Hoisington

INVESTMENT MANAGEMENT COMPANY

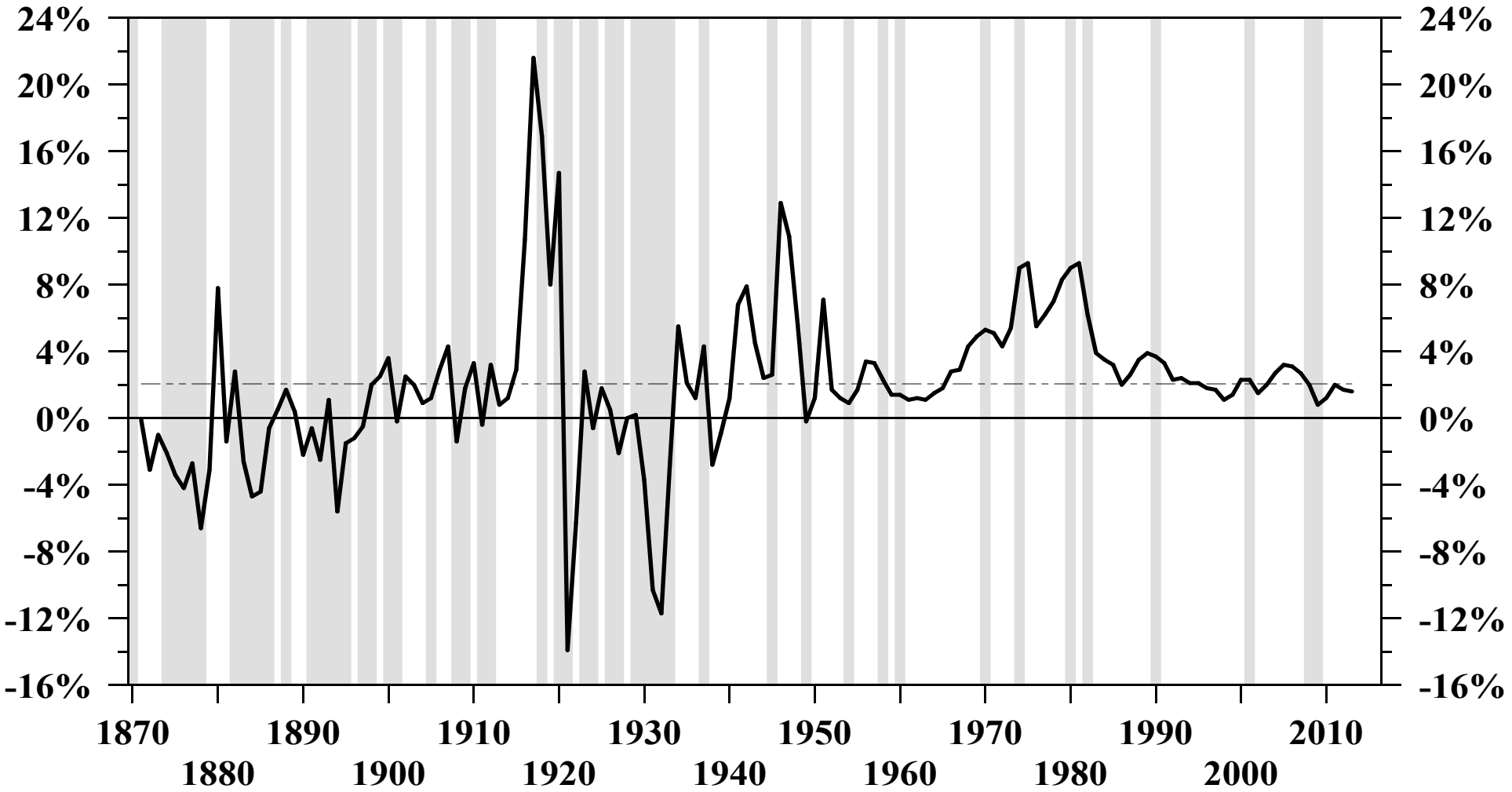
Macroeconomic Analysis

May 2014

6836 Bee Caves Road · Building 2, Suite 100
Austin, Texas 78746
512-327-7200 Fax 512-327-8646
www.Hoisington.com

GDP Implicit Price Deflator

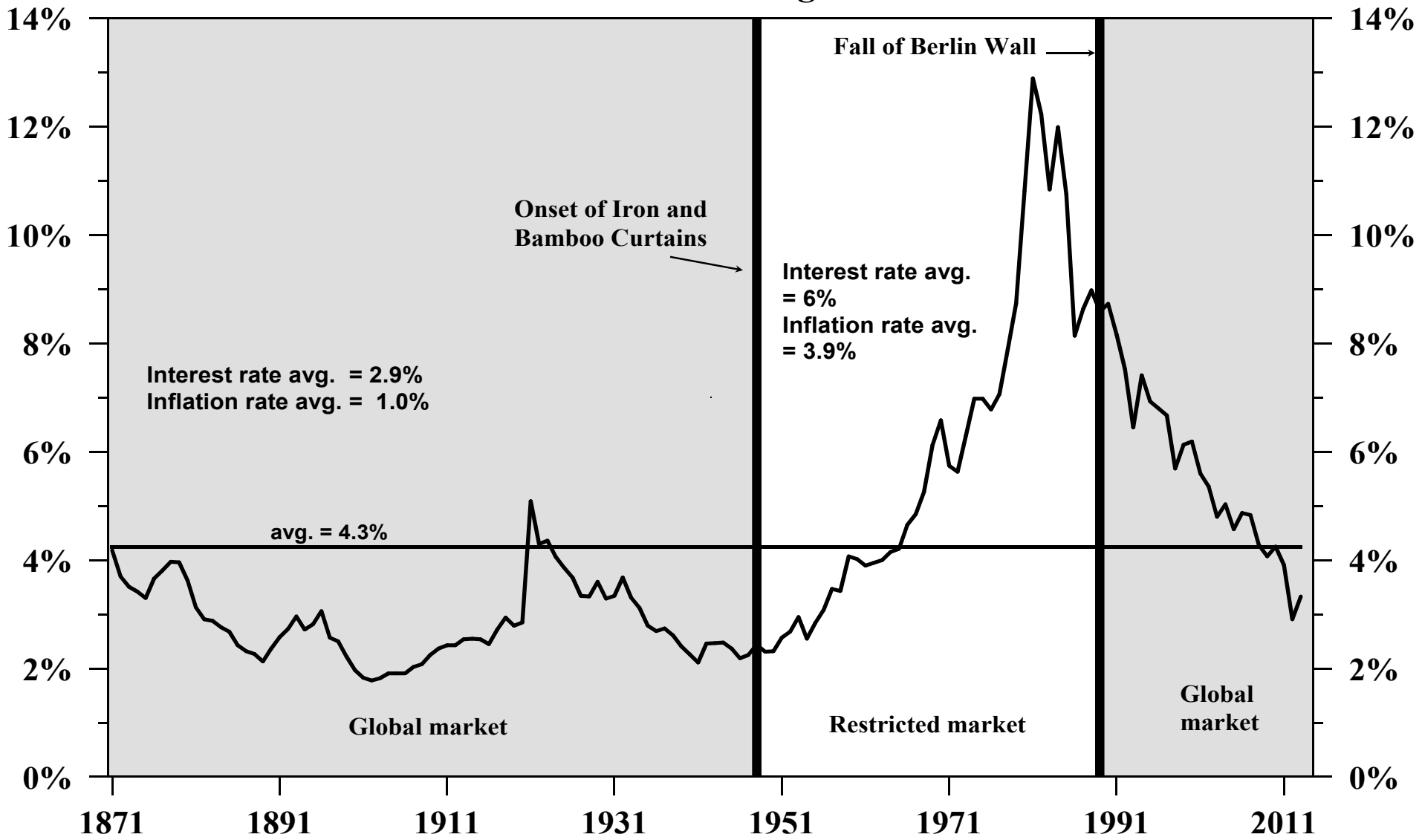
percent change in annual average



Sources: Federal Reserve Board, Bureau of Economic Analysis, N.S. Balke & R.J. Gordon, C.D. Romer.
Through Q4 2013.

Long Term Treasury Rate 1871-2013

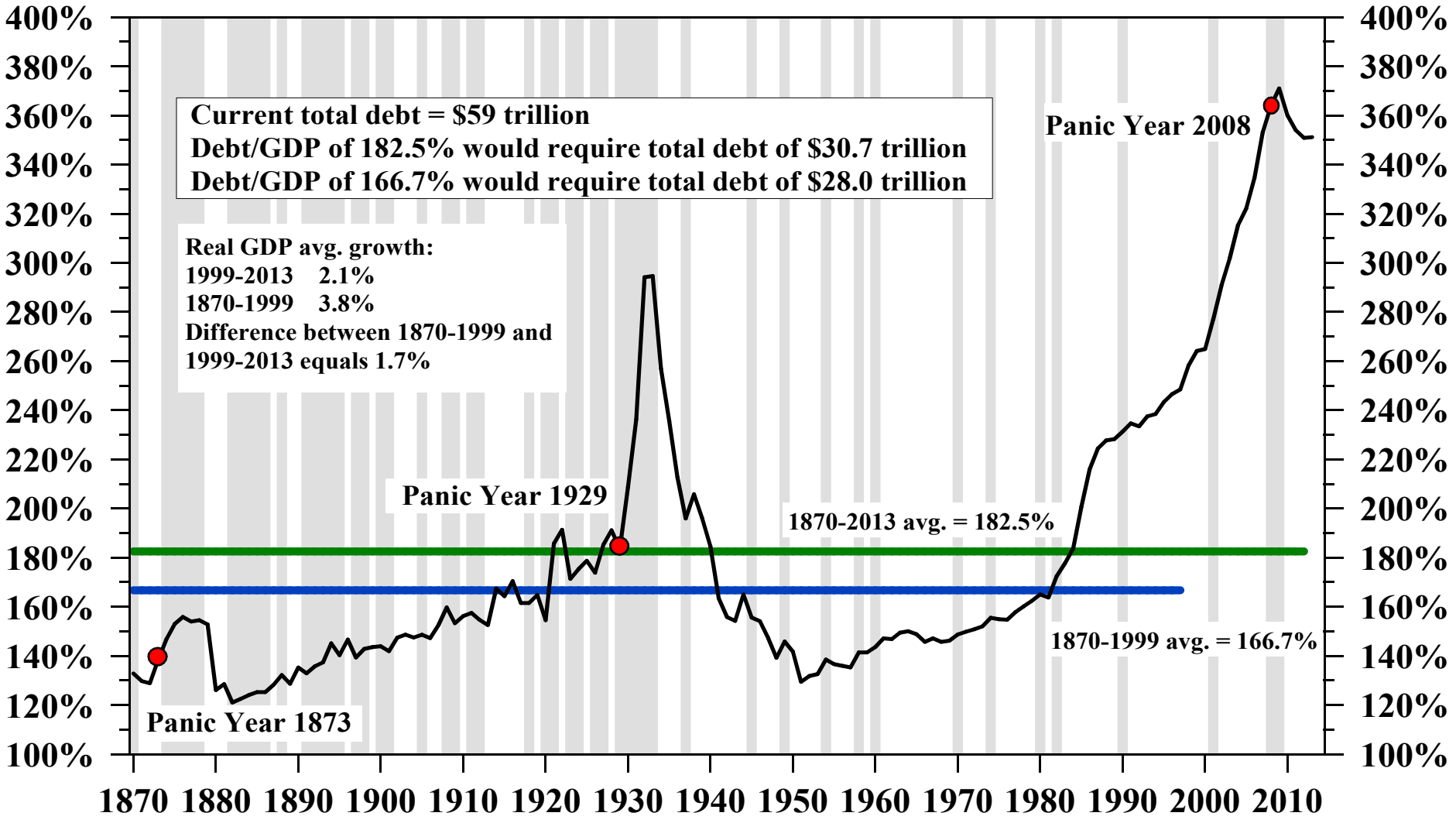
annual average



Sources: Federal Reserve Board, Homer & Sylla. Through 2013.
Initial global market period interrupted by WWI.

U.S. Private and Public Debt as a % of GDP

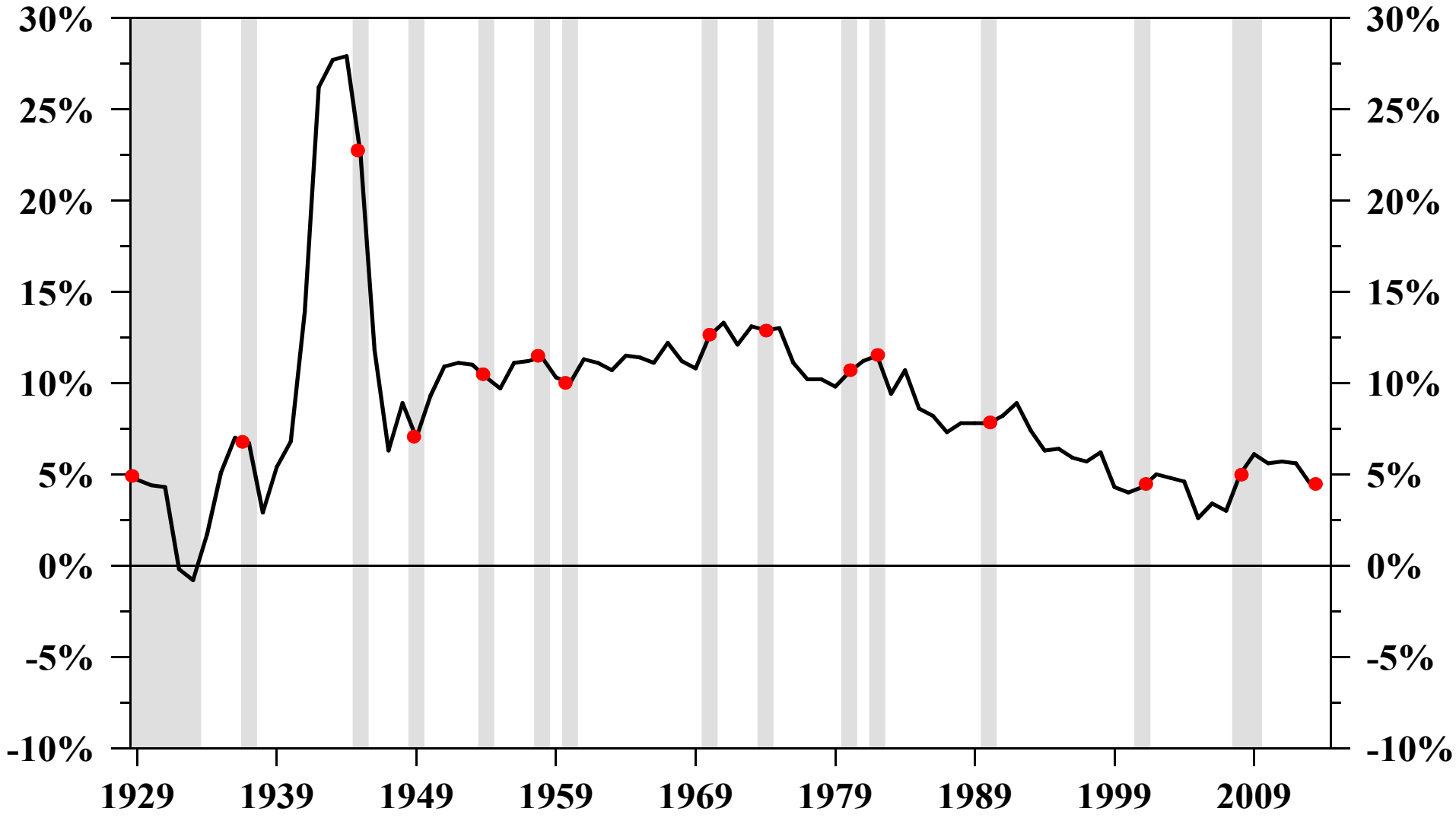
annually



Sources: Bureau of Economic Analysis, Federal Reserve, Congressional Budget Office. Census Bureau: Historical Statistics of the United States Colonial Times to 1970. Through Q4 2013.

Personal Saving Rate

annual



Sources: Bureau of Economic Analysis. Through 2013.

4 Archetypes of the Deleveraging Process

1. “Austerity” or “belt tightening”. The most common deleveraging path accounting for 16 or the 32 post 1920 cases.

2. “High Inflation”. Absence of strong central banks, often in emerging markets.

3. “Massive Default”. Often after a currency crisis.

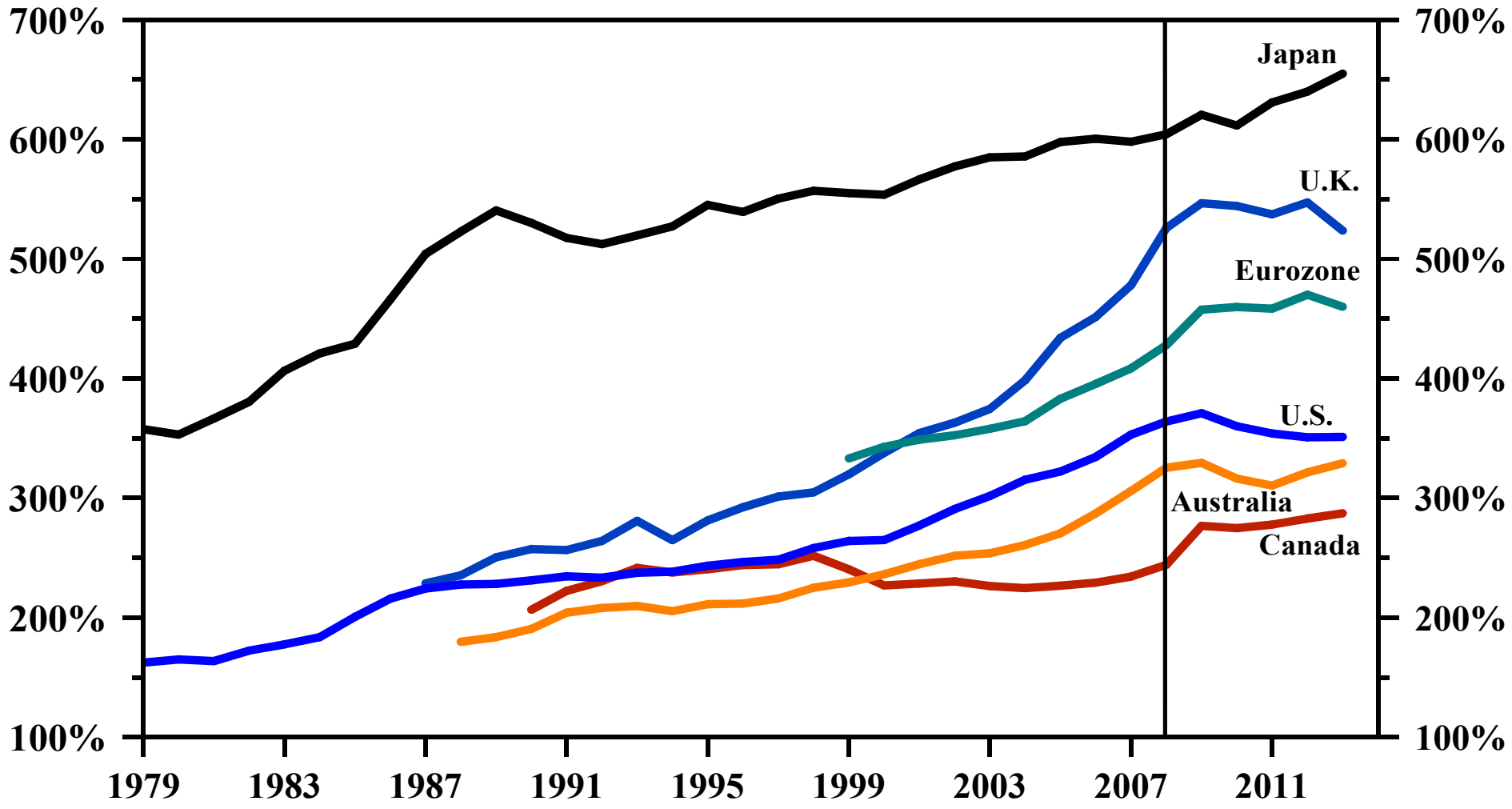
4. “Growing out of debt”. Often after an oil or war boom.

Refering to types 2, 3, and 4, “they were relatively rare and occurred in conditions that are not present today in the mature economies....This record suggests that today's mature economies are most likely to deleverage through a belt-tightening process.”

Source: McKinsey Global Institute. Debt and deleveraging: The global credit bubble and its economic consequences, page 39. December 2010.

Total Private and Public Debt as a % of GDP
Major Countries

annual



Source: Bank of Japan, Cabinet Office, Statistics Canada, Federal Reserve, Bureau of Economic Analysis, Office for National Statistics of U.K., Statistical Office of the European Communities, Reserve Bank of Australia. Haver Analytics. Through 2013.

Total Private and Public Debt as a % of GDP
Major Countries

annual

		2008	2013
	(A)	(B)	(C)
1.	Japan	604.2%	655.0%
2.	U.S.	364.0%	351.1%
3.	Australia	325.4%	329.1%
4.	Eurozone	427.9%	460.0%
5.	United Kingdom	525.8%	523.8%
6.	Canada	244.2%	287.2%
7.	China	320.0%	420.0%
8.	Weighted average	427.3%	445.3%

Source: Bank of Japan, Cabinet Office, Statistics Canada, Federal Reserve, Bureau of Economic Analysis, Office for National Statistics of U.K., Statistical Office of the European Communities, Reserve Bank of Australia. Through 2013.

General Government Gross Financial Liabilities as a % of GDP

		2012	2013	2014	2015	% of World GDP
	(A)	(B)	(C)	(D)	(E)	(F)
1.	Canada	96.1%	97.0%	97.1%	96.6%	2.3%
2.	France	109.3%	113.0%	115.8%	116.9%	4.0%
3.	Germany	88.3%	86.1%	83.4%	80.9%	5.5%
4.	Japan	218.8%	227.2%	231.9%	235.4%	8.6%
5.	United Kingdom	102.4%	107.0%	110.0%	111.6%	4.3%
6.	United States	102.1%	104.1%	106.3%	106.5%	26.1%
7.	OECD Euro area (15 countries)	104.3%	106.4%	107.1%	106.8%	24.3%
8.	China (est.)				160%	8.7%

Source: McKinsey Global Institute, OECD Economic Outlook: Statistics and Projections (database). Fitch, World Bank, USDA, Ministry of Finance China, China National Audit Office. (% of world GDP in real 2005 dollars).

The Impact of High and Growing Government Debt on Economic Growth

Checherita and Rother investigated the average effect of government debt on per capita GDP growth in twelve euro area countries over a period of about four decades beginning in 1970. A government debt to GDP ratio above the turning point of 90-100% has a "deleterious" impact on long-term growth. In addition, they find that there is a non-linear impact of debt on growth beyond this turning point. A non-linear relationship means that as the government debt rises to higher and higher levels, the adverse growth consequences accelerate. Results across all models "show a highly statistically significant non-linear relationship between the government debt ratio and per-capita GDP for the 12 pooled euro area countries included in their sample."

Moreover, confidence intervals for the debt turning point suggest that the negative growth rate effect of high debt may start from levels of around 70-80% of GDP. Due to these findings, Checherita and Rother write this "…calls for even more prudent indebtedness policies." Checherita and Rother make a substantial further contribution by identifying the channels through which the level and change of government debt is found to have an impact on economic growth: (1) private saving, (2) public investment, (3) total factor productivity and (4) sovereign long-term nominal and real interest rates. **Cristina Checherita and Philipp Rother, The Impact of High and Growing Government Debt on Economic Growth, An Empirical Investigation for The Euro Area, European Central Bank working paper, Number 1237, August 2010.**

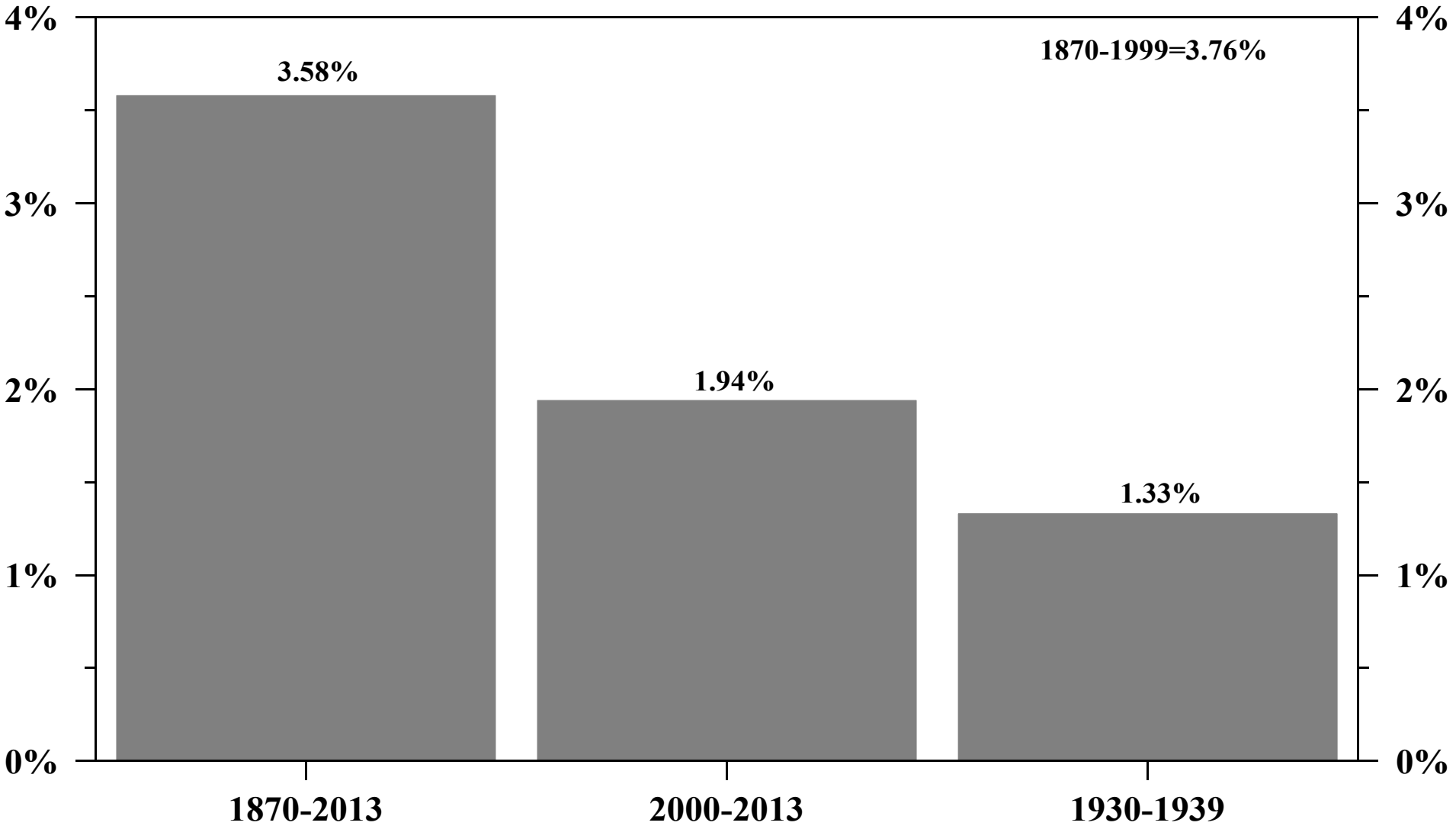
Two Major Studies Analyzing Effects of Private Overindebtedness

1. In "Too Much Finance" Jean Louis Arcand, Enrico Berkes, and Ugo Panizza, published by UNCTAD in March 2011, find a negative effect on output growth when credit to private sector reaches 104 to 110 percent of GDP. The strongest adverse effects are for credit over 160 percent of GDP.

2. "The Real Effects of Debt" by Stephen G. Cecchetti, M S Mohanty and Fabrizio Zampolli of August 2011, published by the Bank for International Settlements in Basel, Switzerland determine "beyond a certain level, debt is bad for growth". These negative consequences or what the BIS economic advisor Cecchetti refers to as the point at which debt levels turn "cancerous" occur at 175% (90% for corporations and 85% for households) just slightly higher than the UNCTAD study.

Real GDP Growth, Selected Periods

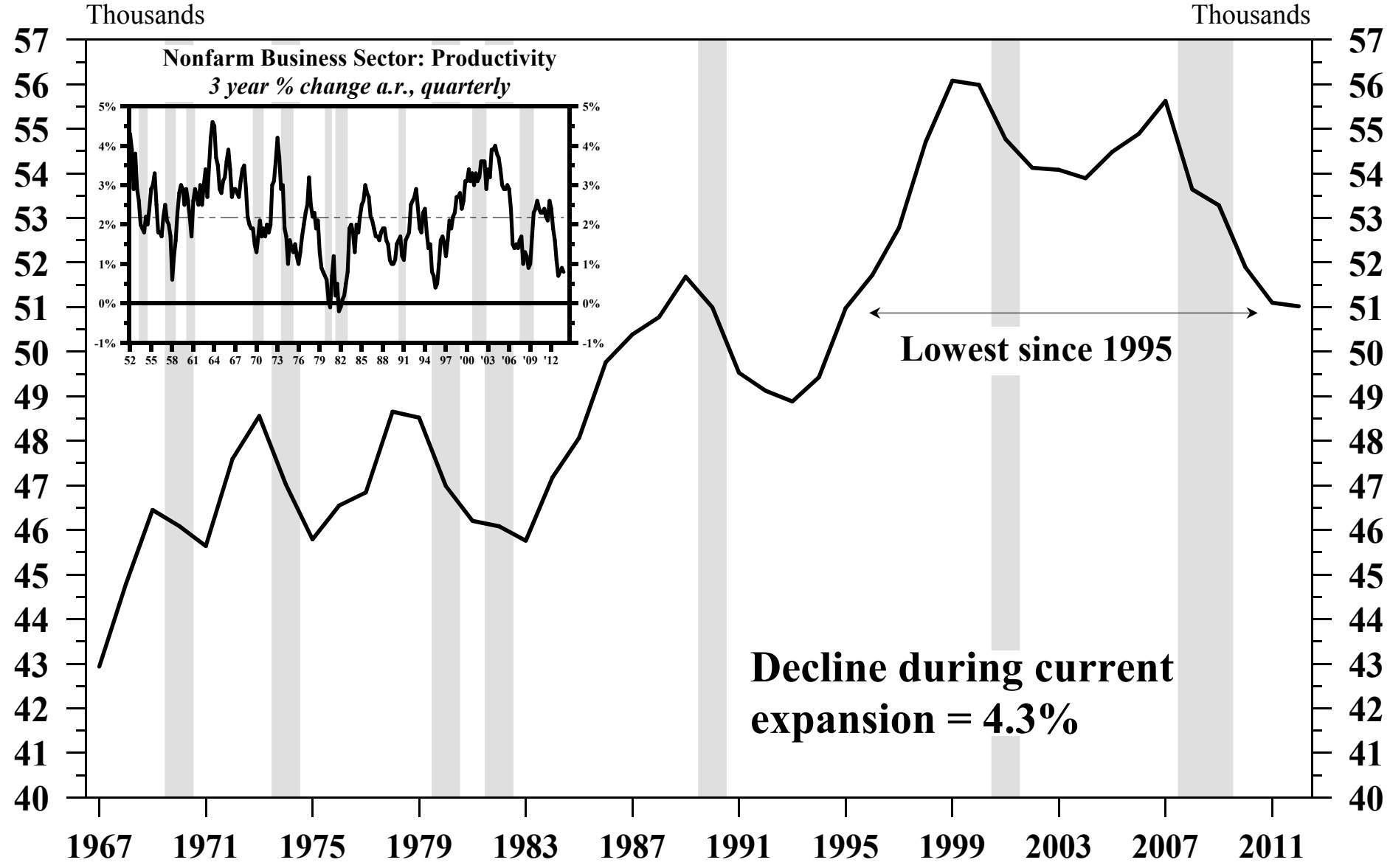
average annual growth



Sources: Bureau of Economic Analysis, Congressional Budget Office, Office of Management and Budget, N.S. Balke & R.J. Gordon, C.D. Romer. Through 2013.

Real Median Household Income

annual



Sources: Census Bureau. Bureau of Labor Statistics. Through 2012.

Academic Studies on Quantitative Easing

Presentations at the Fed's 2013 Jackson Hole Conference

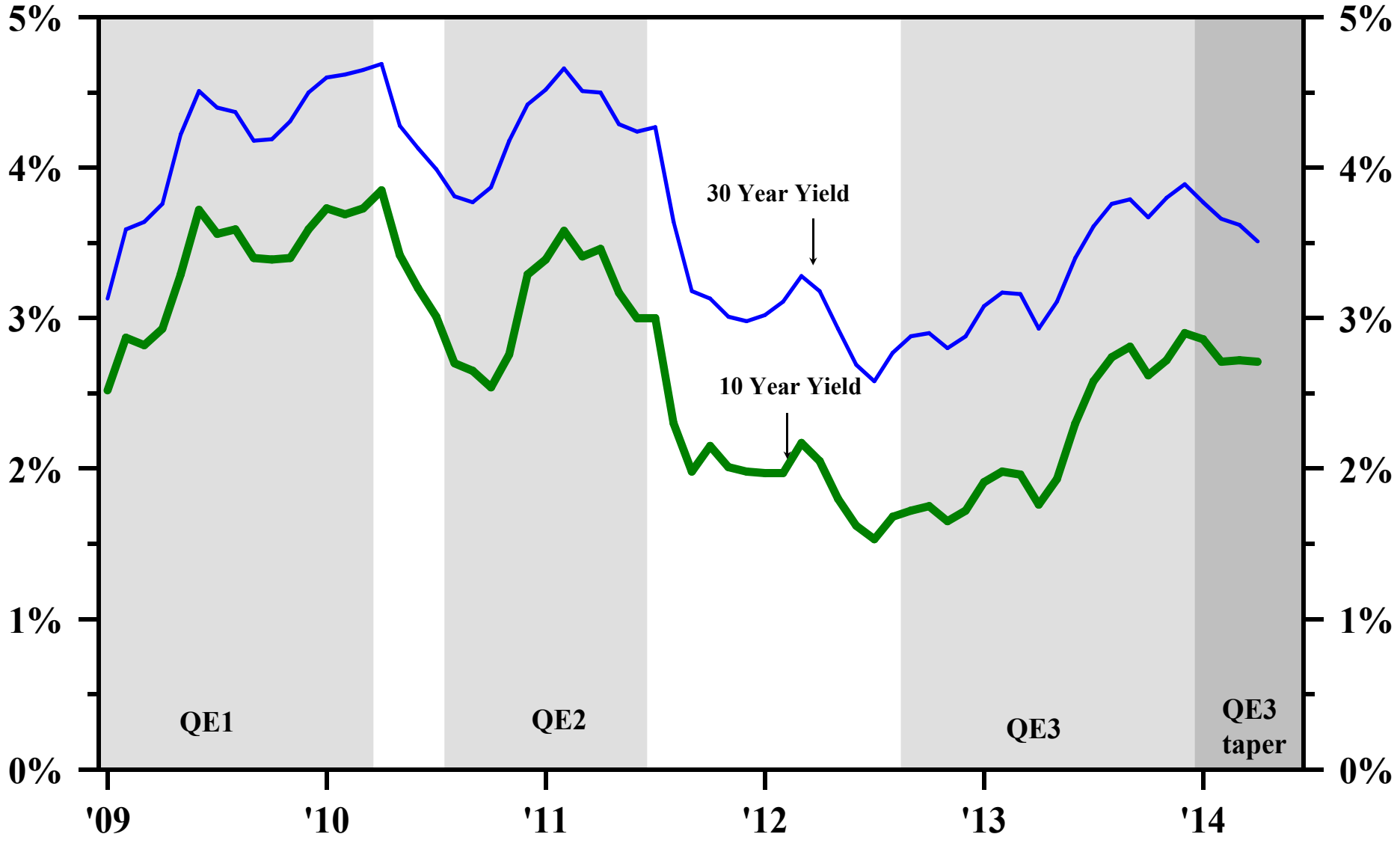
1. Robert E. Hall, Stanford University, NBER. The United States and most other advanced countries are closing on five years of all-out expansionary monetary policy that has failed in all cases to restore normal conditions of employment and output... The combination of low investment and low consumption resulted in an extraordinary decline in output demand, which called for a markedly negative real interest rate, one unattainable because the zero lower bound on the nominal interest rate coupled with low inflation put a lower bound on the real rate at only a slightly negative level... Both quantitative easing and forward guidance, as implemented by the Fed, are obviously weak instruments. With regard to the large increase in reserves to finance quantitative easing, Hall wrote "An expansion of reserves contracts the economy," in the current situation when interest is paid on reserves. Hall was skeptical of forward guidance because he does not think promising to deviate from a policy rule with extra low interest rates in the future is credible and as he said "hard to accomplish." Hall warned that nominal GDP targeting has serious problems, referring to his research of 20 years ago with Greg Mankiw. Instead of targeting for inflation going forward Hall contended central bankers should focus on requiring more capital at banks and more rigorous stress testing.

2. Hyun Song Shin (Princeton University): He discussed..."disturbing implications for the effectiveness of central bank asset purchases"..."but let's not forget why we are in this mess in the first place"..."Things were not right in the financial system before the crisis, leverage was too high and the banking sector had become too large". Later he expressed extreme doubts that forward guidance was effective in bringing down longer term interest rates.

3. Arvind Krishnamurthy (Northwestern University) and Annette Vissing-Jorgensen (University of California, Berkeley) found evidence that the Fed's large scale Treasury bill purchases had little "portfolio balance" impact on other interest rates and was not in itself a macro stimulus, though they found an impact of the MBS purchases. Their work is based on announcement effects, which may not reveal the full effect of the policy. They also criticized the Fed for not having a clear policy rule or strategy for asset purchases. They argue that the absence of concrete guidance as to the goal of asset purchases, which has been vaguely defined as aimed toward substantial improvement in the outlook for the labor market, neutralizes their impact and complicates an eventual exit. They write, "Without such a framework, investors do not know the conditions under which (asset buys) will occur or be unwound, which undercuts the efficacy of policy targeted at long-term asset values."

30 Year and 10 Year Bond Yields

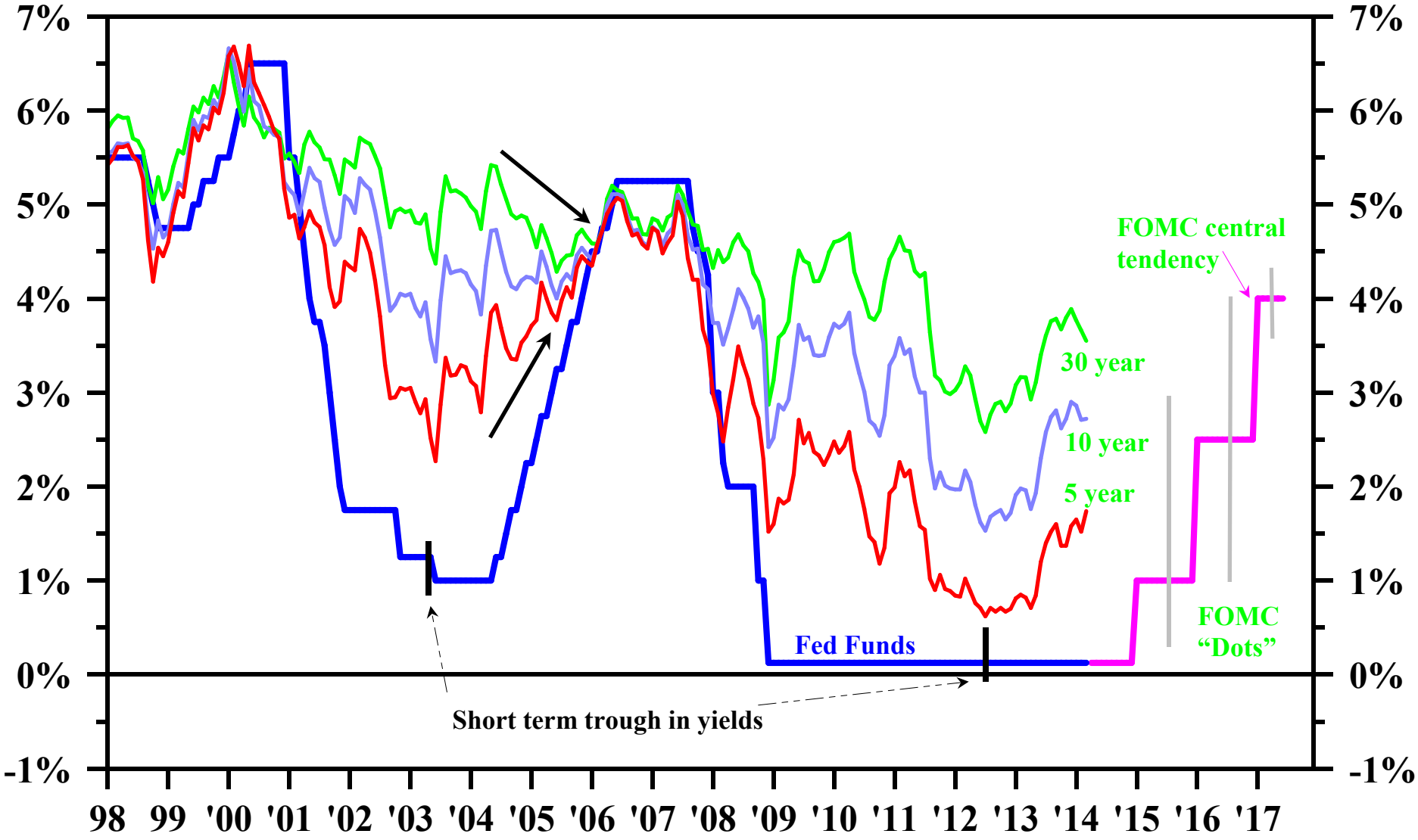
monthly



Source: Federal Reserve. Through April 2014.

Interest Rates

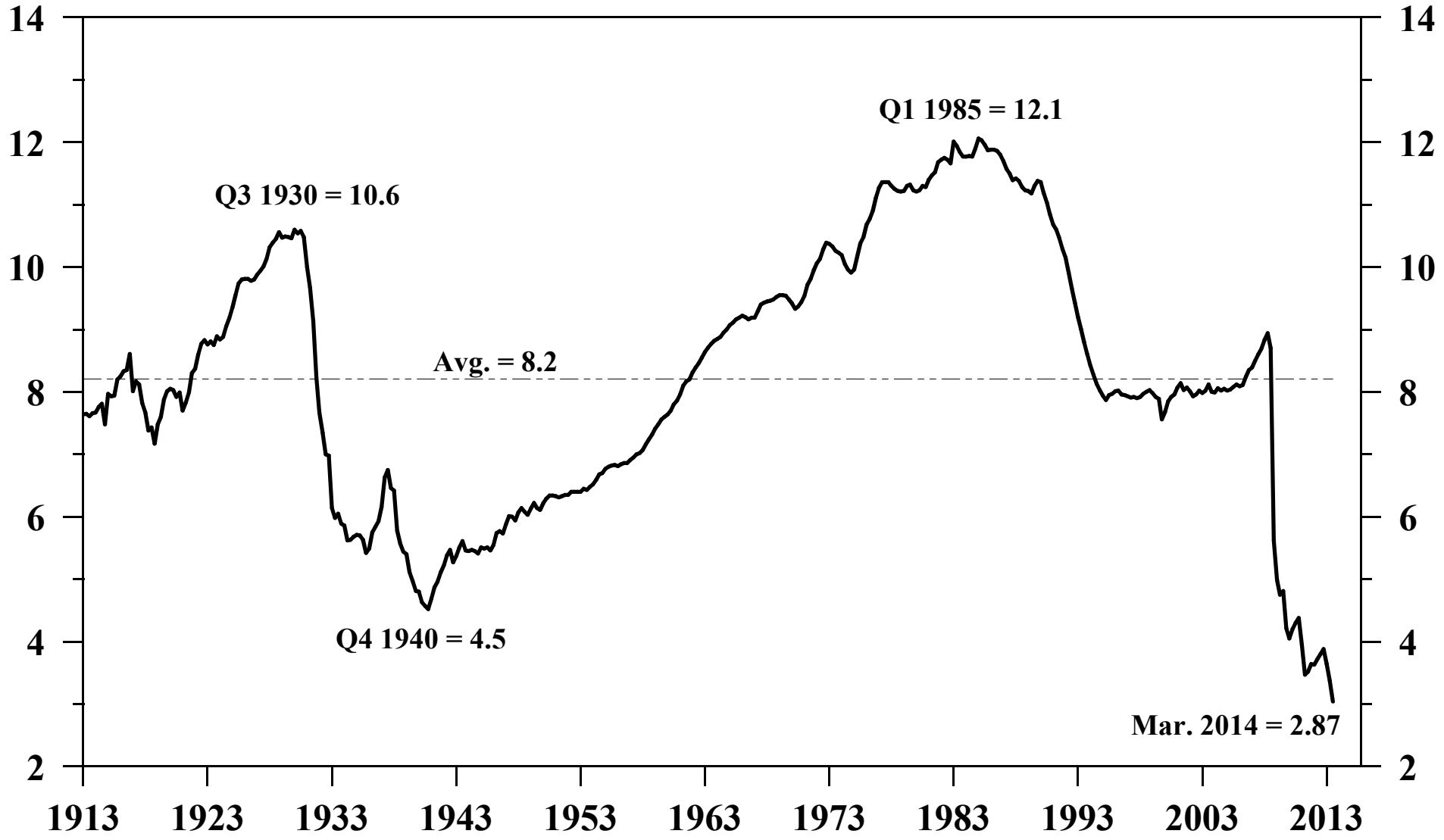
monthly



Source: Federal Reserve. Through March 2014.

Money Multiplier

quarterly

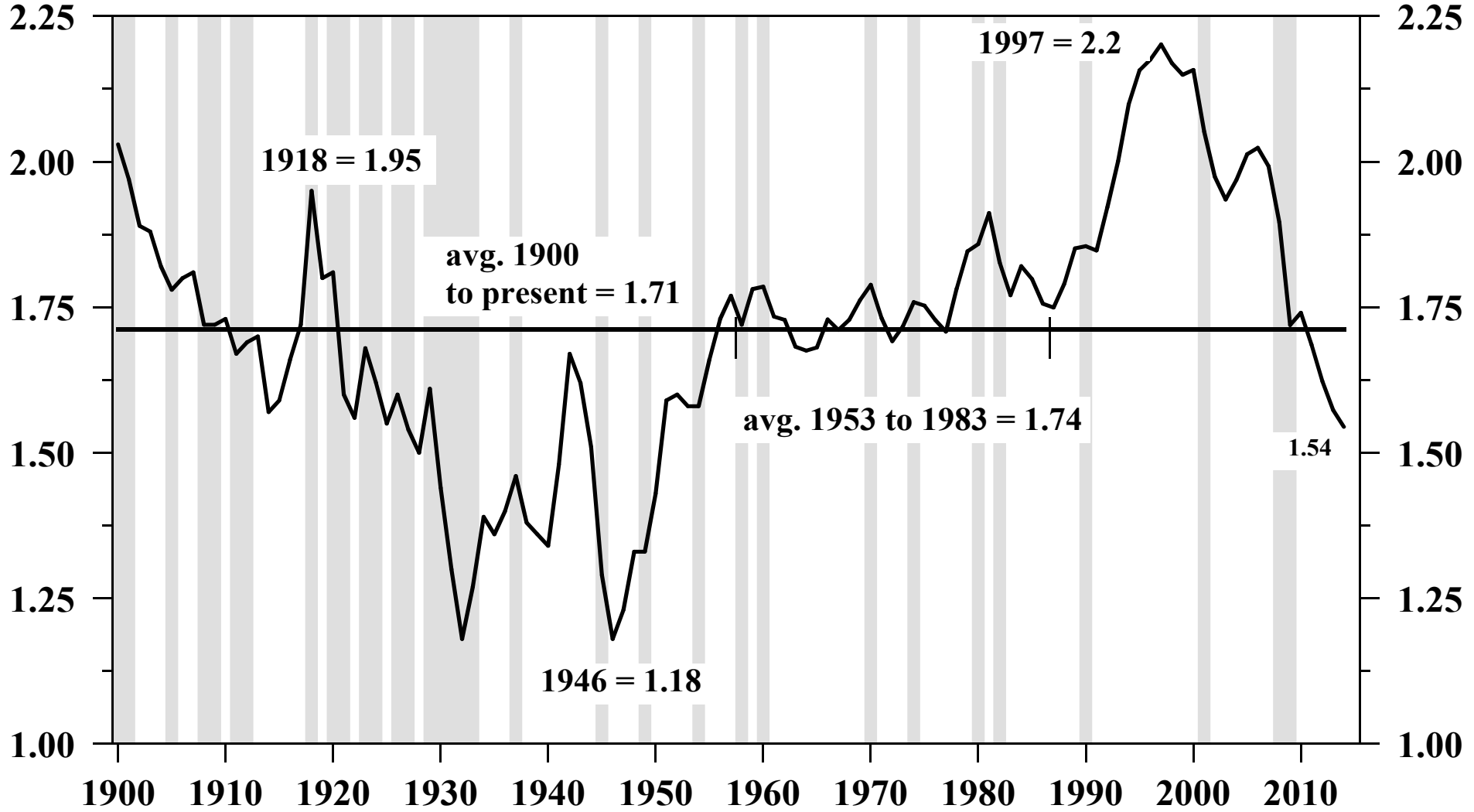


Sources: Federal Reserve, The American Business Cycle; Robert Gordon. Through March 2014. Money multiplier equals M2 money supply divided by the monetary base.

Velocity of Money 1900-2014

Equation of Exchange: GDP(nominal) = M*V

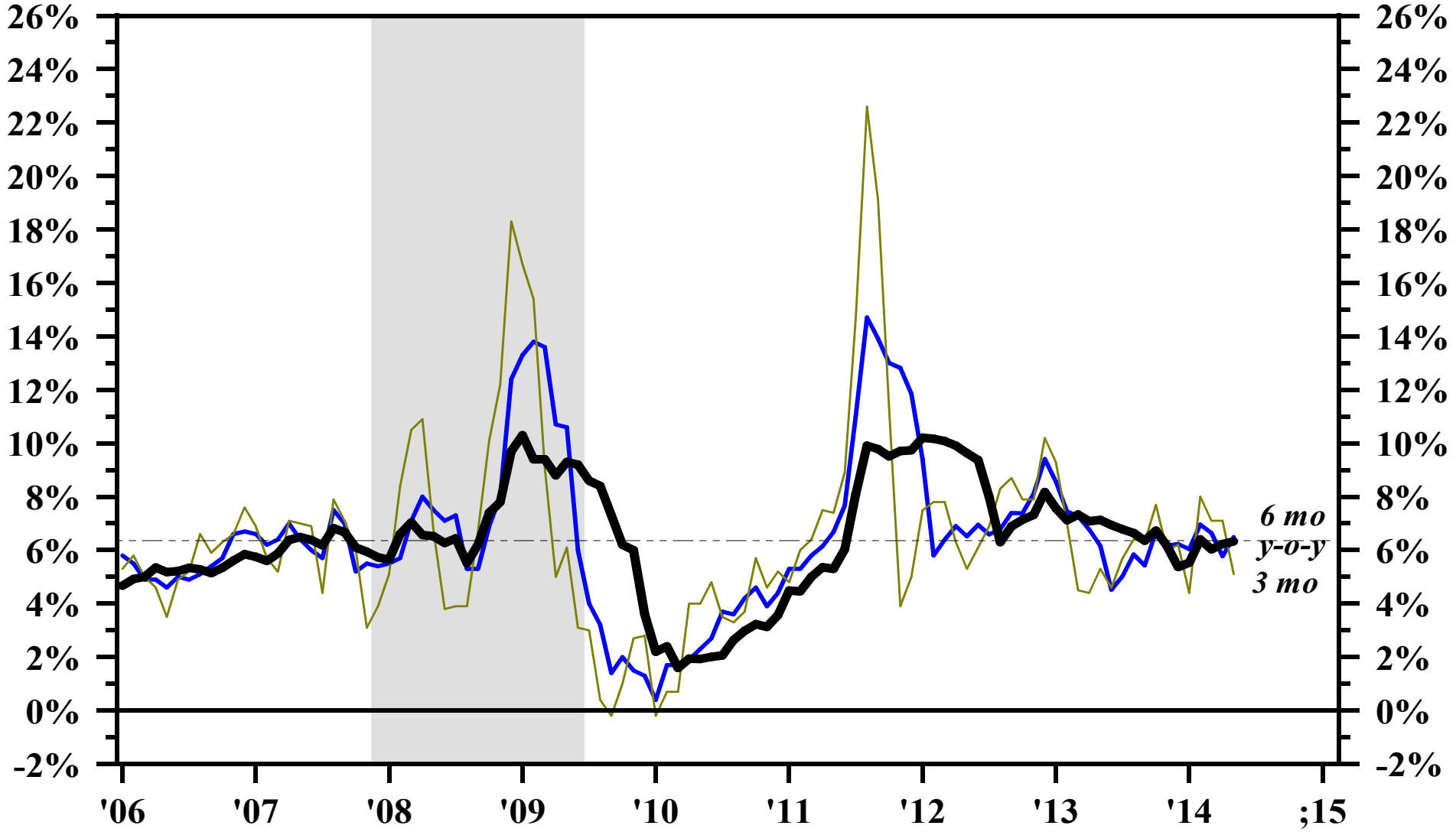
annual



Sources: Federal Reserve Board; Bureau of Economic Analysis;
Bureau of the Census; Monetary Statistics of the United States. Through Q1 2014.
Q1 2014; V = GDP/M, GDP = 17.2 tril, M2 = 11.1 tril, V = 1.54

M2 Money Stock

3 and 6 month % change, a.r. and y-o-y % change



Source: Federal Reserve. Through May 5, 2014.

Scholarly Studies on Financial Wealth and Consumer Spending

1. Sydney Ludvigson and Charles Steindel found a positive connection between aggregate wealth changes and aggregate spending. But as they wrote, **"Spending growth in recent years has surely been augmented by market gains, but the effect is found to be rather unstable and hard to pin down. The contemporaneous response of consumption growth to an unexpected change in wealth is uncertain and the response appears very short-lived."**
"How Important is the Stock Market Effect on Consumption" in the FRBNY Economic Policy Review, July 1999.

2. In "Financial Wealth Effect: Evidence from Threshold Estimation" (Applied Economic Letters, 2011), Sherif Khalifa, Ousmane Seck and Elwin Tobing found "a threshold income level of almost $130,000, below which the financial wealth effect is insignificant, and above which the effect is 0.004." This means a one dollar rise in wealth would, in time, boost consumption by less than one-half of a penny.

3. In "Wealth Effects Revisited 1975-2012," Karl E. Case, John M. Quigley and Robert J. Shiller (Cowles Foundation Discussion Paper #1884, December 2012) write, "The numerical results vary somewhat with different econometric specifications, and so any numerical conclusion must be tentative. We find at best weak evidence of a link between stock market wealth and consumption." This team looked at quarterly observations during the seventeen-year period, 1982 through 1999 and the thirty-seven year period 1975 through the spring quarter of 2012.

Scholarly Studies on Housing Wealth and Consumer Spending

1. Karl E. Case, John M. Quigley and Robert J. Shiller write, "In contrast, we do find strong evidence that variations in housing market wealth have important effects upon consumption." (Cowles # 1884 12/12.)

2. In "The (Mythical?) Housing Wealth Effect" (NBER Working Paper #15075, June 2009), Charles Calomiris, Stanley D. Longhofer and William Miles write, "Models used to guide policy, as well as some empirical studies, suggest that the effect of housing wealth on consumption is large and greater than the wealth effect on consumption from stock holdings. Recent theoretical work, in contrast, argues that changes in housing wealth are offset by changes in housing consumption, meaning that unexpected shocks in housing wealth should have little effect on non-housing consumption."

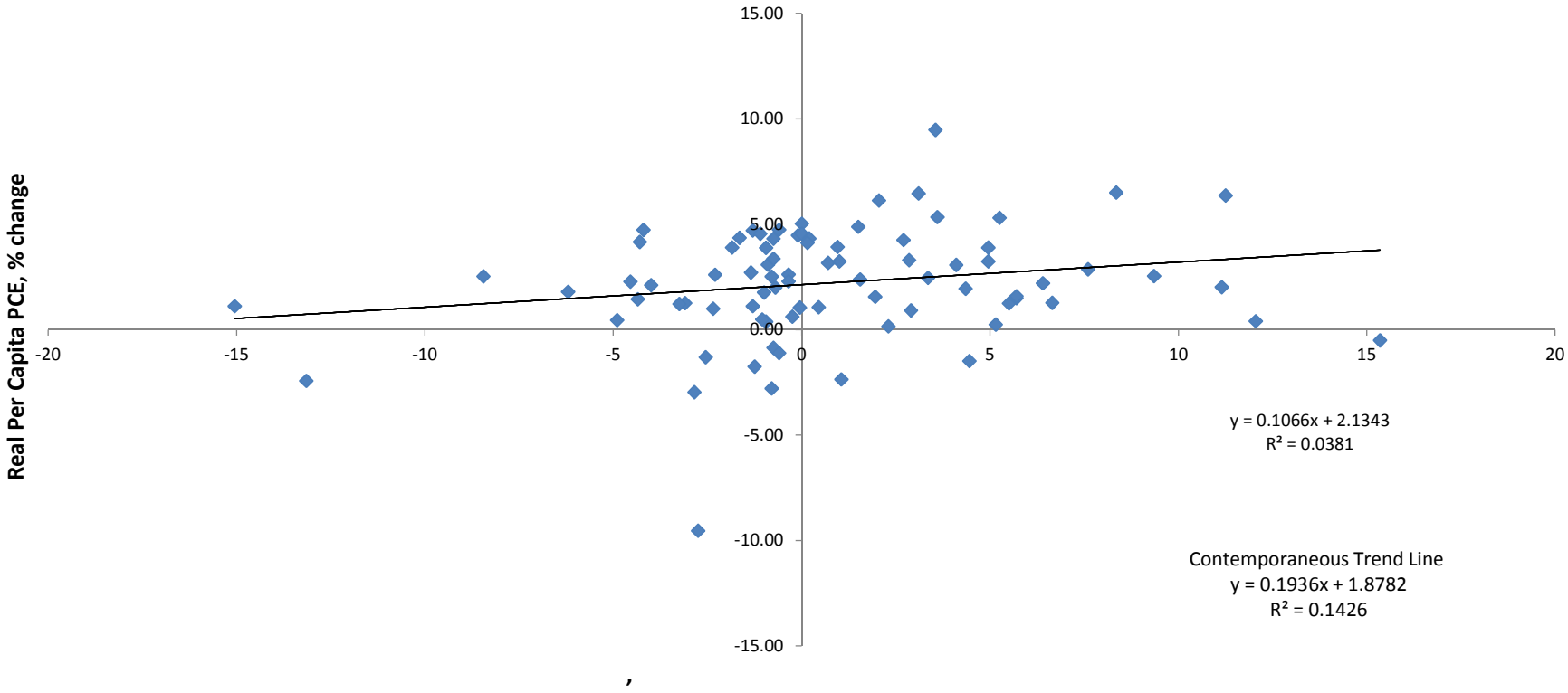
3. R. Glenn Hubbard and Anthony Patrick O'Brien (Macroeconomics, Fourth edition, 2013, page 381) provide a highly cogent summary of the aforementioned research by Charles Calomiris, Stanley D. Longhofer and William Miles. They argue that consumers "own houses primarily so they can consume the housing services a home provides. Only consumers who intend to sell their current house and buy a smaller one - for example, 'empty nesters' whose children have left home - will benefit from an increase in housing prices. But taking the population as a whole, the number of empty nesters may be smaller than the number of first time home buyers plus the number of homeowners who want to buy larger houses. These two groups are hurt by rising home prices."

4. Amir Sufi, Professor of Finance at the University of Chicago, also indicates that the effect of housing wealth is much smaller than assumed in the policy models and earlier empirical research, with an increase of one dollar of housing wealth yielding as little as one cent of extra spending ("Will Housing Save the U.S. Economy?", April 2013, Chicago Booth Economic Outlook event).

5. Sherif Khalifa, Ousmane Seck and Elwin Tobing ("Housing Wealth Effect: Evidence from Threshold Estimation", The Journal of Housing Economics). These economists found that a threshold income level of $74,046 had a wealth coefficient that rounded to one cent. Income levels between $74,046 and $501,000 had a two cent coefficient, and incomes above $501,000 had a statistically insignificant coefficient.

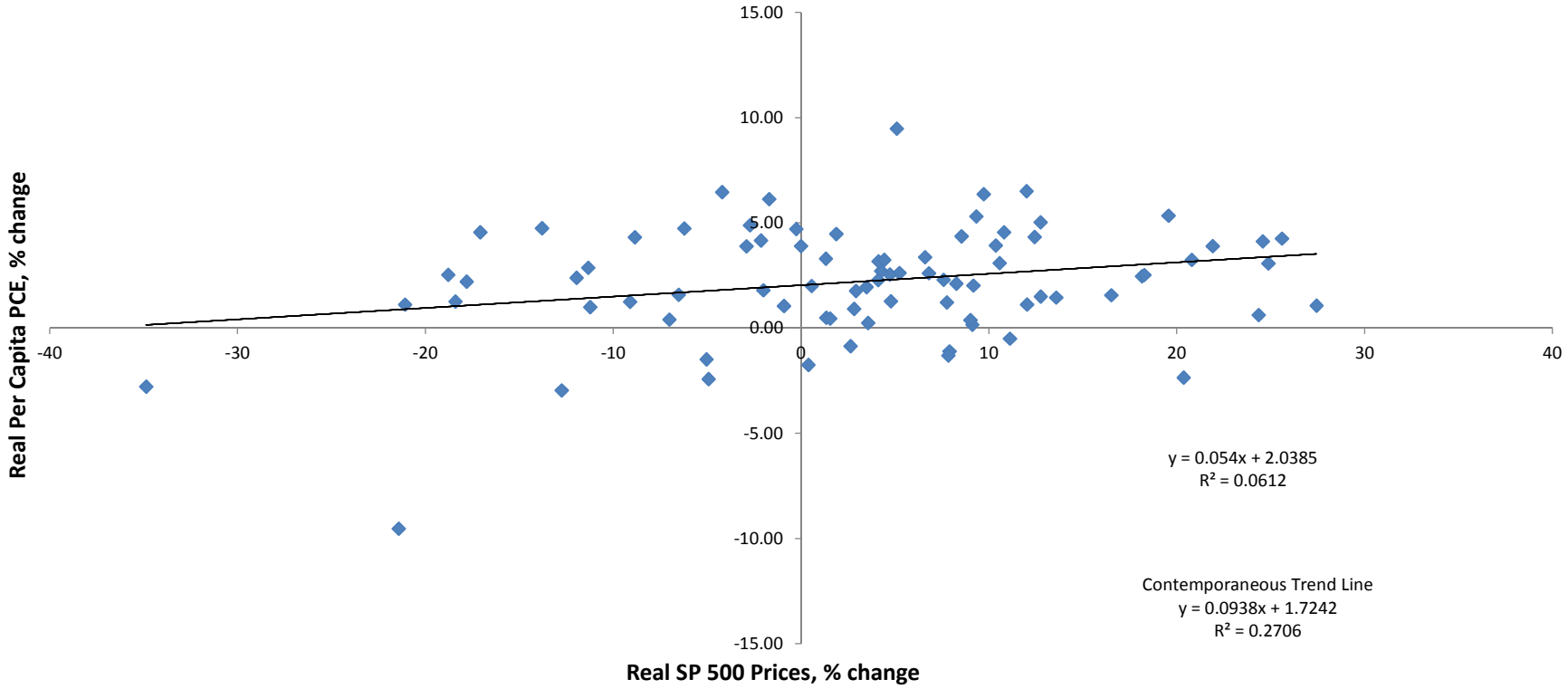
Real Per Capita Personal Consumption Expenditures vs. Real Home Prices Lagged One and Two Years, 1932-2013

(percent changes)



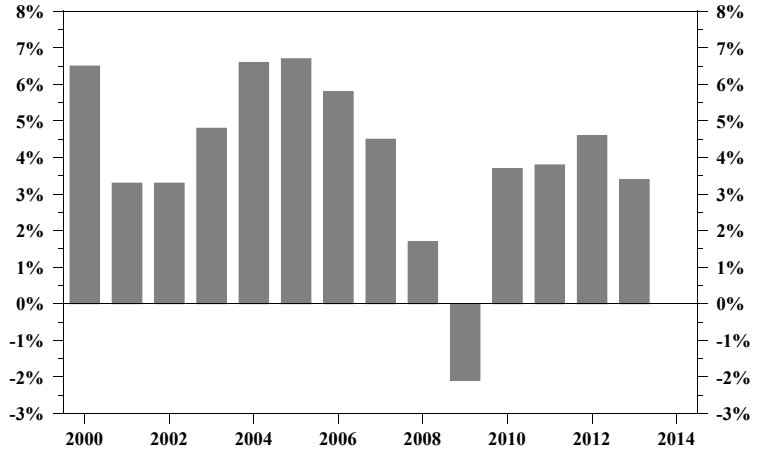
Real Per Capita Personal Consumption Expenditures vs. Real S&P 500 Prices Lagged One and Two Years, 1932-2013

(percent changes)



Nominal GDP

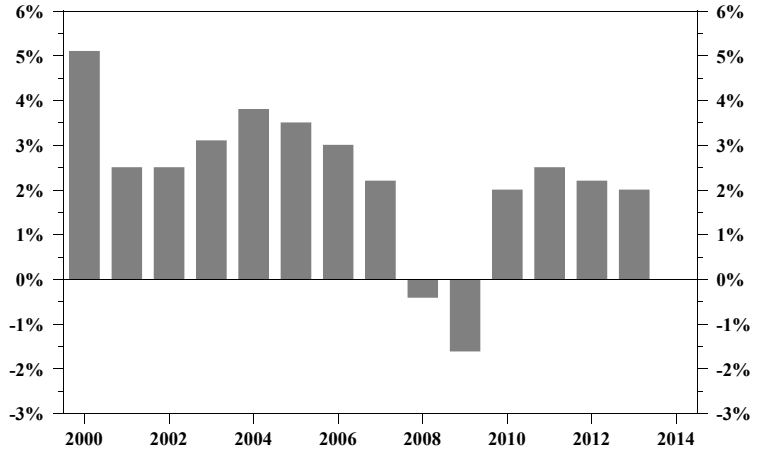
annual % change



Sources: Bureau of Economic Analysis. Through 2013.

Real Personal Consumption Expeditures

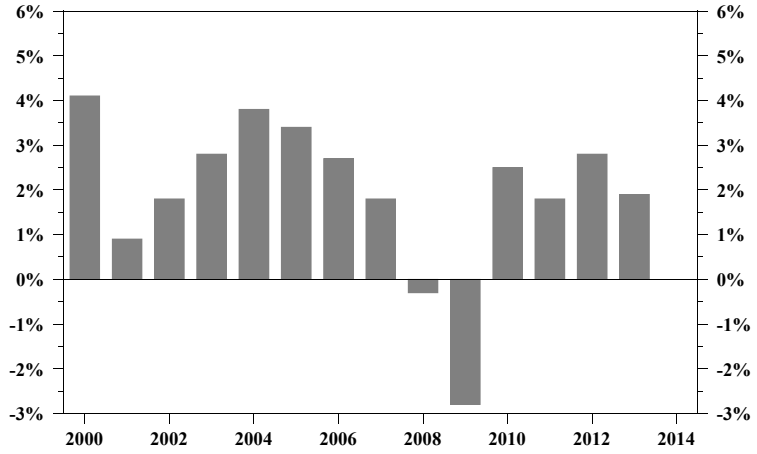
annual % change



Sources: Bureau of Economic Analysis. Through 2013.

Real GDP

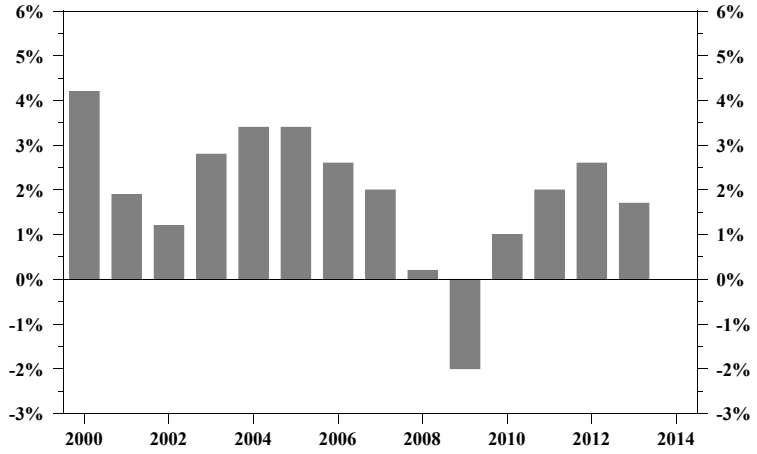
annual % change



Sources: Bureau of Economic Analysis. Through 2013.

Real Final Sales

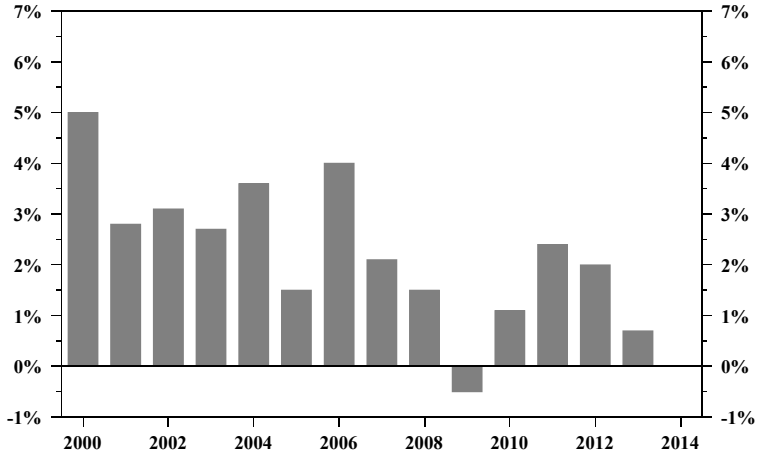
annual % change



Sources: Bureau of Economic Analysis. Through 2013.

Real Disposable Personal Income

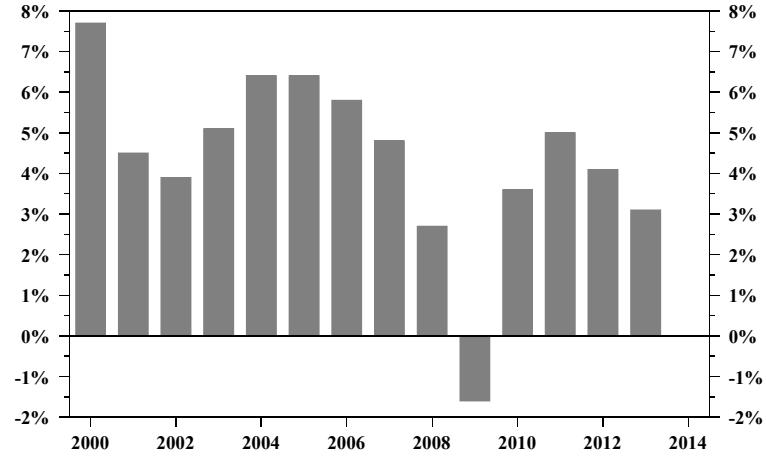
annual % change



Sources: Bureau of Economic Analysis. Through 2013.

Personal Consumption Expenditures

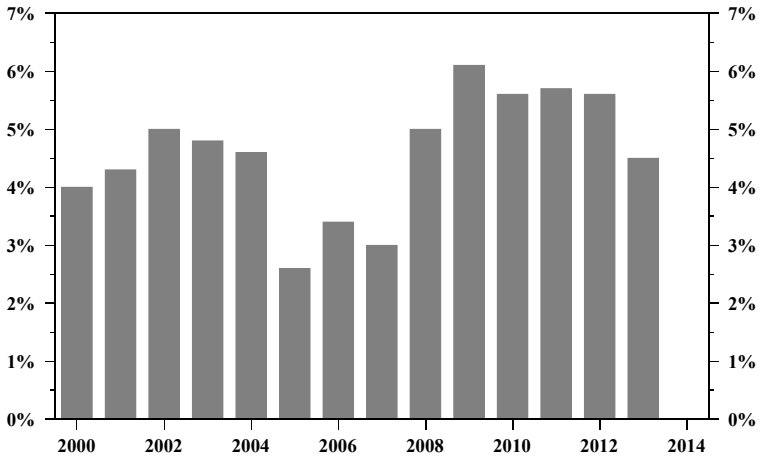
annual % change



Sources: Bureau of Economic Analysis. Through 2013.

Personal Saving Rate

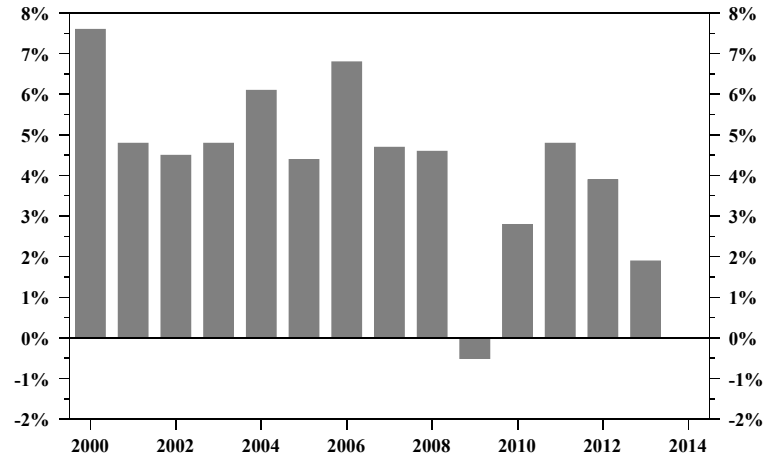
annual



Sources: Bureau of Economic Analysis. Through 2013.

Disposable Personal Income

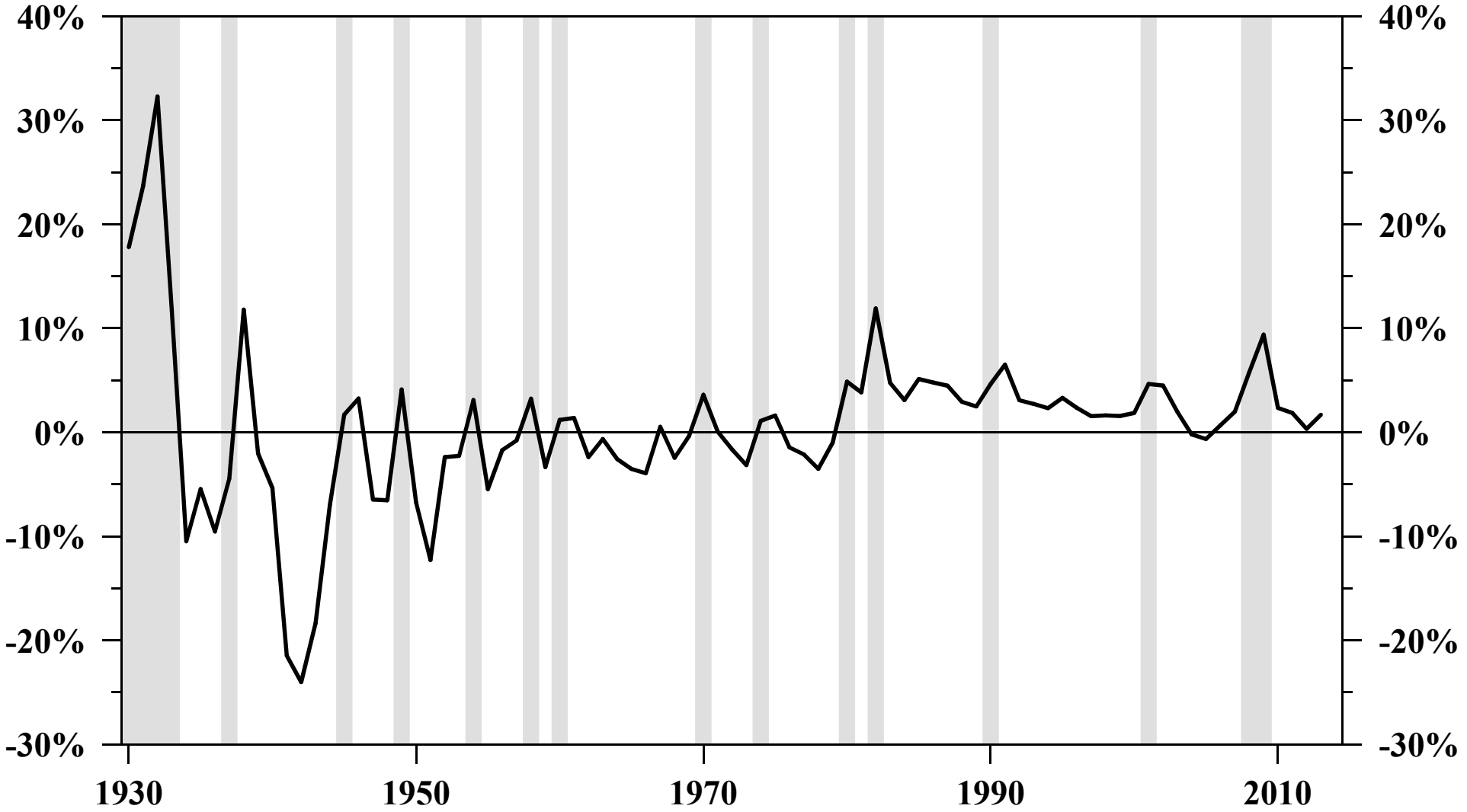
annual % change



Sources: Bureau of Economic Analysis. Through 2013.

BAA Corporate Bond Yield Less year over year Percent Change in Nominal GDP

annual

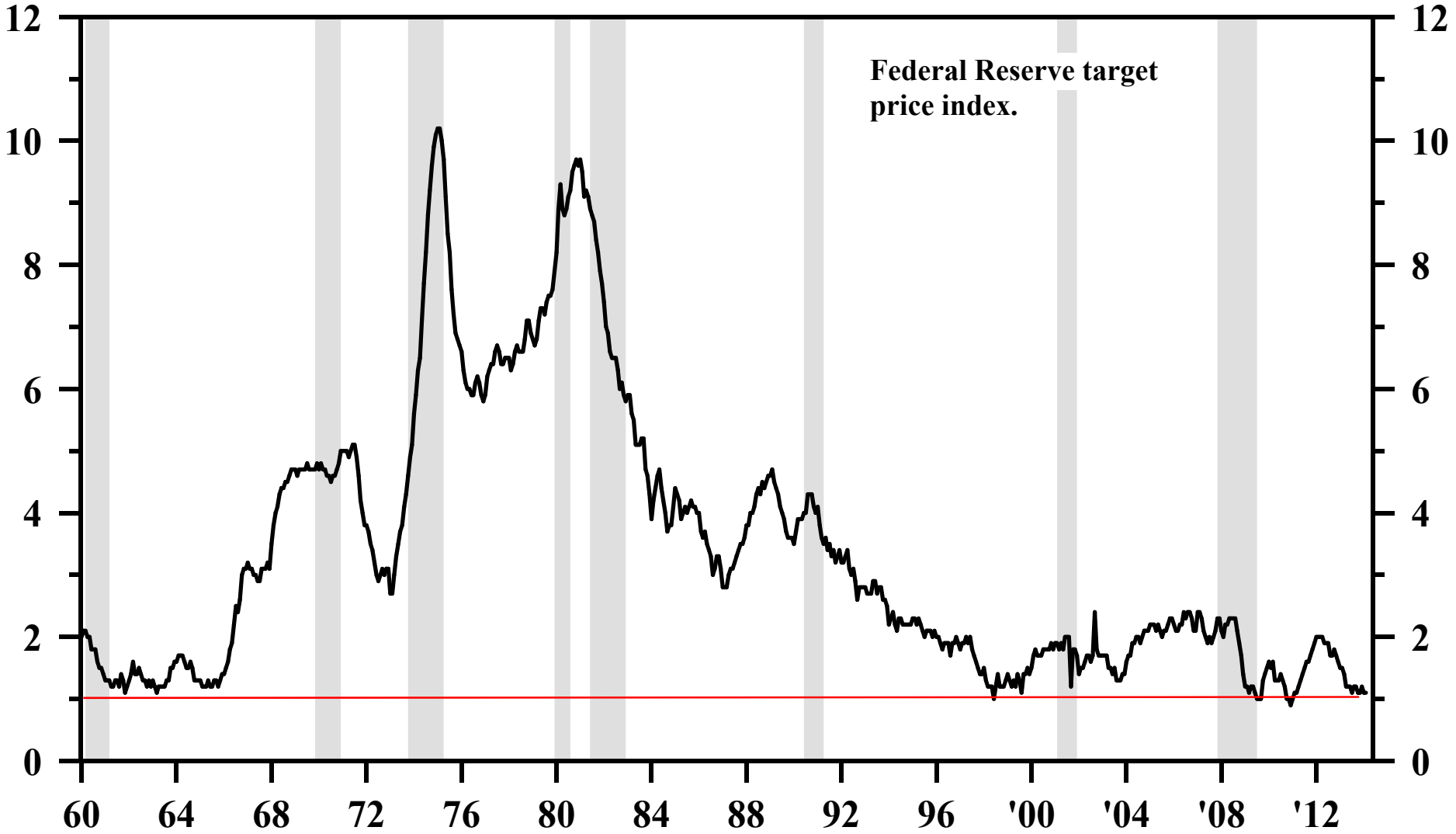


Sources: Federal Reserve Board, Bureau of Economic Analysis. Through 2013.

Appendix

Core Personal Consumption Expenditures Price Index

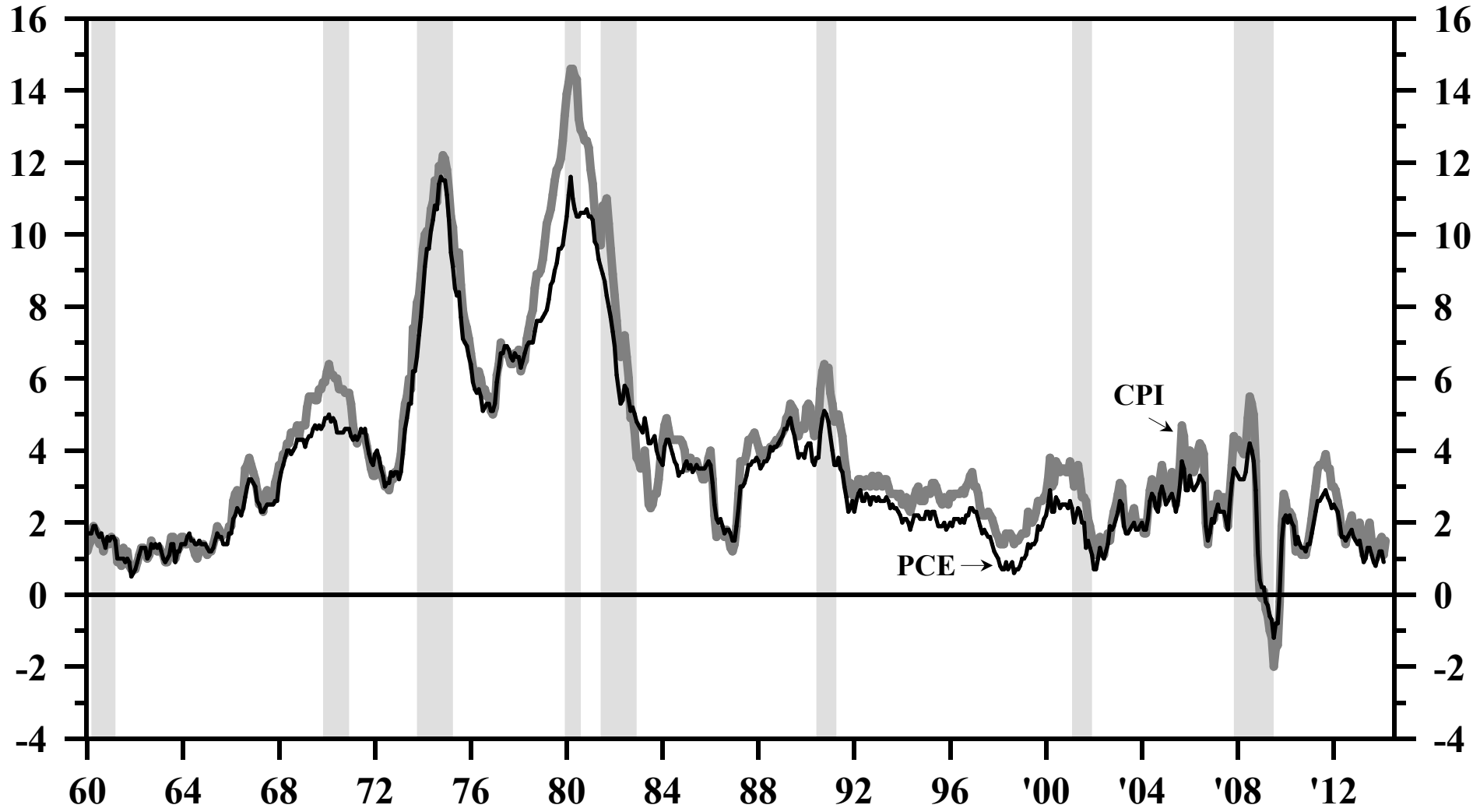
year-over-year % change, monthly



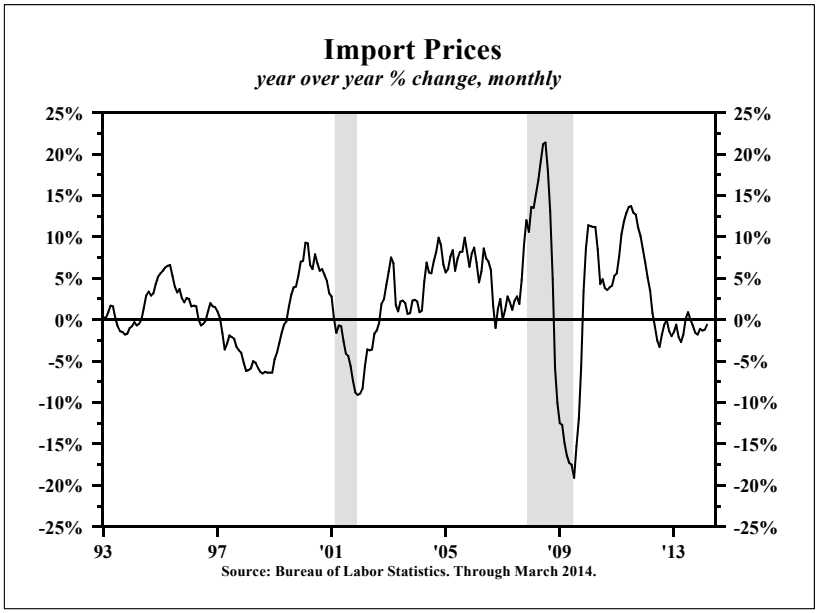
Source: Bureau of Economic Analysis. Through February 2014.

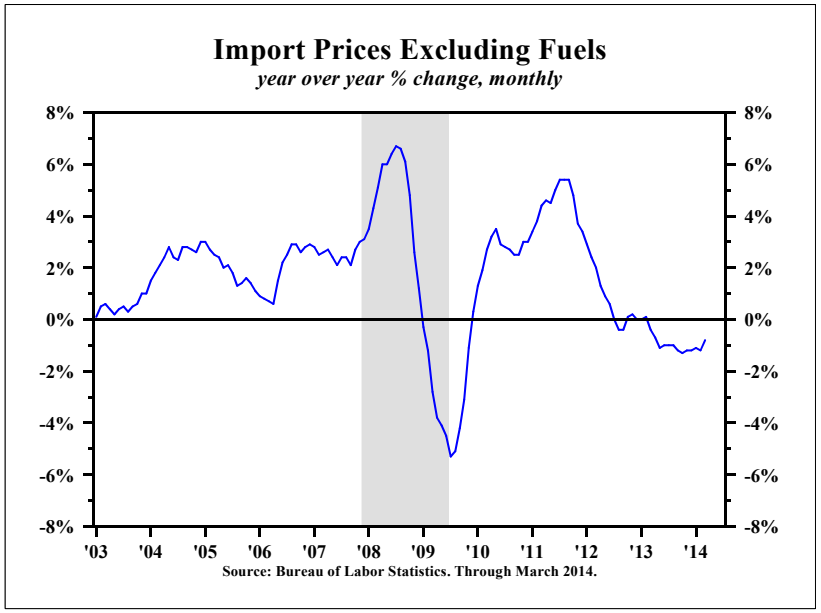
Personal Consumption Expenditures Price Index and Consumer Price Index

year-over-year % change, monthly



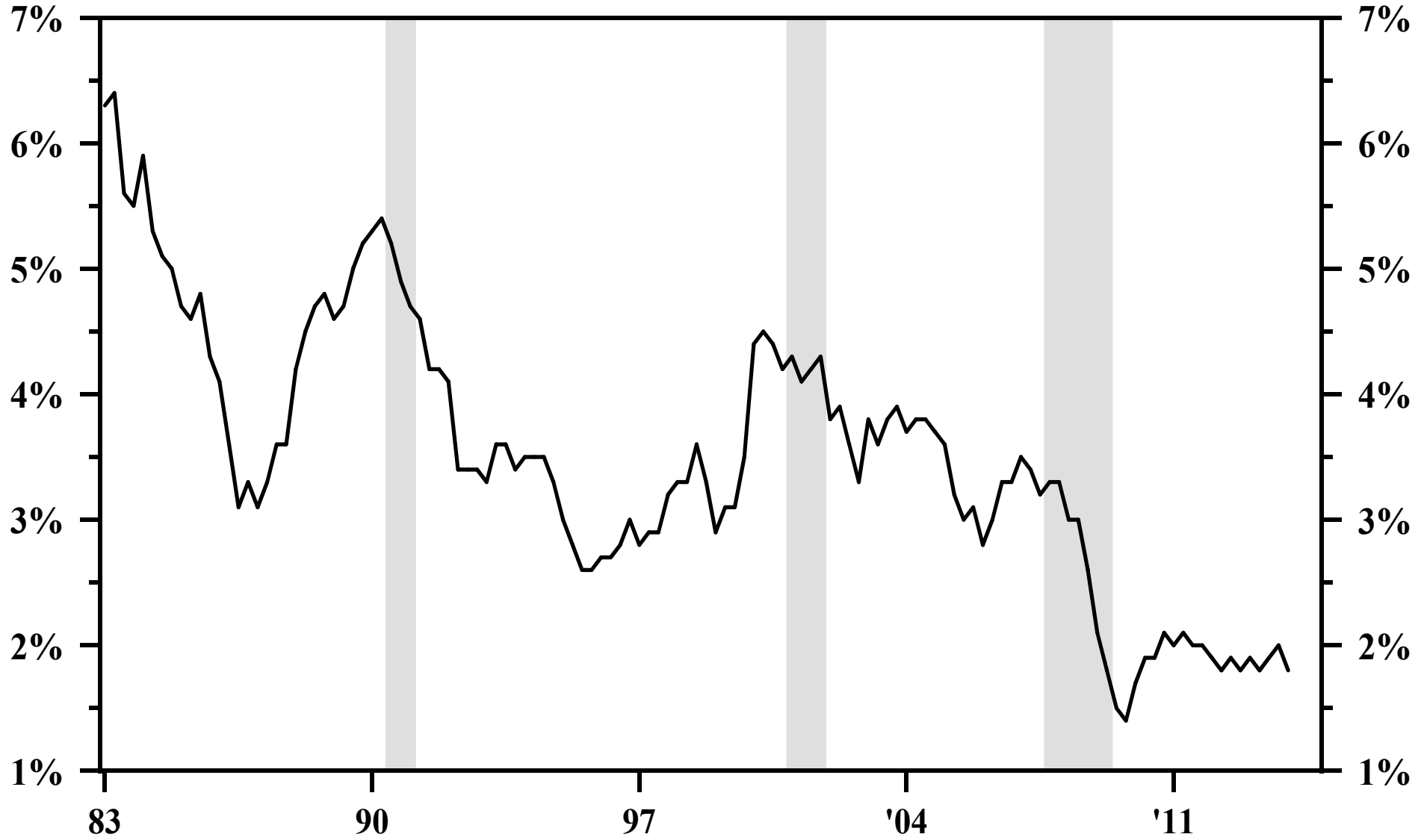
Source: Bureau of Economic Analysis, Bureau of Labor Statistics. Through March 2014.
PCE through February.


Import Prices
year over year % change, monthly
25%
20%
15%
10%
5%
0%
-5%
-10%
-15%
-20%
-25%
93
97
'01
'05
'09
'13
Source: Bureau of Labor Statistics. Through March 2014.


Import Prices Excluding Fuels
year over year % change, monthly
8%
6%
4%
2%
0%
-2%
-4%
-6%
-8%
'03
'04
'05
'06
'07
'08
'09
'10
'11
'12
'13
'14
Source: Bureau of Labor Statistics. Through March 2014.

Employment Cost Index: Compensation

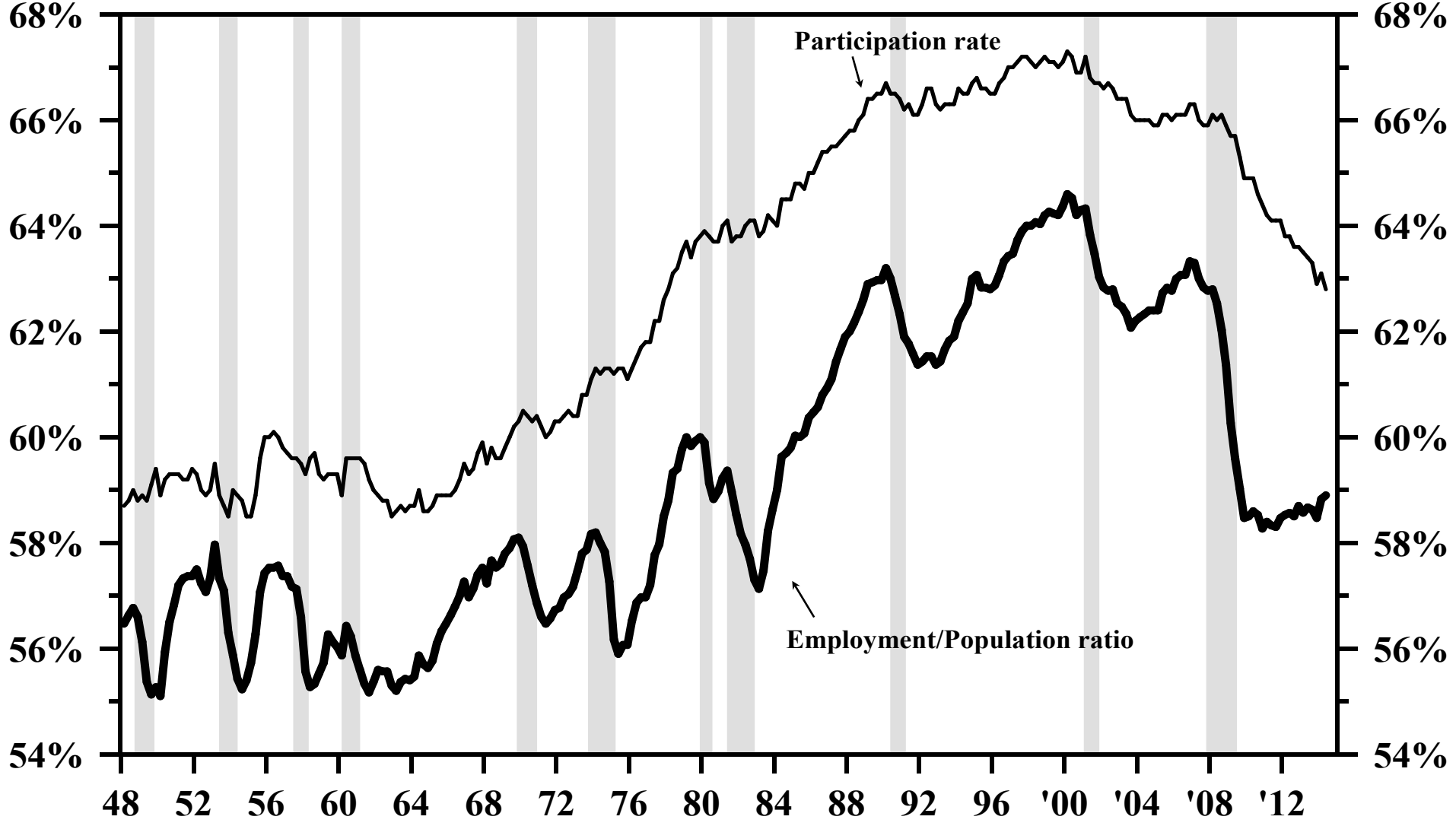
year over year % change, quarterly



Source: Bureau of Labor Statistics. Through Q1 2014.

Participation Rate and the Employment/Population Ratio

quarterly



Source: Bureau of Labor Statistics. Through April 2014.

Risk Premium: Stocks vs. Bonds

Compounded Annual Rates of Return

excluding war years

		Stocks	*Bonds*	*Stocks less Bonds*	*S&P 500 Dividend Yield less Bonds*	*Capital Gains Differential*	*GDP Deflator*	*Beginning Period PE Ratio*	*Beginning Period Dividend Yield*	*Beginning Period Treasury Bond Yield*
		1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*
1.	1871-2013	**8.9**	**5.0**	**3.9**	-0.2%	4.2%	1.5%	11.7	5.5%	4.2%
2.	1900-2013	9.6%	4.8%	4.8%	-0.9%	5.7%	2.3%	12.8	4.2%	2.0%
3.	1926-2013	9.7%	5.2%	4.5%	-1.7%	6.2%	2.5%	10.1	5.2%	3.7%
4.	1871-1925	7.6%	4.6%	3.0%	2.2%	0.7%	-0.2%	11.7	5.5%	4.2%
5.	1946-2013	11.0%	5.2%	5.8%	-2.5%	8.2%	3.5%	18.7	3.9%	2.2%
6.	1871-1945	6.8%	4.7%	2.1%	2.2%	-0.1%	-0.6%	11.7	5.5%	4.2%

Source: Bureau of Economic Analysis, Bureau of Labor Statistics, Standard and Poor's, A Half Century of Returns on Stocks and Bonds by Fisher and Lorie, History of Interest Rates; Homer & Sylla, N.S. Balke & R.J. Gordon, C.D. Romer, Robert Shiller - Yale University, Peter L. Bernstein Inc., HIMCO.

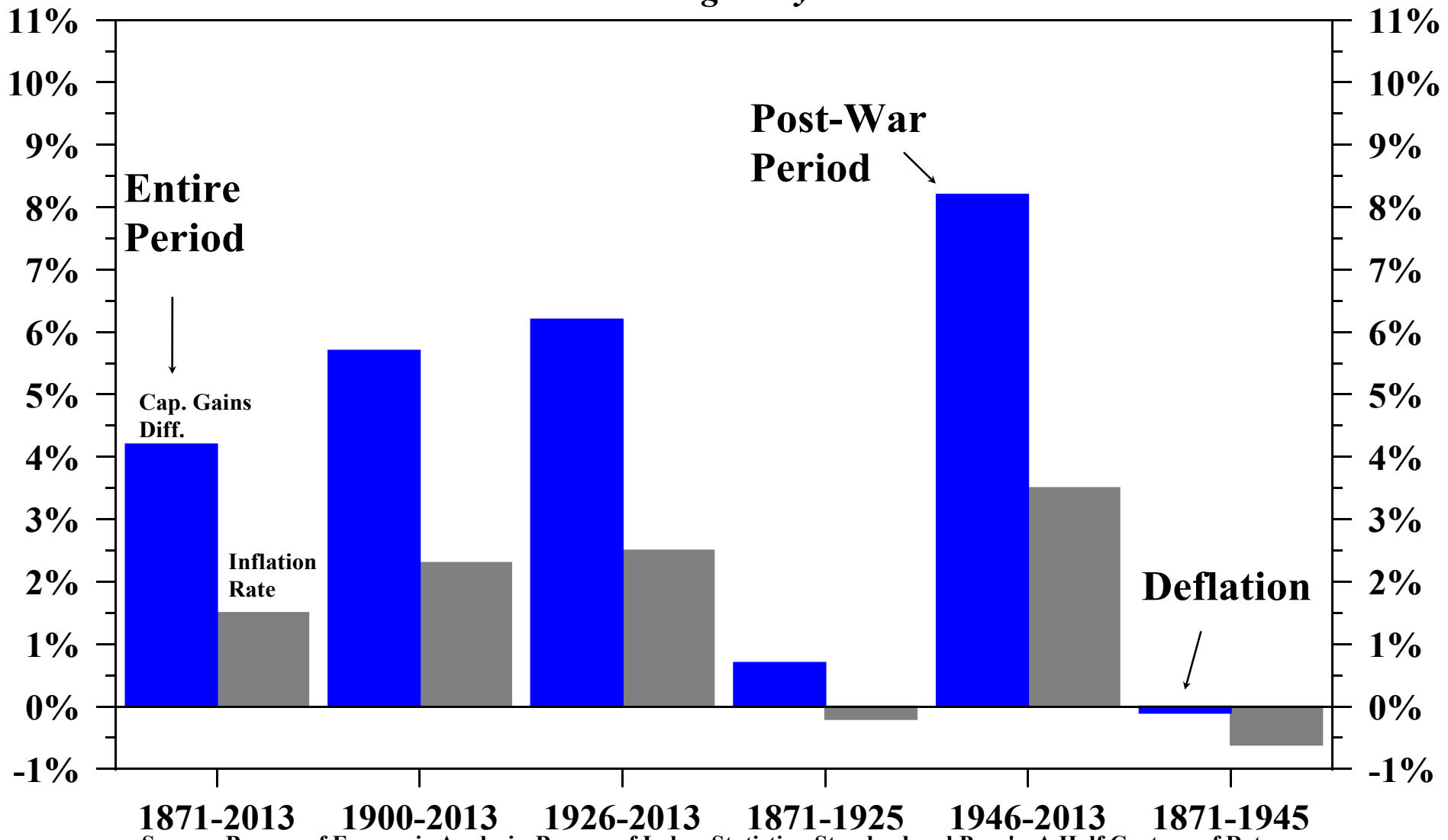
Best and Worst Periods for Stocks and Bonds

		Stocks	*Bonds*	*Stocks less Bonds*	*S&P 500 Dividend Yield less Bonds*	*Capital Gains Differential*	*GDP Deflator*	*Beginning Period PE Ratio*	*Beginning Period Dividend Yield*	*Beginning Period Treasury Bond Yield*
		1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*
1.	1874-1894	4.4%	5.4%	-0.9%	2.3%	-3.2%	-1.6%	9.9	7.2%	3.4%
2.	1941-1961	16.9%	1.9%	14.9%	2.0%	12.9%	3.6%	8.8	7.0%	2.1%
3.	1928-1938	-0.9%	4.6%	-5.5%	2.2%	-7.7%	-2.4%	15.9	4.1%	3.3%
4.	1949-1959	19.4%	-0.1%	19.4%	1.8%	17.6%	2.4%	6.4	6.8%	2.3%
5.	2000-2013	3.6%	6.7%	-3.1%	-2.7%	-0.4%	2.2%	30.5	3.2%	6.6%
6.	Current levels						1.4%	18.0	2.1%	3.9%

Source: Bureau of Economic Analysis, Bureau of Labor Statistics, Standard and Poor's, Federal Reserve, A Half Century of Returns on Stocks and Bonds by Fisher and Lorie, History of Interest Rates; Homer & Sylla, N.S. Balke & R.J. Gordon, C.D. Romer, Robert Shiller - Yale University, Peter L. Bernstein Inc., HIMCO.

Capital Gains Differential vs. Inflation Rate

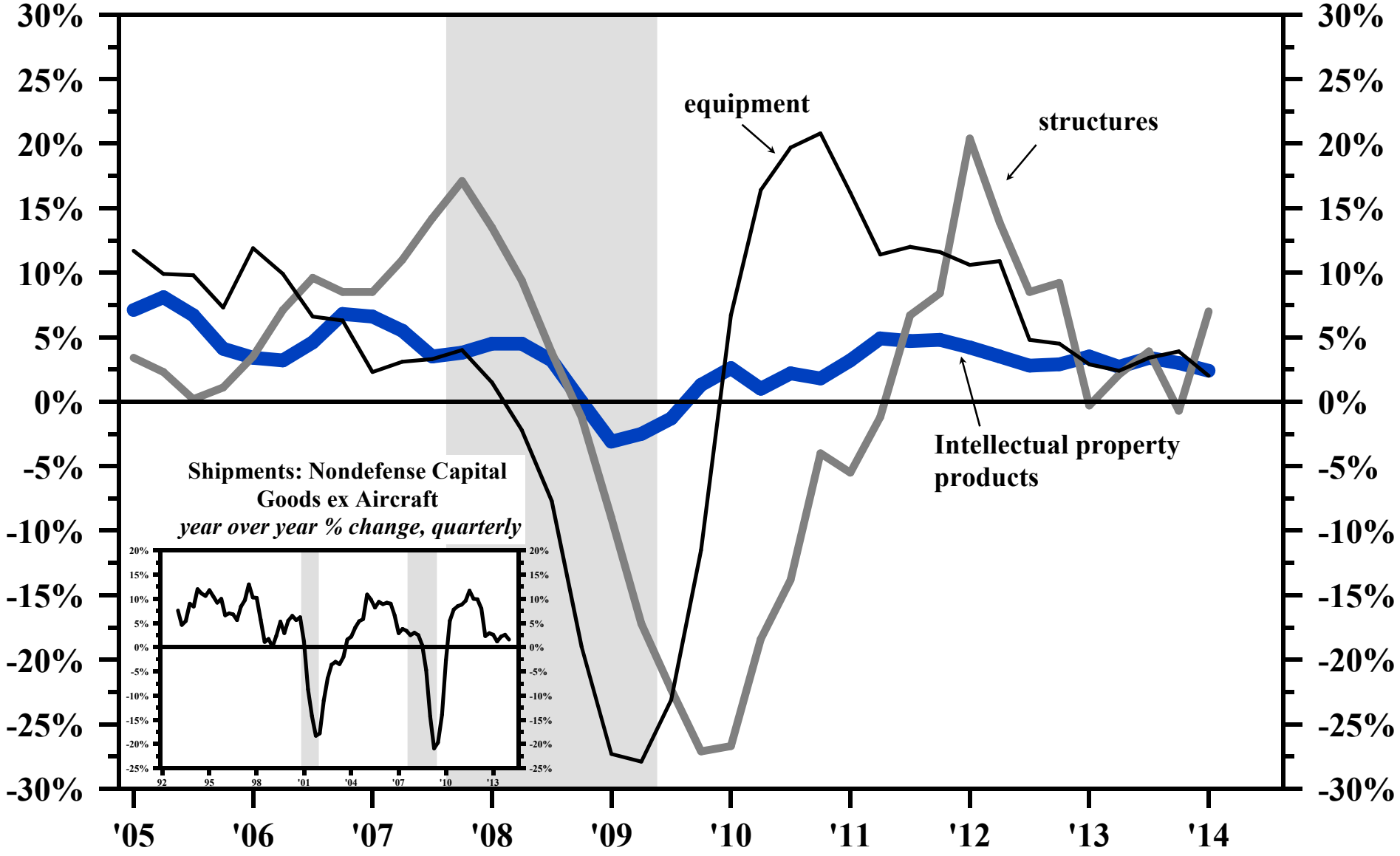
compounded annual rate of return for period
excluding war years



Source: Bureau of Economic Analysis, Bureau of Labor Statistics, Standard and Poor's, A Half Century of Returns on Stocks and Bonds by Fisher and Lorie, History of Interest Rates; Homer & Sylla, N.S. Balke & R.J. Gordon, C.D. Romer, Robert Shiller - Yale University, Peter L. Bernstein Inc., HIMCO.

Real Business Fixed Investment, Major Components

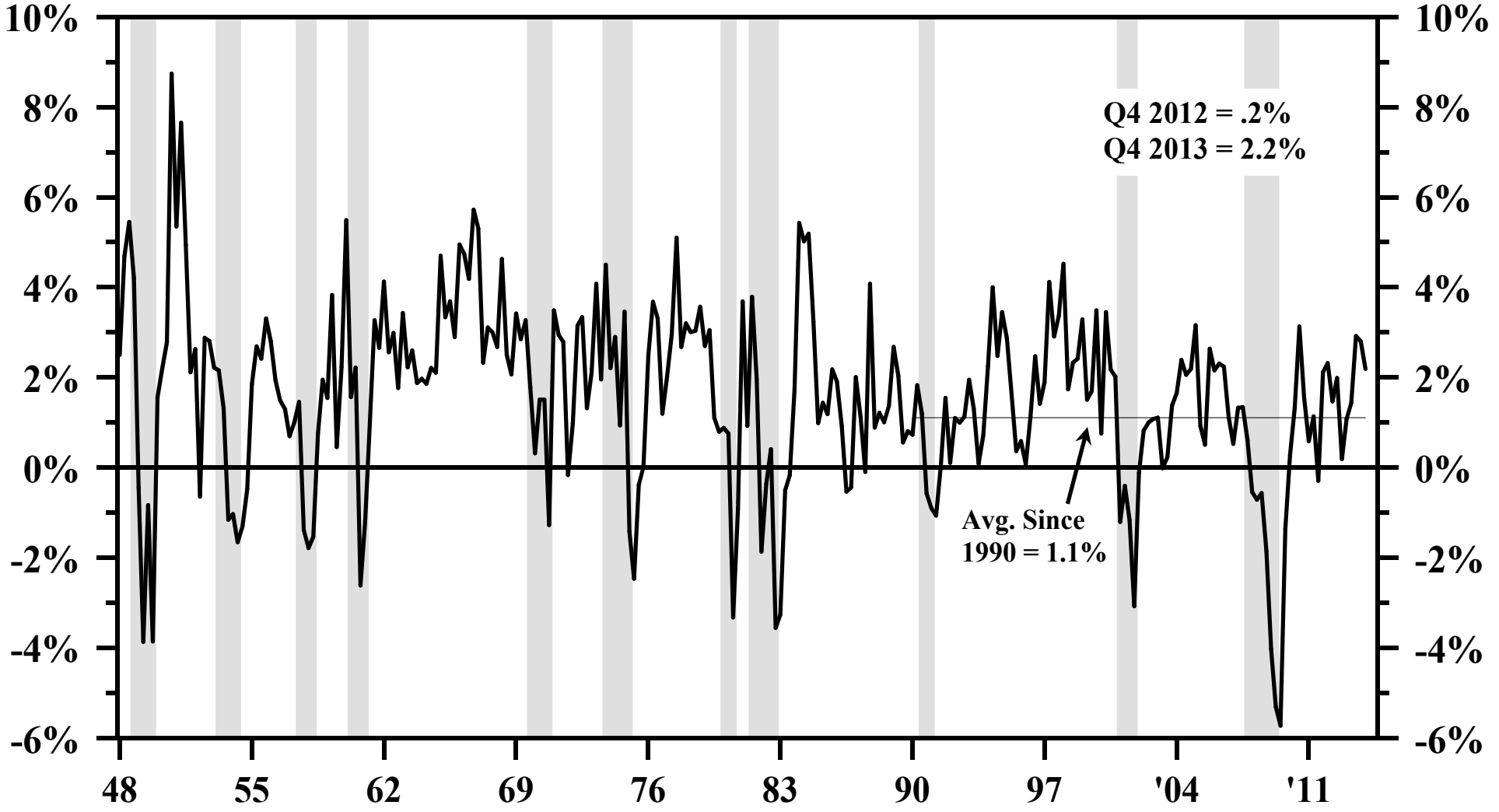
year-over-year percent change, quarterly



Source: Bureau of Economic Analysis, Federal Reserve. Through Q1 2014.

Real Inventory Investment as a % of Real GDP

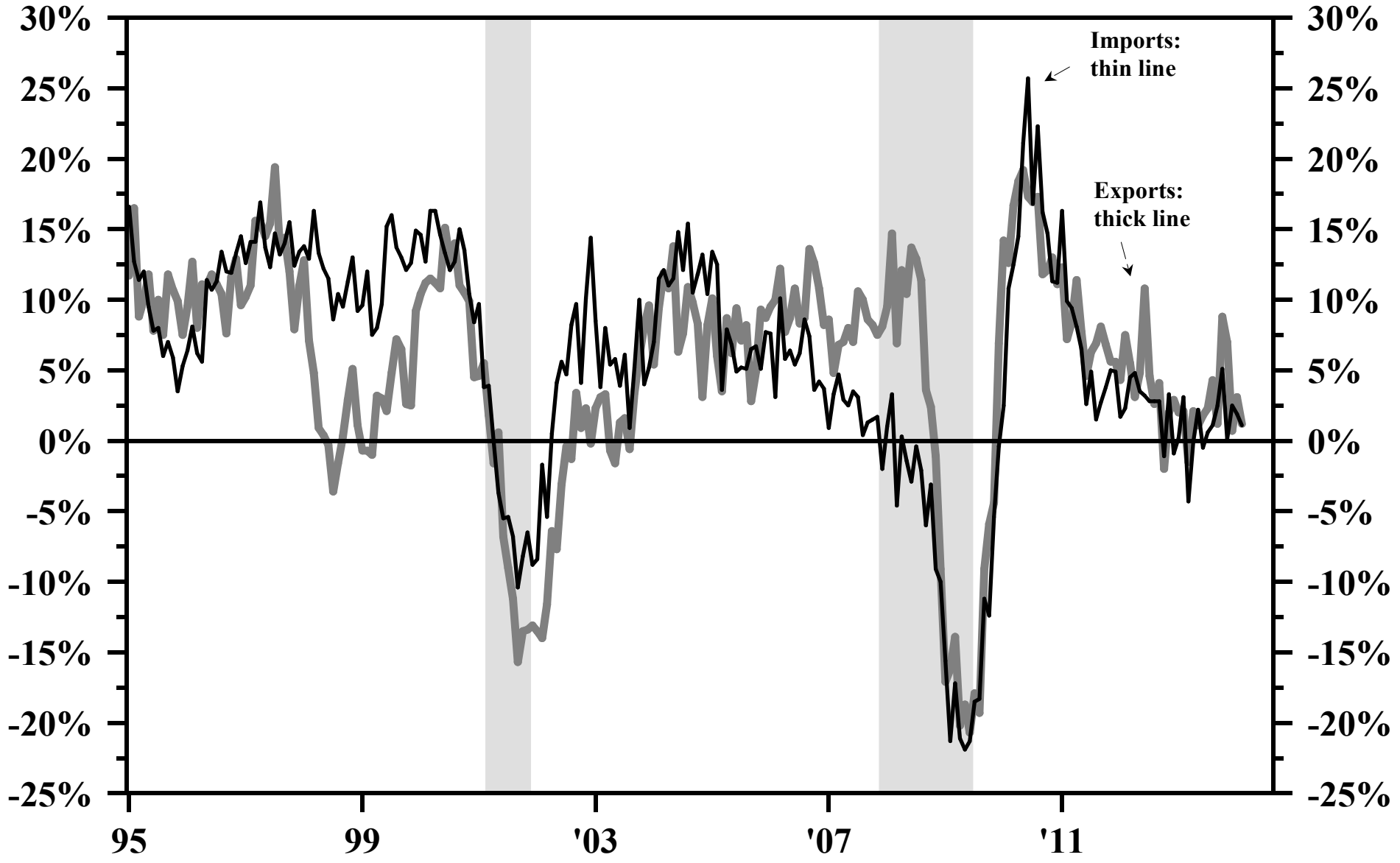
quarterly, a.r.



Source: Bureau of Economic Analysis. Through Q1 2014.

Real Exports and Imports

year over year % change, monthly



Source: Census Bureau. Through February 2014.

Public & Private Debt plus Unfunded Liabilities of Social Insurance Programs
U.S. Vs. Europe

Unfunded Liabilities *

		$ Trillion	% GDP
1.	U.S.	59	394
2.	E.U. (19 countries)	70	500

Public & Private Debt

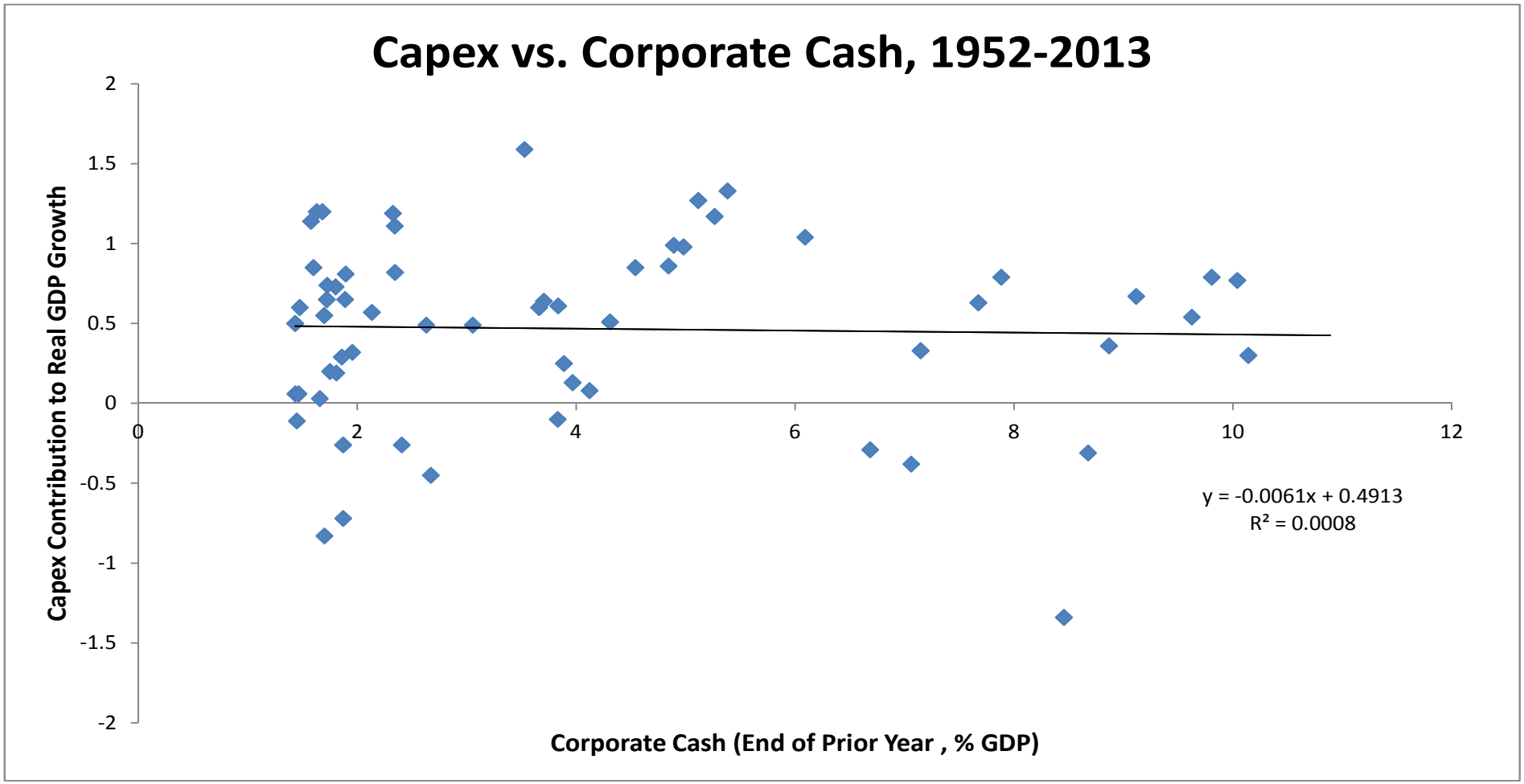
		$ Trillion	% GDP
3.	U.S.	54.6	356
4.	Eurozone (17 countries)	69	447

Total Debt plus Unfunded Liabilities

		$ Trillion	% GDP
5.	U.S.	113	750
6.	Europe	139	947

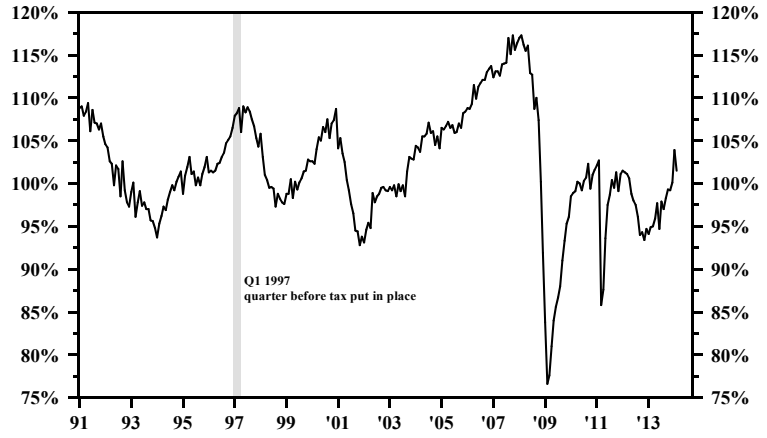
*** In 2009, the ECB commissioned a report of the unfunded state sponsored pension plan liabilities in 19 of the 27 EU member countries, with 11 members in the Euro currency zone and 8 non currency zone members. The starting point for the data in the study is 2006.**

Source: Pension obligations of government employer pension schemes and social security pension schemes established in EU countries - Final Report, Research Center for Generational Contracts, Freiburg University, By order of the European Central Bank Christoph Müller, Bernd Raffelhüschen, Olaf Weddige, January 2009


Capex vs. Corporate Cash, 1952-2013
Capex Contribution to Real GDP Growth
Corporate Cash (End of Prior Year , % GDP)
y = -0.0061x + 0.4913
R² = 0.0008
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
2
4
6
8
10
12

Japan: Industrial Production

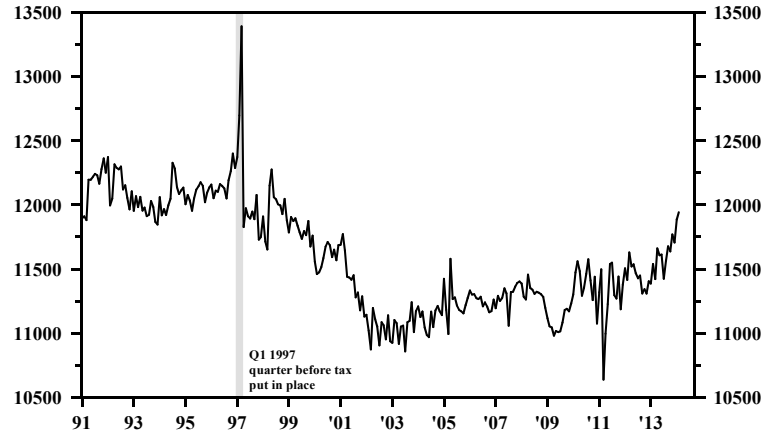
y-o-y percent change, monthly



Source: Ministry of Finance. Through February 2014.

Japan: Retail Sales

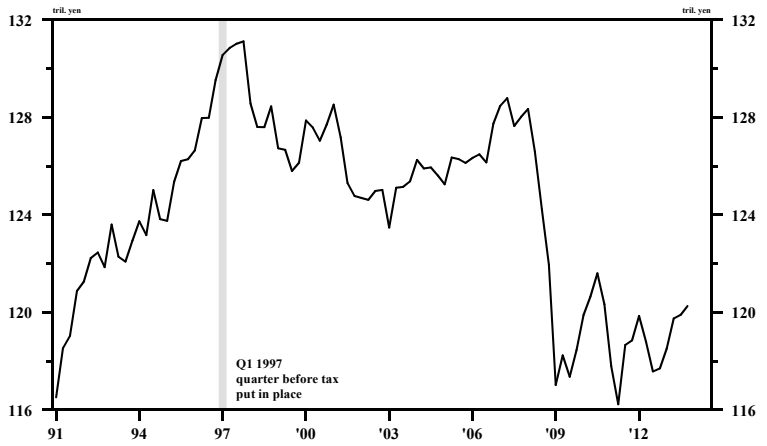
y-o-y percent change, monthly



Source: Ministry of Economy. Through February 2014.

Japan: Nominal GDP

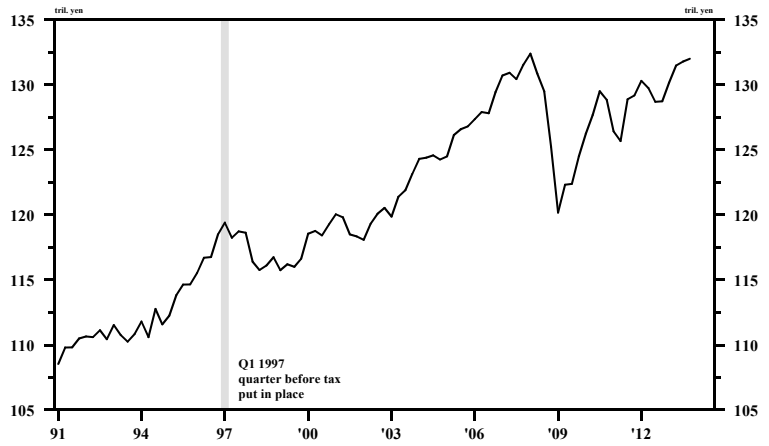
quarterly level



Source: Cabinet Office of Japan. Through Q4 2013.

Japan: Real GDP

quarterly level



Source: Cabinet Office of Japan. Through Q4 2013.