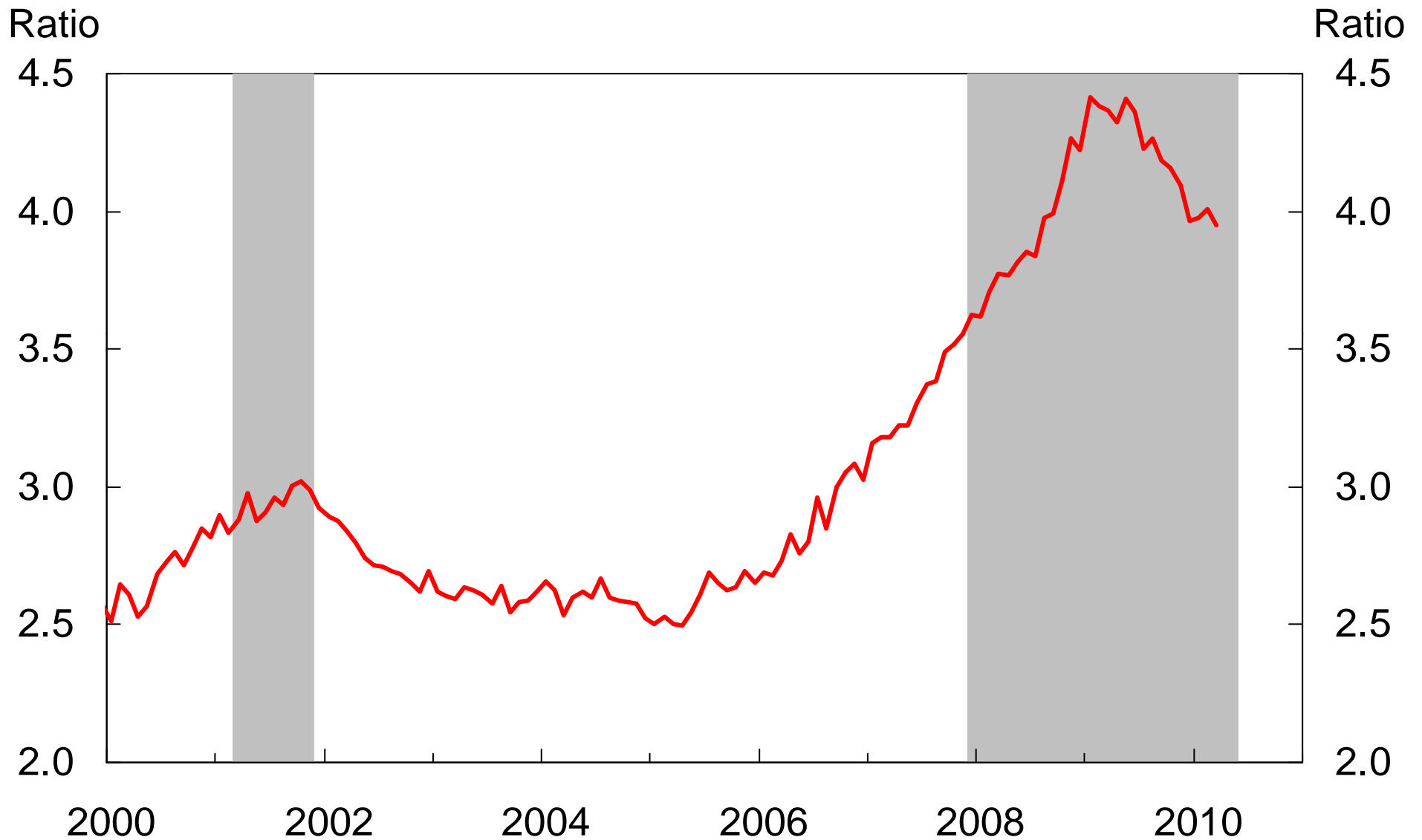
Source: Census Bureau

Auto Sales

Light-Weight Vehicle Sales, Production, and Inventories
(millions of units, SAAR)

	2009Q2	2009Q3	2009Q4	2010Q1	2010Q2 (to-date)
Sales					
Total	9.6	11.5	10.9	11.0	11.2
Retail Auto	4.9	6.4	5.7	5.7	5.6
Domestic	3.2	4.2	3.8	3.9	3.8
Imported	1.7	2.2	1.9	1.9	1.8
Light Truck	4.7	5.1	5.2	5.2	5.6
Domestic	3.8	4.1	4.3	4.3	4.7
Imported	0.9	1.0	0.9	1.0	0.9
Total Domestic	7.0	8.3	8.1	8.1	8.5
Domestic Auto Inventories (units)*	933.3	757.9	754.1	765.6	n/a
Domestic Auto I-S Ratio (level)*	3.6	2.3	2.4	2.4	n/a
IP: Autos and Light Trucks (Index, 2002=100)**	42.0	60.5	66.2	70.5	n/a
Domestic Light Vehicle Production (units)**	4.4	6.4	7.0	7.4	n/a
North American Light Vehicle Production (units)**	7.0	9.8	10.8	11.6	n/a

* Based on data through February 2010.

Source: Bureau of Economic Analysis, Autodata Corporation
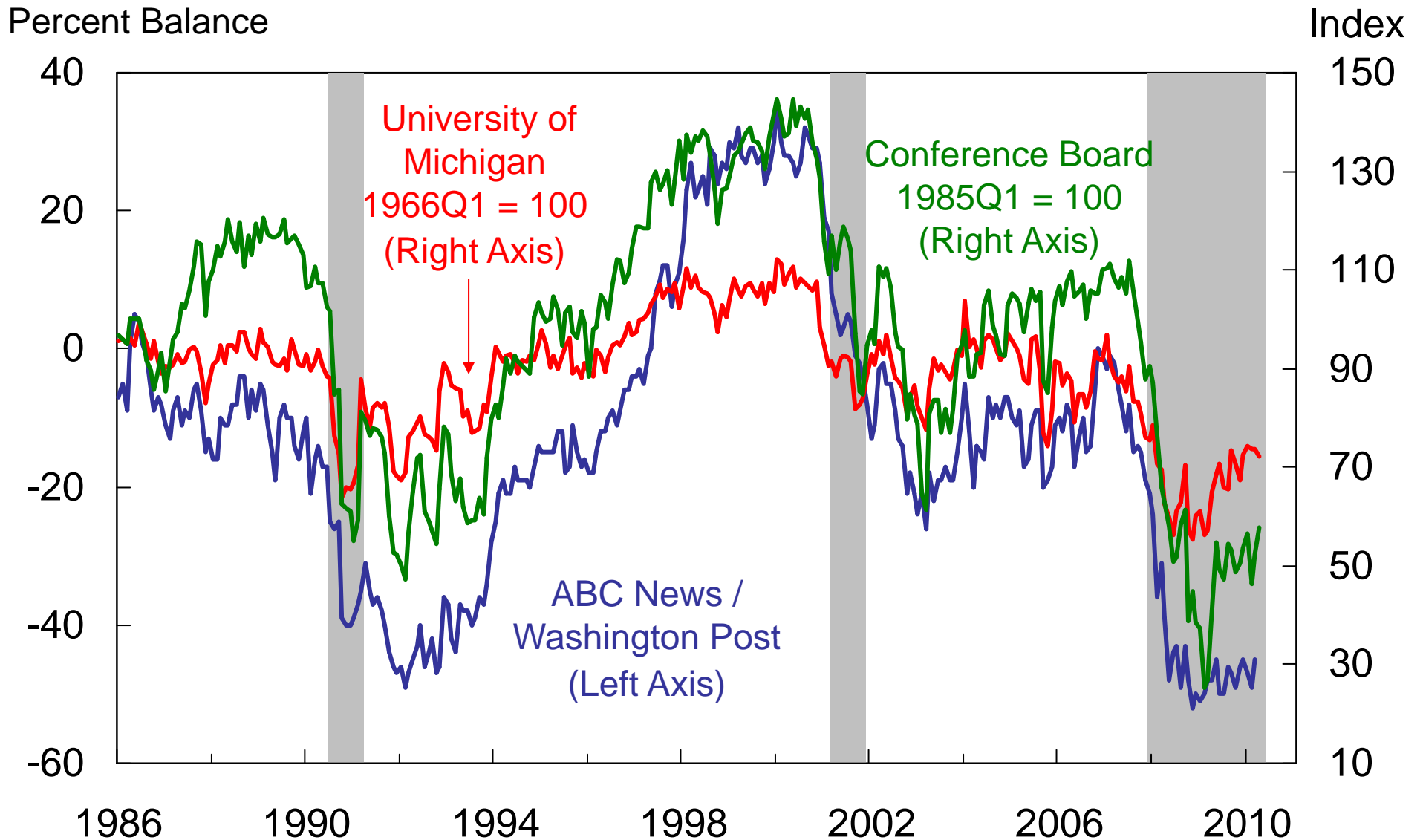
** Based on data through March 2010.

Auto Sales

% Change - Year to Year
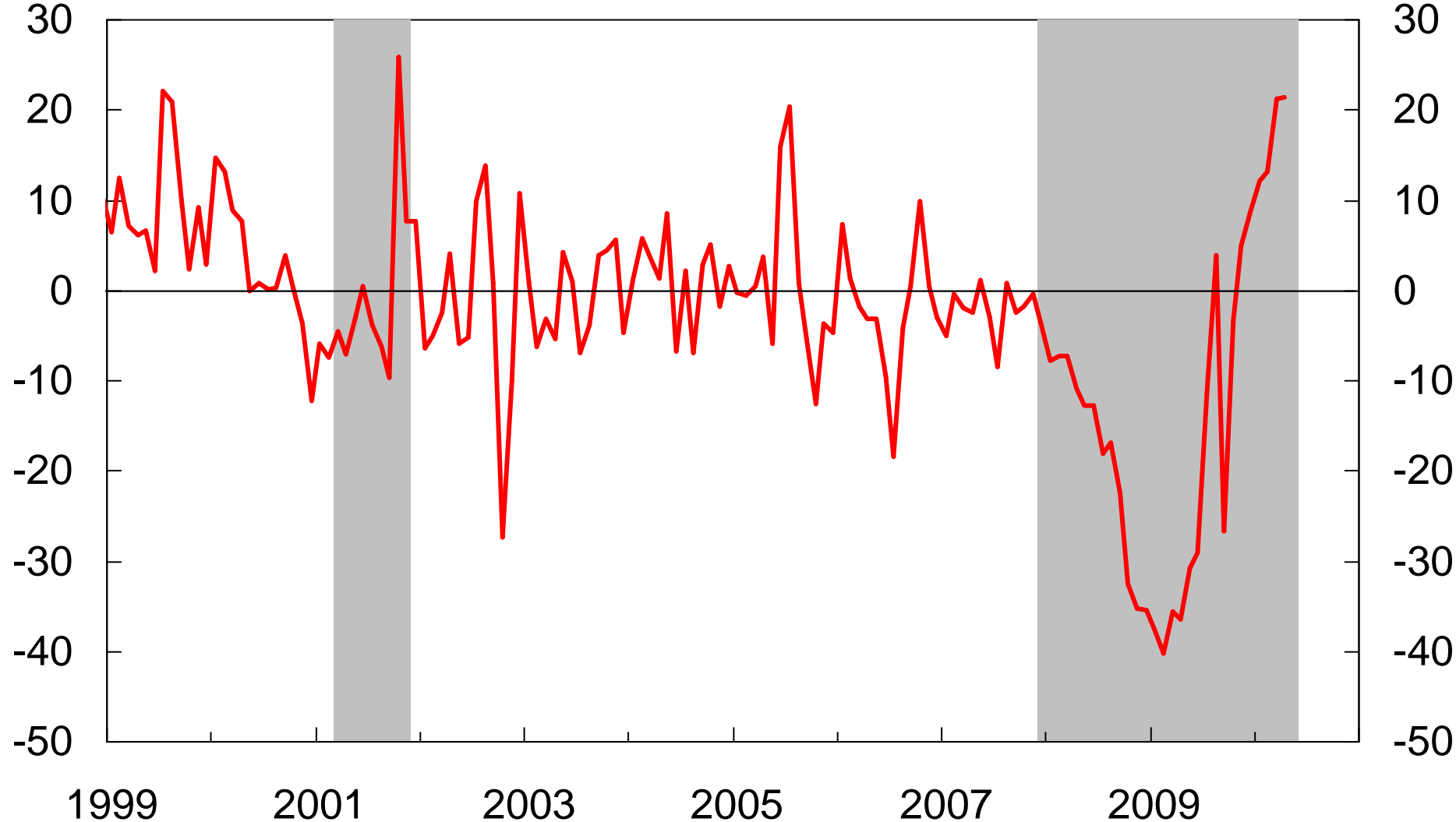
% Change - Year to Year

Source: Autodata Corporation

Consumer Confidence/Sentiment Indices

Percent Balance

Index

University of Michigan 1966Q1 = 100 (Right Axis)

Conference Board 1985Q1 = 100 (Right Axis)
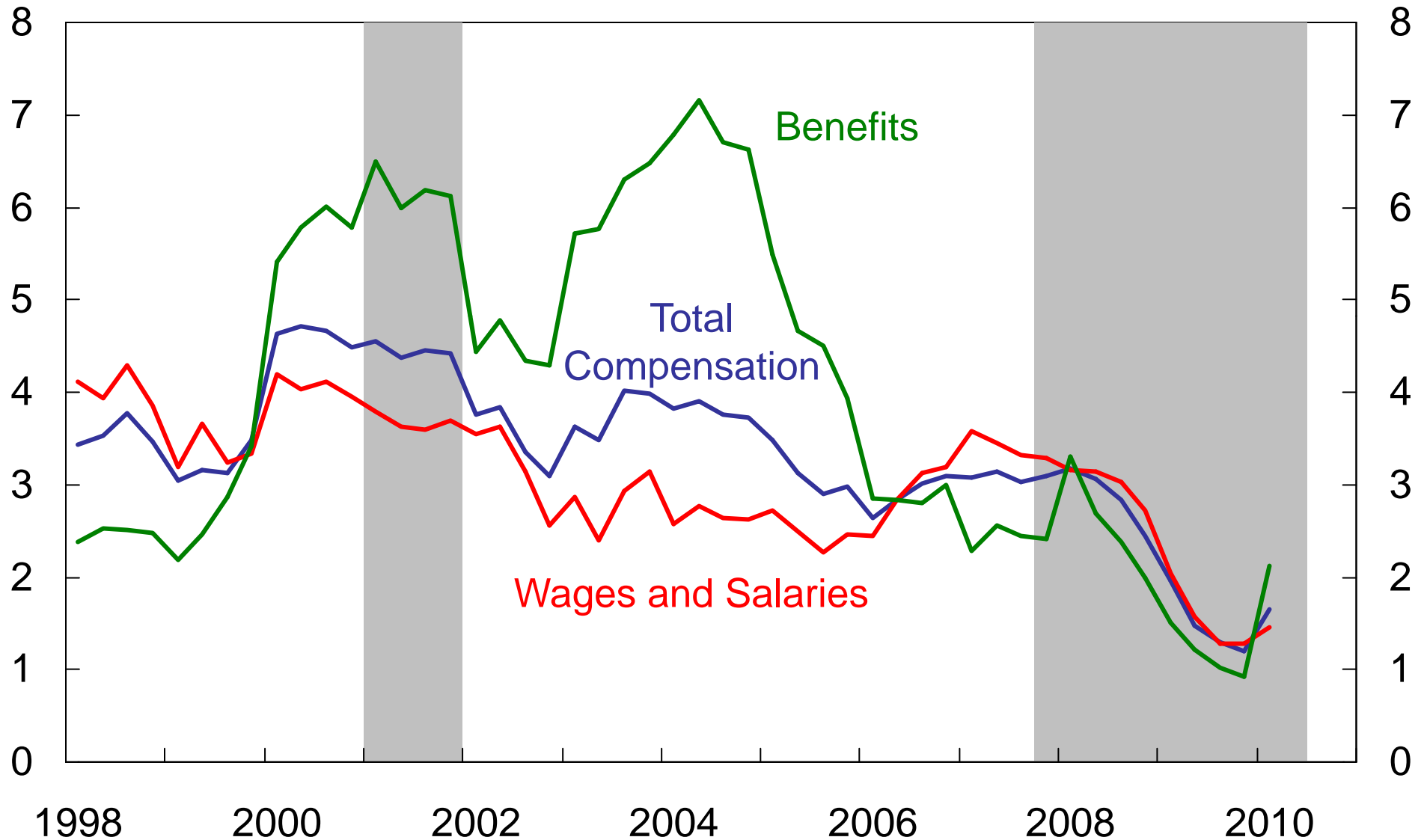
ABC News / Washington Post (Left Axis)

Source: University of Michigan, ABC News, Washington Post, and the Conference Board

Employment Cost Index: Private Industry Workers
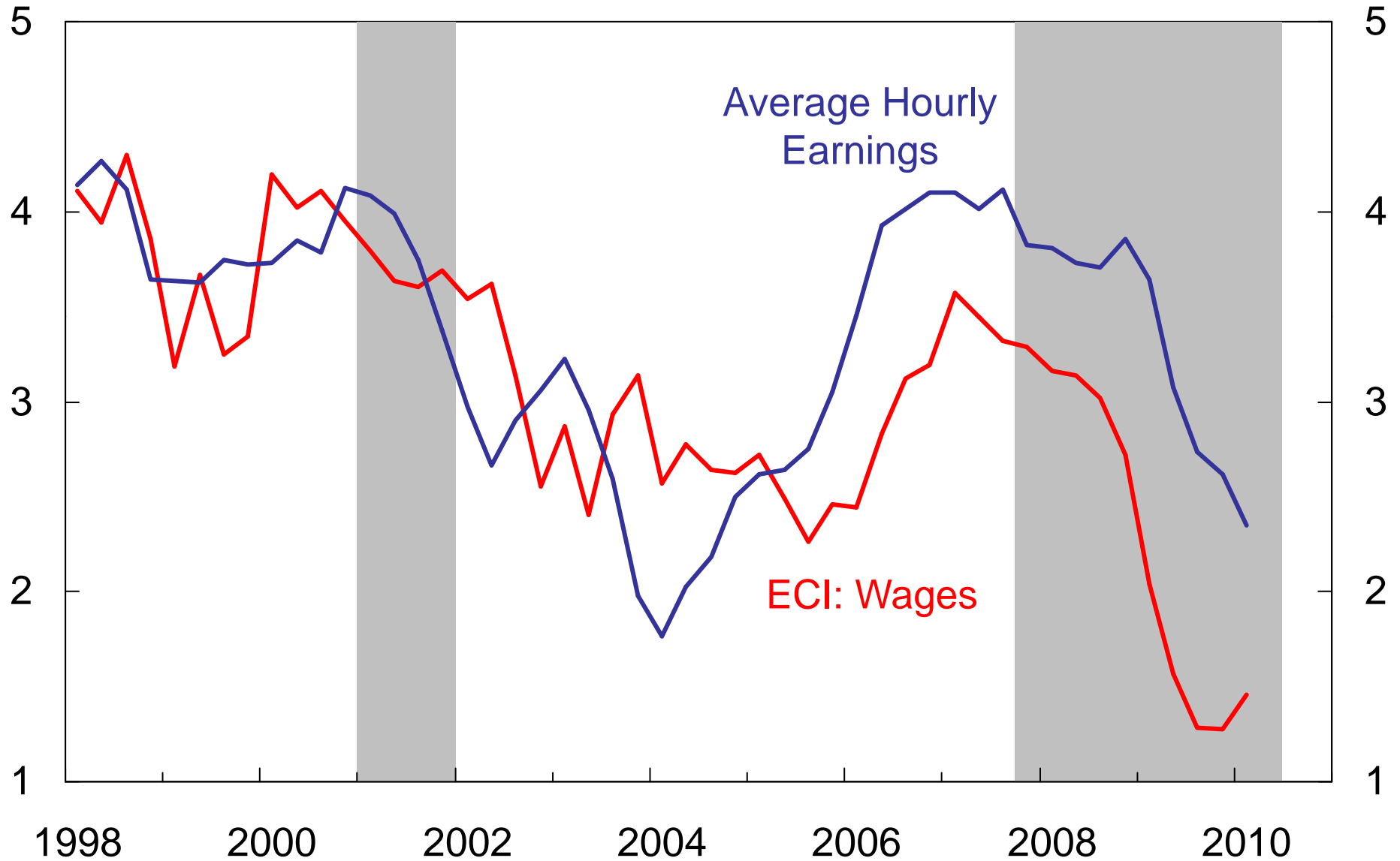
% Change - Year to Year

% Change - Year to Year

Benefits

Total Compensation

Wages and Salaries

1998   2000   2002   2004   2006   2008   2010

Source: Bureau of Labor Statistics

Wages and Earnings: Total Private Industries

% Change - Year to Year

% Change - Year to Year

Average Hourly
Earnings

ECI: Wages

Source: Bureau of Labor Statistics

Wages and Earnings: Service-Providing Industries

% Change - Year to Year   % Change - Year to Year

Average Hourly
Earnings

ECI: Wages
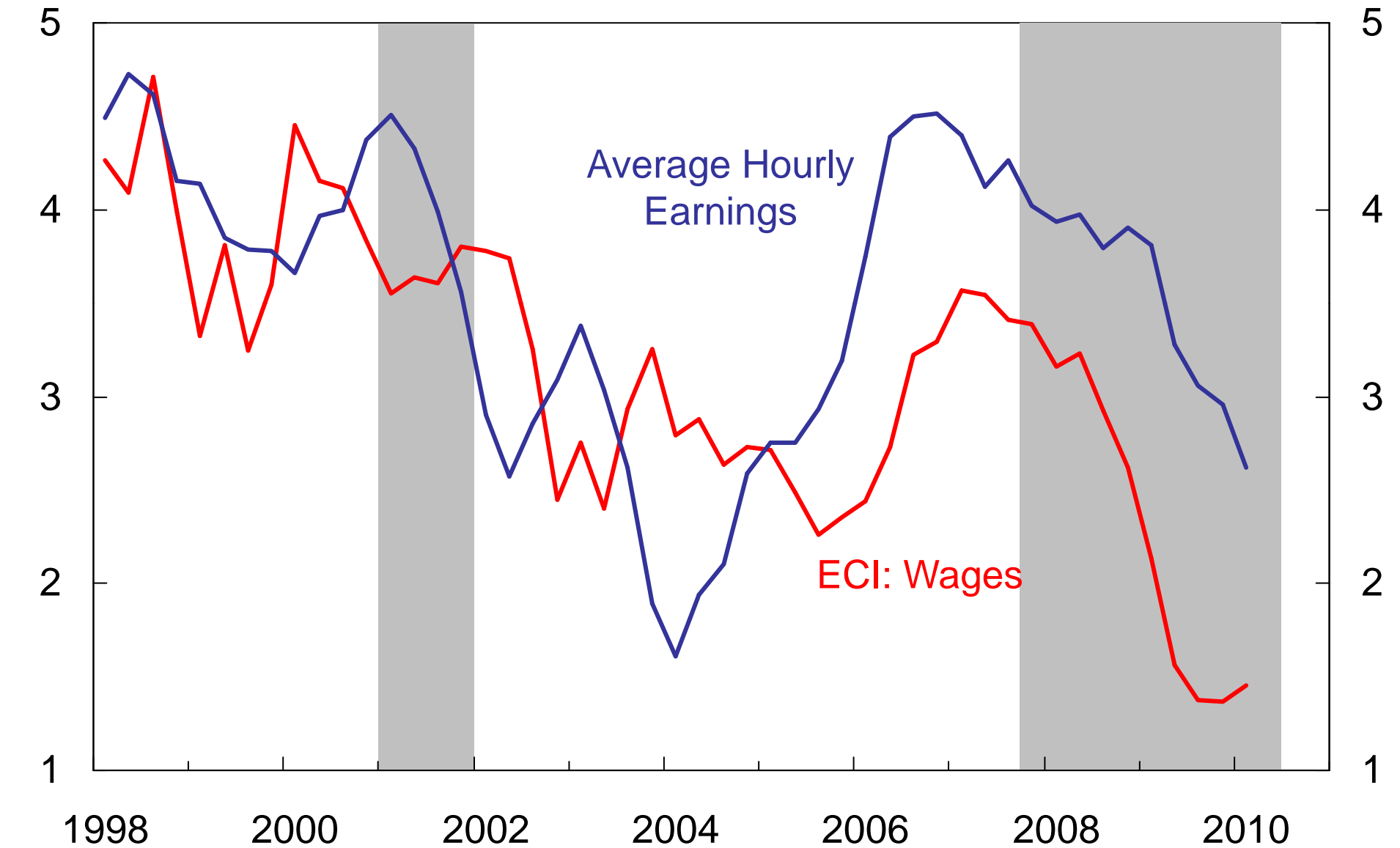
Source: Bureau of Labor Statistics

Wages and Earnings: Goods-Producing Industries

% Change - Year to Year

% Change - Year to Year

ECI: Wages

Average Hourly
Earnings
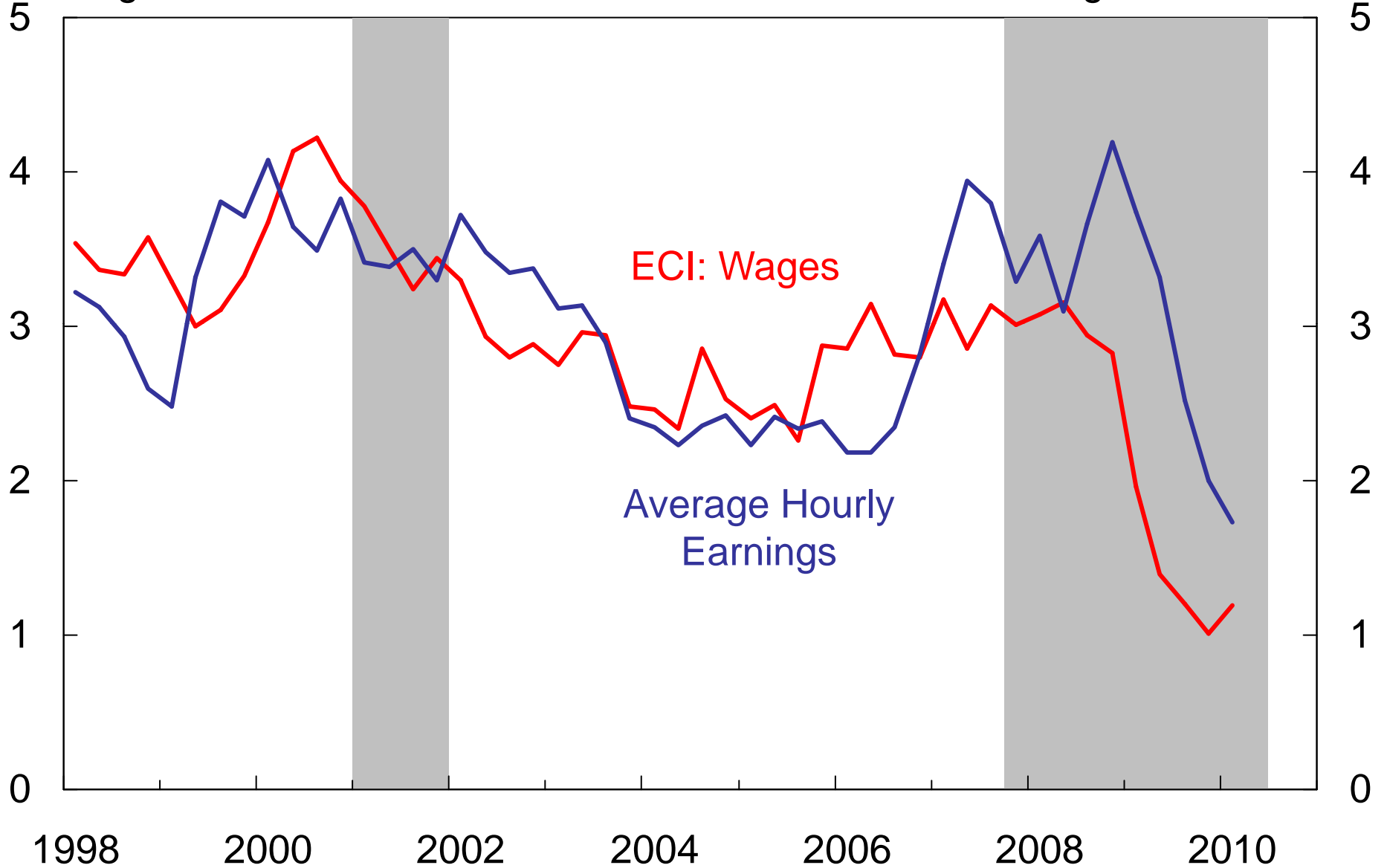
Source: Bureau of Labor Statistics

Three Measures of Employment
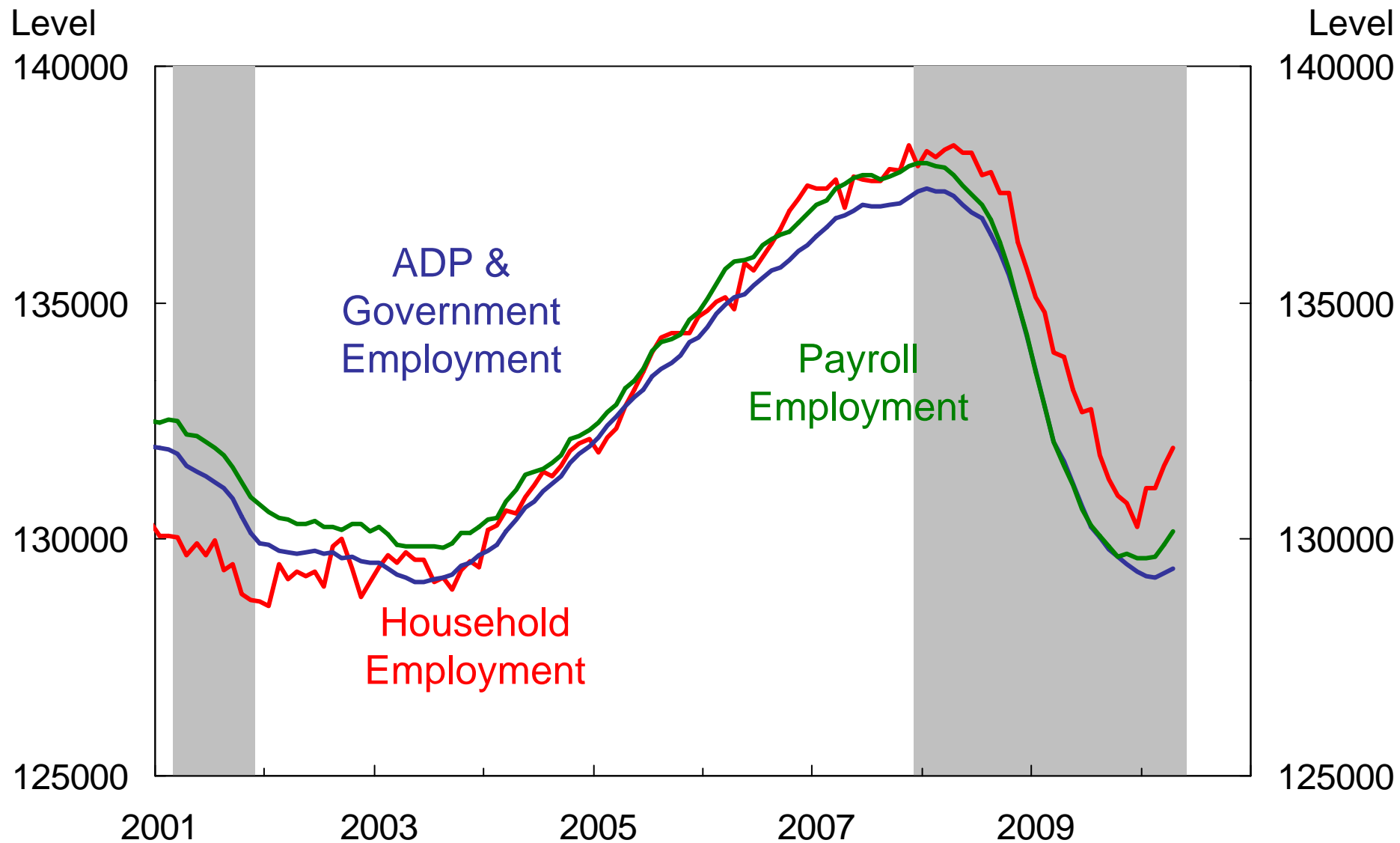
Source: ADP and Bureau of Labor Statistics

Three Measures of Employment
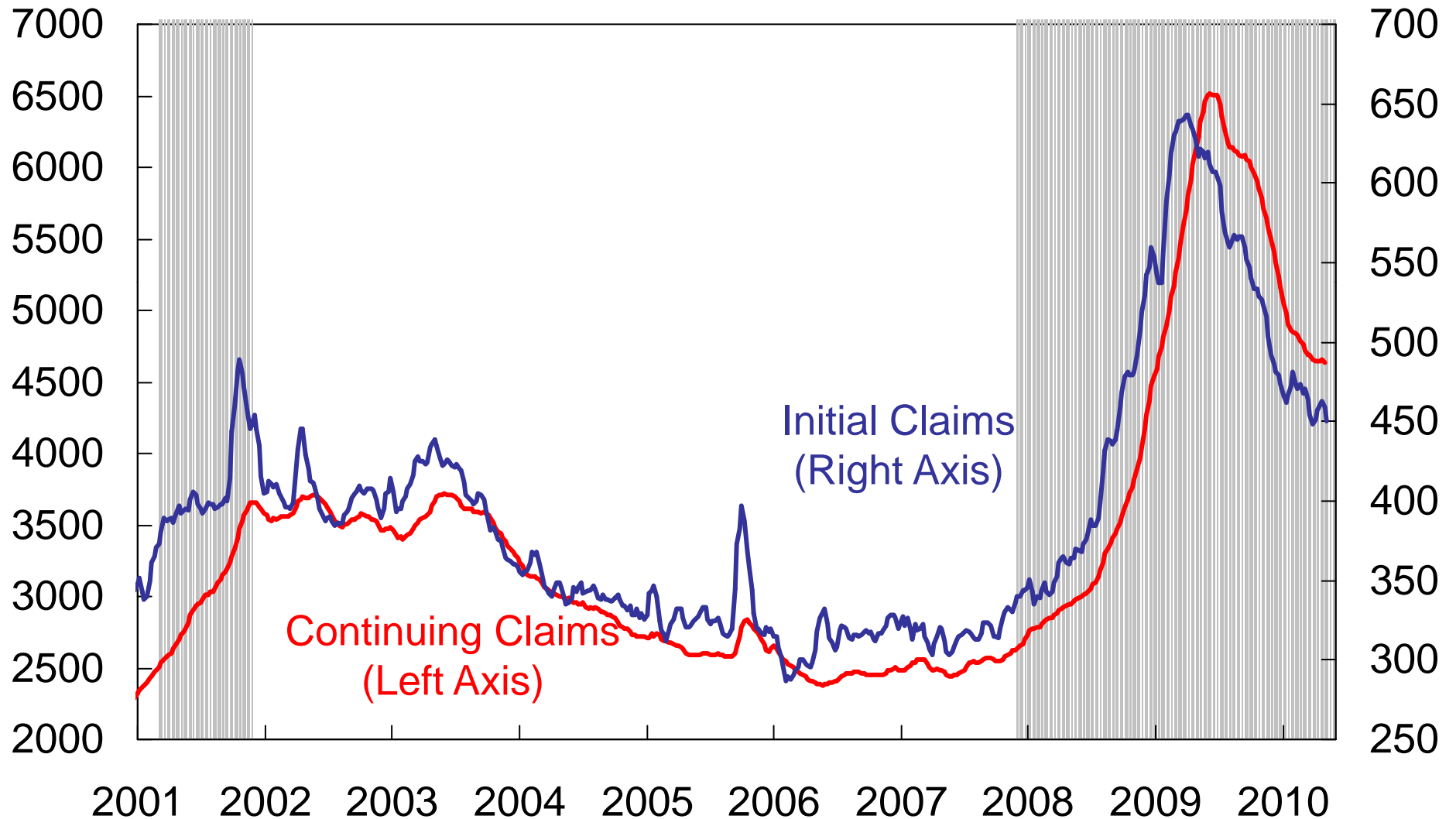## 12-month moving average of 1-month changes

% Change

% Change

Payroll
Employment

ADP &
Government
Employment

Household
Employment

0.25

0.15

0.05

-0.05

-0.15

-0.25

-0.35

-0.45

2002   2004   2006   2008   2010
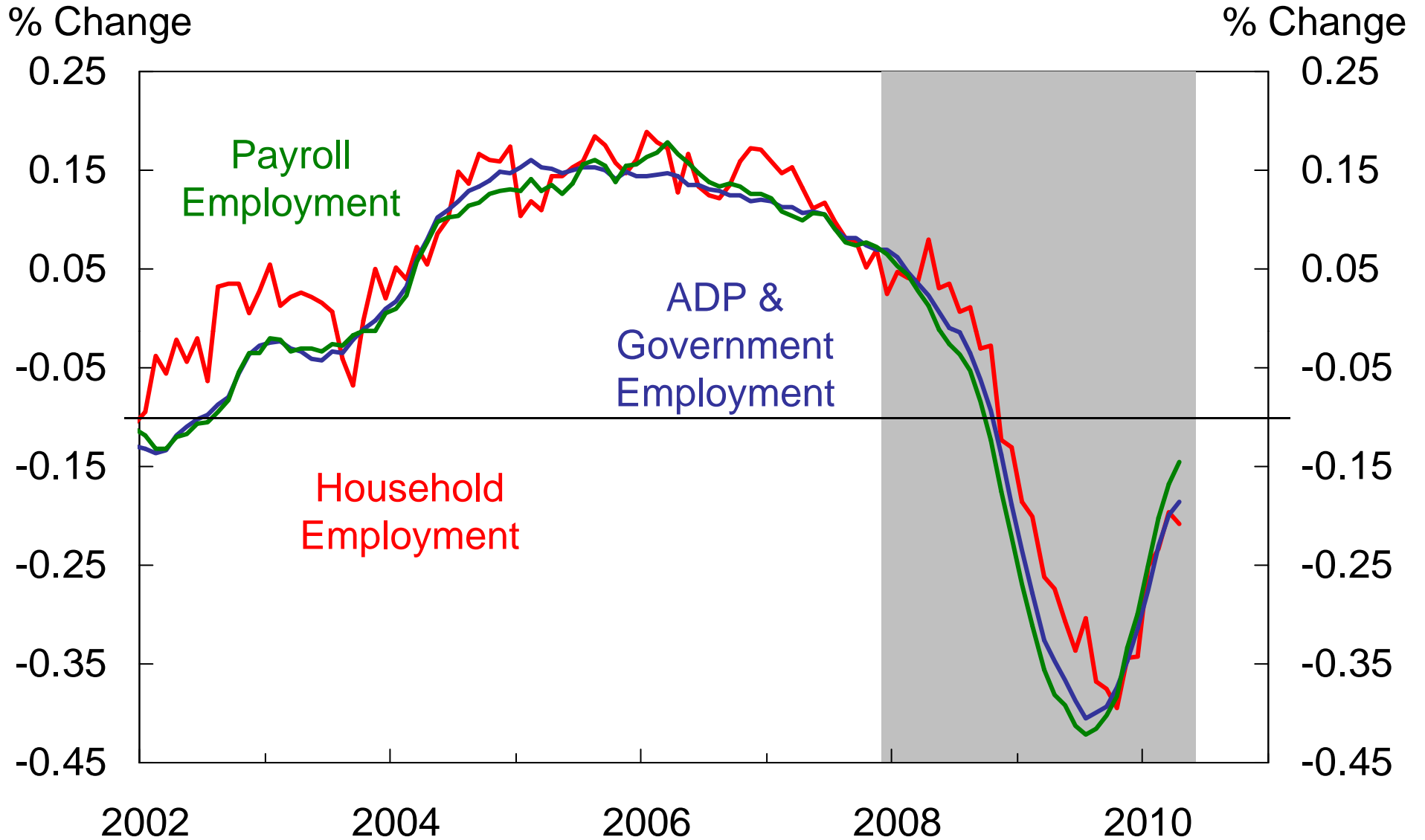
Source: ADP and Bureau of Labor Statistics

An Alternative Measure of Employment Changes
12-month moving average of 1-month changes

% Change

% Change

0.2

0.1

0

-0.1

-0.2

-0.3

-0.4

2002   2003   2004   2005   2006   2007   2008   2009   2010
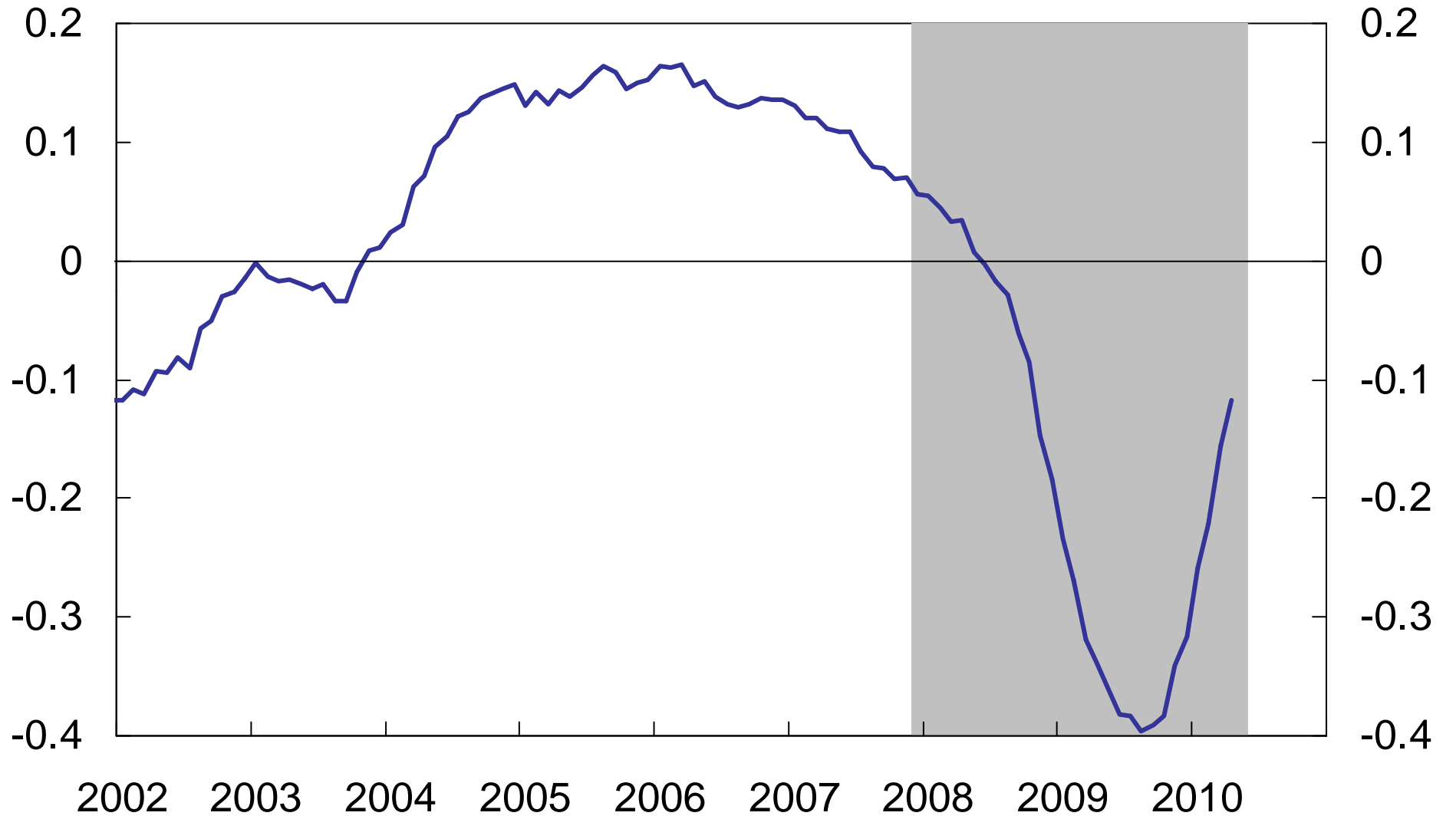
Source: ADP and
Bureau of Labor Statistics

* Weighted average of payroll, household adjusted to total
payroll basis, and ADP using principal components.

Unemployment Insurance
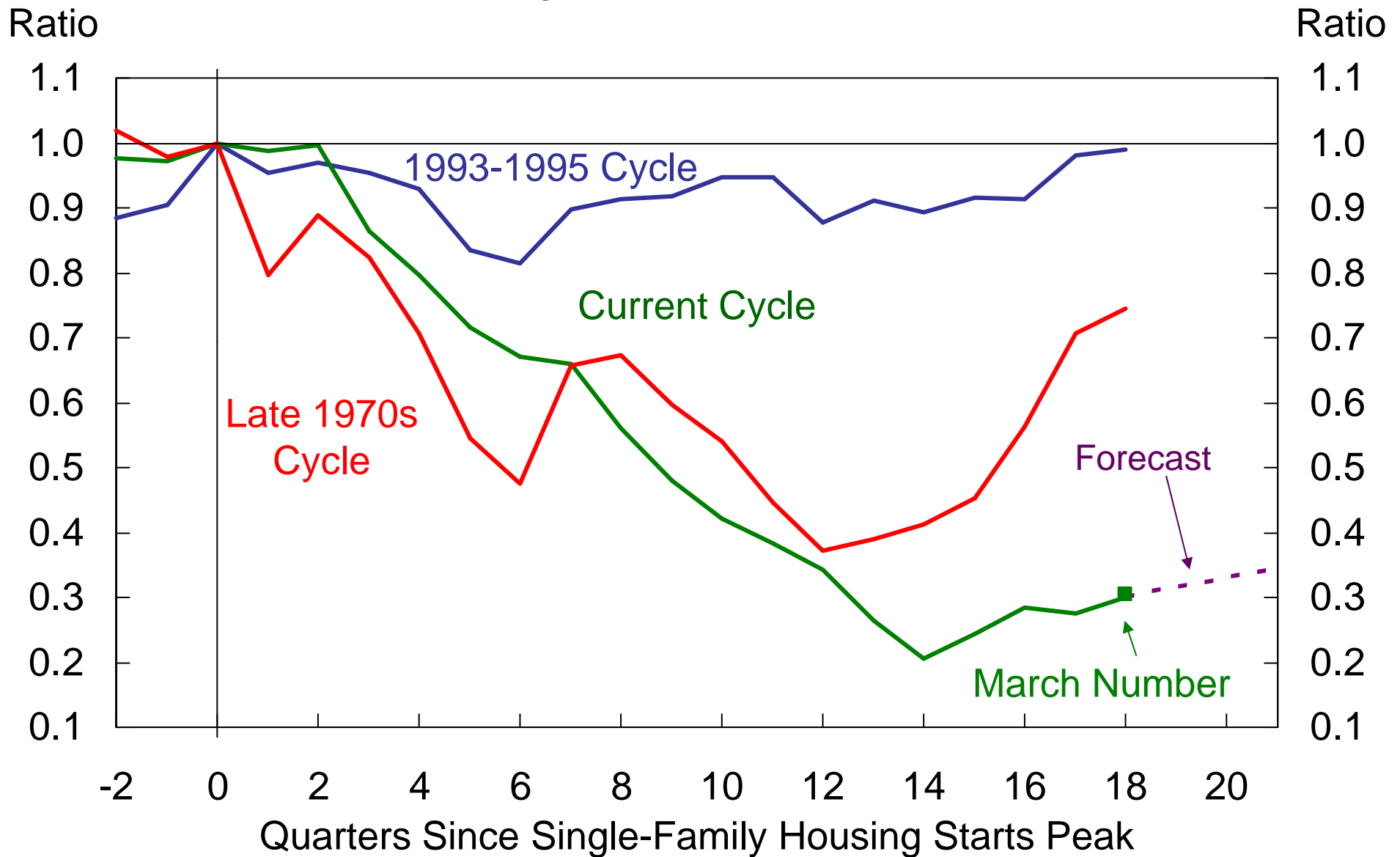
4-Week Moving Average

4-Week Moving Average

Initial Claims
(Right Axis)

Continuing Claims
(Left Axis)

Source: Department of Labor

Single-Family Housing Starts
(Series Set to 1.0 at Housing Start Peak)

Ratio

Ratio

1993-1995 Cycle

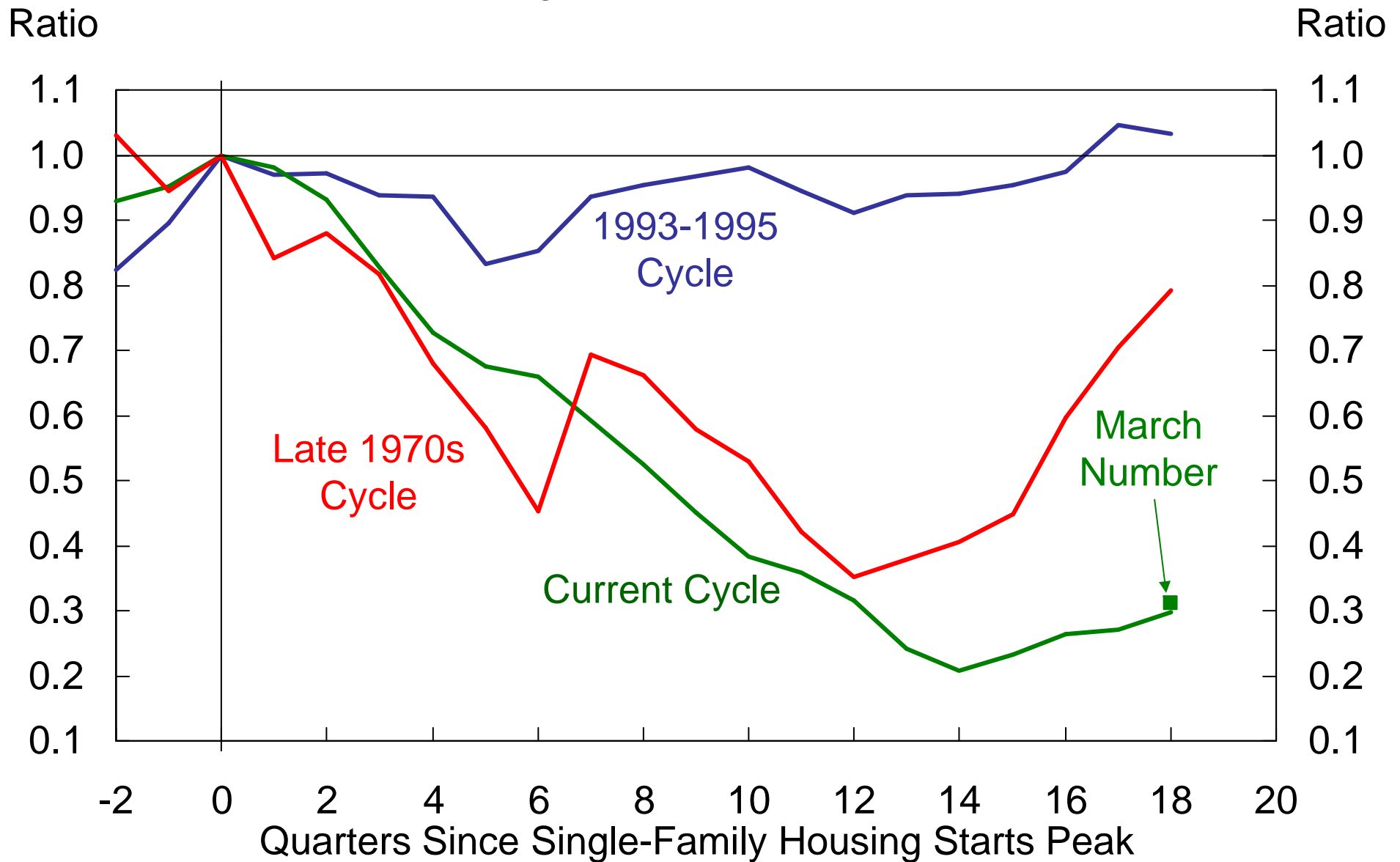Current Cycle

Late 1970s
Cycle

Forecast

March Number

Quarters Since Single-Family Housing Starts Peak

Source: Census Bureau

Single-Family Housing Permits
(Series Set to 1.0 at Housing Start Peak)

Ratio

Ratio

1993-1995
Cycle

Late 1970s
Cycle

March
Number

Current Cycle

Quarters Since Single-Family Housing Starts Peak

Source: Census Bureau

Single-Family New Home Sales
(Series Set to 1.0 at Housing Start Peak)

Ratio

Ratio

1993-1995 Cycle

February Number

Late 1970's Cycle

Current Cycle

Quarters Since Single-Family Housing Starts Peak
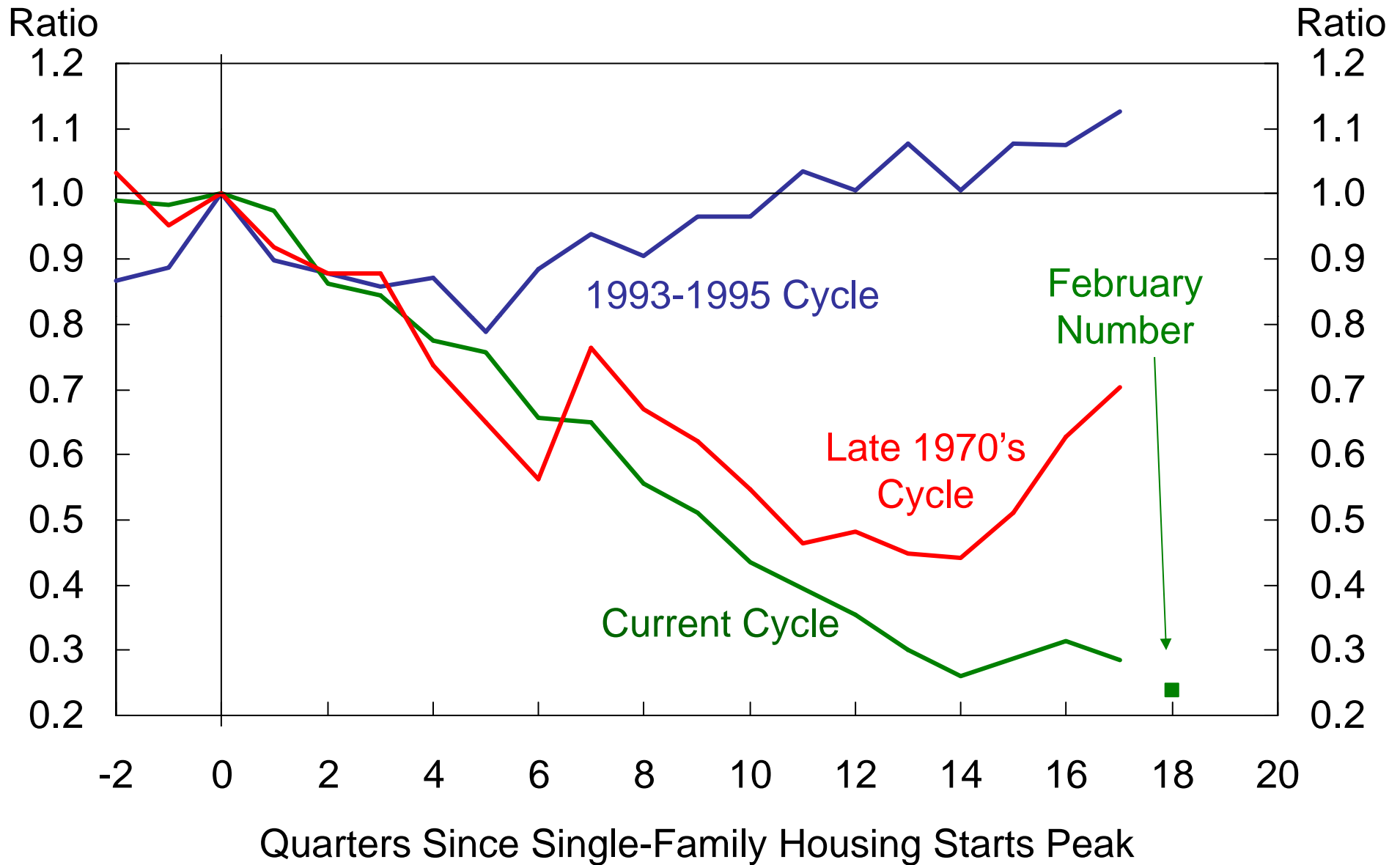
Source: Census Bureau

Single-Family Existing Home Sales
(Series Set to 1.0 at Housing Start Peak)

Ratio

Ratio

1993-1995 Cycle

February
Number

Current Cycle

Late 1970's
Cycle

Quarters Since Single-Family Housing Starts Peak
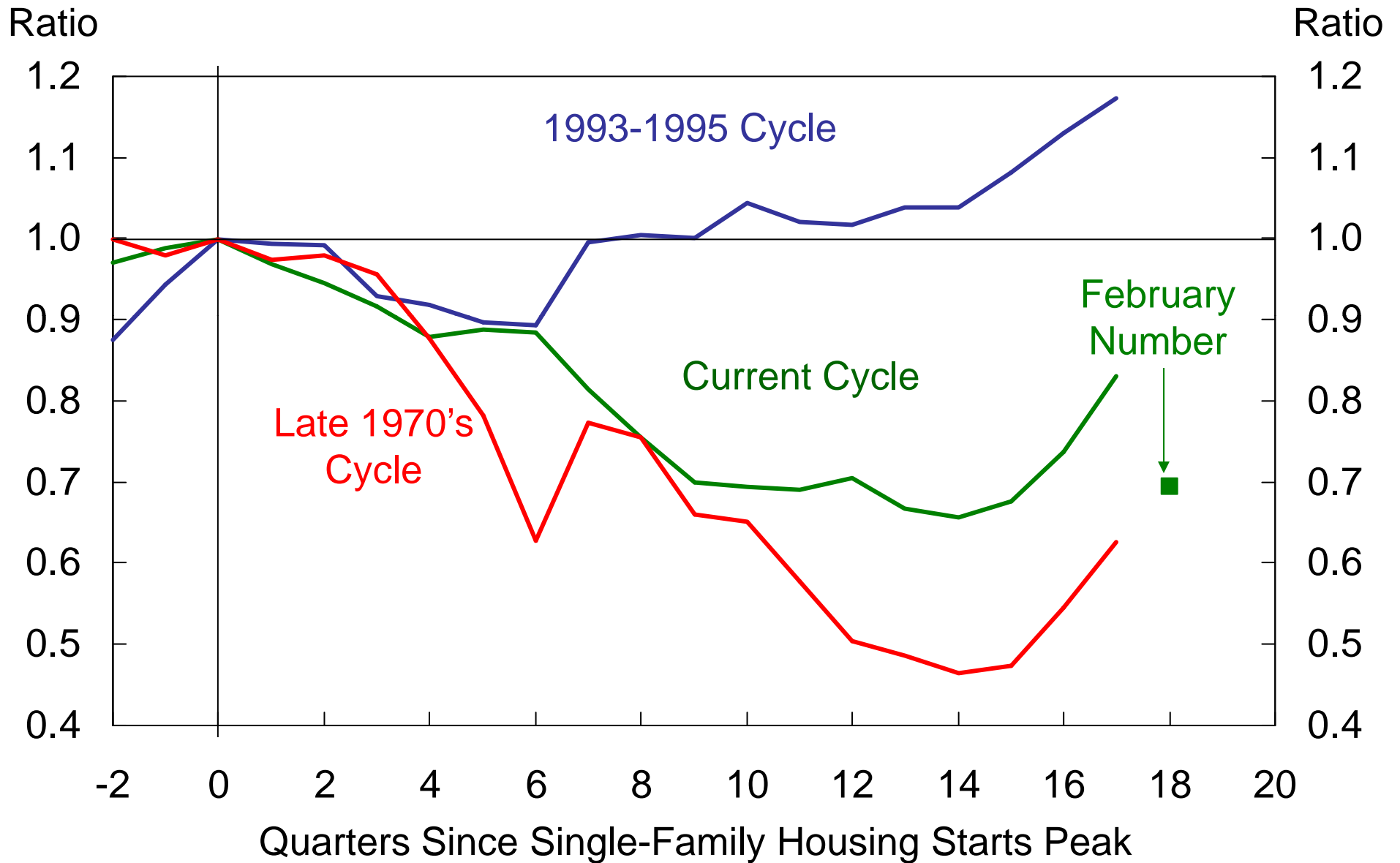
New Home Inventory / Sales Ratio
(Series Set to 0.0 at Housing Start Peak)

Difference

Current Cycle

February
Number

Late 1970's
Cycle

1993-1995
Cycle

Quarters Since Single-Family Housing Starts Peak
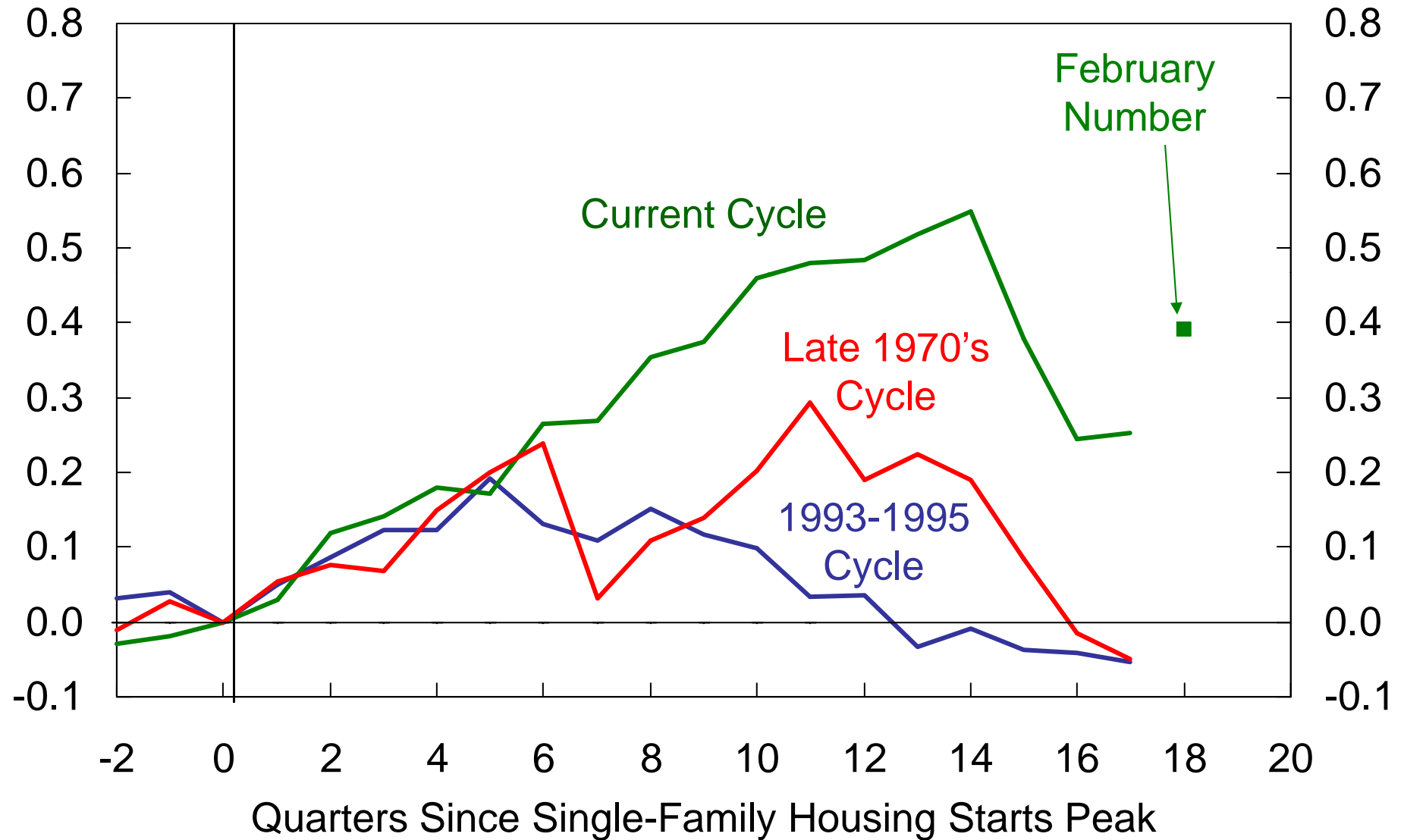
Source: Census Bureau

Private Nonresidential Construction

% Change - Year to Year

% Change - Year to Year
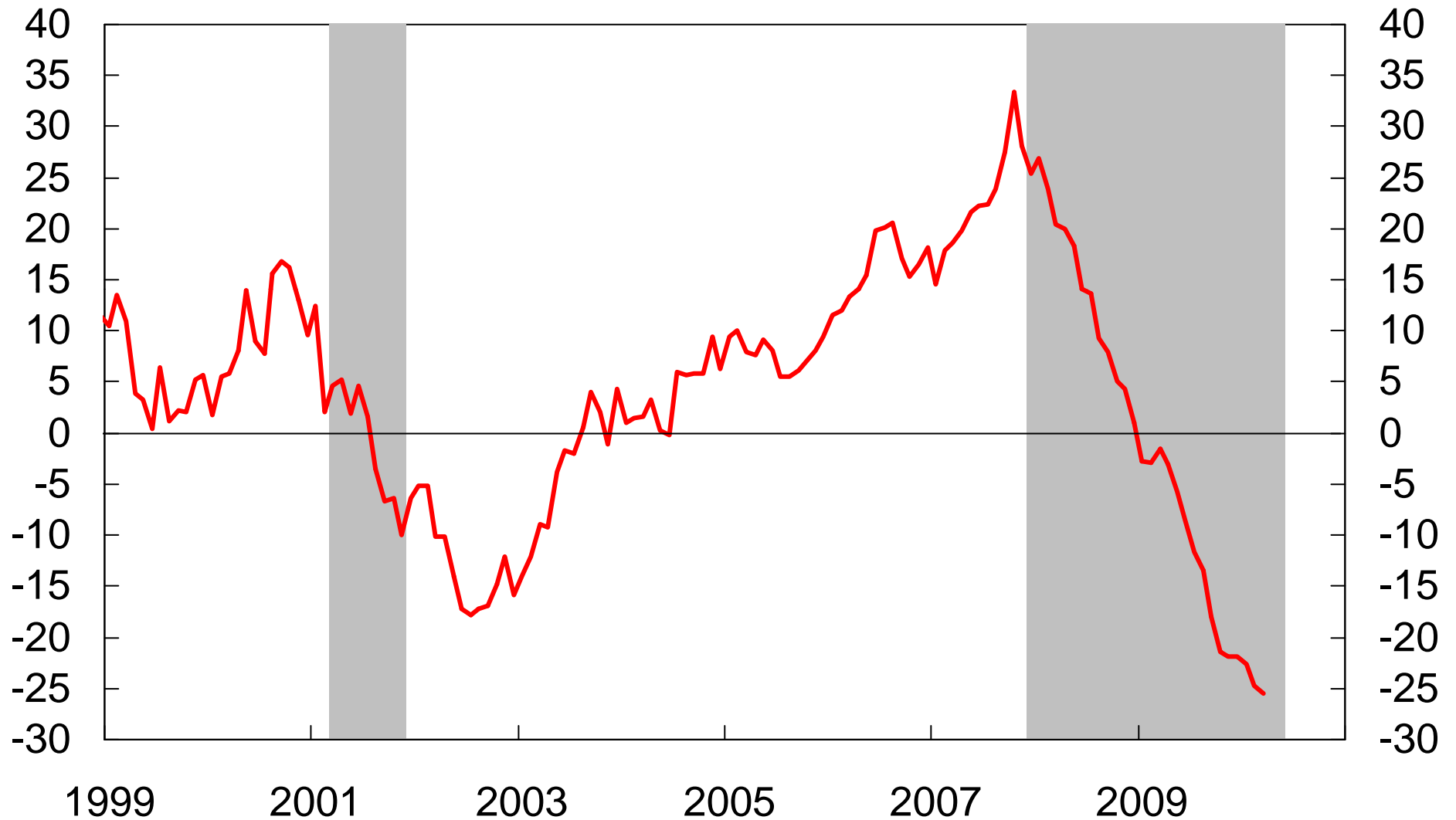
Source: Census Bureau

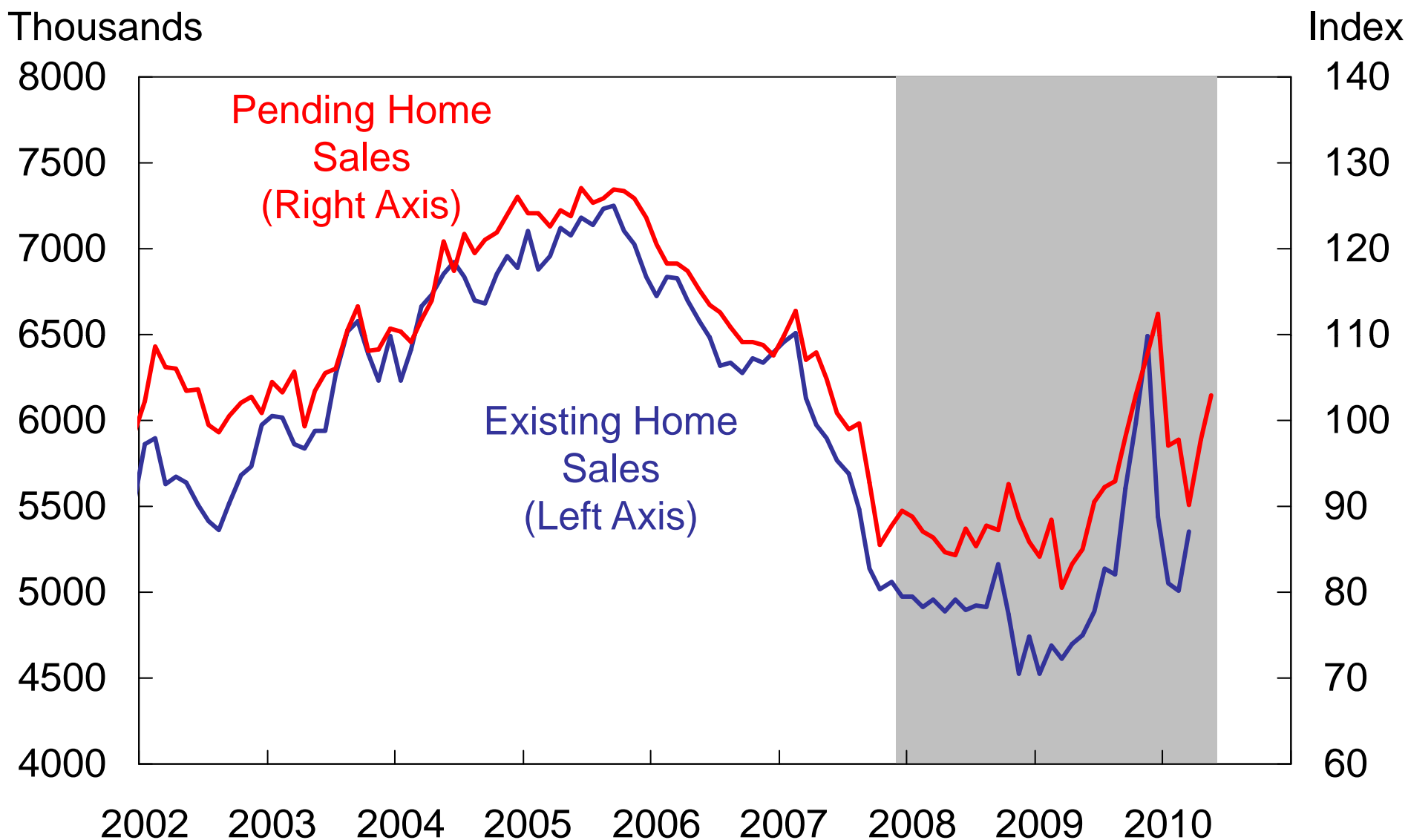# Pending and Existing Home Sales
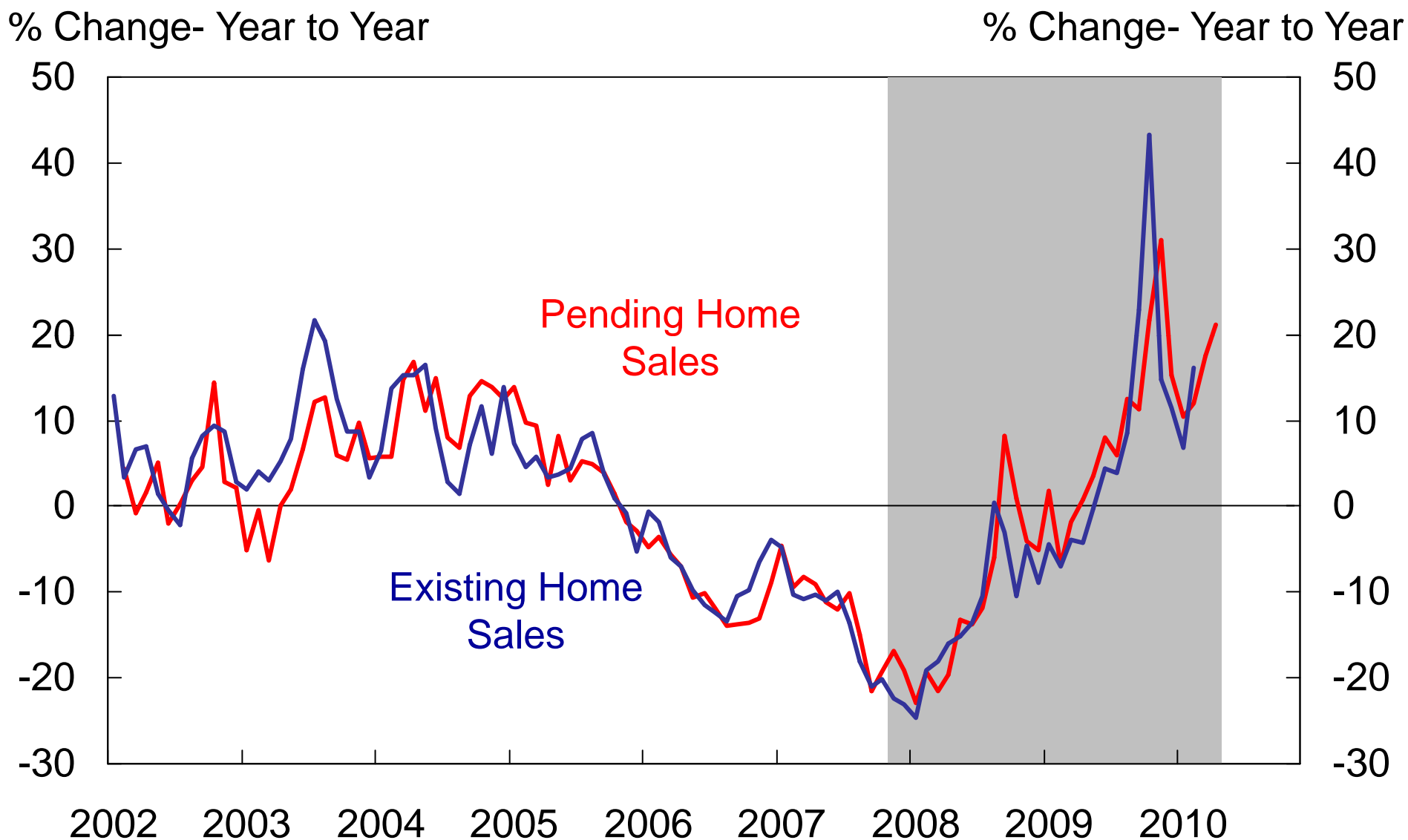
% Change- Year to Year

% Change- Year to Year

Pending Home Sales

Existing Home Sales

50
40
30
20
10
0
-10
-20
-30

2002 2003 2004 2005 2006 2007 2008 2009 2010

Source: National Association of Realtors

Note: For proper comparison, pending sales data leads existing sales by two months

Pending and Existing Home Sales

Thousands (left axis label)

Index (right axis label)

Pending Home Sales (Right Axis)

Existing Home Sales (Left Axis)

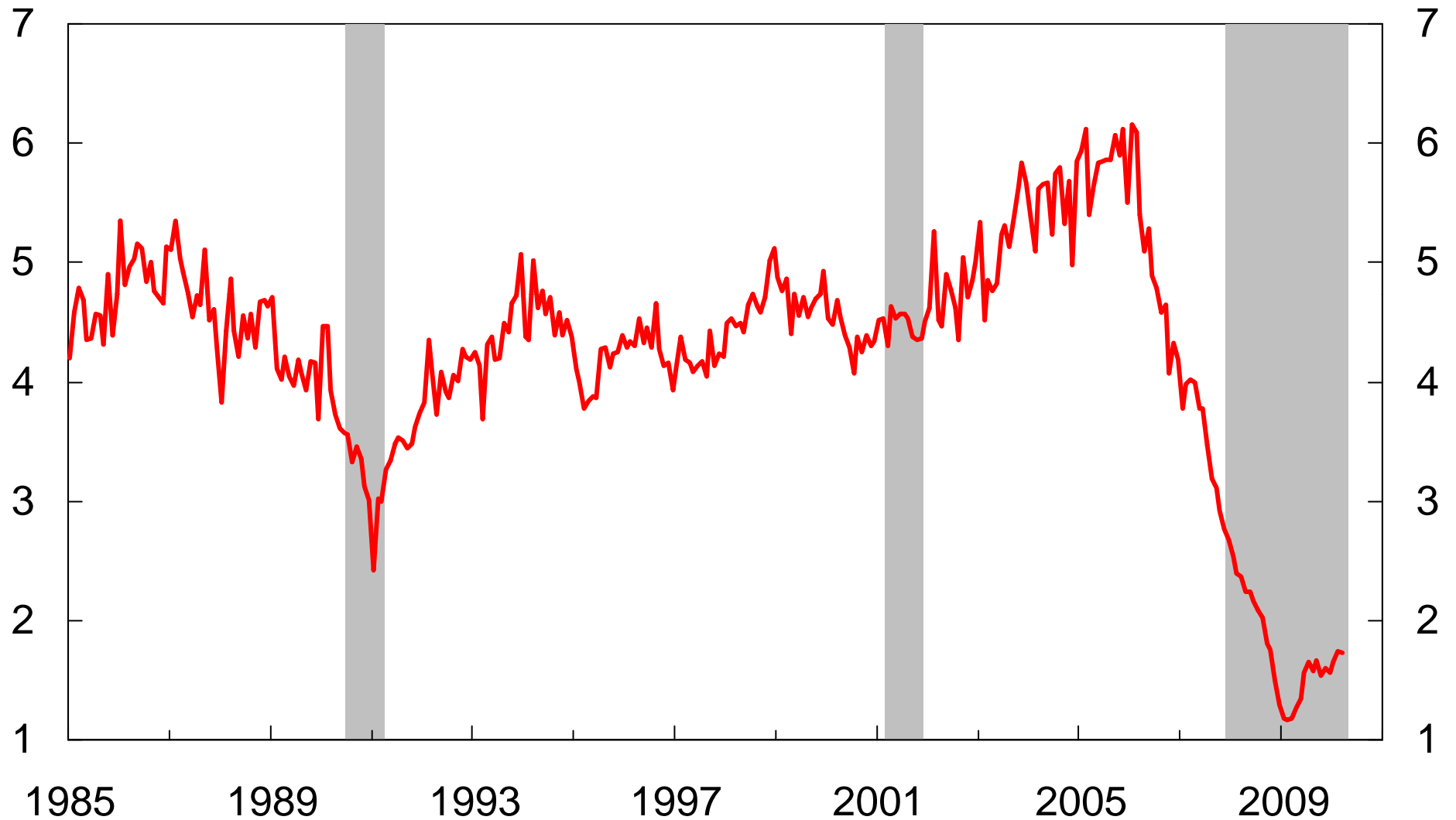Source: National Association of Realtors

Note: For proper comparison, pending sales data leads existing sales by two months

Ratio of Housing Starts to Population
Single-Family Homes
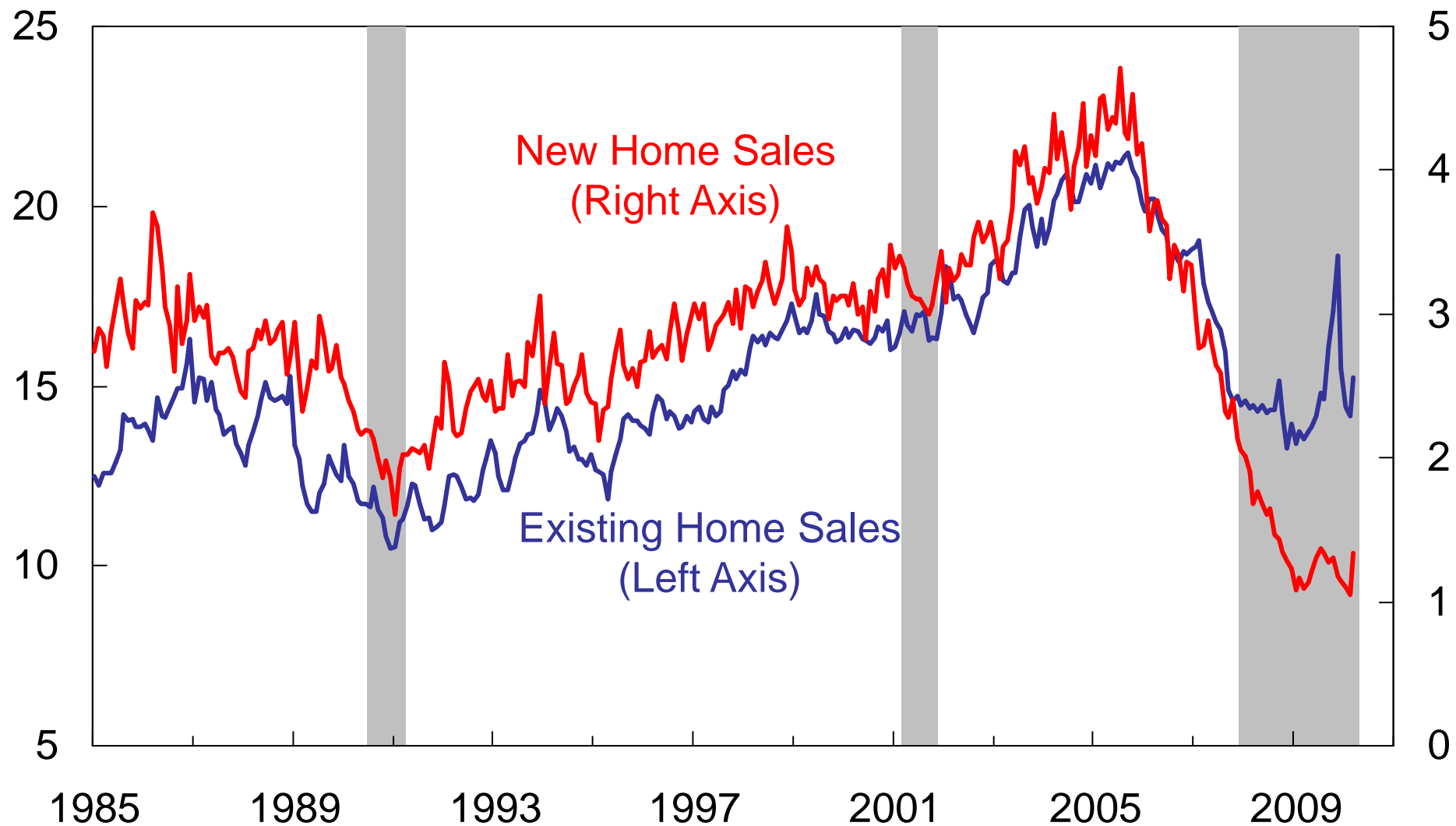
Starts per 1,000 people

Starts per 1,000 people

Source: Census Bureau

Ratio of Sales to Population

Single-Family Homes

Sales per 1,000 People

Sales per 1,000 People

New Home Sales
(Right Axis)

Existing Home Sales
(Left Axis)

Source: Census Bureau

Industrial Production: Manufacturing Output

(percent change at an annual rate)

|	24 Month	12 Month	6 Month	3 Month	1 Month
Total	-5.6	4.6	5.8	8.4	11.4
Durable Goods	-8.1	6.0	7.9	12.2	18.0
Wood Products	-14.1	0.2	-3.2	3.1	15.7
Nonmetalic Mineral Products	-12.6	-2.6	-10.4	2.5	19.9
Primary Metals	-12.3	40.2	34.8	16.0	23.8
Fabricated Metals	-10.0	0.9	9.0	10.2	14.0
Machinery	-11.1	2.3	20.0	19.8	15.8
Computers and Electronic Equipment	-1.7	11.3	18.6	28.2	26.5
Electrical Equipment, Appliances, and Components	-5.6	1.6	7.4	22.2	24.4
Motor Vehicles and Parts	-10.8	24.3	5.3	12.2	29.4
Aerospace and Misc. Transportation Equipment	-5.6	-4.6	-9.3	-1.1	2.2
Furniture and Related Products	-14.9	-8.1	-1.7	1.8	30.2
Miscellaneous	-1.3	3.8	2.3	1.0	4.2
Nondurable Goods	-2.4	4.2	4.9	7.0	7.4
Food, Beverages, and Tobacco	0.1	3.4	6.6	9.9	7.9
Textile Mill Products	-8.2	6.5	15.0	1.9	-3.7
Apparel Products	-5.6	3.0	17.0	18.8	3.6
Paper	-6.4	5.3	-1.4	-3.8	-5.6
Printing and Related Activities	-11.4	-5.6	-5.5	-9.7	-7.5
Chemicals	-1.9	6.9	5.0	5.7	-2.2
Petroleum and Coal	-2.2	-2.5	-5.1	8.7	42.7
Plastics and Rubber	-5.8	8.4	14.7	17.1	22.2
Memo Item: Special Aggregates					
IT Equipment	-3.9	14.2	22.0	33.1	24.9
Motor Vehicles and Parts	-10.8	24.3	5.3	12.2	29.4
Nonenergy, Non IT, Non Auto	-5.4	3.1	4.9	6.9	9.1

Source: Federal Reserve Board

Note: Data through March 2010.

Industrial Production
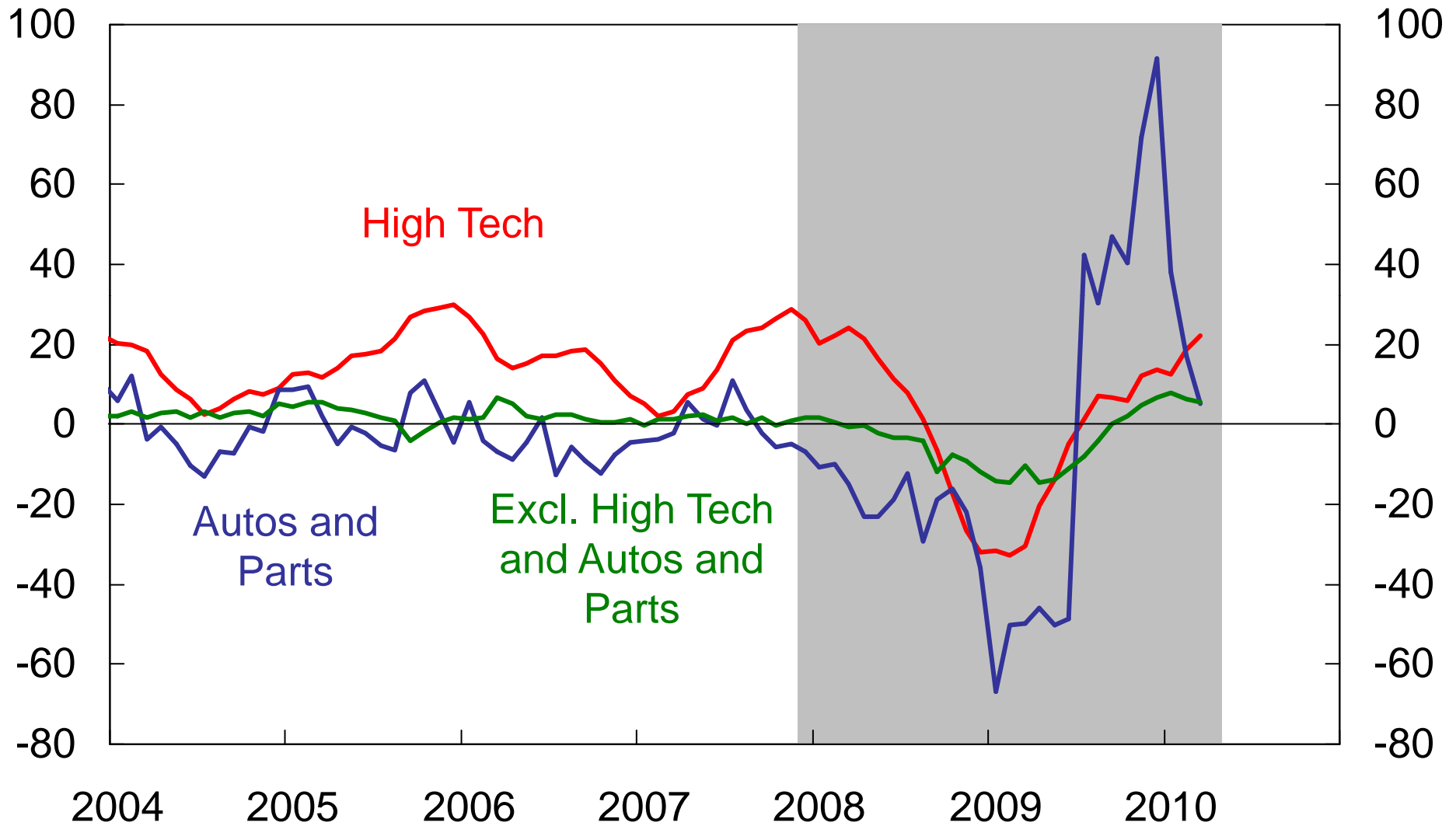
% Change - 6 months AR

% Change - 6 months AR

Durables

Non-Durables
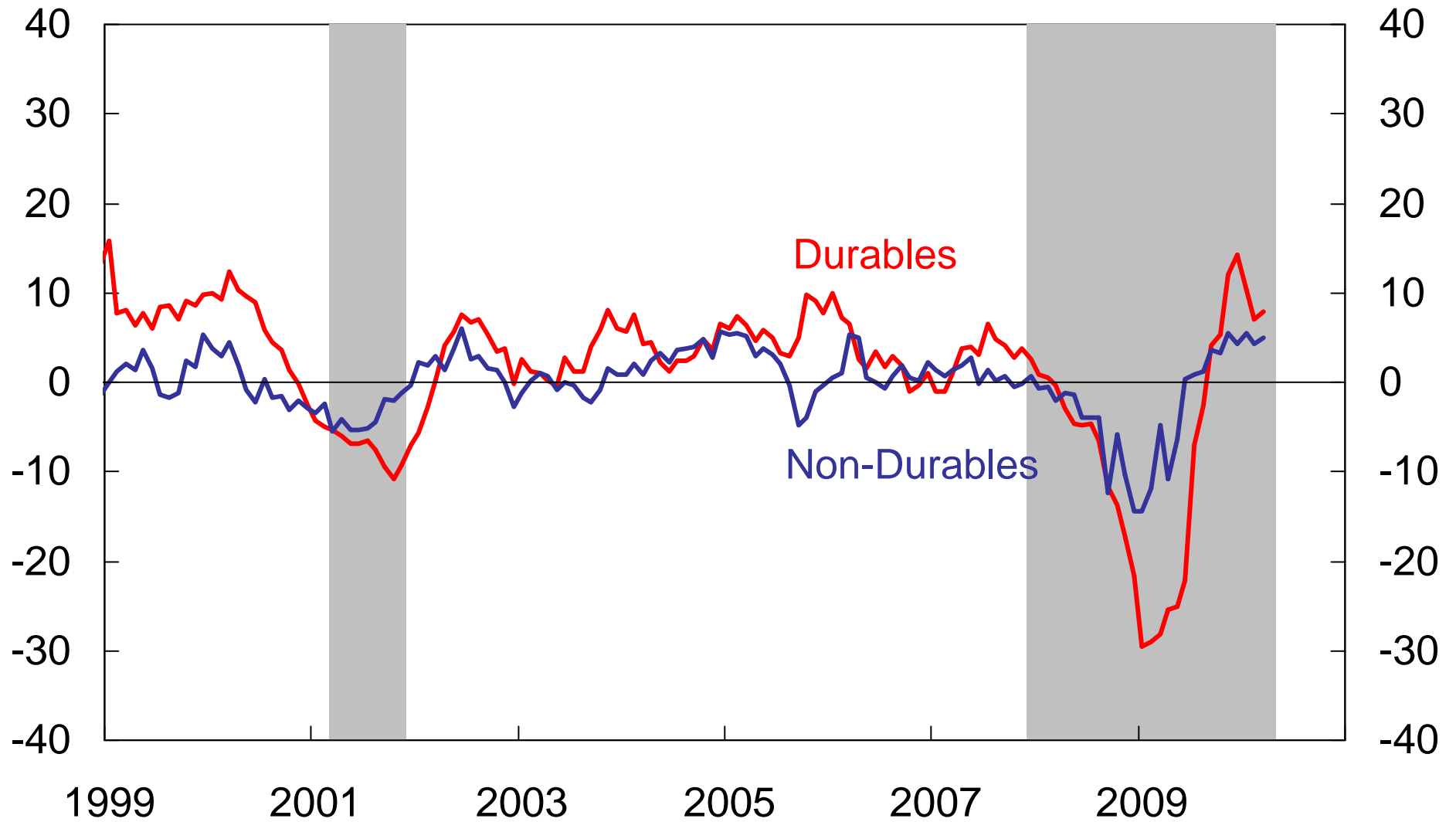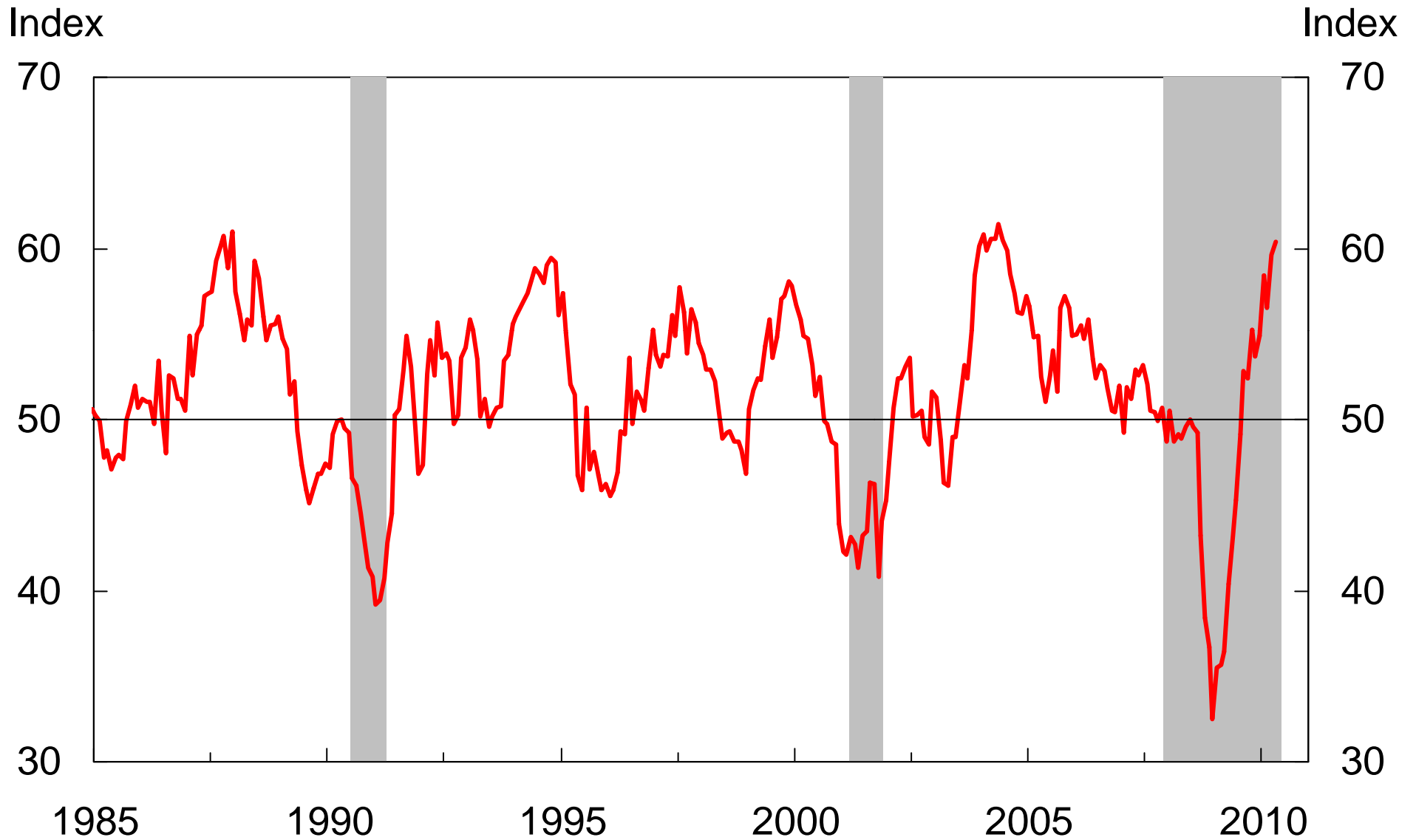
Source: Federal Reserve Board

Industrial Production

% Change - 6 months AR

% Change - 6 months AR

High Tech

Autos and Parts

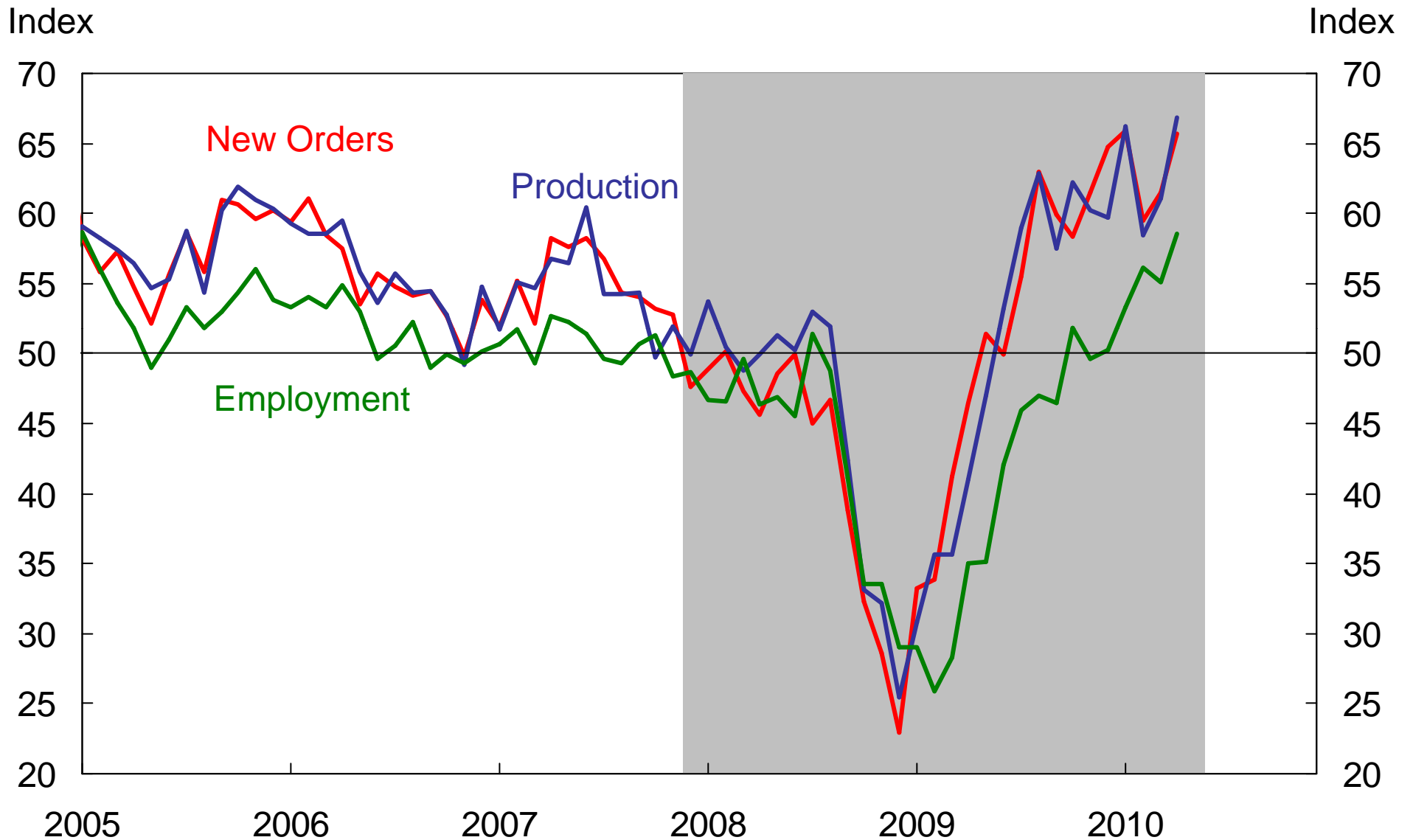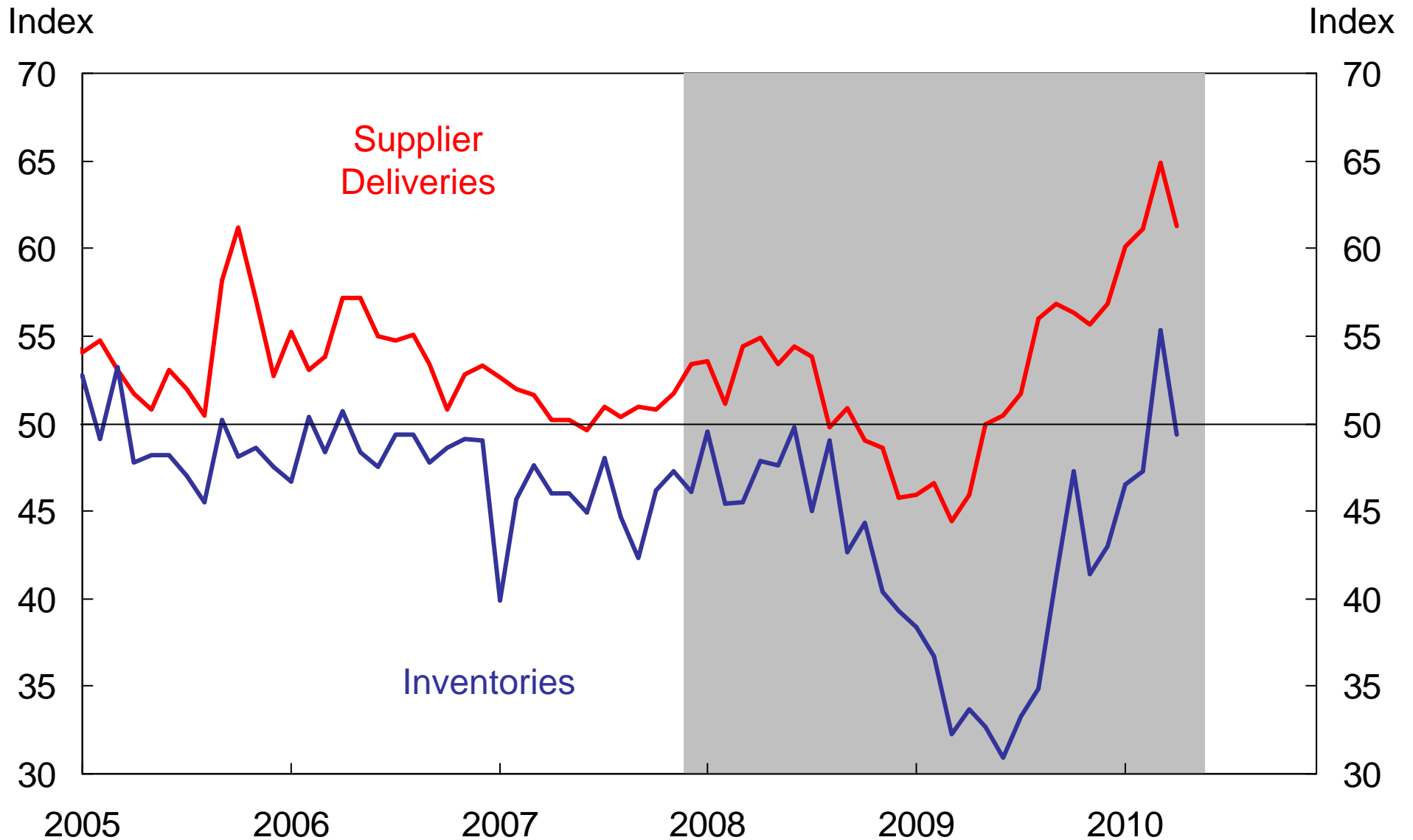Excl. High Tech and Autos and Parts

Source: Federal Reserve Board

ISM Manufacturing Index

Source: Institute for Supply Management
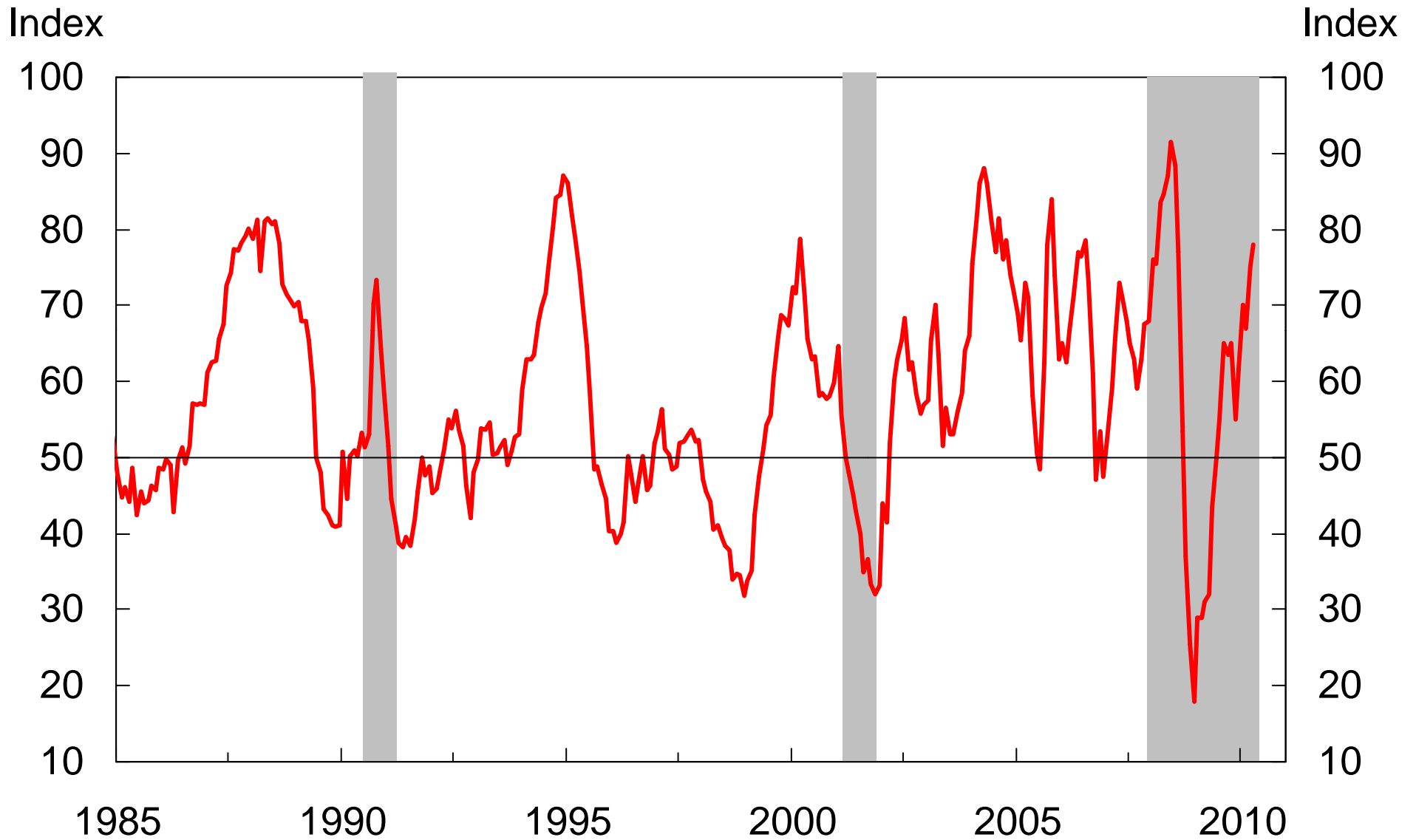
Components of ISM Manufacturing Index

Source: Institute for Supply Management

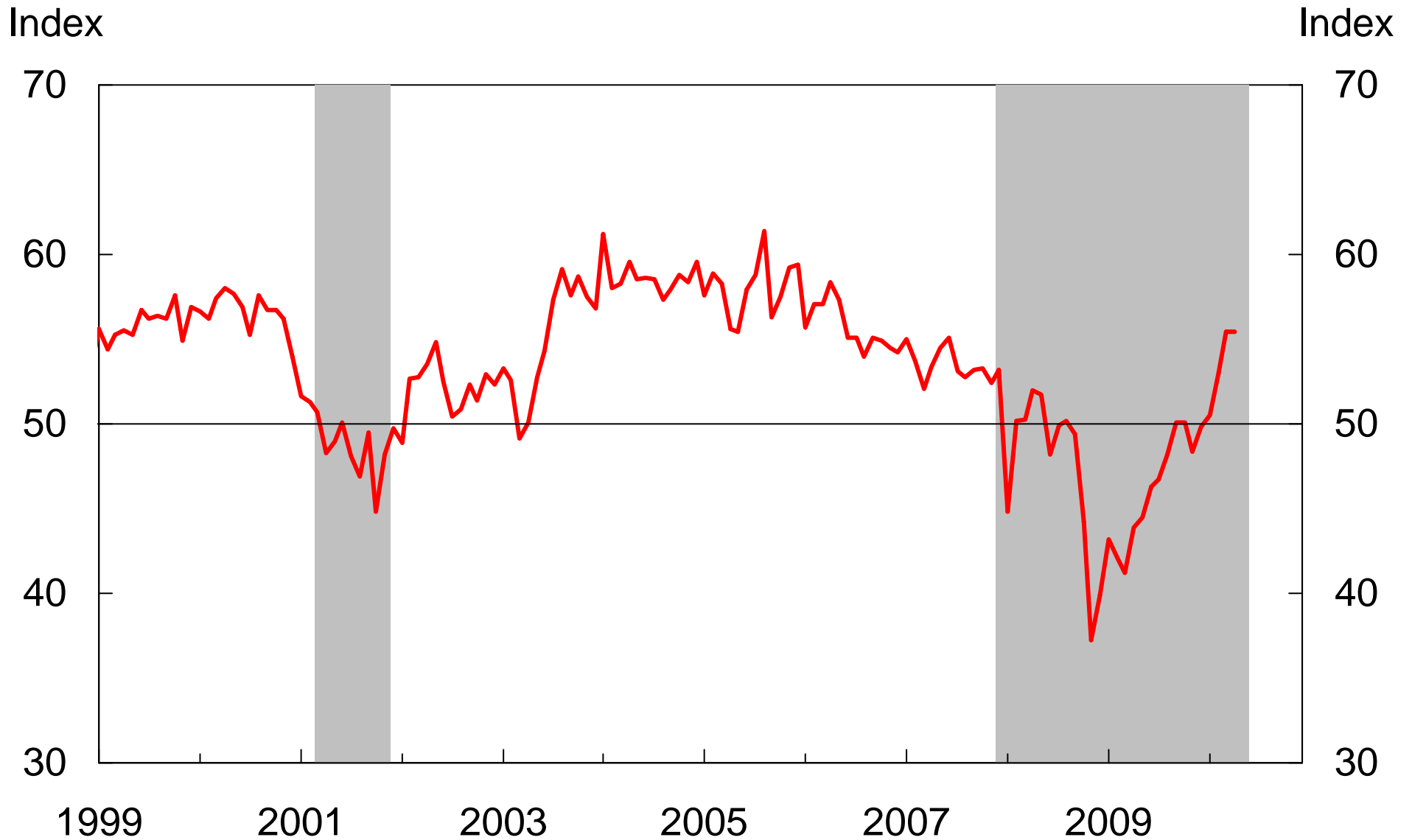# Components of ISM Manufacturing Index

Source: Institute for Supply Management
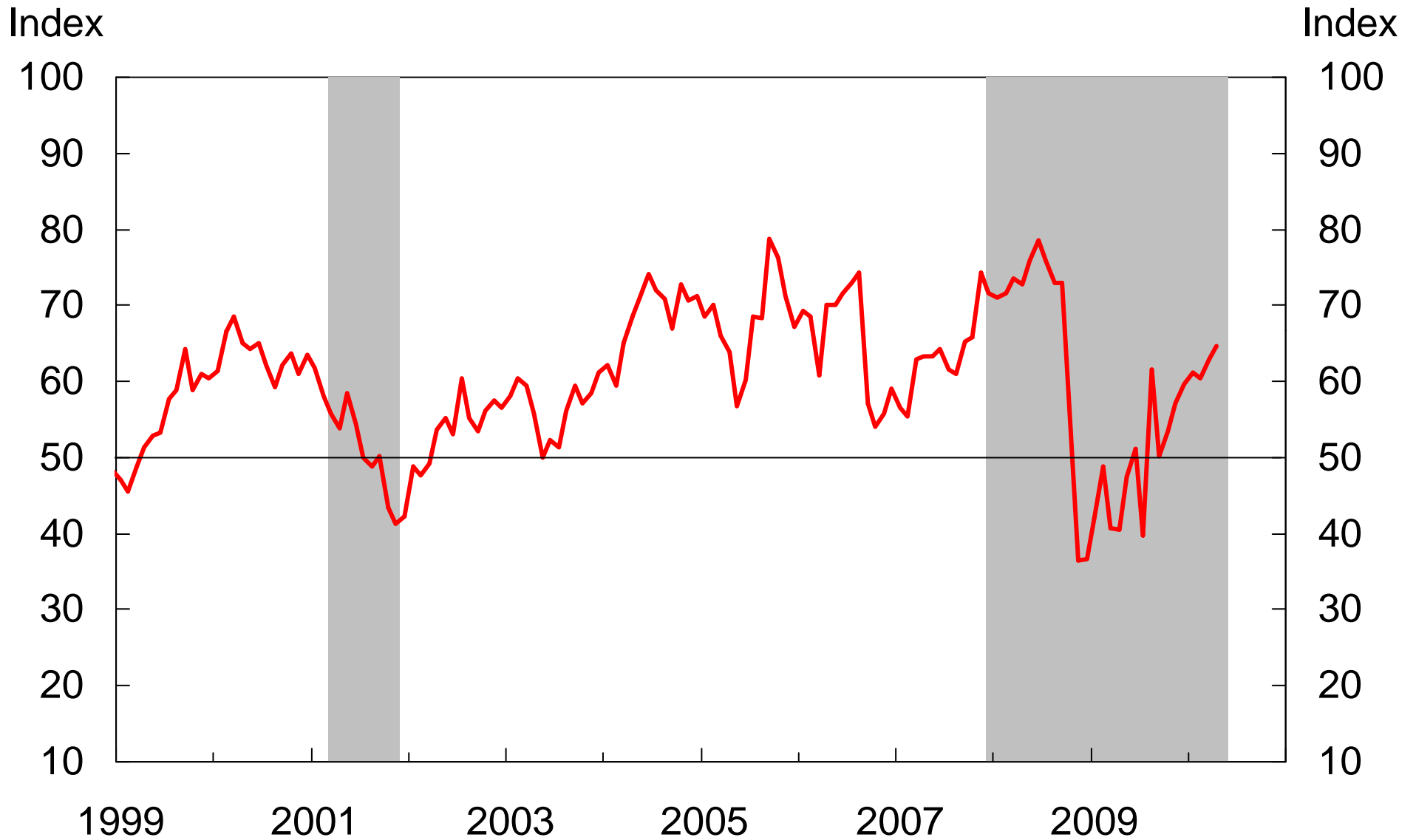
ISM Manufacturing Price Index

Source: Institute for Supply Management
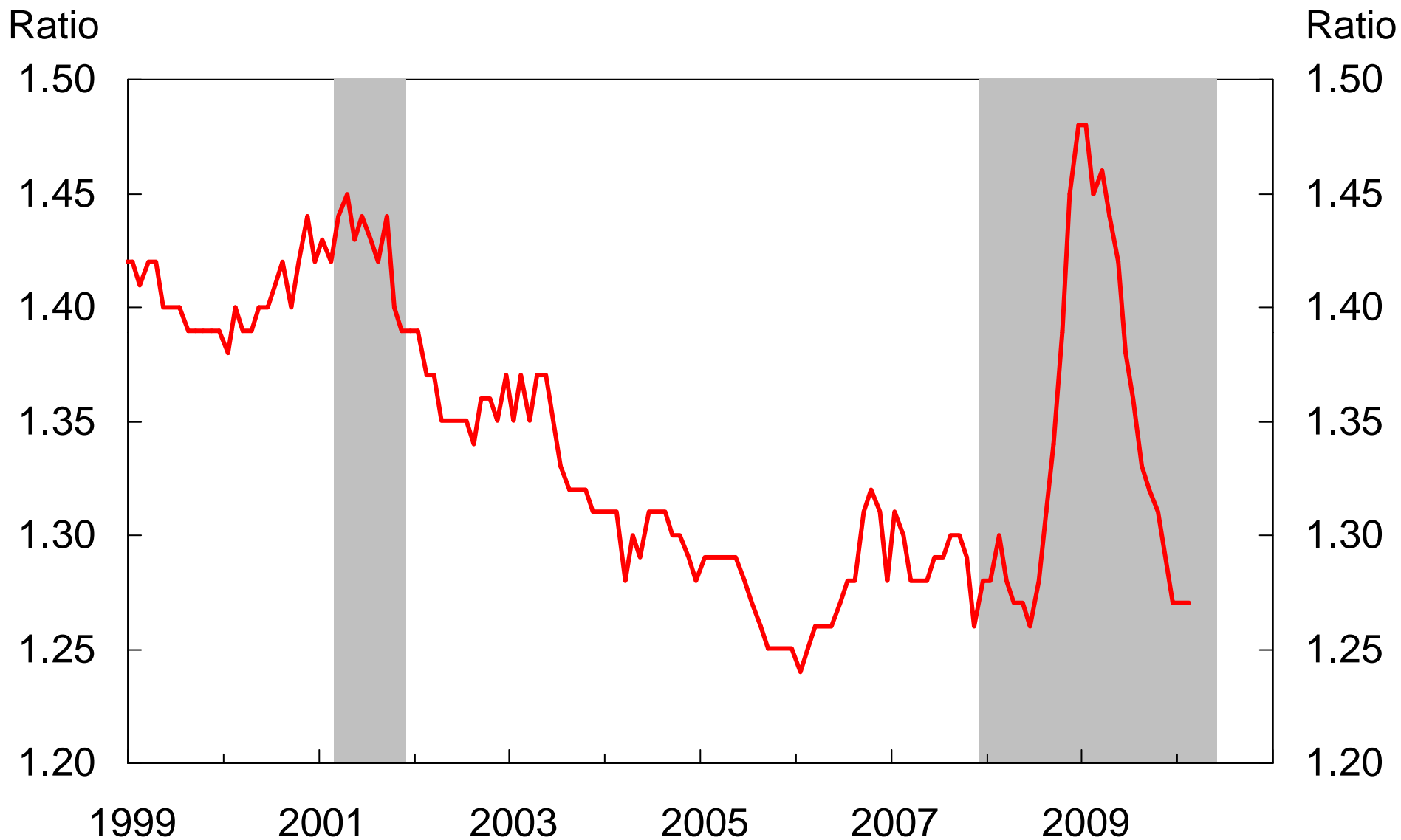
ISM Non-Manufacturing Index

Source: Institute for Supply Management

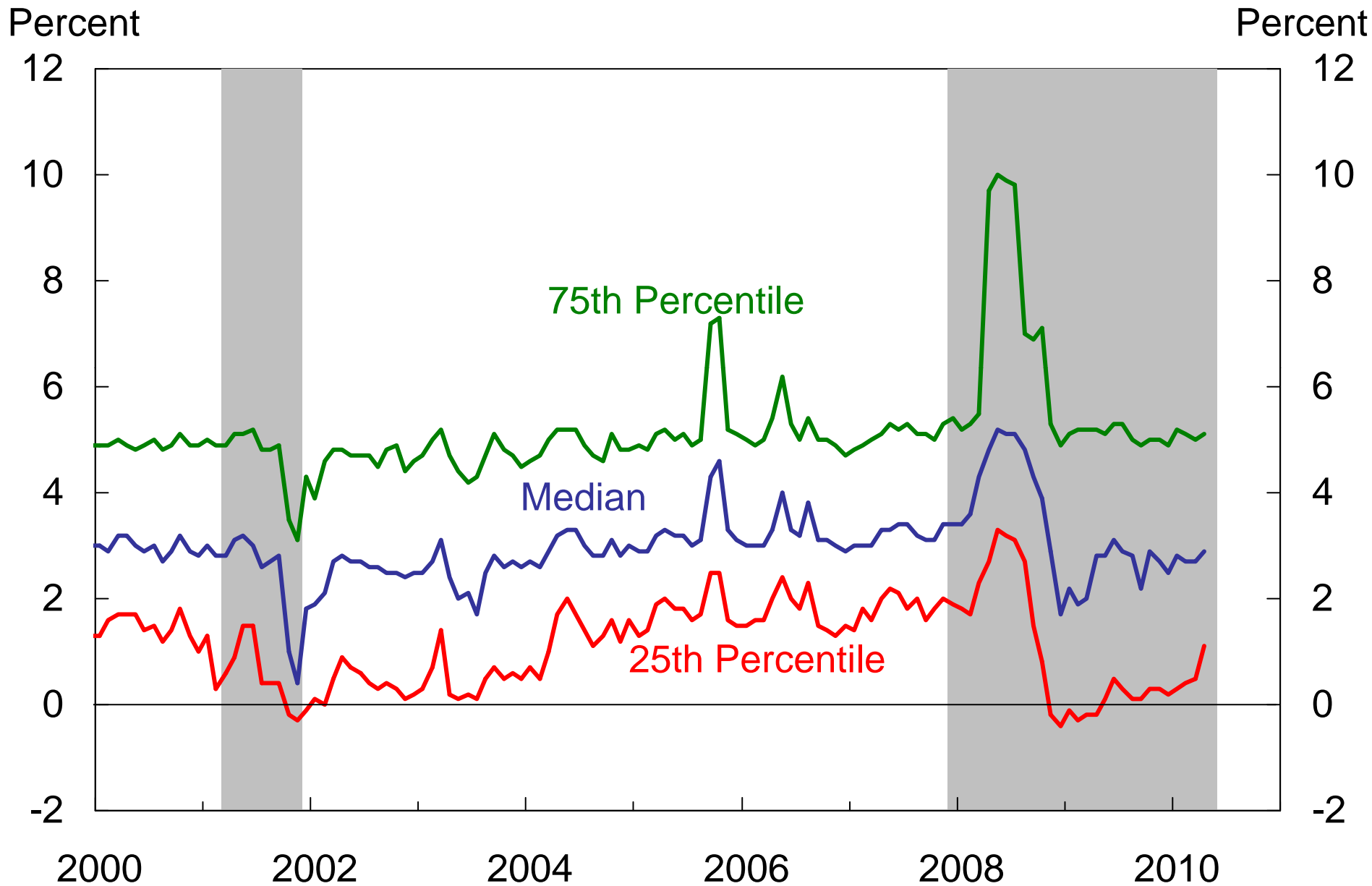# ISM Non-Manufacturing Price Index

Source: Institute for Supply Management

Inventory / Sales: Total Business

Source: Census Bureau

Michigan Survey Inflation Expectations: 1 Year Ahead

Percent

Percent

12

10

8

75th Percentile

6

4

Median

2

25th Percentile

0

-2

2000   2002   2004   2006   2008   2010

Source: University of Michigan

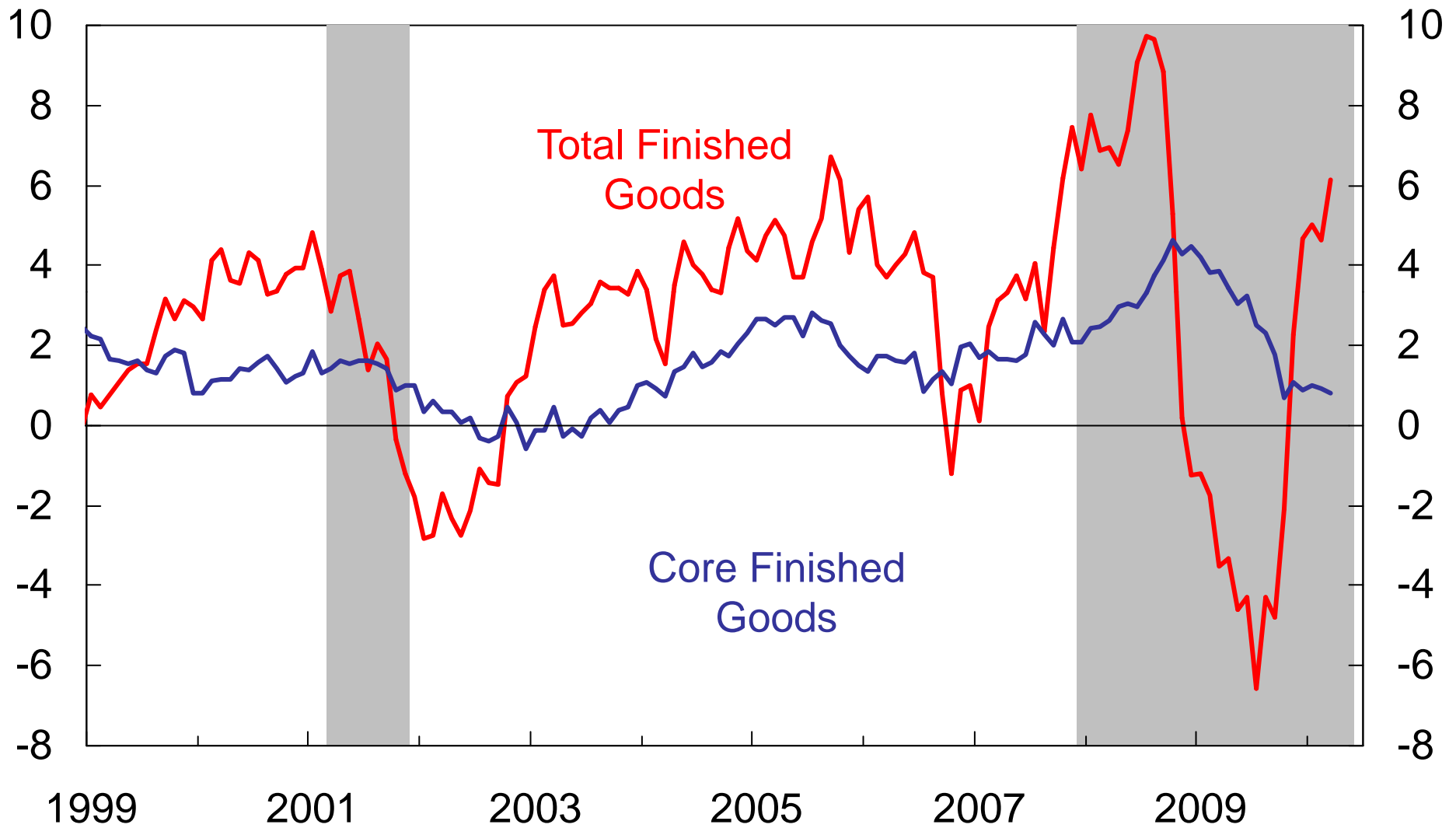# Michigan Survey Inflation Expectations: 5-10 Years Ahead
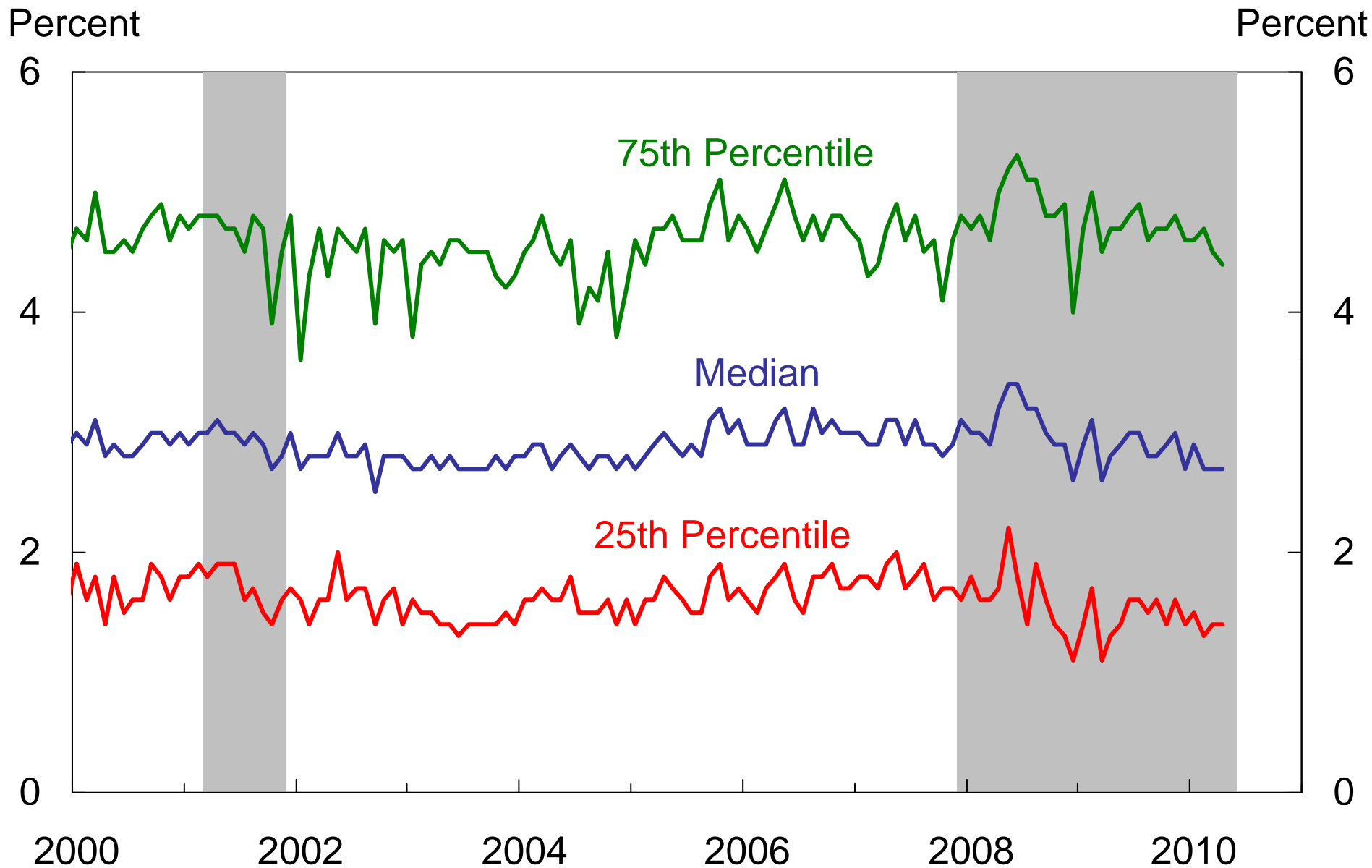
Source: University of Michigan

Producer Price Index

% Change - Year to Year

% Change - Year to Year

Source: Bureau of Labor Statistics

Real Personal Consumption Expenditures
(percent change at an annual rate)

Real Personal Consumption Expenditures
(percent change at an annual rate)

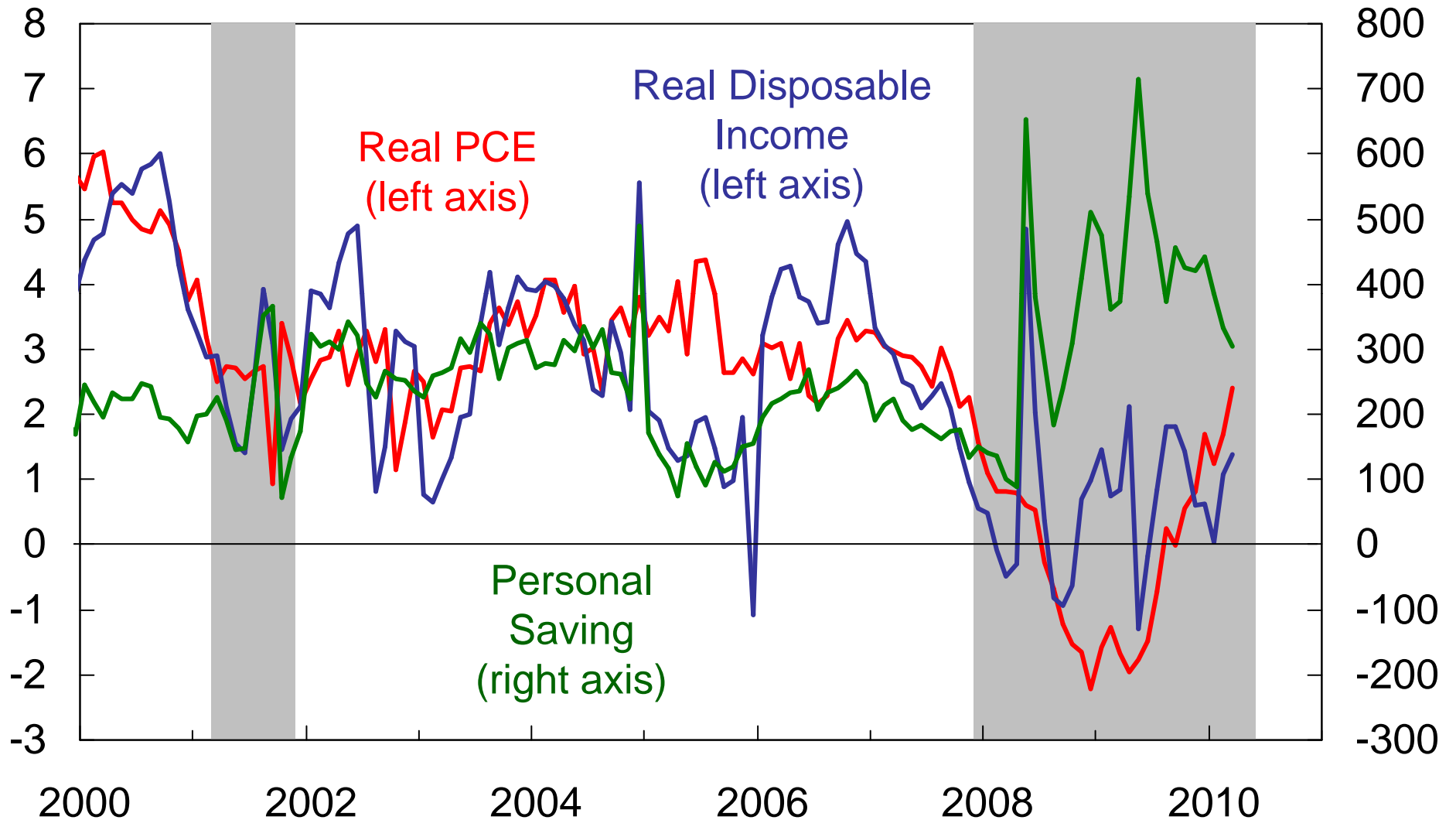|	2010Q1 Nominal Share	24 Months	12 Months	6 Months	3 Months	1 Month
Personal Consumption Expenditures	100.0	0.3	2.4	4.0	4.7	5.9
Durable Goods	10.3	0.1	10.2	20.0	17.7	50.2
Motor vehicles and parts	3.1	-5.5	8.9	36.5	16.0	183.3
Furnishings and durable household equipment	2.5	-0.2	8.9	14.4	16.5	14.6
Other durable goods	1.4	-0.1	8.0	12.8	25.6	2.7
Nondurable goods	22.5	0.0	2.3	3.8	7.1	4.8
Food and beverages purchased for off-premises consumption	7.8	0.4	3.9	3.0	5.6	-0.5
Clothing and shoes	3.2	-0.4	5.3	11.3	20.9	28.2
Gasoline, fuel oil, and other energy goods	3.5	-1.4	-1.3	0.4	4.6	-1.6
Other nondurable goods	7.9	0.5	1.2	3.1	4.4	4.5
Services	67.2	0.6	1.3	1.8	2.0	0.6
Housing services	15.3	0.8	0.6	0.6	0.6	0.6
Household utilities	3.0	0.9	2.6	5.6	-6.1	-34.0
Gas and electric	2.2	1.3	3.8	7.9	-8.4	-43.6
Transportation services	3.0	-2.2	2.2	0.8	0.1	11.0
Medical care services	16.1	1.9	2.1	2.3	1.9	1.6
Recreation services	3.7	-0.3	0.9	3.2	7.9	14.0
Food services and accomodations	6.0	-0.3	2.2	6.9	11.8	4.5
Other	9.3	0.5	0.0	0.2	-0.7	-2.1
Energy goods and services	5.7	-0.6	0.5	3.1	-0.6	-20.6
PCE less food and energy	86.5	0.4	2.4	4.1	4.9	8.5
PCE less autos and household utilities	93.9	0.6	2.2	2.9	4.6	3.6

Source: Bureau of Economic Analysis

Note: Data through March 2010.
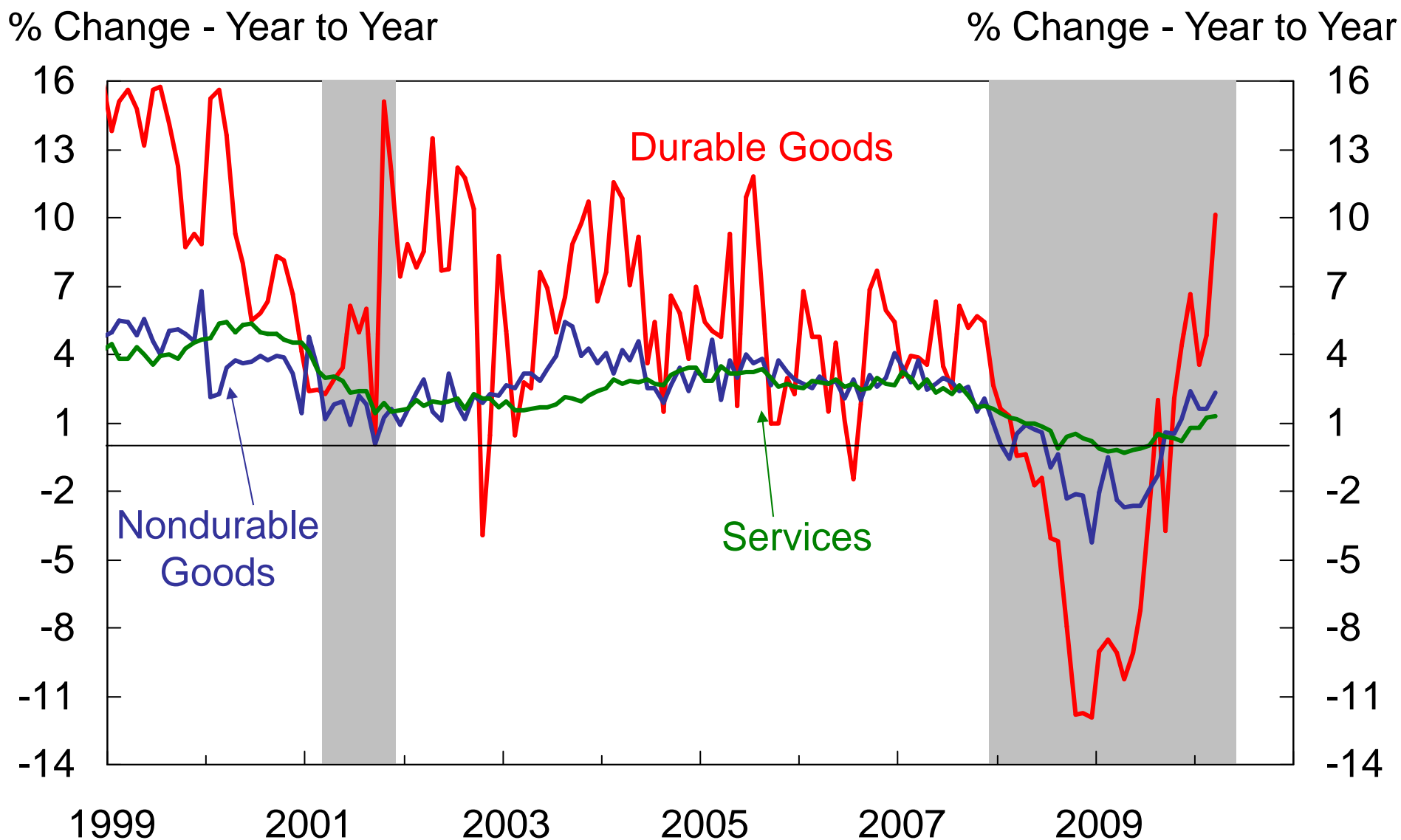
Real PCE, Disposable Income and Personal Savings

% Change - Year to Year

Billions of Dollars

Real PCE
(left axis)

Real Disposable
Income
(left axis)

Personal
Saving
(right axis)

Source: Bureau of Economic Analysis

Real PCE Components

% Change - Year to Year

% Change - Year to Year

Durable Goods

Nondurable Goods

Services

Source: Bureau of Economic Analysis