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WEALTH MANAGEMENT

Quarterly Economic & Market Update
3rd Quarter 2016

Prateek Mehrotra, MBA, CFA®, CAIA®
Chief Investment Officer

Our sole mission is to provide wealth sustainability for individuals, families, endowments, foundations, and retirement plans through the implementation of our 3-D Endowment Investment Philosophy.

Important Information

The views and opinions expressed are those of the speaker and are subject to change based on factors such as market and economic conditions. These views and opinions are not an offer to buy a particular security and should not be relied upon as investment advice. Past performance cannot guarantee comparable future results.

Important Information

Performance quoted is past performance and cannot guarantee comparable future results; current performance may be higher or lower.

Results shown assume the reinvestment of dividends.

An investment cannot be made directly in an index.

Investments with higher return potential carry greater risk for loss.

Investing in small companies involves greater risks not associated with investing in more established companies, such as business risk, significant stock price fluctuations and illiquidity.

Foreign securities have additional risks, including exchange rate changes, political and economic upheaval, the relative lack of information about these companies, relatively low market liquidity and the potential lack of strict financial and accounting controls and standards.

Investing in emerging markets involves greater risk than investing in more established markets such as risks relating to the relatively smaller size and lesser liquidity of these markets, high inflation rates, adverse political developments and lack of timely information.

Fluctuations in the price of gold and precious metals often dramatically affect the profitability of the companies in the gold and precious metals sector. Changes in political or economic climate for the two largest gold producers, South Africa and the former Soviet Union, may have a direct effect on the price of gold worldwide.

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Fed policy

- twin mandate points to continued dovish policy
- the Fed manages the yield curve
- the Fed has created every recession since the 1950s
- the Fed is constrained by ECB policy
- first rate hikes have signaled stock market strength

Fed funds rate – projected "normalization"

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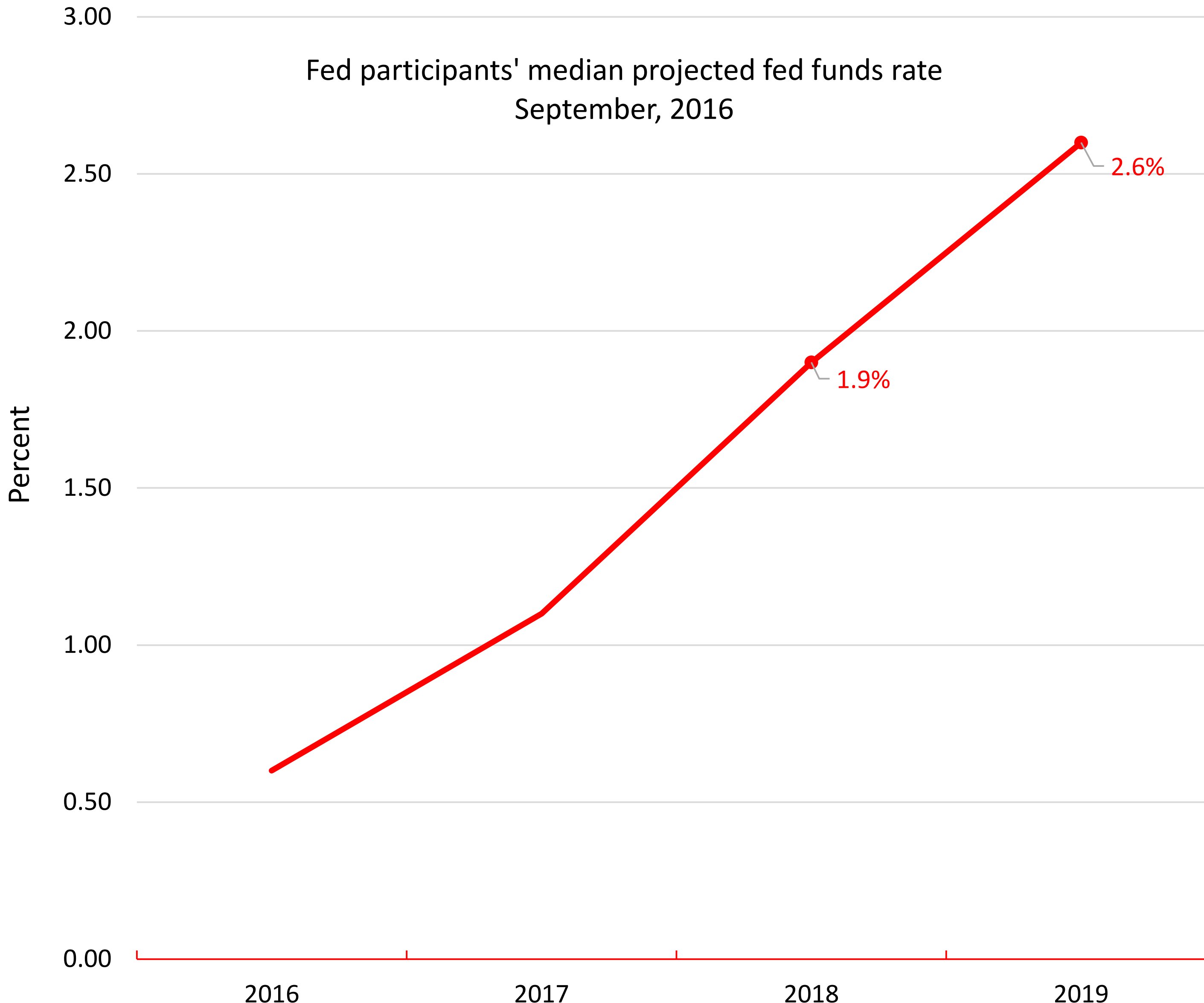

"Our ability to predict how the federal funds rate will evolve over time is quite limited because monetary policy will need to respond to whatever disturbances might buffet the economy."

Chair Janet Yellen
Jackson Hole
August 26, 2016

Source: Federal Reserve, September 21, 2016.

Fed funds rate

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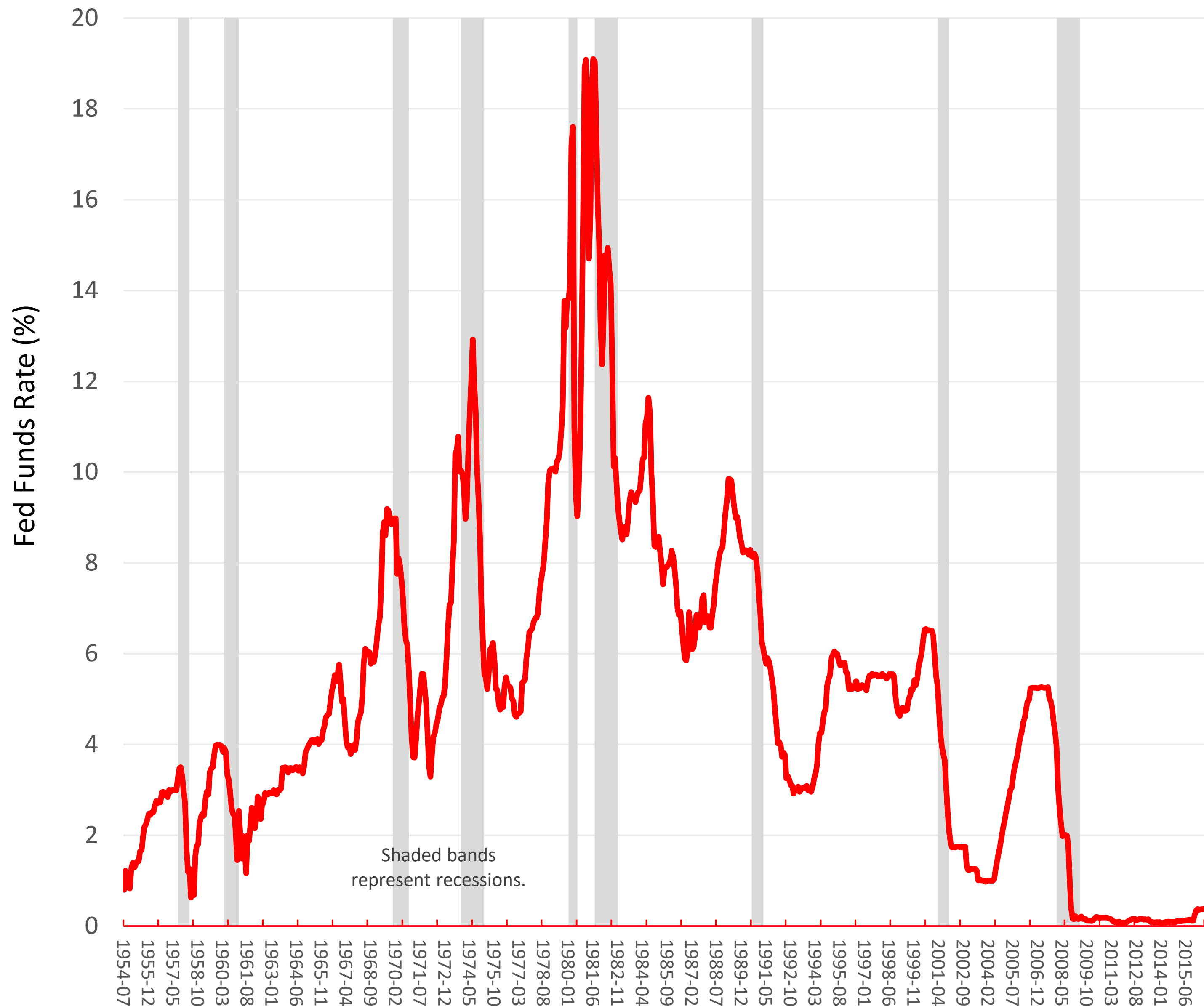

The Fed's median fed funds rate forecast of 1.9% at year-end 2018 (previous chart) is very low by historic comparison.

That's because the Fed believes the "natural rate of interest" is probably just 0.4%, down from 2.3% in 2007 and 3.5% in 1990.

The fed funds rate should equal the natural rate plus inflation, or 0.4% + 1.5% = 1.9%.

Source: Federal Reserve. Data through September 2016.

Fed's key policy lever is the yield curve

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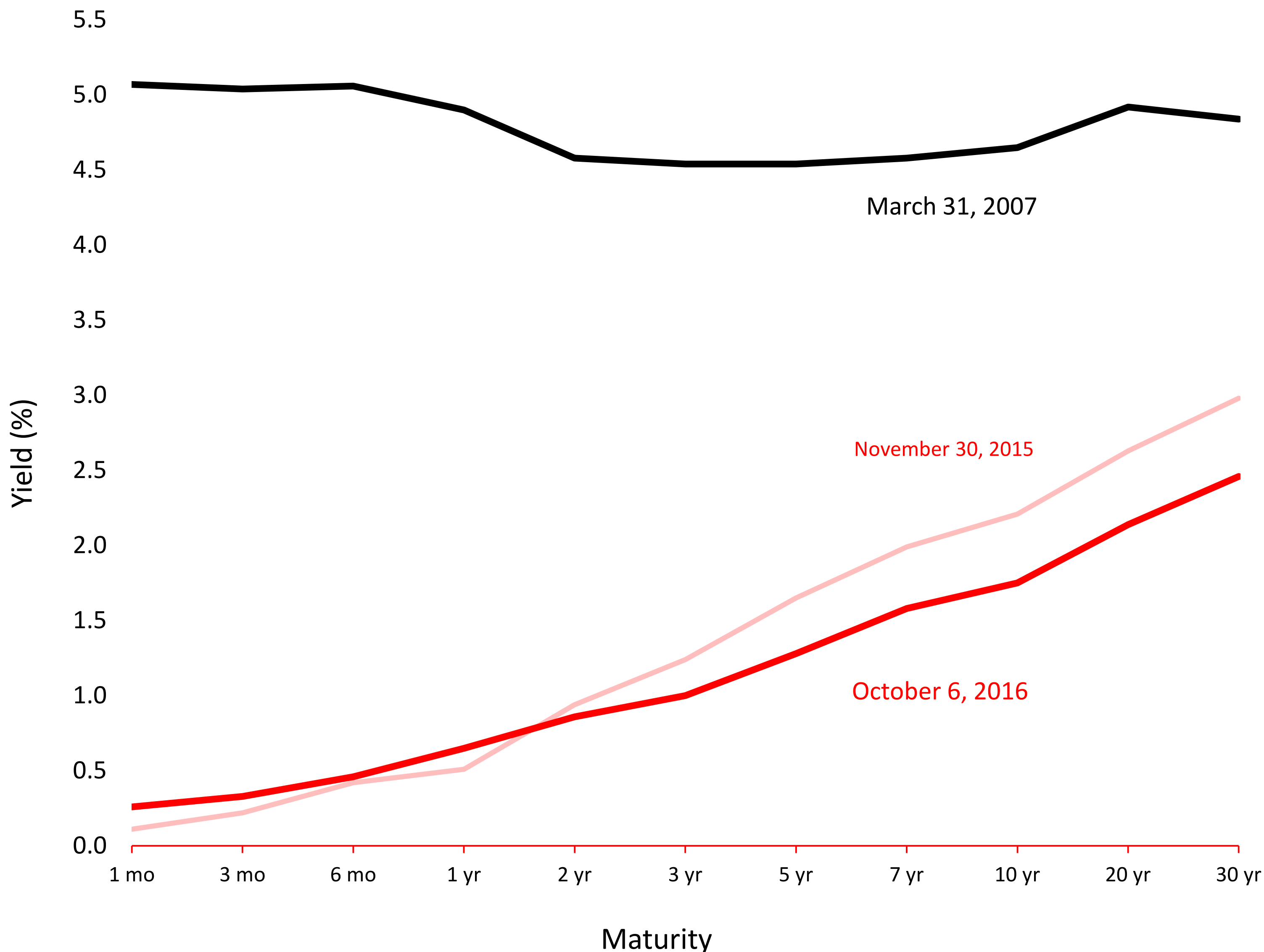

This is an inverted (negative) yield curve resulting from the Fed's raising the Fed Funds target rate (1 mo. maturity) to 5.23%.

Today's is a positive yield curve resulting from the Fed's pushing the Fed Funds target rate down to 0.4%.

Yield Curve, *n.* A measure of interest rates on bonds at various maturities; predicting where the yield curve is headed is about as easy as forecasting exactly where a fistful of feathers will land in a hurricane.[1]

Source: U.S. Department of the Treasury.
[1]Jason Zweig, *The Devil's Financial Dictionary* (New York, NY: PublicAffairs™, 2015), 229-230.

Federal Reserve policy

Fed's key policy lever is the yield curve

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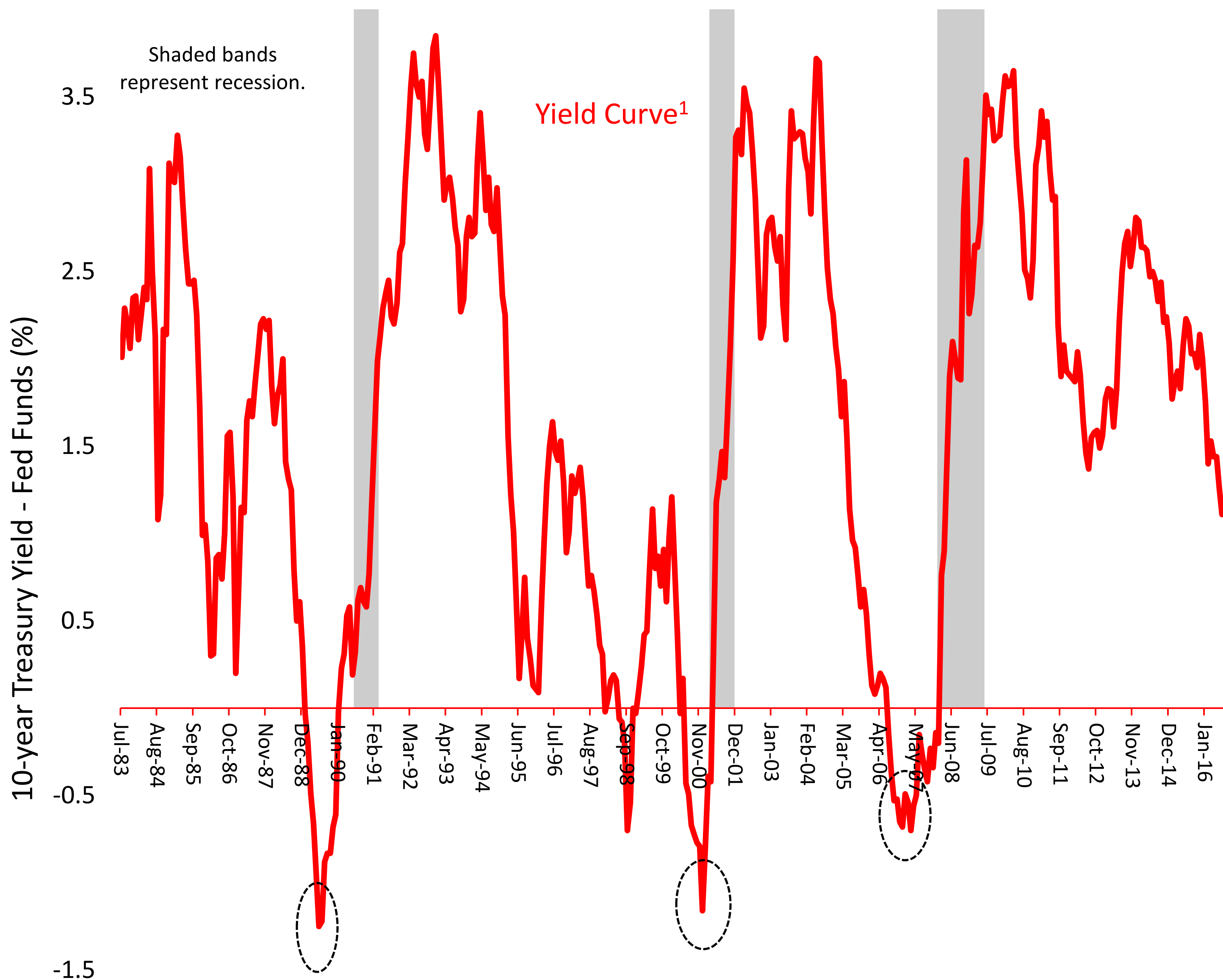

Steep yield curves – high bond yields compared to Fed Funds rates – are consistent with strong GDP growth.

Flat or negative yield curves have preceded recessions.

Today the yield curve is positive but less than half as steep as immediately post-recession.

The Fed has been saying that rate hikes are likely to be very gradual from here.

Sources: NBER, Federal Reserve. Data through September 2016. [1]The differential between the interest rate on Fed Funds (short term) and the 10-year Treasury bond (long term).

Federal Reserve policy

Dual mandate, dovish Fed

Unemployment rate (%)

18
16
14
12
10
8
6
4
2

U-6

U-3

9.7%

5.0%

Fed's dual mandate:

- full employment
- 2% inflation

With inflation still well below 2% the Fed might stay very dovish for awhile yet. It may take until well into 2017 to regain full employment.

Price Index for Personal Consumption Expenditures
12-month percent change (%)

4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

PCED

Core PCED

+1.0%

Fed's September 2016 central tendency forecast

See footnotes in the notes to the slide.

Shaded band represents recession.

Jan-04 Jun-04 Nov-04 Apr-05 Sep-05 Feb-06 Jul-06 Dec-06 May-07 Oct-07 Mar-08 Aug-08 Jan-09 Jun-09 Nov-09 Apr-10 Sep-10 Feb-11 Jul-11 Dec-11 May-12 Oct-12 Mar-13 Aug-13 Jan-14 Jun-14 Nov-14 Apr-15 Sep-15 Feb-16 Jul-16 Dec-16 May-17 Oct-17 Mar-18 Aug-18 Jan-19 Jun-19 Nov-19

Economic data - jobs

Employed and unemployed as a % of population 16 and older

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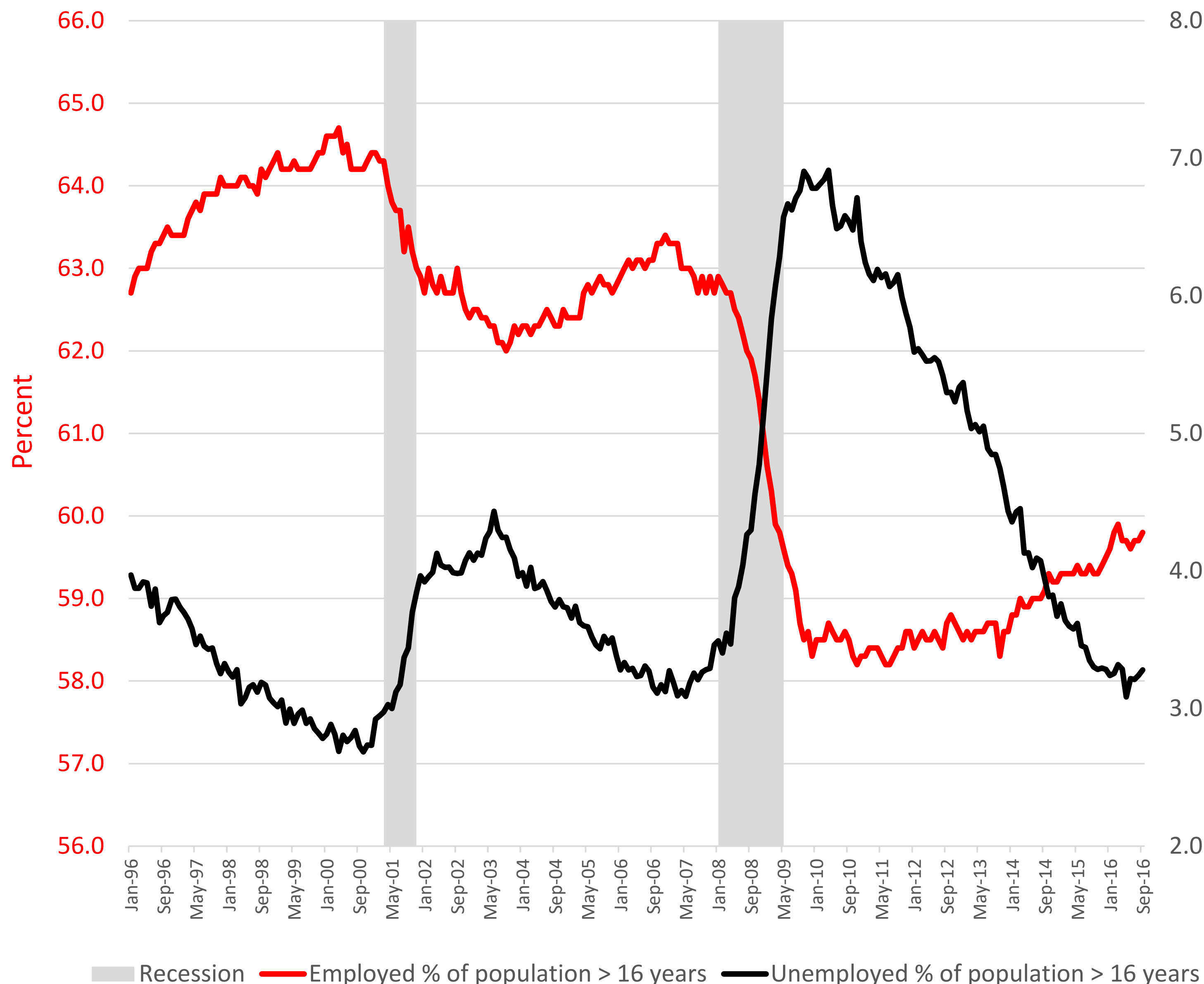

Source: Bureau of Labor Statistics. Data through September 2016.

<u>The red line, number of employed as a percent of employable age, is the key to Fed policy</u>. Not the black line, the percent of unemployed.

There is a lot more room for cyclical recovery.

Bond Yields

- lowest yields in history
- forecasts have grossly missed
- forecast for steady rise to 3.35%
- pressure on yields from declining federal deficit
- pressure on yields from ECB's QE capping euro bond yields
- value in munis

All-time low bond yields

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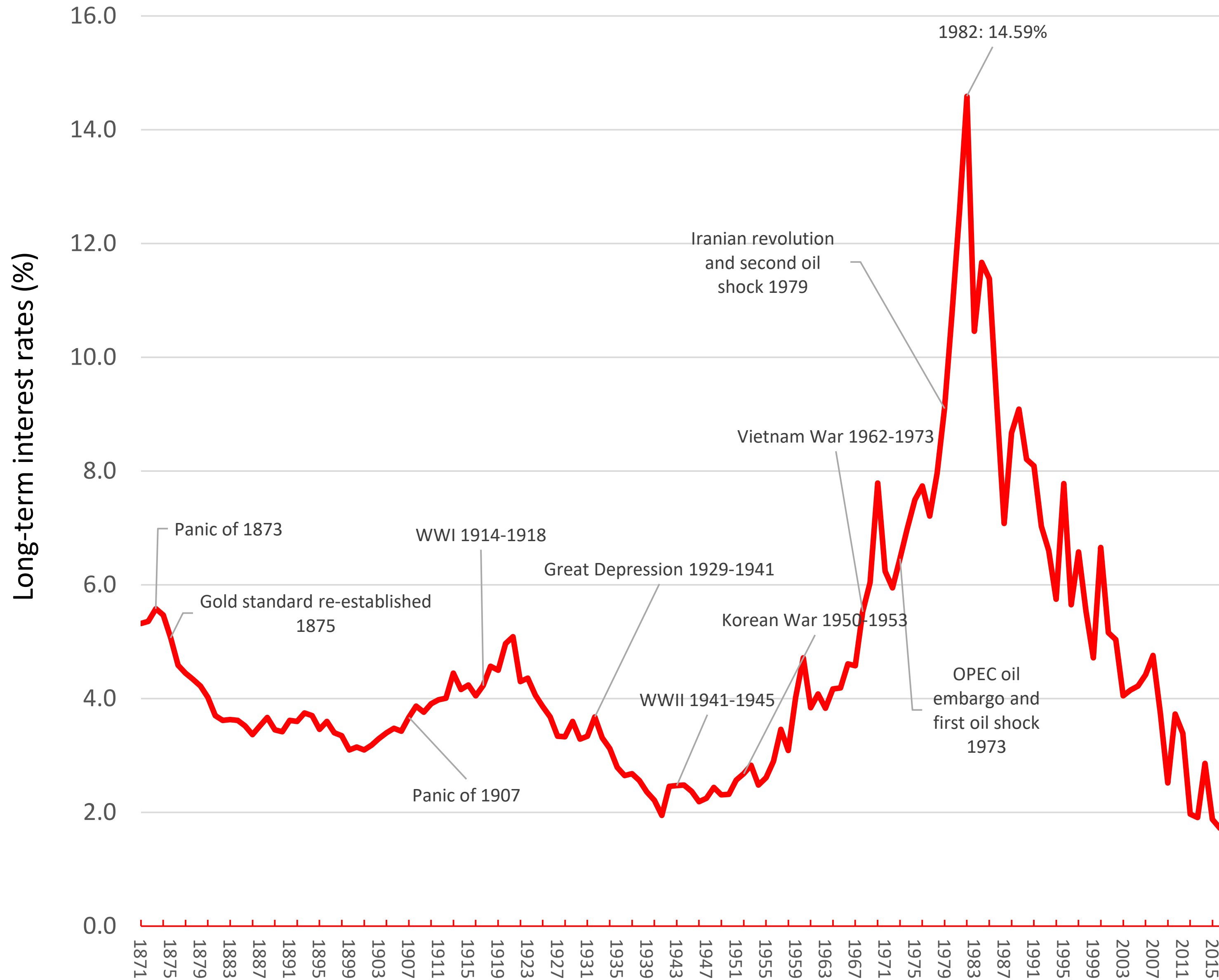

Lowest long-term interest rates in U.S. history.

Source: Online Data Robert Shiller. Data through October 5, 2016.

Much lower than expected bond yields

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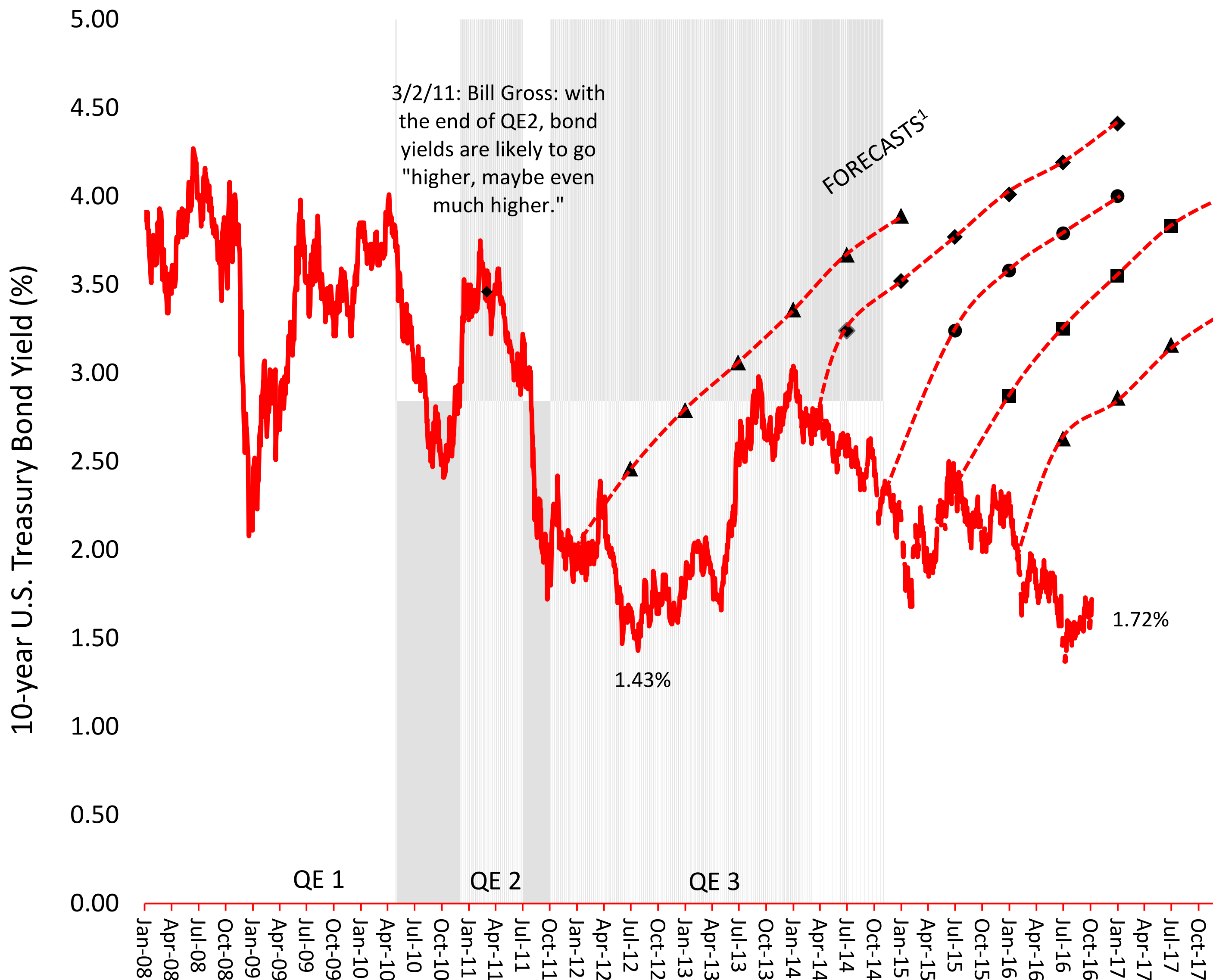

Forecasts have been consistently and horribly wrong.

Where yields go from here depends on the inflation data and supply and demand for bonds.

Inflation is low and apt to remain so. The rate of net new supply of U.S Treasury bonds will be close to flat. The ECB is in the driver's seat with its QE.

Source: Federal Reserve. Data through October 5, 2016.

[1] Average of economists' forecasts from *The Wall Street Journal* 's monthly surveys taken November 2011, January 2014, September 2014, January 2015 and December 2015.

U.S. Treasury bond yields – nominal and TIPS

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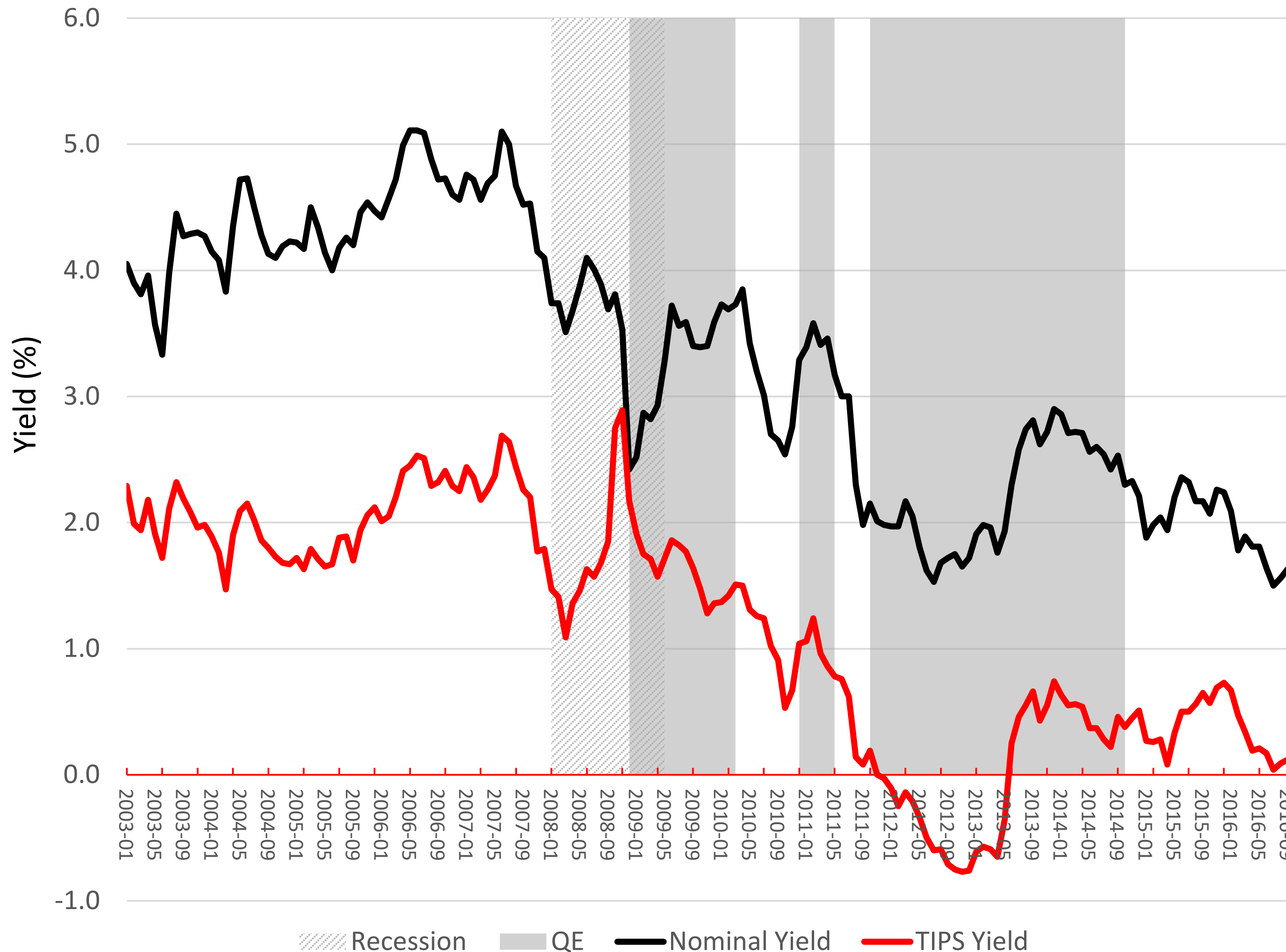

<u>However, bond yields no longer make sense fundamentally. With the 10-year TIPS yield at almost 0% an investor is receiving zero term premium for making a 10-year loan to Uncle Sam.</u>

Quantitative easing (QE) has driven bond yields steadily lower.

Although the Federal Reserve is no longer purchasing bonds (QE), the ECB is, having a like effect on U.S. bond yields.

See next chart.

Source: Federal Reserve. Data through September 2016.

U.S. Treasury bond yield vs. German bund yield

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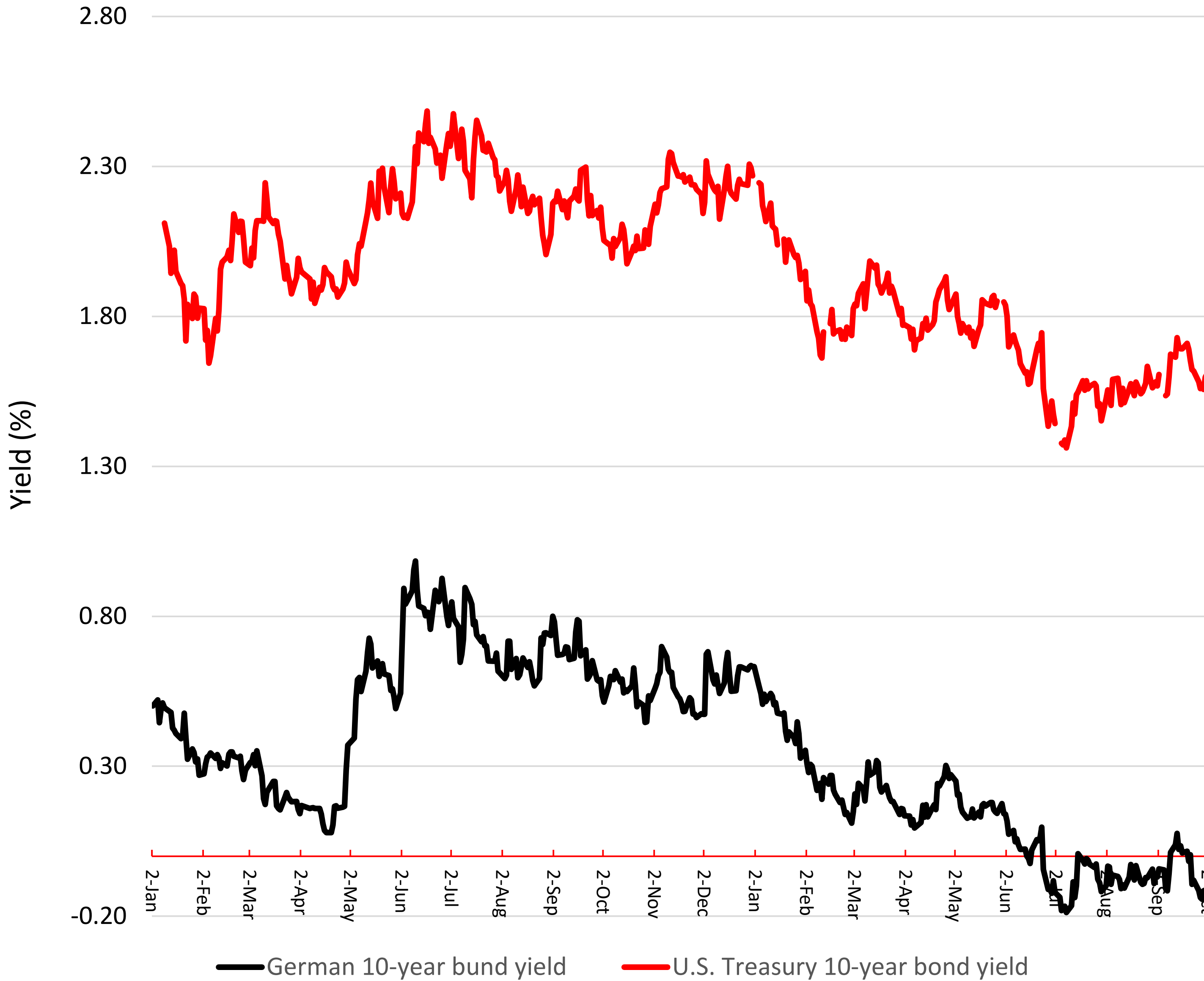

Yields moving in lock-step.

The ECB is in control of U.S. Treasury yields.

The ECB plans to continue their QE program until further notice.

Source: *The Wall Street Journal*. Data through October 6, 2016.

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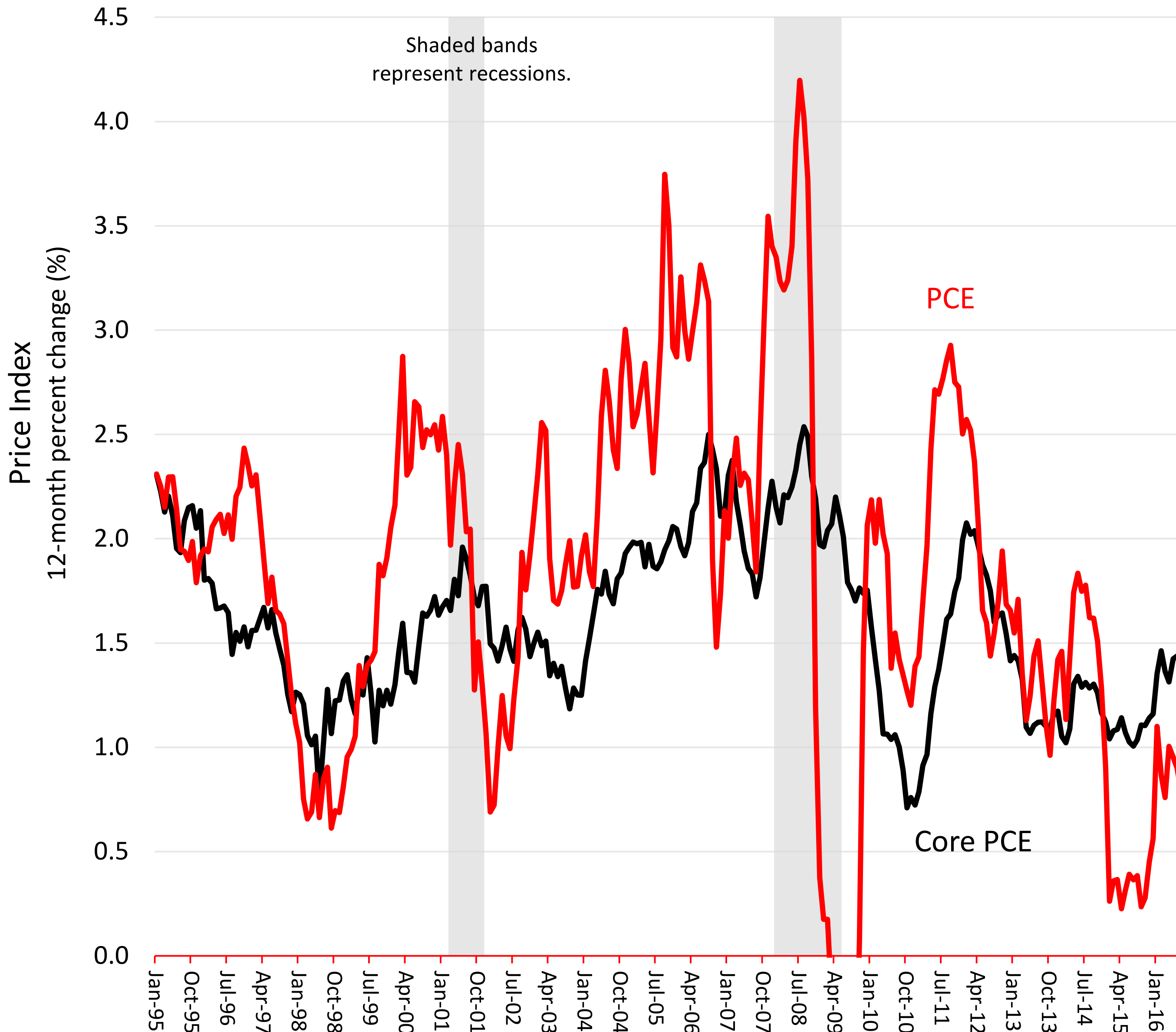
Inflation

- PCED headline +1.0%, more in the core but still far from the Fed’s +2% target
- employment costs steady and still tame
- productivity and declining unit labor costs
- how you experience inflation depends on what you consume

Inflation

PCE – headline and core



Headline inflation (PCE) has plunged and partially recovered with the plunge in gasoline, diesel and fuel oil prices.

Inflation ex-food and energy (core PCE) is higher than core but still below the Fed's 2% target.

Source: NBER, Federal Reserve Bank of St. Louis. Data through August 2016.

Employment cost index and inflation

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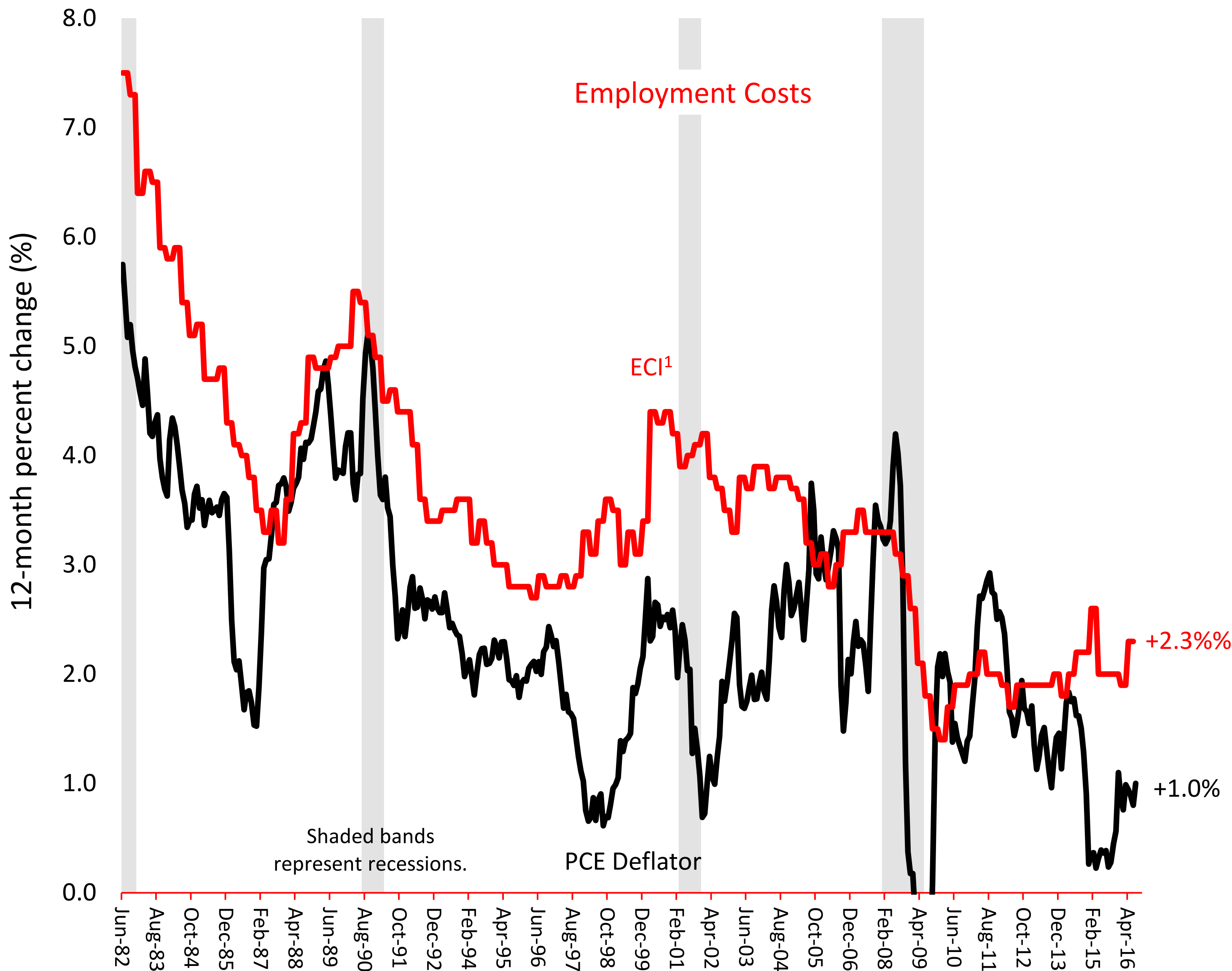


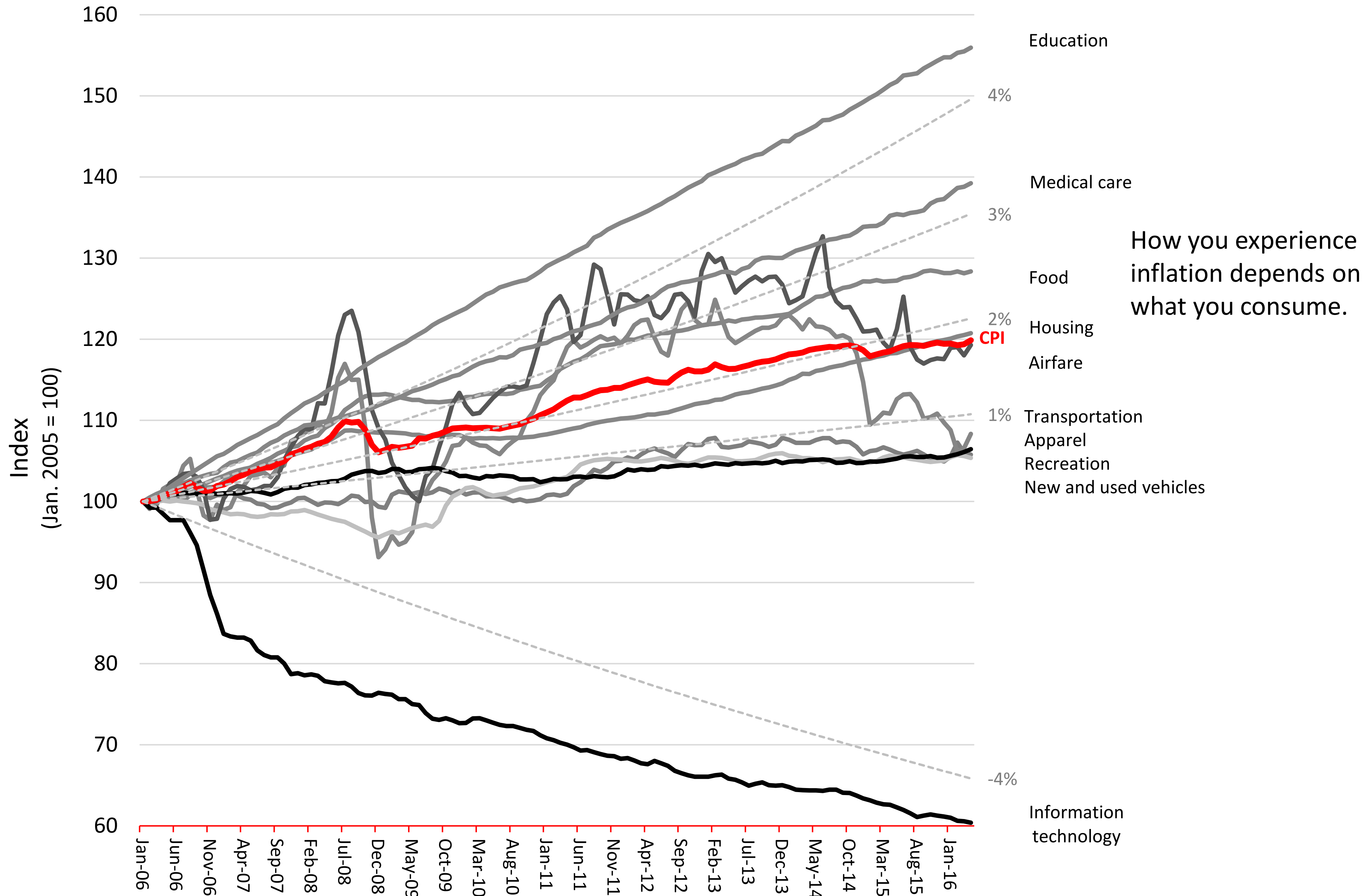
Because wages, salaries and benefits are companies' biggest single cost, they are also the biggest single inflation factor for the economy as a whole.

Inflation (PCE deflator) generally runs lower than measured ECI inflation because higher employment costs can be offset by productivity gains.

See next two charts.

Source: Bureau of Labor Statistics. Quarterly ECI data through June 2016; monthly PCE data through August 2016.
[1] Employment Cost Index. The BLS 's ECI is built with fixed weights for individual industries and occupations.

Inflation by expenditure category



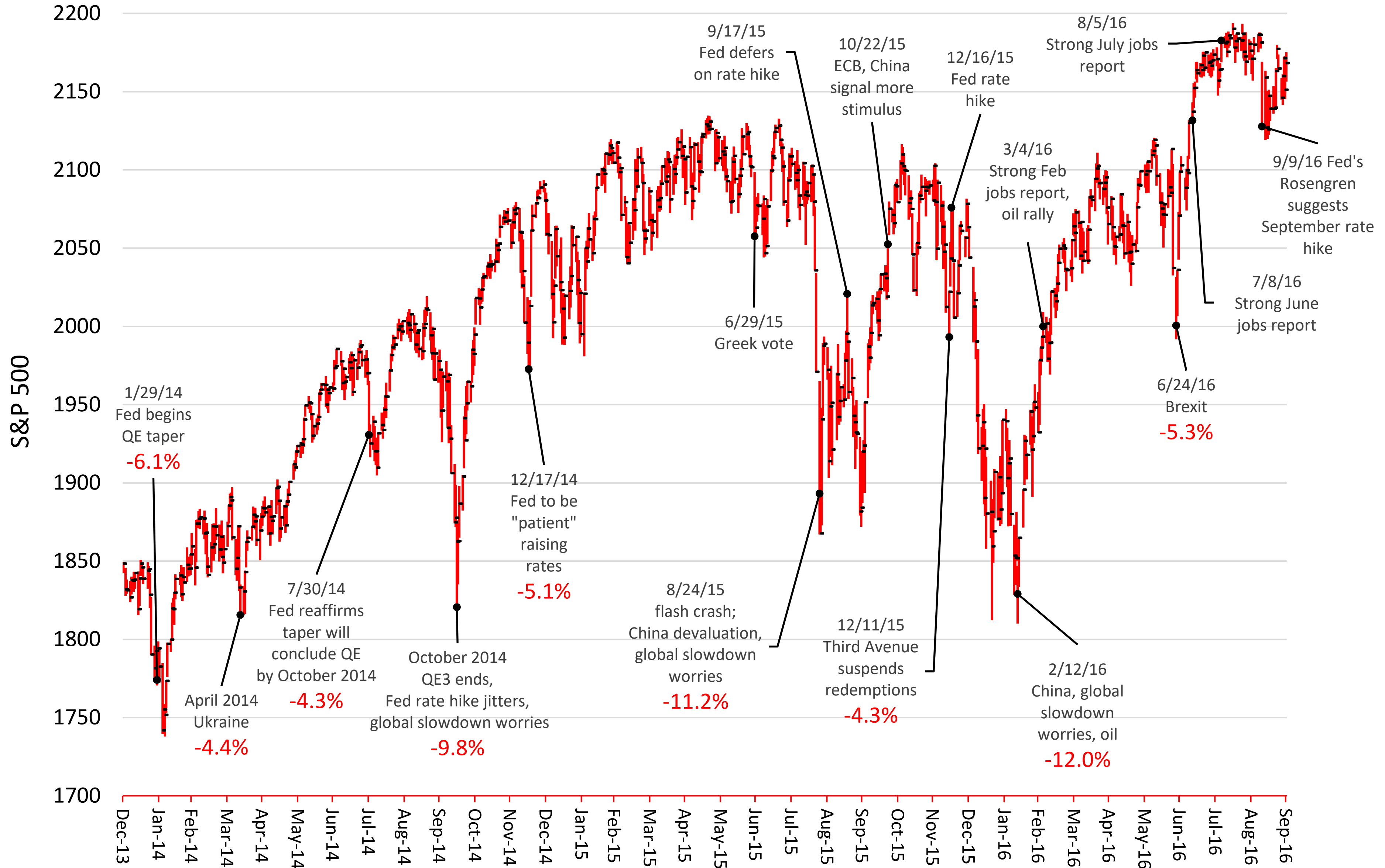
Source: BLS. Data through April 2016. Dotted lines indicate compound annual growth rate trajectories at rates indicated.

Stock Market

- record highs
- driven by earnings turnaround
- following the anniversary of $USD surge
- and energy prices bottoming
- stocks are fully-, but not over-valued
- margins are likely sustainable
- Fed is accommodative
- inflation is tame
- lack of irrational exuberance

Market data

S&P 500



Source: Standard & Poor's. data through September 30, 2016.

Stock market arithmetic

Total return = 7.0% earnings-driven price + 2.3% dividends reinvested

"Big, fat, ugly bubble"?

This was a bubble.

S&P 500 w/ dividends reinvested[2]

+9.3%[1] growth path

S&P 500

+7.0%[1] growth path

S&P 500 Index (6/30/91 = 100)

0, 100, 200, 300, 400, 500, 600, 700, 800, 900

Jul-91, Jul-92, Jul-93, Jul-94, Jul-95, Jul-96, Jul-97, Jul-98, Jul-99, Jul-00, Jul-01, Jul-02, Jul-03, Jul-04, Jul-05, Jul-06, Jul-07, Jul-08, Jul-09, Jul-10, Jul-11, Jul-12, Jul-13, Jul-14, Jul-15, Jul-16

The 2011-2014 run higher put these two indices slightly above their long-term trajectories. Today they are in line.

+9.3% per year S&P 500 total return over the last 25 years is right in line with the stock market's long-term returns going back to 1926, or back even further to 1871.[3]

Source: Standard and Poor's. Data through October 10, 2016.[1] Compound annual growth rate. [2] S&P 500 total return index.
[3] per Professor Jeremy Siegel's seminal *Stocks for the Long Run*, first published in 1994.

Valuation

S&P 500 vs. 17X actual and estimated earnings

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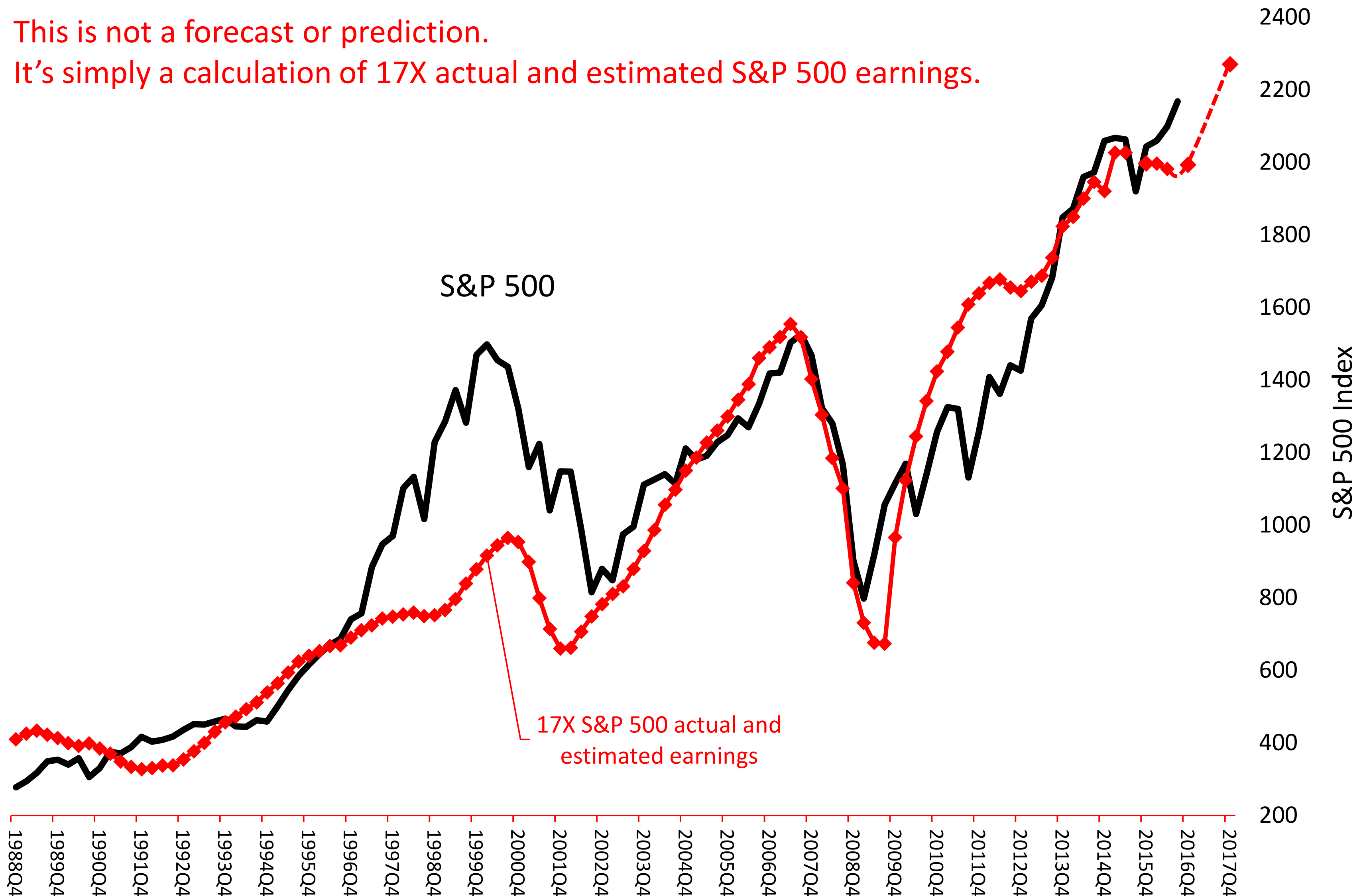

[1] 2015 (actual), 2016 (estimated) and 2017 (estimated) bottom-up S&P 500 operating earnings per share as of October 6, 2016: for 2015, $117.46; for 2016(e), $117.23; for 2017(e), $133.52. Sources: Yardeni Research, Inc. and Thomson Reuters I/B/E/S survey of consensus estimates. Standard and Poor's for index price data through September 30, 2016; and actual operating earnings data through 2014.

S&P 500 earnings recession – and recovery

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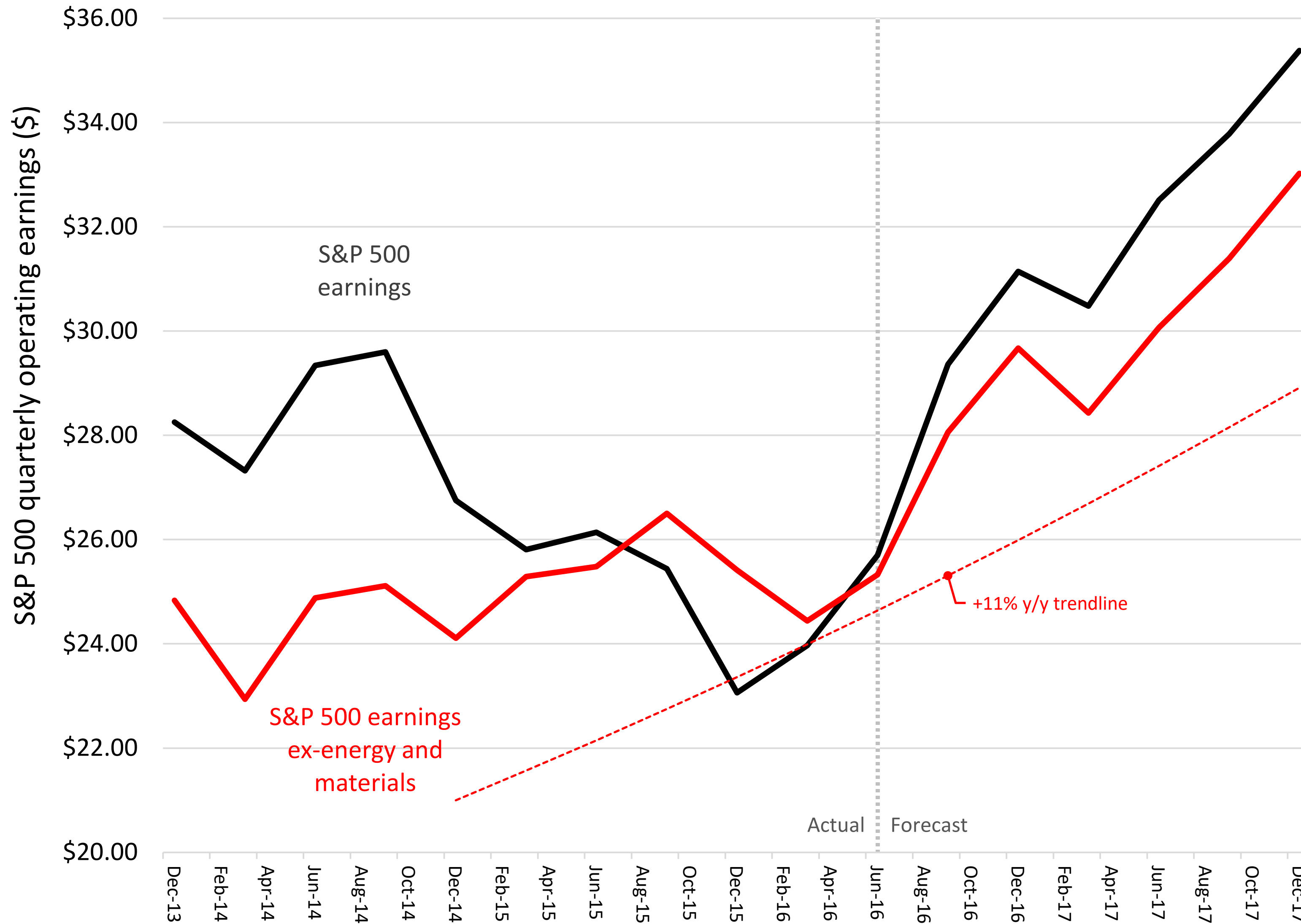

According to Standard & Poor's forecasts, *earnings are on a +11% growth trajectory through the end of 2017.*

+11% might be too optimistic but just half of that would be fine.

Source: Standard & Poor's. Earnings estimates are based on the Capital IQ consensus forecast. Actual earnings through Q2 2016. Data as of September 30, 2016.

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Economy

- +1.4% Q2 GDP – strength in “C”, weakness in “I”
- strong growth in: personal income, DPI, real DPI, real DPI per capita, retail sales
- strong household balance sheets, savings rate and record low household financial obligations ratio
- rising LEI, strong PMIs, strong hiring, record high job openings, declining unemployment rate, record low weekly unemployment claims, strong car sales, rising housing starts
- no inflation threat
- Can you say “Goldilocks”?

Contributions to GDP growth: C + I + G + Net Exports

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% change at annual rate

Personal consumption expenditures

booming Q2

Gross private domestic investment

4-quarter inventory correction

Government consumption and gross investment

Q2 contraction

Net exports of goods and services

good news here

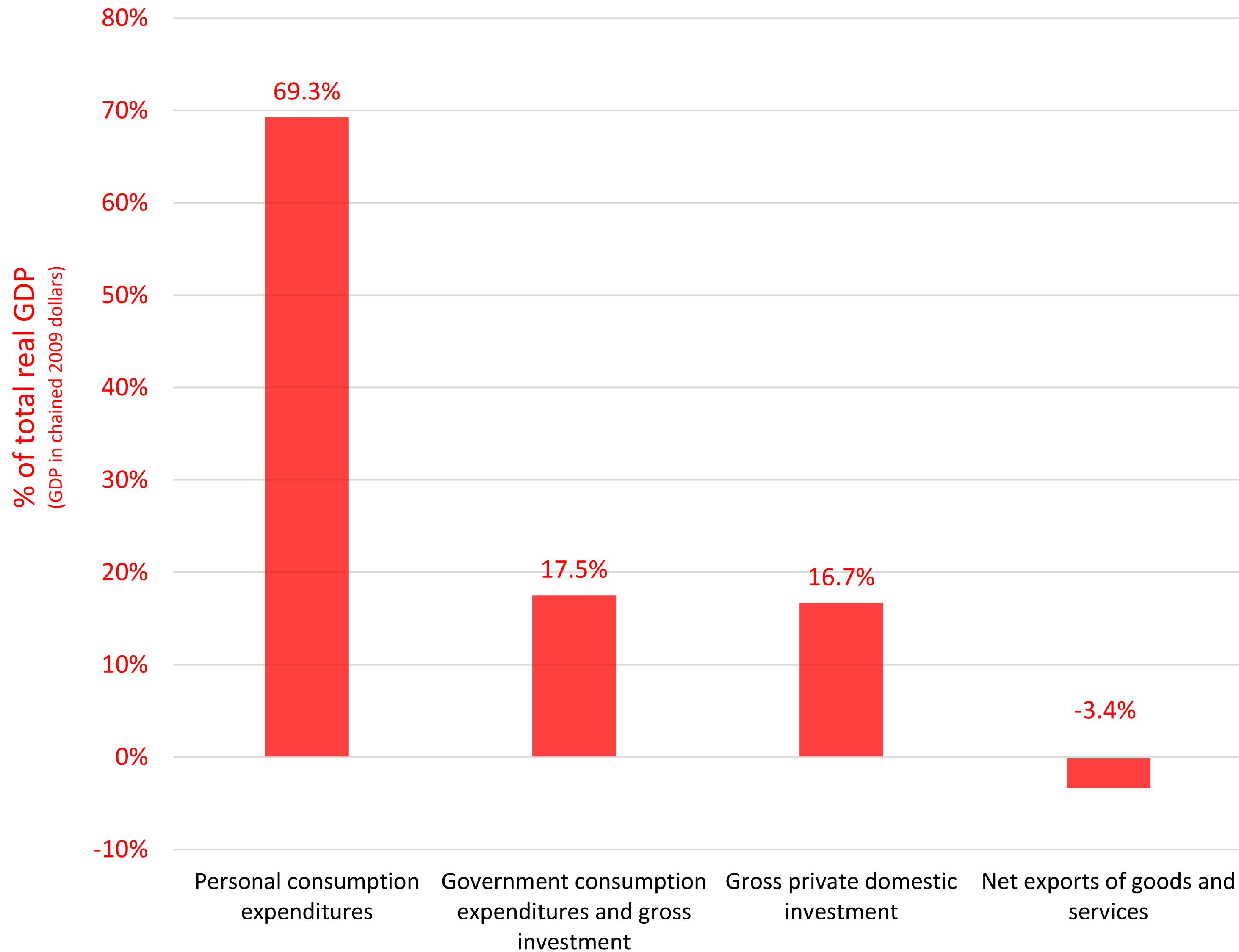
Q2 ΔGDP	
Consumption	+2.9%
Investment	-1.3%
Government	-0.3%
Net Exports	+0.2%
Total	+1.4%

Don't be surprised if we get a +3.0% quarter this year.

Source: Bureau of Economic Analysis, data through June 2016.

Economic data

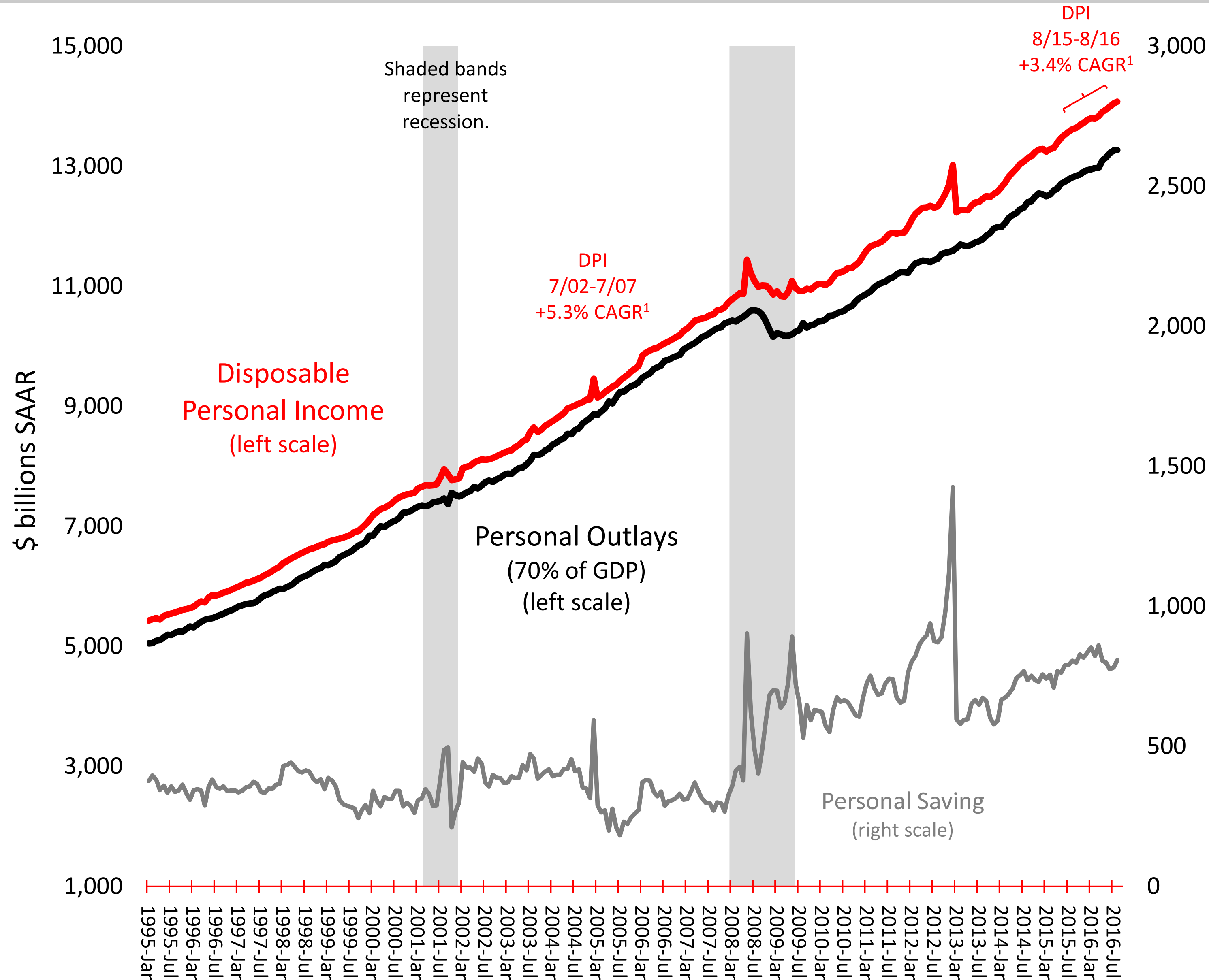
GDP breakdown



Consumer spending drives the U.S. economy.

Source: BEA. Data through June 2016 .

Consumer income, spending and saving

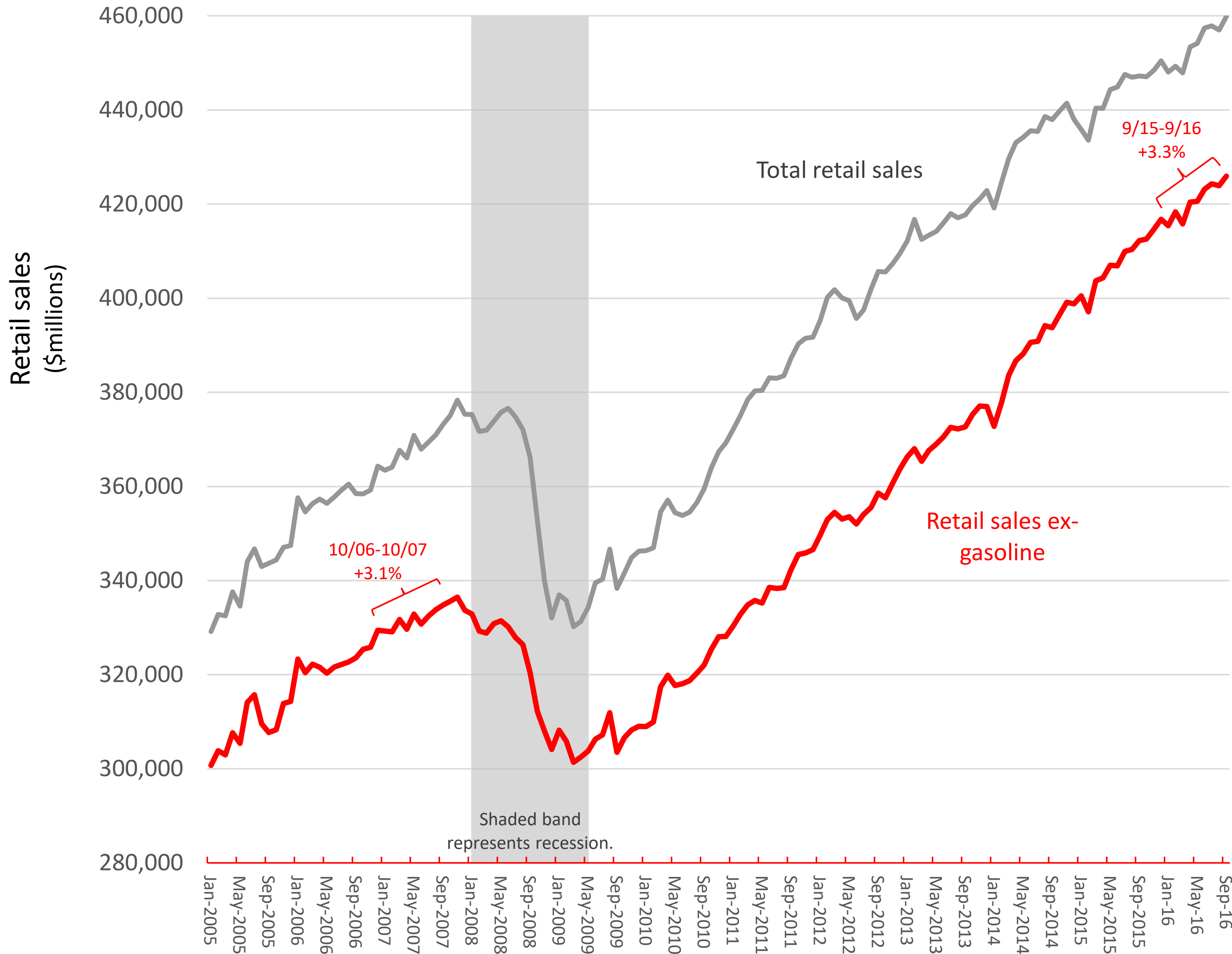


Nominal DPI drives spending, spending drives GDP and corporate earnings.

The savings rate (5.7%) has recently run higher and has remained substantially higher than it was pre-crisis.

Source: Bureau of Economic Analysis, monthly data through August 2016. [1]Compound annual growth rate.

Retail sales



Strong retail sales growth.

Despite soft comp-store sales at Macy's, Nordstrom, Kohl's, Gap and more.

Source: U.S. Census Bureau. Data through September 2016.

Retail sales by category

Department stores are a dying retail format.

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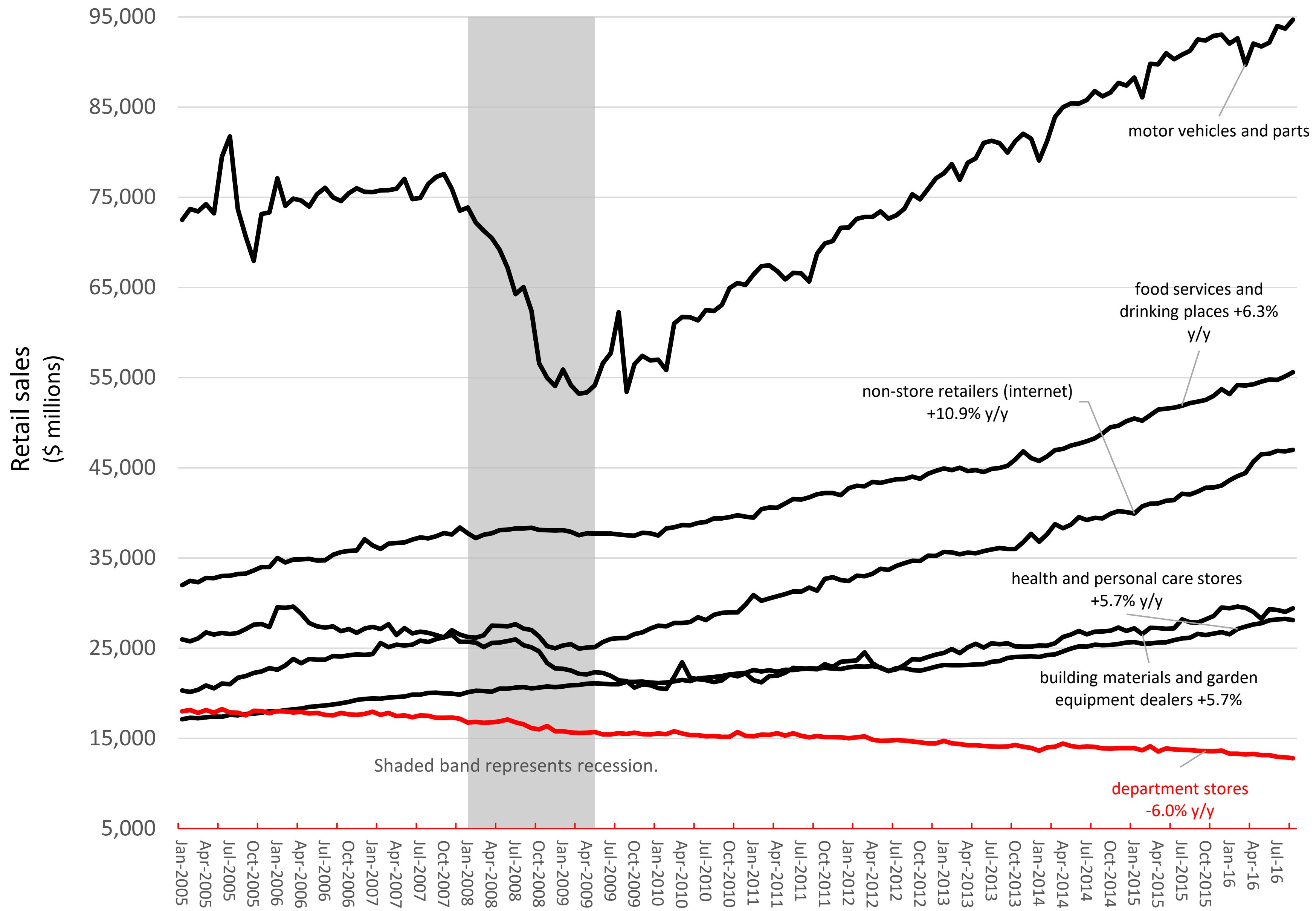

Source: U.S. Census Bureau. Data through September. In order to simplify this chart, not all retail categories are included.

Consensus GDP forecast

Pick-up in growth expected

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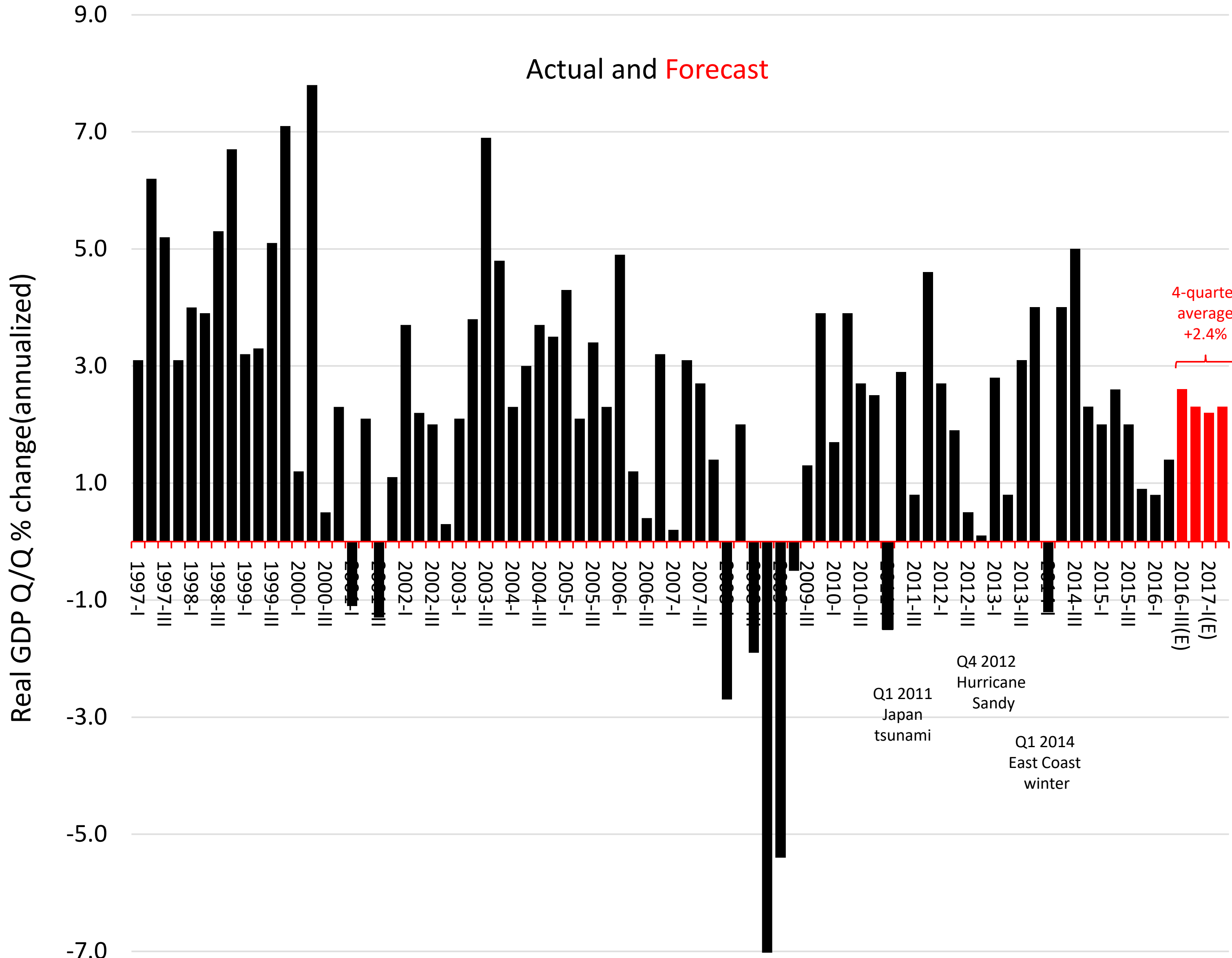


The 70 economists surveyed in early September see an average +2.5% rate of quarterly GDP growth ahead.

Sources: Bureau of Economic Analysis, actual data through June 2016; *The Wall Street Journal* survey taken October 2016.

“Secular stagnation. Anemic. Limping along. Flirting with recession. Stall speed. Sub-par. Struggling. Stuck in first gear.”

GDP growth potential = Δ productivity + Δ labor force

Real GDP growth

Real GDP % change y/y (%)

10.0
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0

1947 1949 1951 1953 1955 1957 1959 1961 1963 1965 1967 1969 1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019 2021 2023

linear regression trendline

BLS forecast

0.5% Δ labor force +
1.8% Δ productivity

Sources: BEA, BLS. Annual data through 2015. BLS forecast through 2024 dated December 8, 2015.

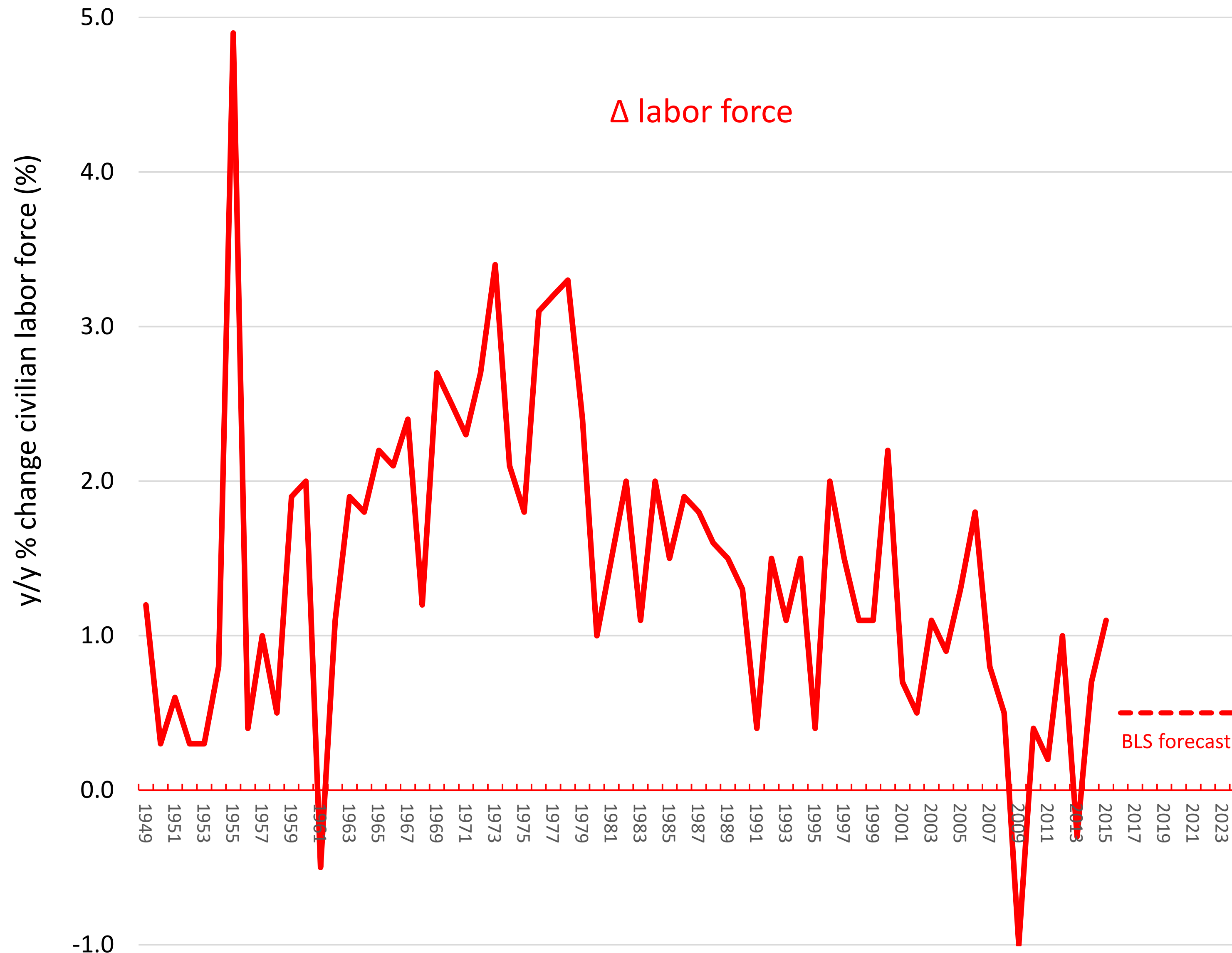
<u>The U.S. economy is already running at its full calculated potential.</u>

Since the 1950s, U.S. GDP growth has been gradually slowing, principally due to slower population growth and declining labor force participation.

The Bureau of Labor statistics forecasts an average of +2.2% annual GDP growth through 2024, compared to two-year actual GDP growth of +2.4%.

GDP growth potential = Δ productivity + Δ labor force

Labor force



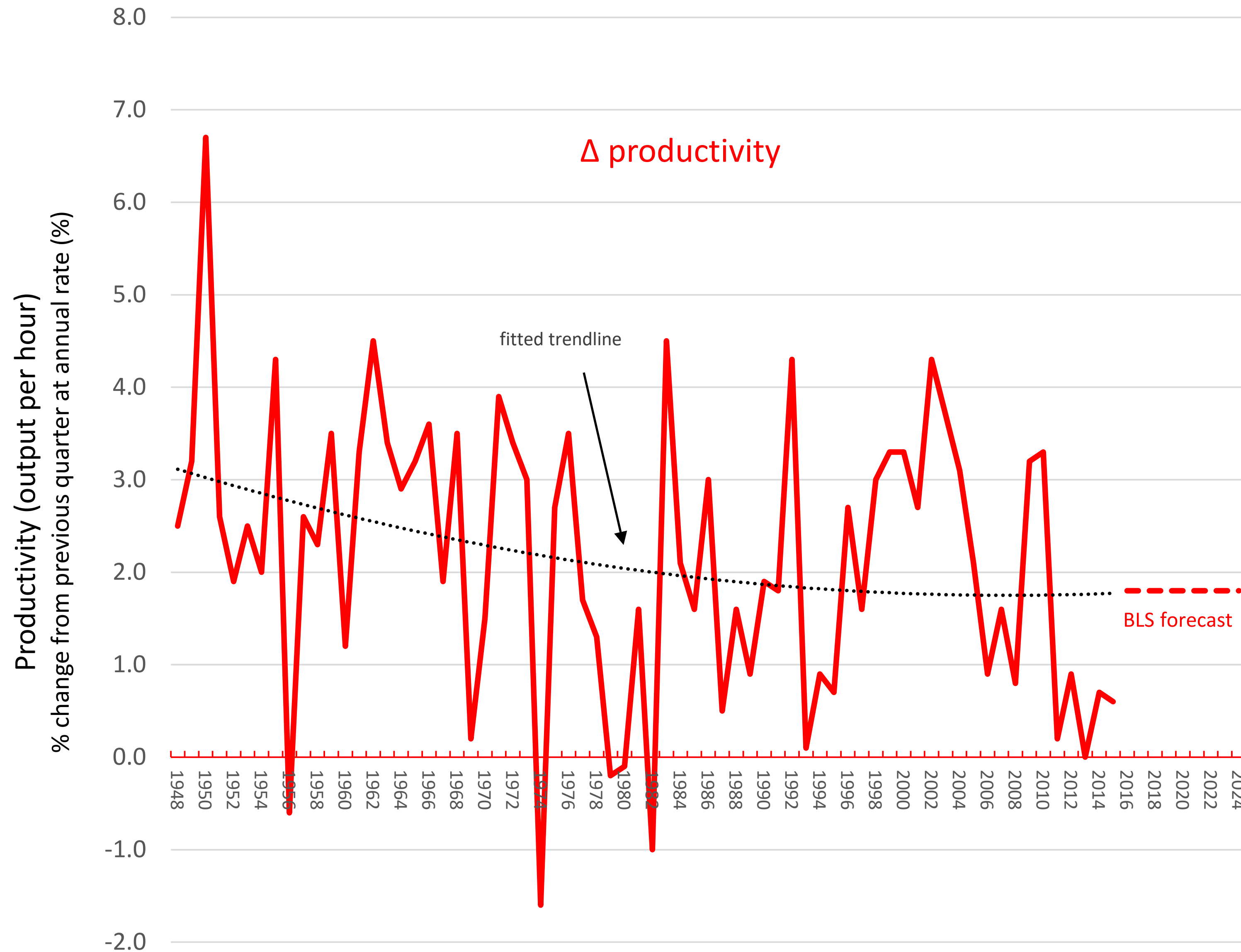
The labor force surged post-WWII, peaking in the late 1970s. Since then the U.S. has seen gradually slowing growth in the labor force partly due to the aging population and partly due to a declining participation rate. (See next slide.)

The Bureau of Labor Statistics forecasts annual labor force growth of +0.5% through 2024.

Source: BLS. Annual data through 2015. BLS forecast through 2024 dated December 8, 2015.

GDP growth potential = Δ productivity + Δ labor force

Productivity



Labor force productivity gains are driven by the application of automation, technology and improved work methods.

The Bureau of Labor Statistics forecasts continued annual productivity gains of +1.8% through 2024.

Source: BLS. Annual data through 2015. BLS forecast through 2024 dated December 8, 2015.

Economic data rest-of-world

World GDP growth forecasts – improving growth expected

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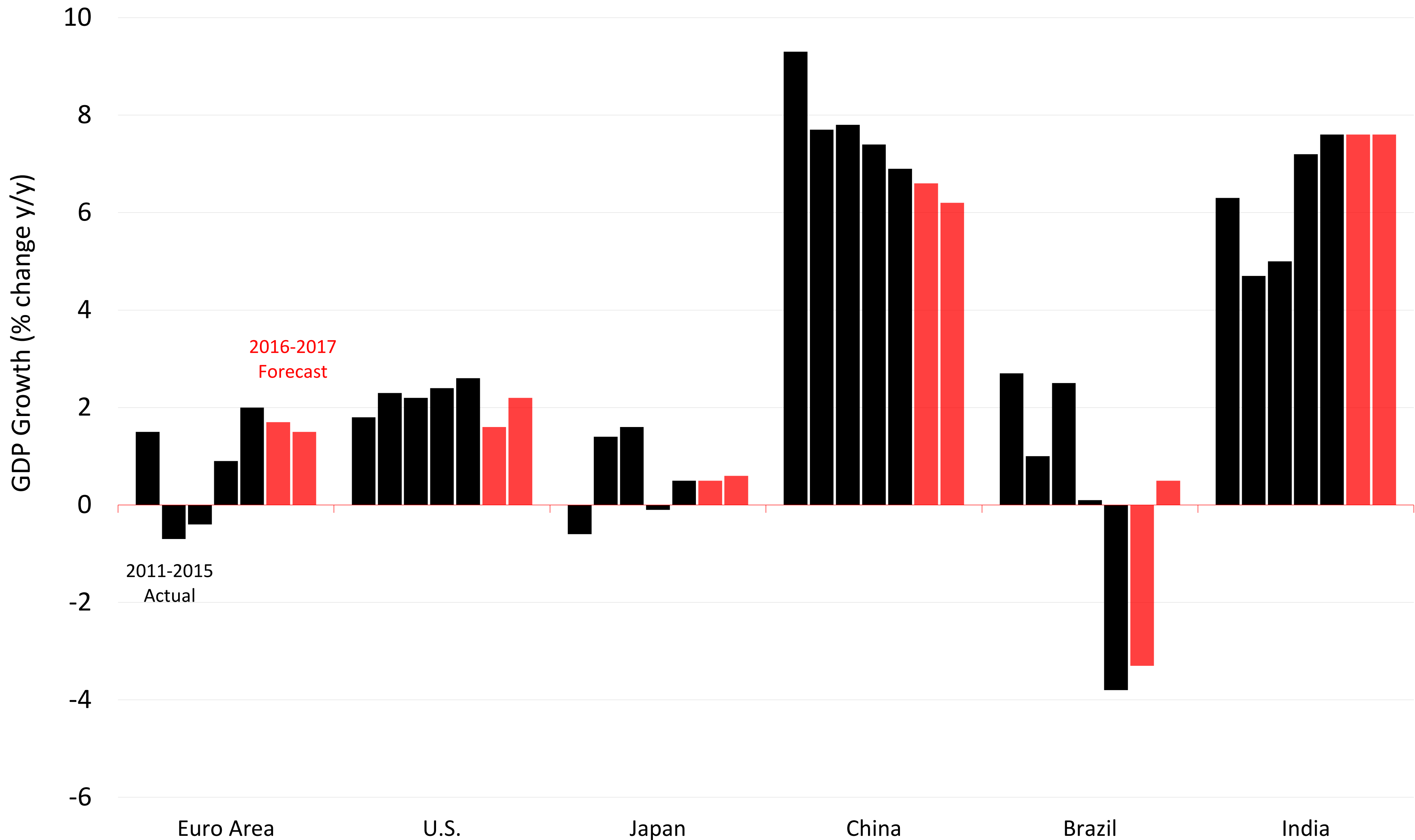

Source: IMF, *World Economic Outlook*, October 2016.

www.EndowmentWM.com

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Jobs

- job formation has not been “anemic”
- new jobs will be limited at full-employment
- good news in full-time employed
- record job openings
- strong relative U.S. job formation forecast long-term
- strong real wage and income growth
- mean and median incomes bottomed
- myth: “… but we’re not creating good jobs”

Economic data - jobs

Net new job formation and the unemployment rate

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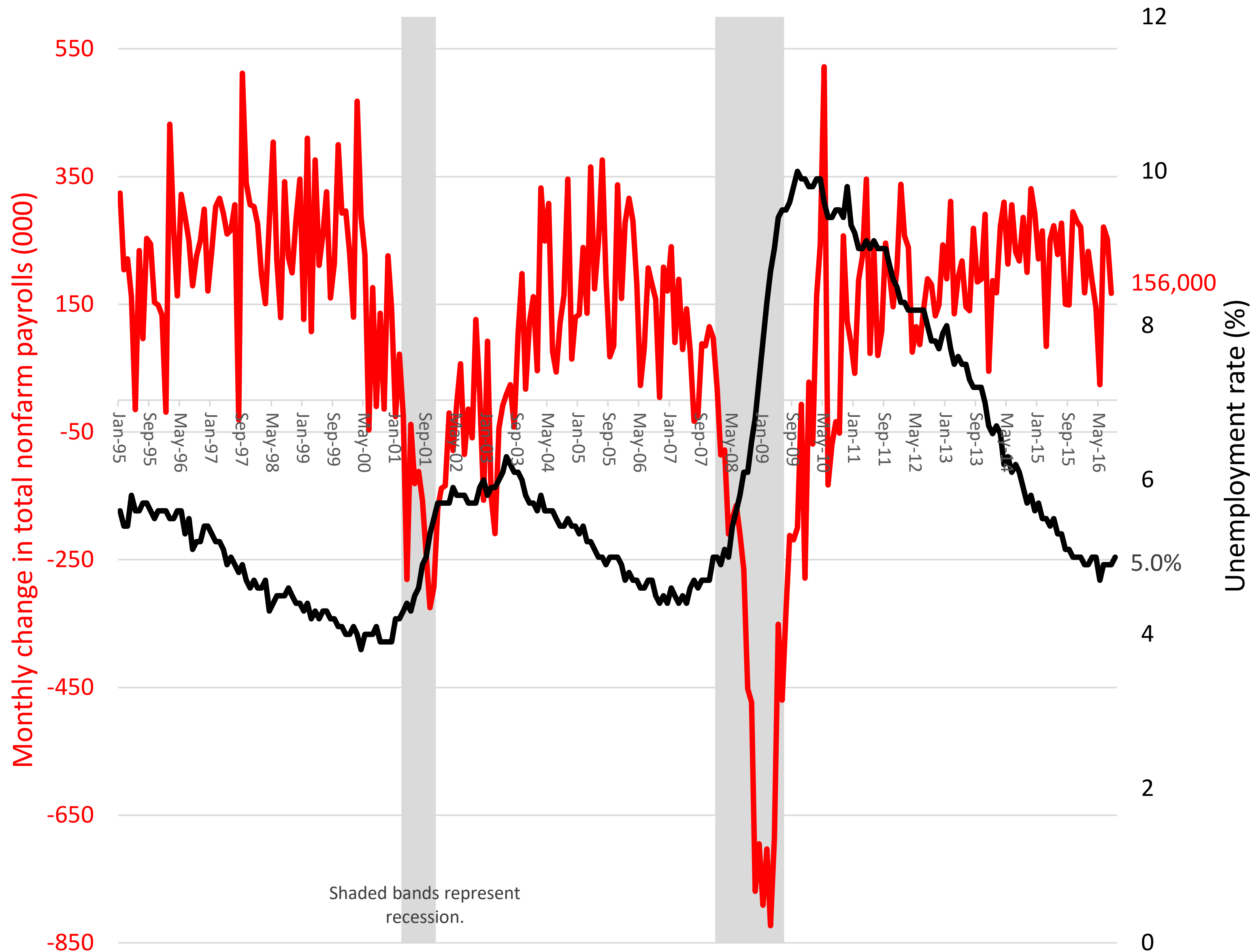

Job growth stronger for longer in this recovery due to the depth of the last recession.

Job growth will decline as the unemployment rate sinks further.

Source: Bureau of Labor Statistics. Data through September 2016.

Economic data - jobs

Net new job formation

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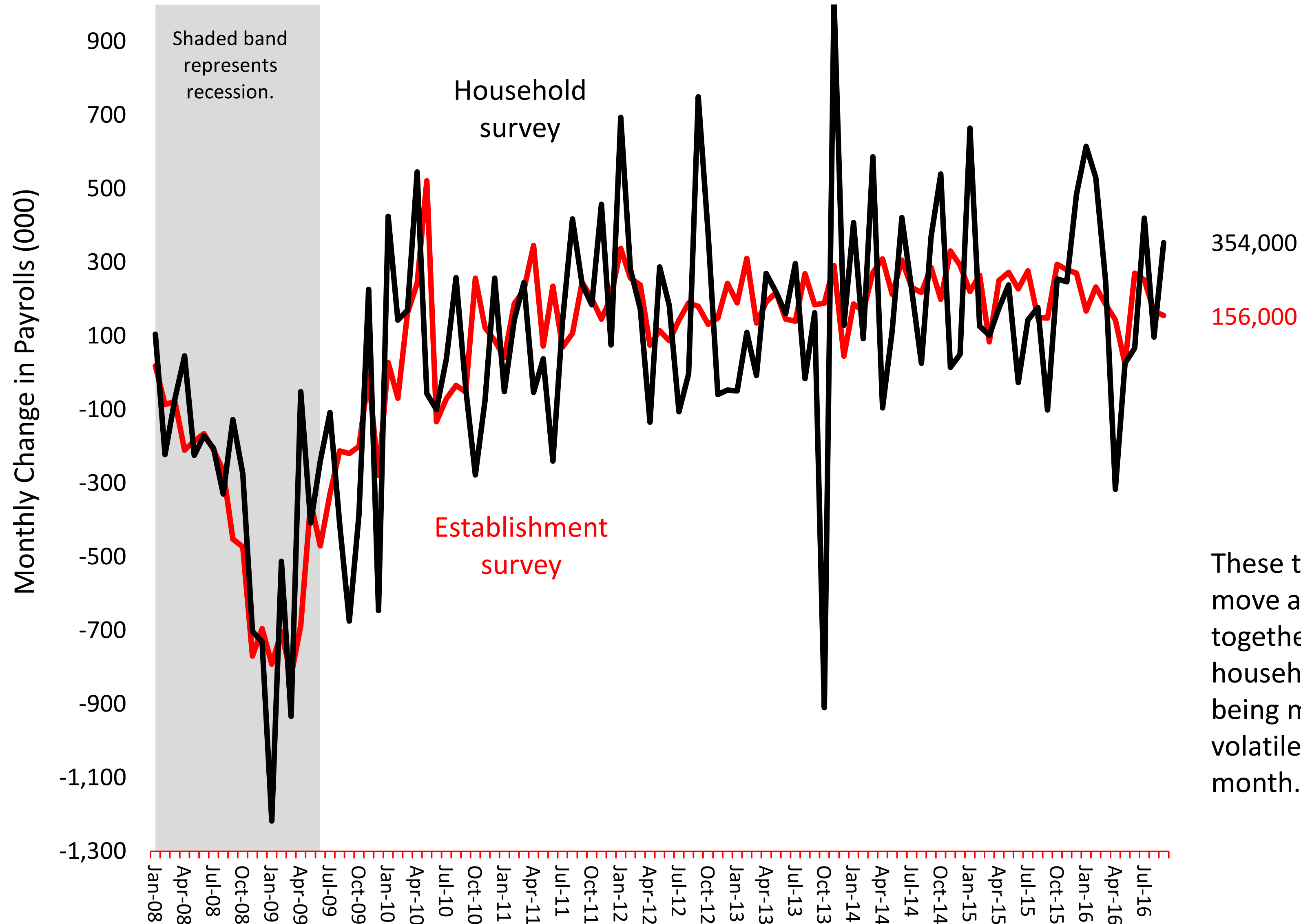


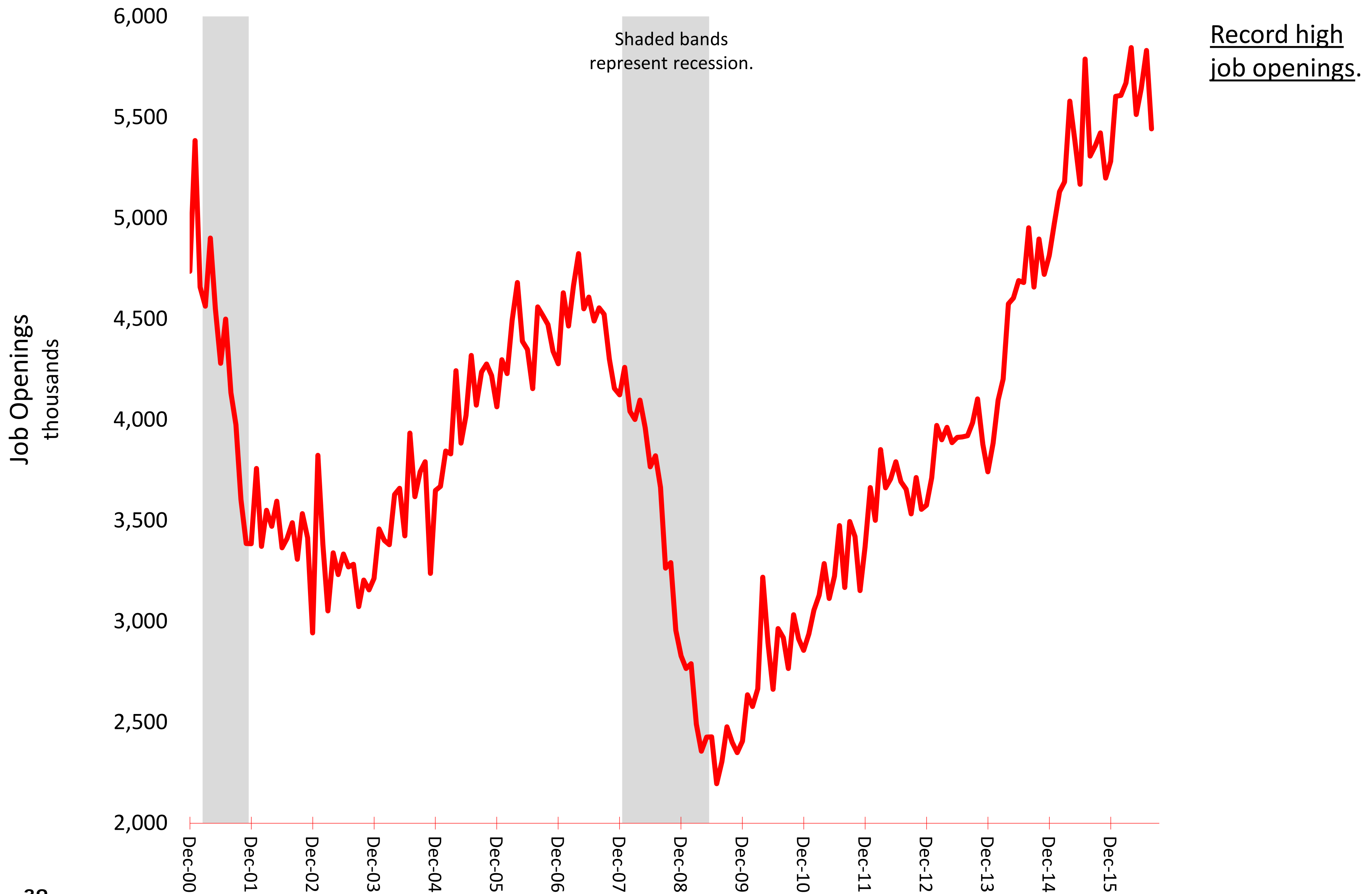
354,000

156,000

These two surveys move approximately together, the household survey being much more volatile month-to-month.

Source: Bureau of Labor Statistics. Data through July 2016.

Job openings – record high



Source: U.S. Department of Labor, NBER. Data through August 2016, released October 12, 2016.

GDP growth potential = Δ productivity + Δ labor force

Labor force to grow +0.5% per year 2012-2022[1]

Live Births (000)

4,500
4,000
3,500
3,000
2,500
2,000

boomers' peak birth years
1957-61

recession
recession
recession

1997
Age 19

1976
Age 40

Baby Boom
(1946-1976)
117 million

Echo Boom
(1977-2014)
149 million

1909 1911 1913 1915 1917 1919 1921 1923 1925 1927 1929 1931 1933 1935 1937 1939 1941 1943 1945 1947 1949 1951 1953 1955 1957 1959 1961 1963 1965 1967 1969 1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013

Sources: 1909 to 2008: U.S. Census Bureau, 2012 Statistical Abstract; 2009-2014: U.S. Department of Health and Human Services.
[1] U.S. Bureau of Labor Statistics, Monthly Labor Review, December 2013, by Mitra Toossi. The U.S. labor force grew at an annual rate of +1.2% in the decade 1992-2002; and by an annual rate of +0.7% in the decade 2002-2012.

Working age population forecasts

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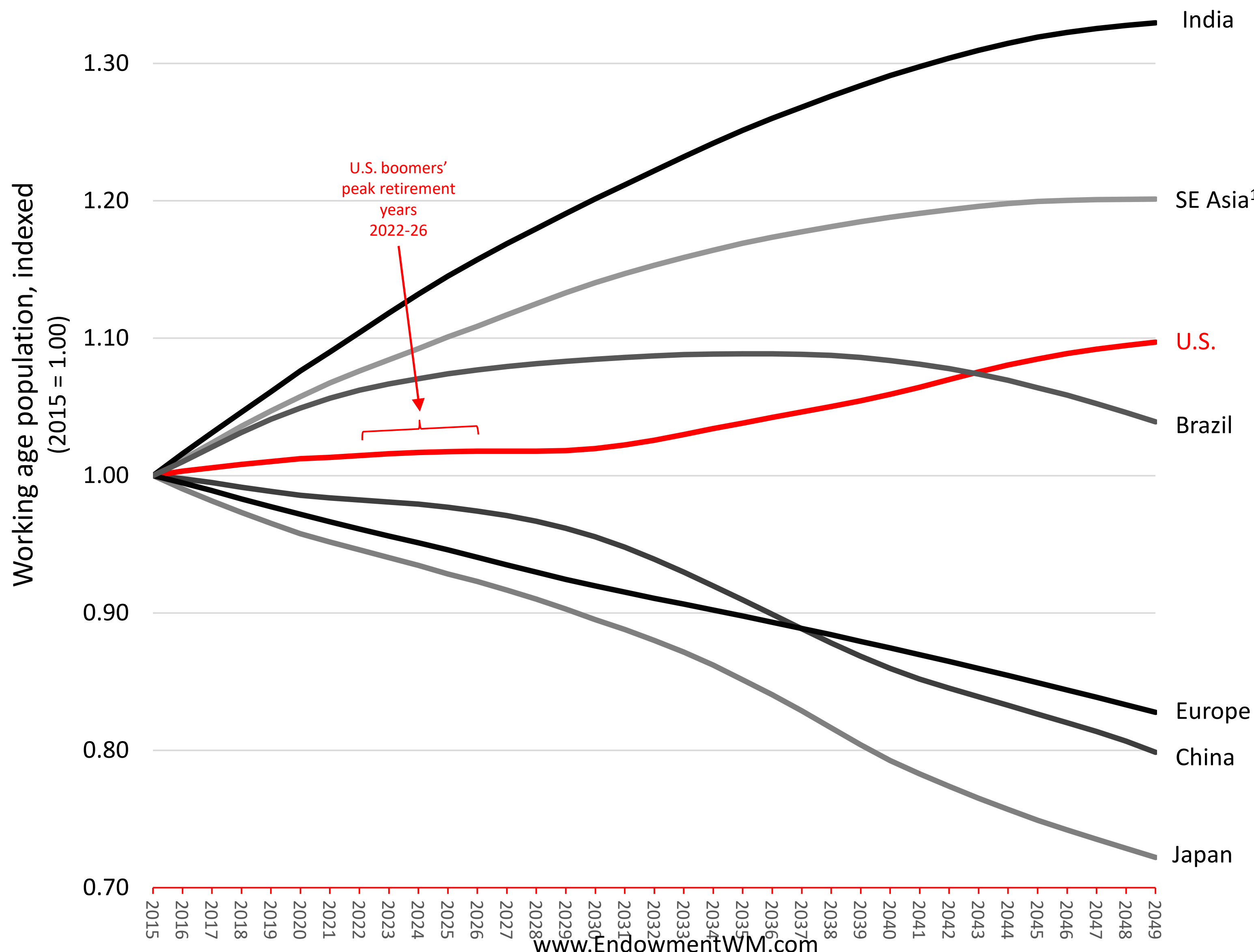

The U.S. has favorable long-term demographic prospects compared to the world's major economies.

The baby boom peaked in 1957-61. Which means that the boomers' peak retirement years will be 2022-2026.

Thereafter, growth in the working age population picks up.

Source: United Nations Population Division, *World Population Prospects, the 2015 Revision.*
[1] Includes Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Viet Nam.

Will our children be better or worse off the us?

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Future Shock

America's next generation will do better than ever

AS U.S. POLITICAL ARMIES CLASH ON Matthew Arnold's "darkling plain," the economy endures, and the next generation has a bright future. Donald Trump calls for "making America great again," but Warren Buffett knows that "again" has nothing to do with it. Some edited observations from his annual letter to shareholders follow:

"Many Americans now believe that their children will not live as well as they themselves do. That view is dead wrong: The babies being born in America today are the luckiest crop in history.

"American gross domestic product per capita is now about $56,000. America's 2% of overall growth produces about 1.2% of annual per capita growth. In 25 years, that rate of growth leads to a gain of 34.4% in real GDP per capita, a $19,000 increase. Today's politicians need not shed tears for tomorrow's children.

"Though the pie to be shared by the next generation will be far larger, how it will be divided will remain fiercely contentious—in particular, between those with talents that are valued highly by the marketplace and the equally decent hard-working Americans who lack the skills the market prizes.

"The good news, however, is that even members of the 'losing' sides will almost certainly enjoy far more goods and services in the future than they have in the past. The quality of their increased bounty will also dramatically improve. Nothing rivals the market system in producing what people want.

"America's golden goose of commerce and innovation will continue to lay more and larger eggs. America's kids will live far better than their parents did." ■

Editorial page editor THOMAS G. DONLAN receives e-mail at tg.donlan@barrons.com.

Warren Buffet: "America's golden goose … will continue to lay more and larger eggs."

Source: *Barron's*, March 7, 2016.

Wages – middle class wage stagnation?

Average hourly earnings vs. inflation

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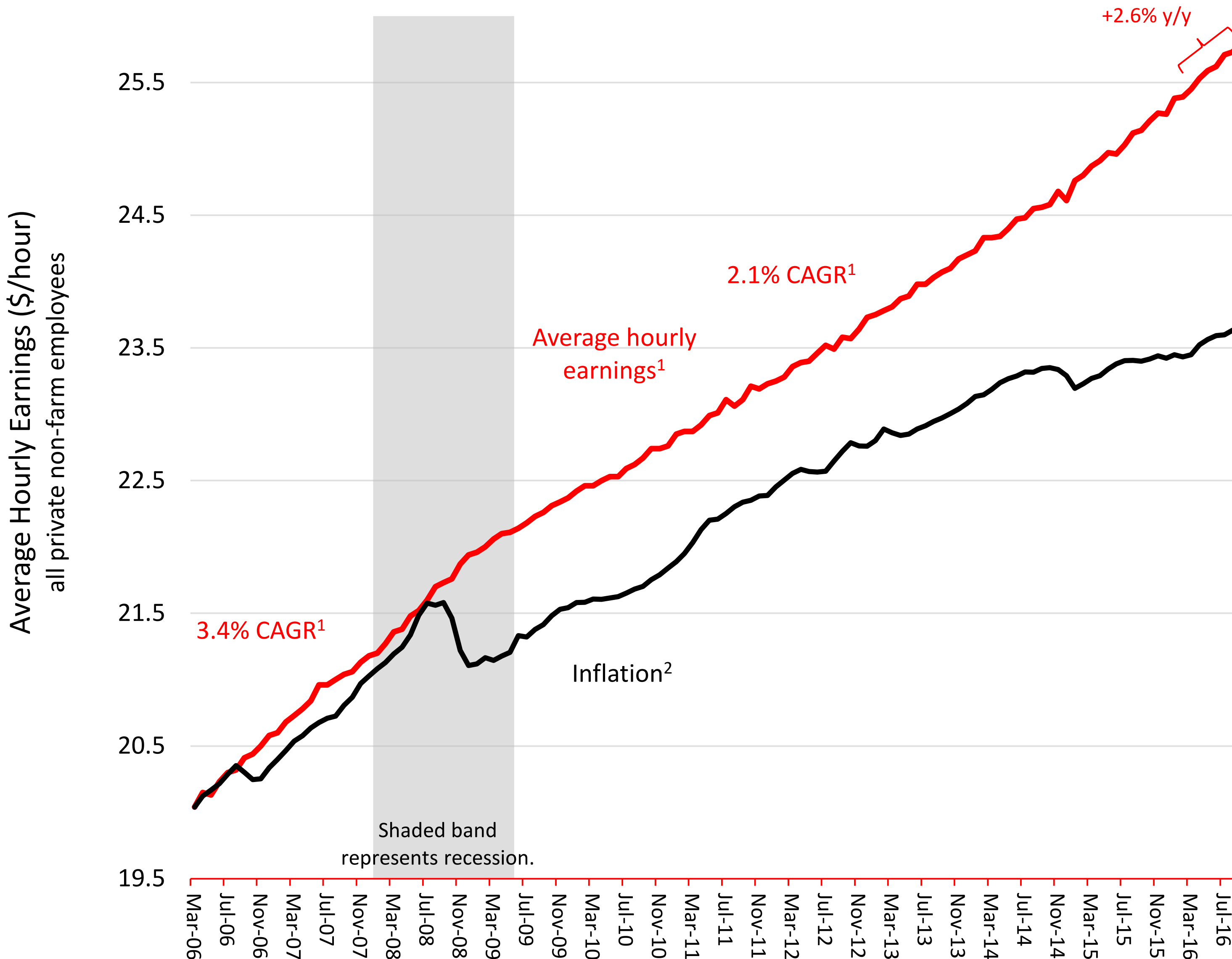

AHE growth has picked up.

AHE growth has outstripped inflation.

Real wages have grown … at a better clip than pre-recession because inflation has been declining.

Wage stagnation is a fiction.

Source: BLS, BEA. AHE data through September 2016. Inflation data through August 2016. AHE includes 100% of non-farm private employees, and excludes benefits and employers' share of payroll taxes. [1] Compound annual growth rate March 2006 through December 2008 = 3.4%; CAGR December 2008 through June 2016 = 2.1%. [2] March 2006 average hourly earnings of $20.04 inflated by the personal consumption expenditures deflator (PCED).

Economic data – consumer spending

Real per capita purchasing power

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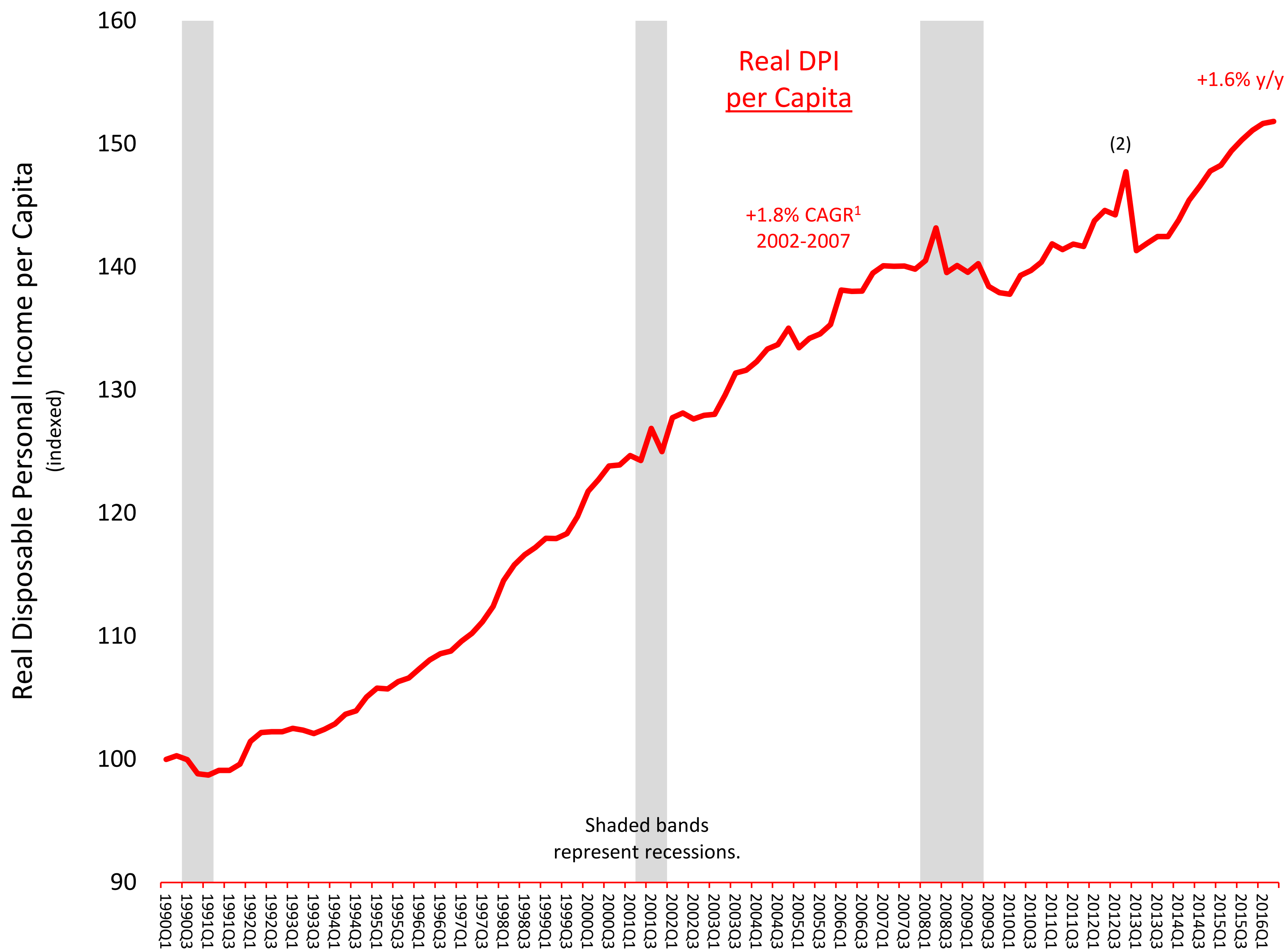


Real per capita after-tax income is growing slower than pre-recession.

But, income stagnation is a fiction.

Source: Bureau of Economic Analysis, quarterly data through June 2016. [1]Compound annual growth rate. [2]Surge in compensation paid prior to 2013 tax hike.

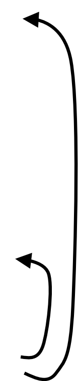
Jobs … "but the jobs we're creating aren't 'good' jobs."
All jobs by category (average hourly earnings in parentheses)

Employment by category, stacked chart

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

Other services ($22.80)
Information ($36.06)
Financial activities ($32.19)
Construction ($27.59)
Leisure and hospitality ($14.61)
Trade, transportation and utilities ($22.12)
Professional and business services ($30.50)
Education and health services ($25.55)
Manufacturing ($25.61)

Jan-50 Jan-52 Jan-54 Jan-56 Jan-58 Jan-60 Jan-62 Jan-64 Jan-66 Jan-68 Jan-70 Jan-72 Jan-74 Jan-76 Jan-78 Jan-80 Jan-82 Jan-84 Jan-86 Jan-88 Jan-90 Jan-92 Jan-94 Jan-96 Jan-98 Jan-00 Jan-02 Jan-04 Jan-06 Jan-08 Jan-10 Jan-12 Jan-14

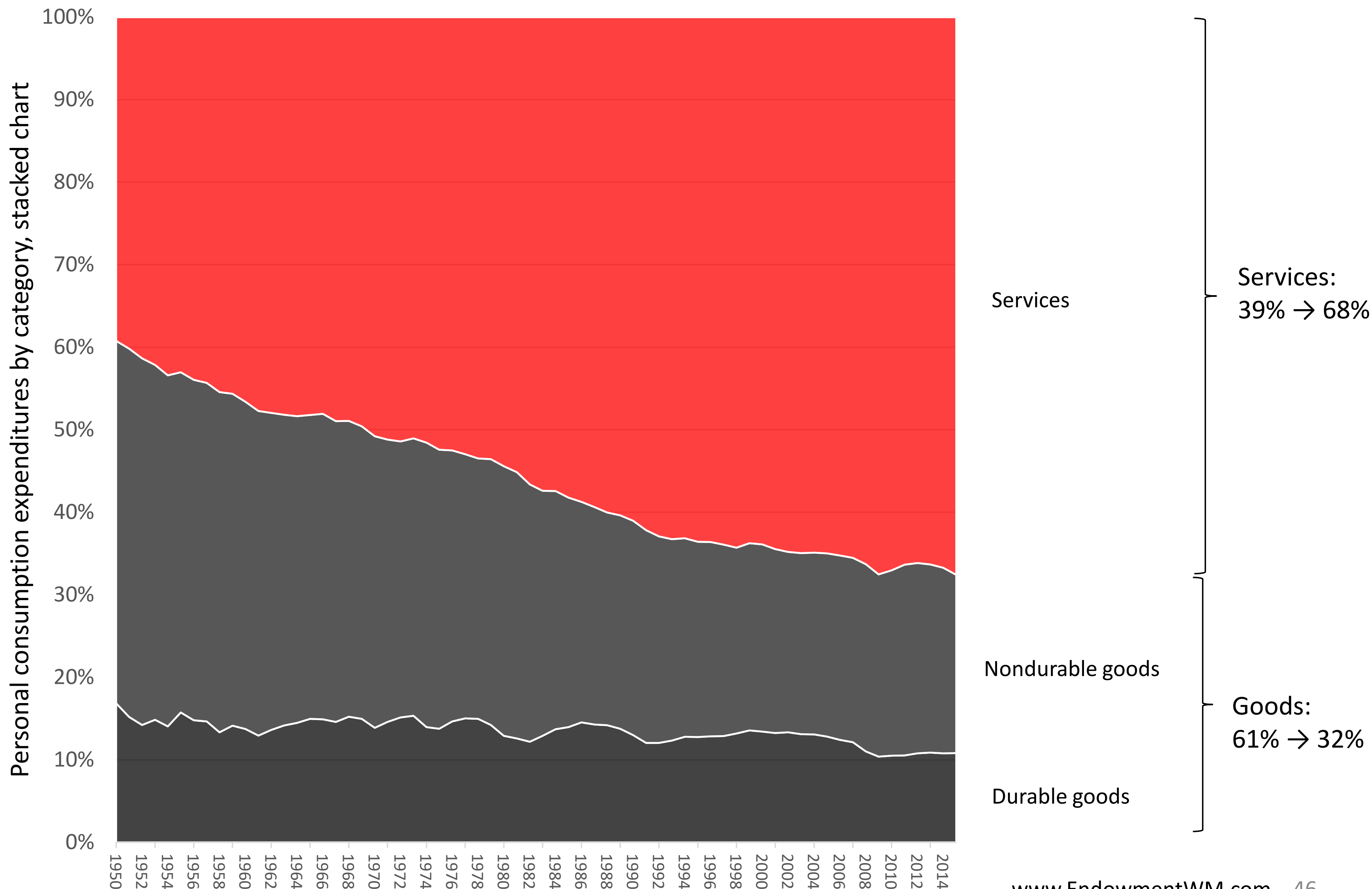


In 1950, manufacturing jobs were 37% of total jobs. Today that figure is 10%.

Some manufacturing jobs have been replaced by lower-paying jobs in leisure and hospitality; but many more have been replaced by equal- or higher-paying jobs in health services and professional and business services.

Source: Bureau of Labor Statistics. Employment data through December 2015, AHE data through January 2016. Mining and logging ($31.77) is the small sliver, fourth from the top.

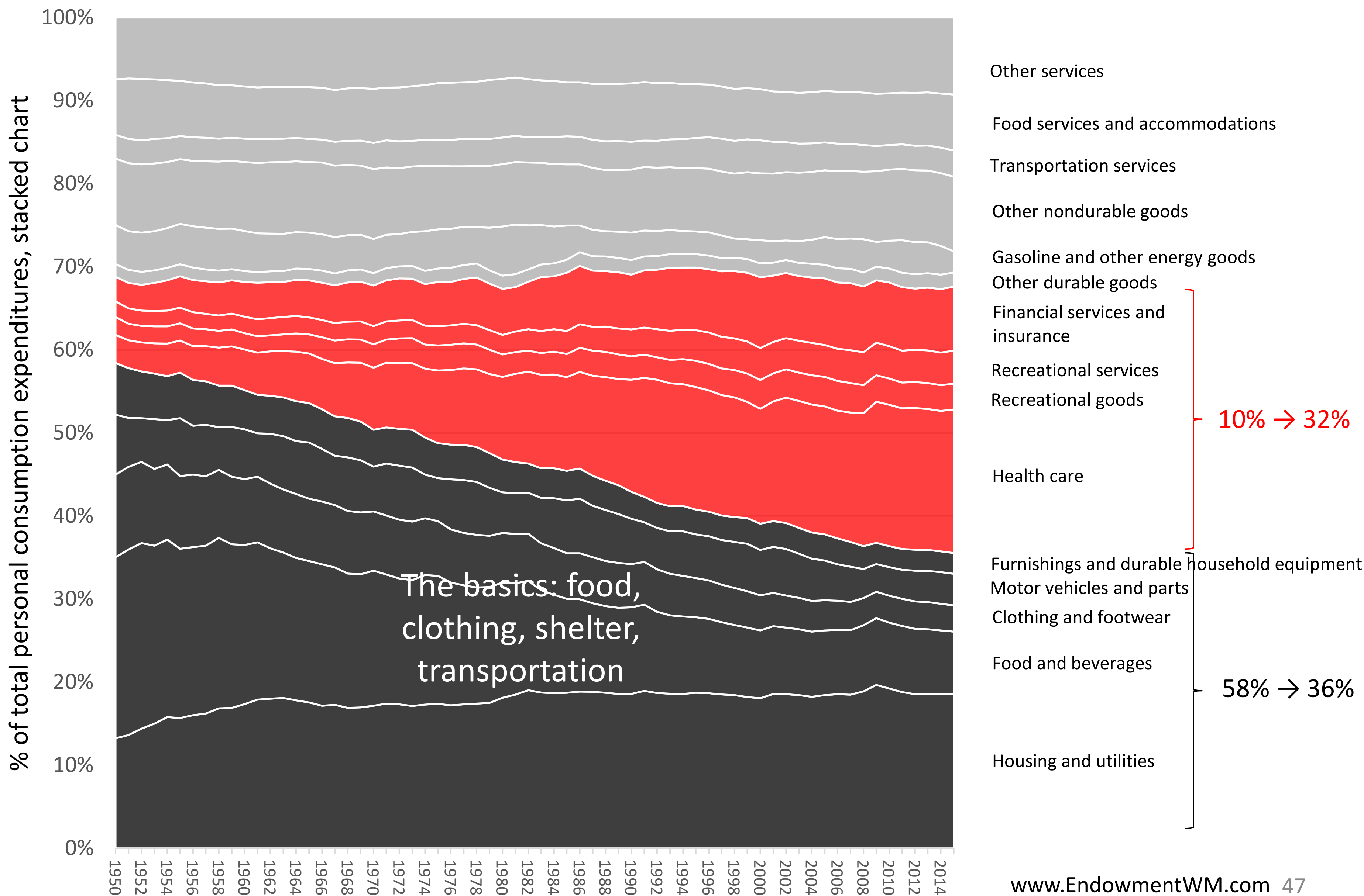
Personal consumption expenditures by category



Source: BEA. Annual data through 2015.

Consumer spending

Personal consumption expenditures by category



Source: BEA. Annual data through 2015.

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Federal budget

- CBO's March 2016 forecast
- looks good for a few years …
- … but the entitlements problem hasn't gone away
- rising debt/GDP ratio
- low U.S. tax burden allows flexibility to solve long-term entitlements problem

Federal revenues and outlays – a rising spending problem

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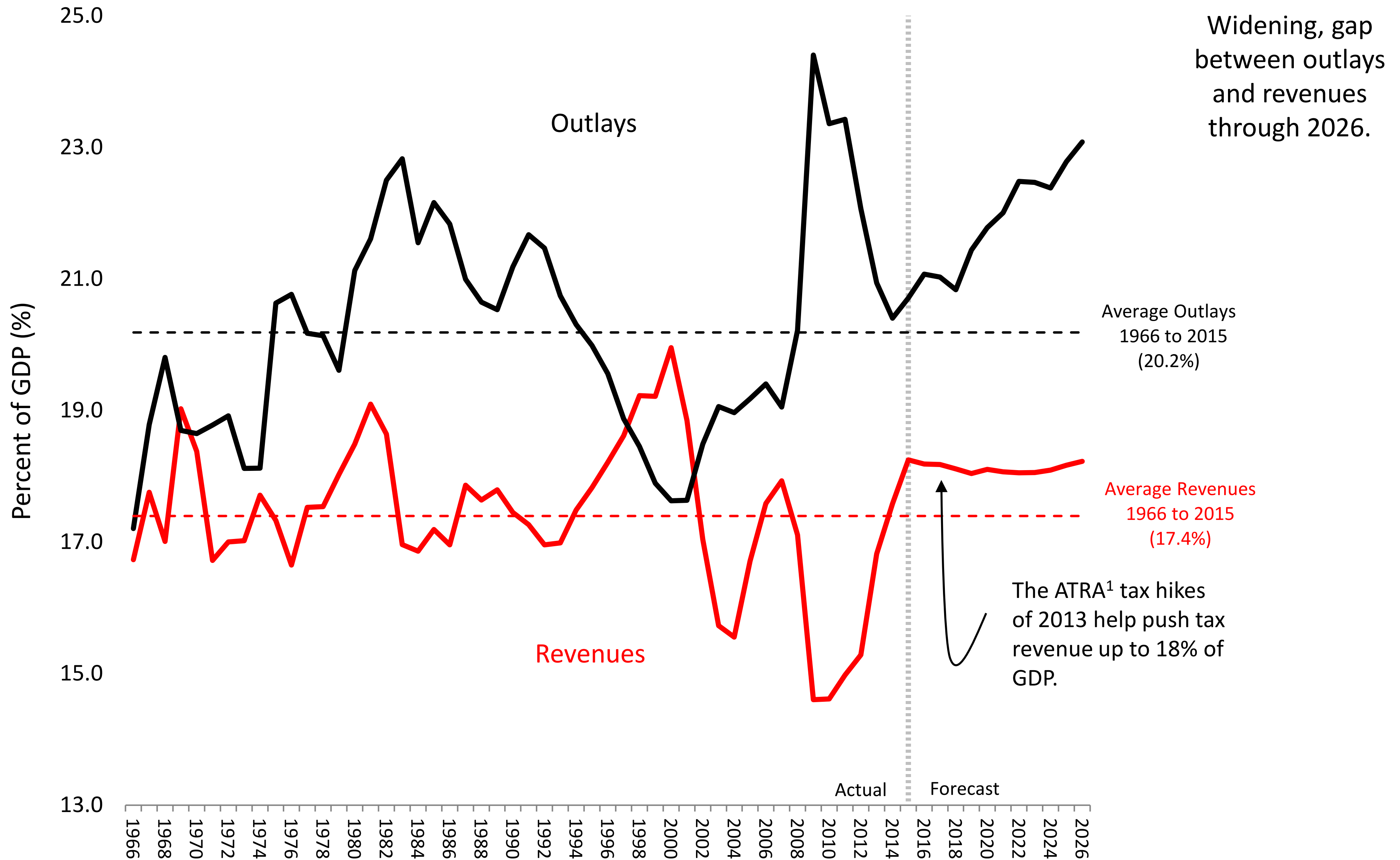
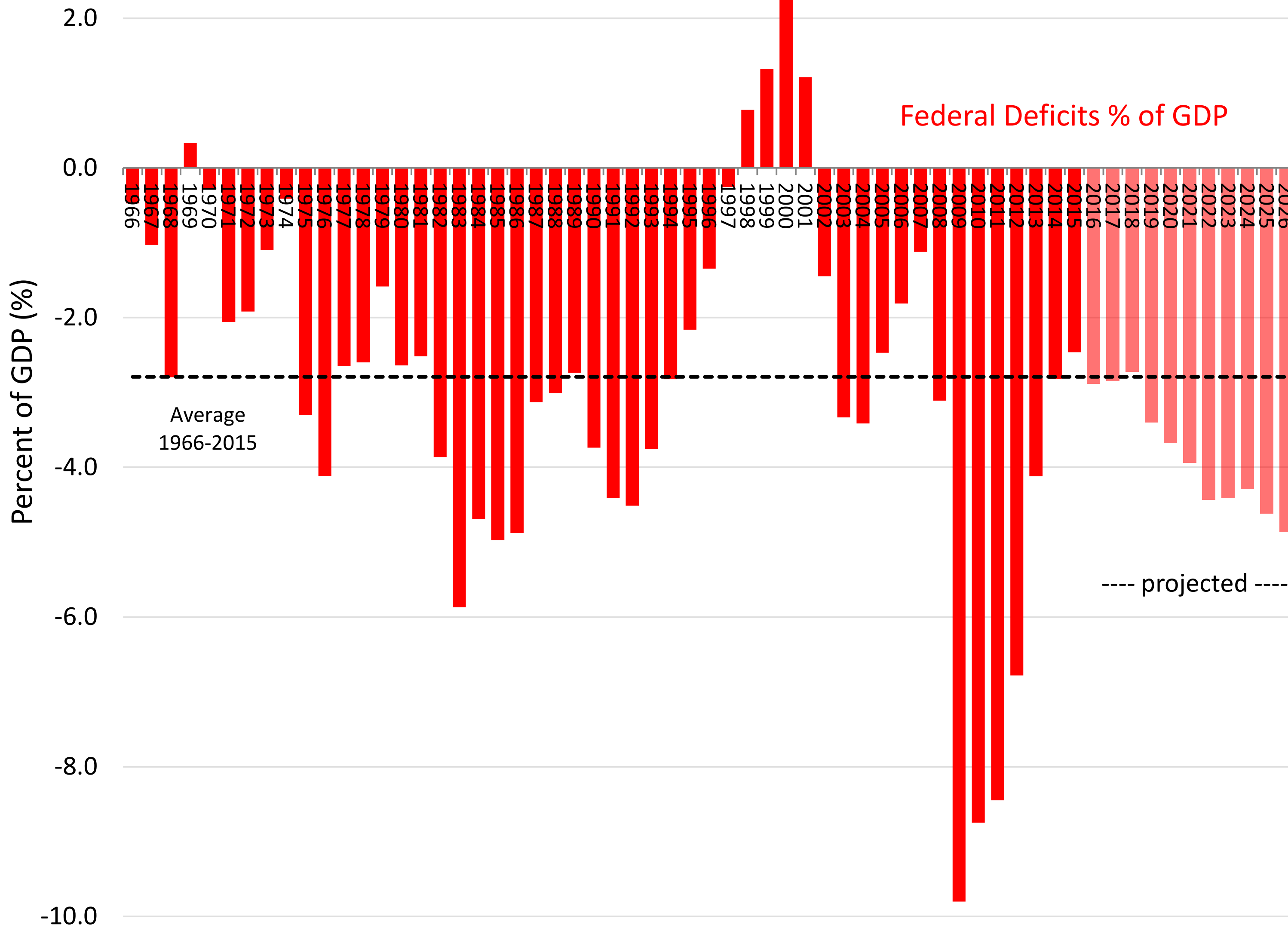


Source: Congressional Budget Office, *Updated Budget Projections: 2016 to 2026,* dated March 2016.
[1] American Taxpayer Relief Act.

Federal deficit and debt

Federal deficits % of GDP



CBO is projecting low growth in federal borrowing requirements through 2018.

Source: Congressional Budget Office, *Updated Budget Projections: 2016 to 2026,* dated March 2016.

Federal debt % of GDP

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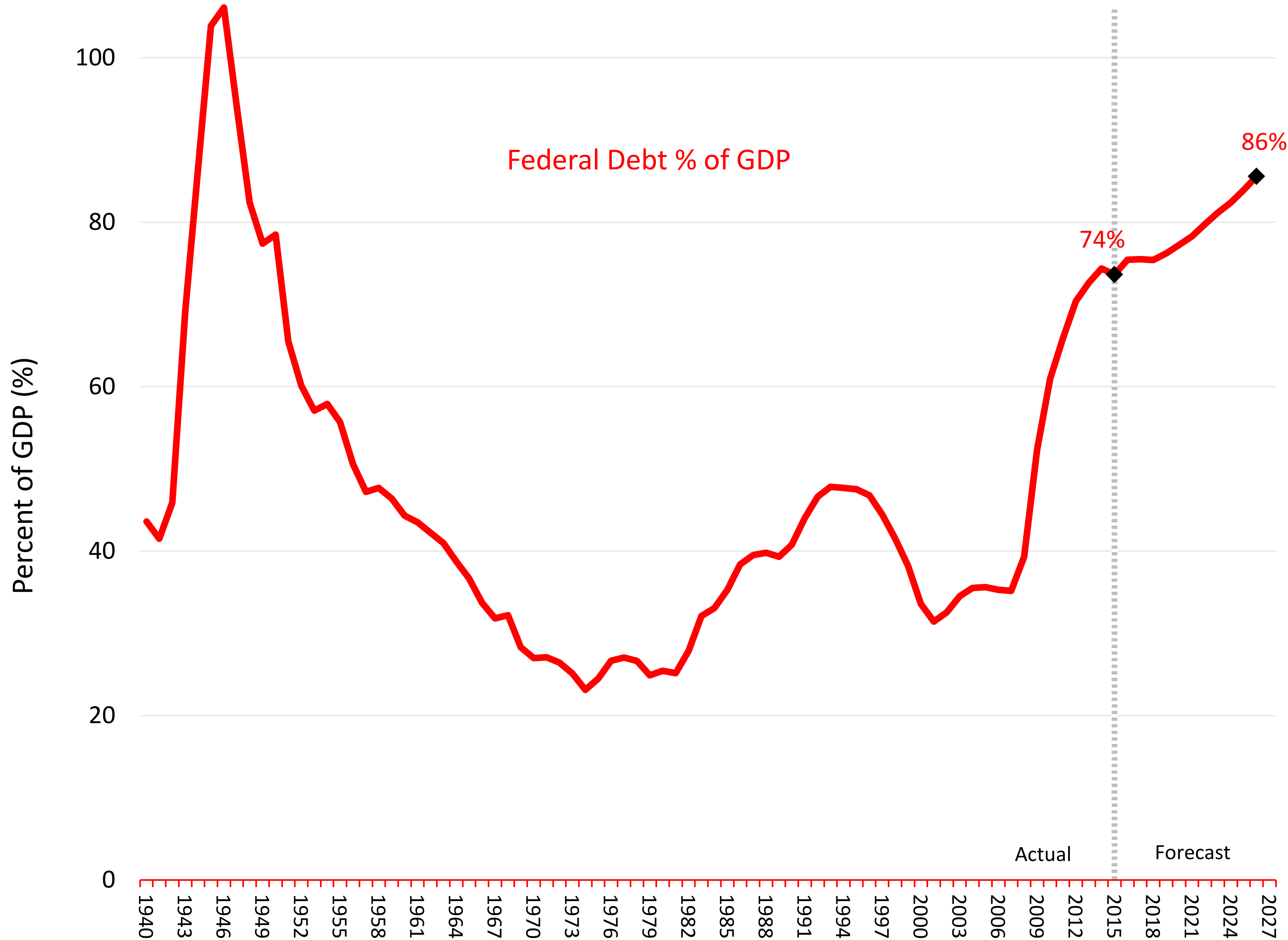

Debt % of GDP about flat through 2018, then rises.

Source: Congressional Budget Office, *Updated Budget Projections: 2016 to 2026*, dated March 2016.

Federal deficit and debt

Government debt-to-GDP ratios (2011-2021)

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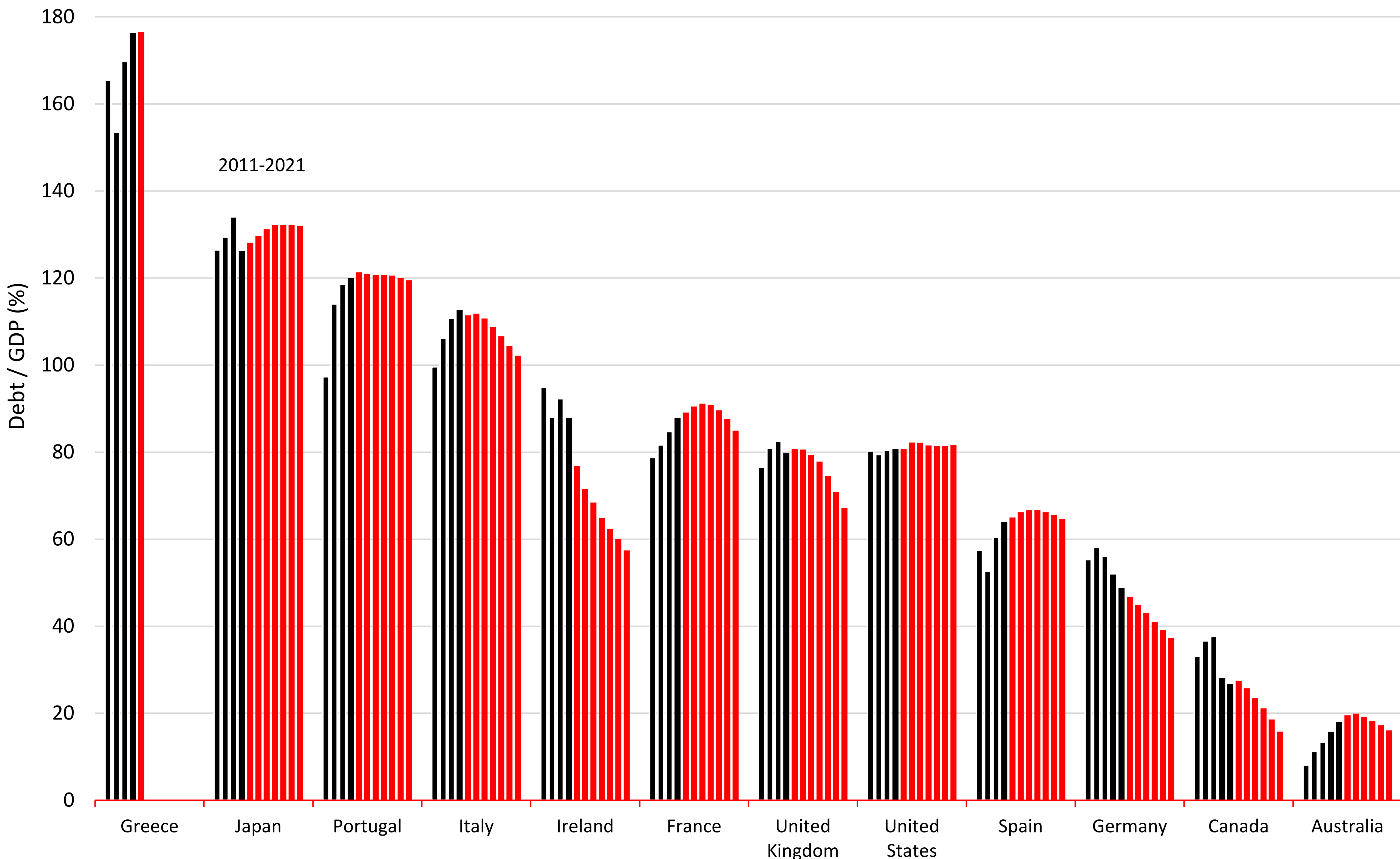

Source: IMF, World Economic Outlook Database, October 2014 and April 2016. Data for years (from left to right) 2011-2021. Actual (black) and forecast (red).

Federal deficit and debt

Projected federal spending[1] through 2046

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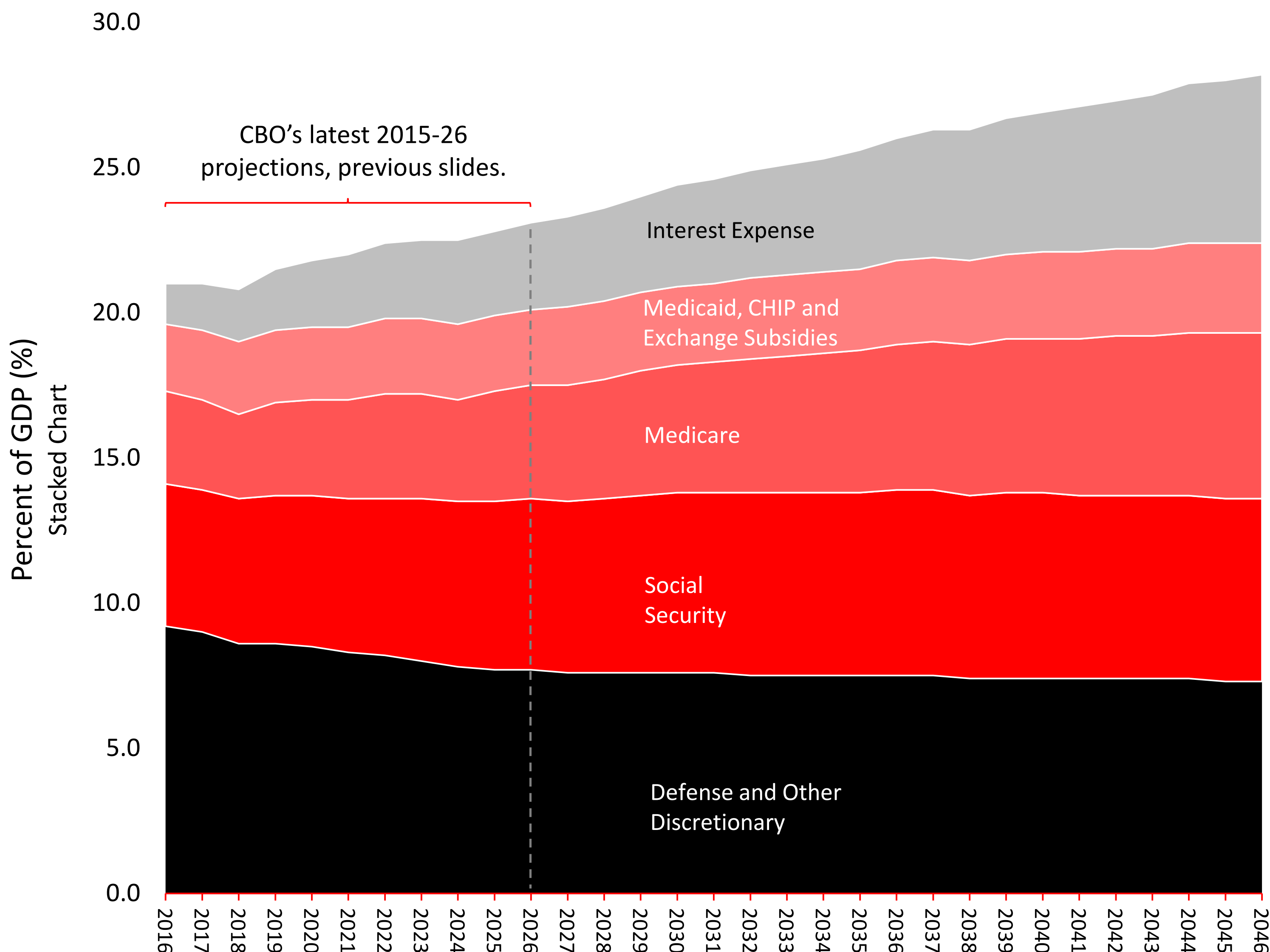

Entitlements are on autopilot and interest expense keeps growing as a share of total spending as the debt accumulates.

Source: Congressional Budget Office (CBO), *The 2016 Long-Term Budget Outlook*, July 2016. [1]CBO's 10-year and extended baselines generally reflect current law and are meant to serve as benchmarks for measuring the budgetary effects of proposed changes in federal revenues or spending. They are not meant to be predictions of future budgetary outcomes; rather, they represent CBO's best assessment of how the economy and other factors would affect revenues and spending if current law generally remained unchanged.

Federal deficit and debt

Federal debt % of GDP through 2046

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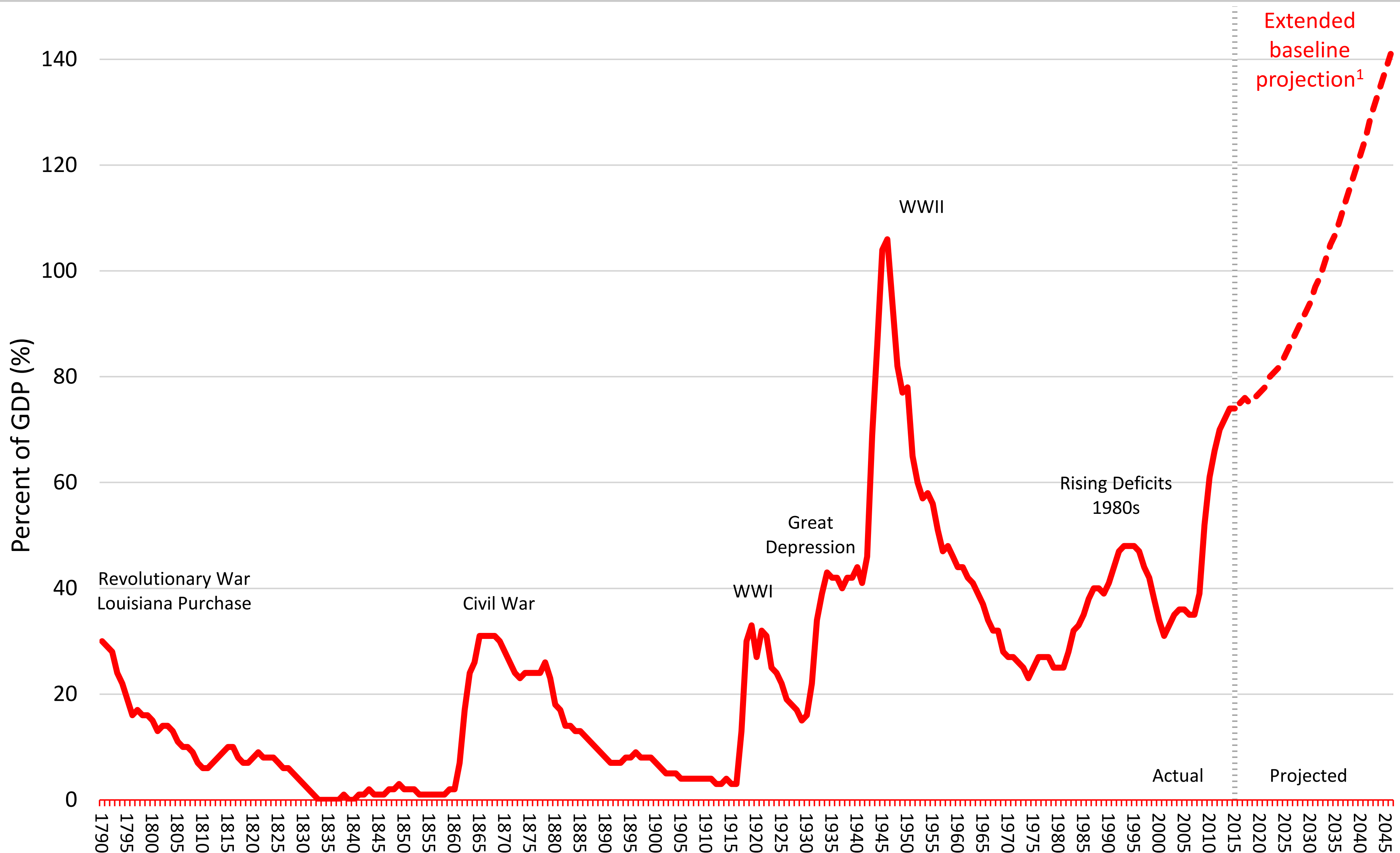

Source: Congressional Budget Office (CBO), *The 2016 Long-Term Budget Outlook*, July 2016. [1]CBO's 10-year and extended baselines generally reflect current law and are meant to serve as benchmarks for measuring the budgetary effects of proposed changes in federal revenues or spending. They are not meant to be predictions of future budgetary outcomes; rather, they represent CBO's best assessment of how the economy and other factors would affect revenues and spending if current law generally remained unchanged.

Taxes % of GDP – comparison

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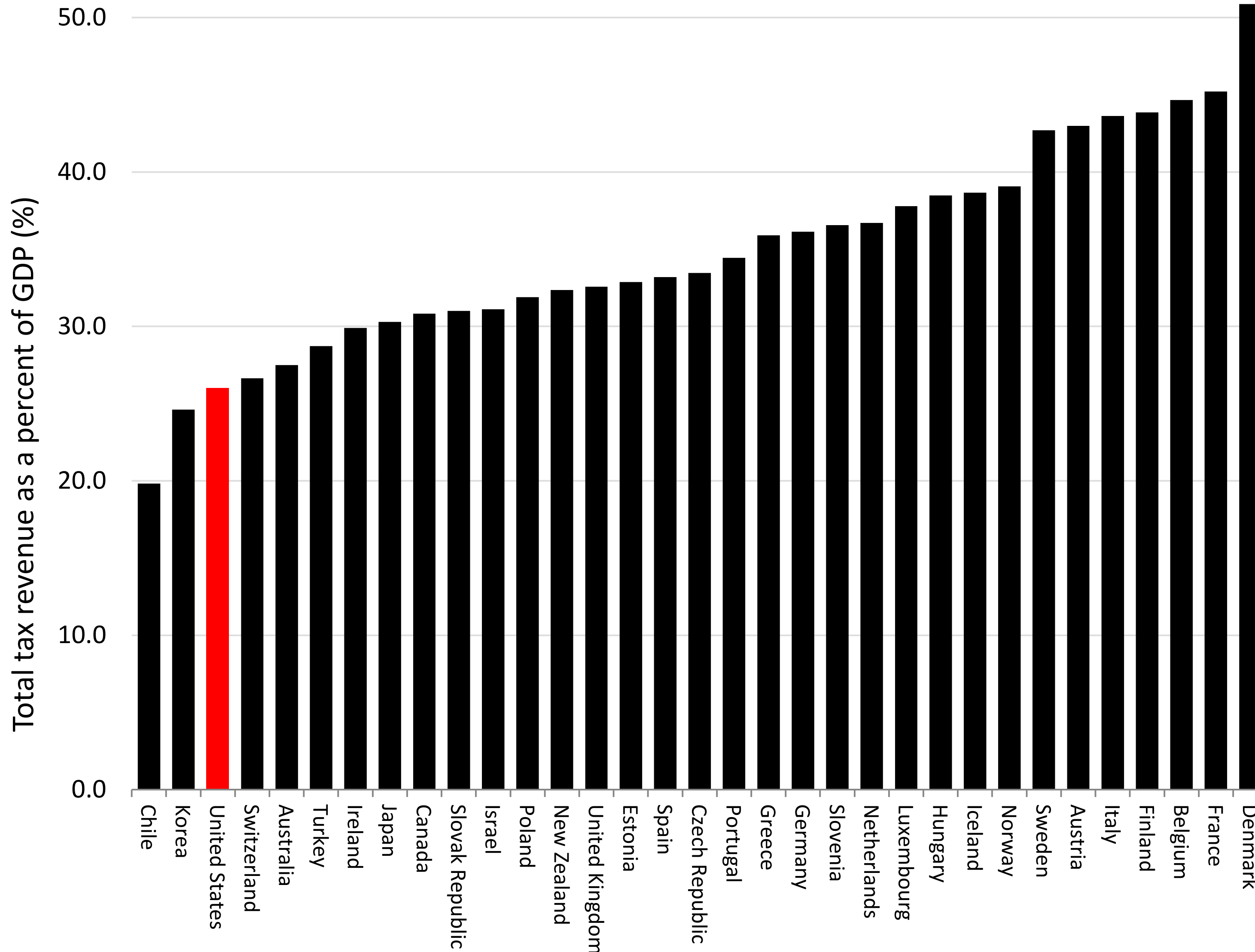

While the U.S. has the highest corporate tax rate, the U.S. has one of the lowest total tax burdens among developed economies.

The U.S.'s comparatively low tax burden allows flexibility in solving its long-term entitlement spending problem.

Source: OECD, Revenue Statistics, 2015 Edition. 2014 data for all countries except 2013 data for Australia, Japan, Netherlands and Poland. Does not include non-OECD countries such as China, Brazil, India and Russia. Includes all forms of taxes: federal, state and local; income taxes, sales taxes, VAT taxes, estate taxes, property taxes, etc.

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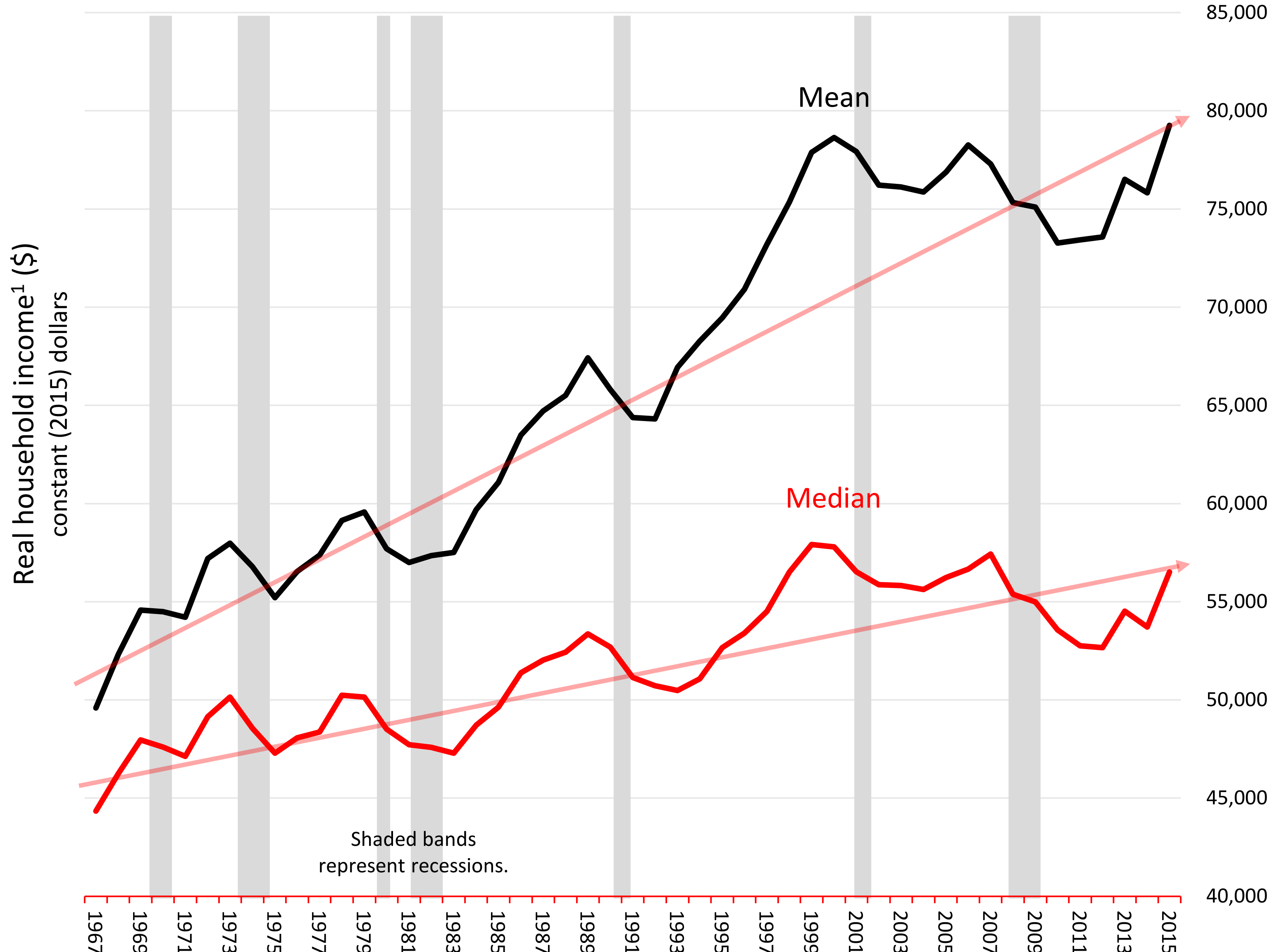
Distribution of:

- ➢ income
- ➢ spending
- ➢ taxes
- ➢ transfer payments (income redistribution)
- ➢ Gini index

Middle class income stagnation?

Median and mean household income



Recovery in household mean and median money income.

Were the two asset bubbles of the last two decades responsible for pushing income ahead at an unsustainable pace?

NOTE: These measures based on money income don't account for income re-distribution inherent in the tax code, food stamps, Medicare, Medicaid, public housing, etc.

Source: U.S. Census Bureau. Income and Poverty in the United States: 2015, issued September 2016. Data through 2015.

[1] The Census Bureau's income estimates are based solely on money income before taxes and do not include the value of non-cash benefits such as food stamps, Medicare, Medicaid, public housing and employer-provided fringe benefits.

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Rising income inequality?

Poverty rate – coming down

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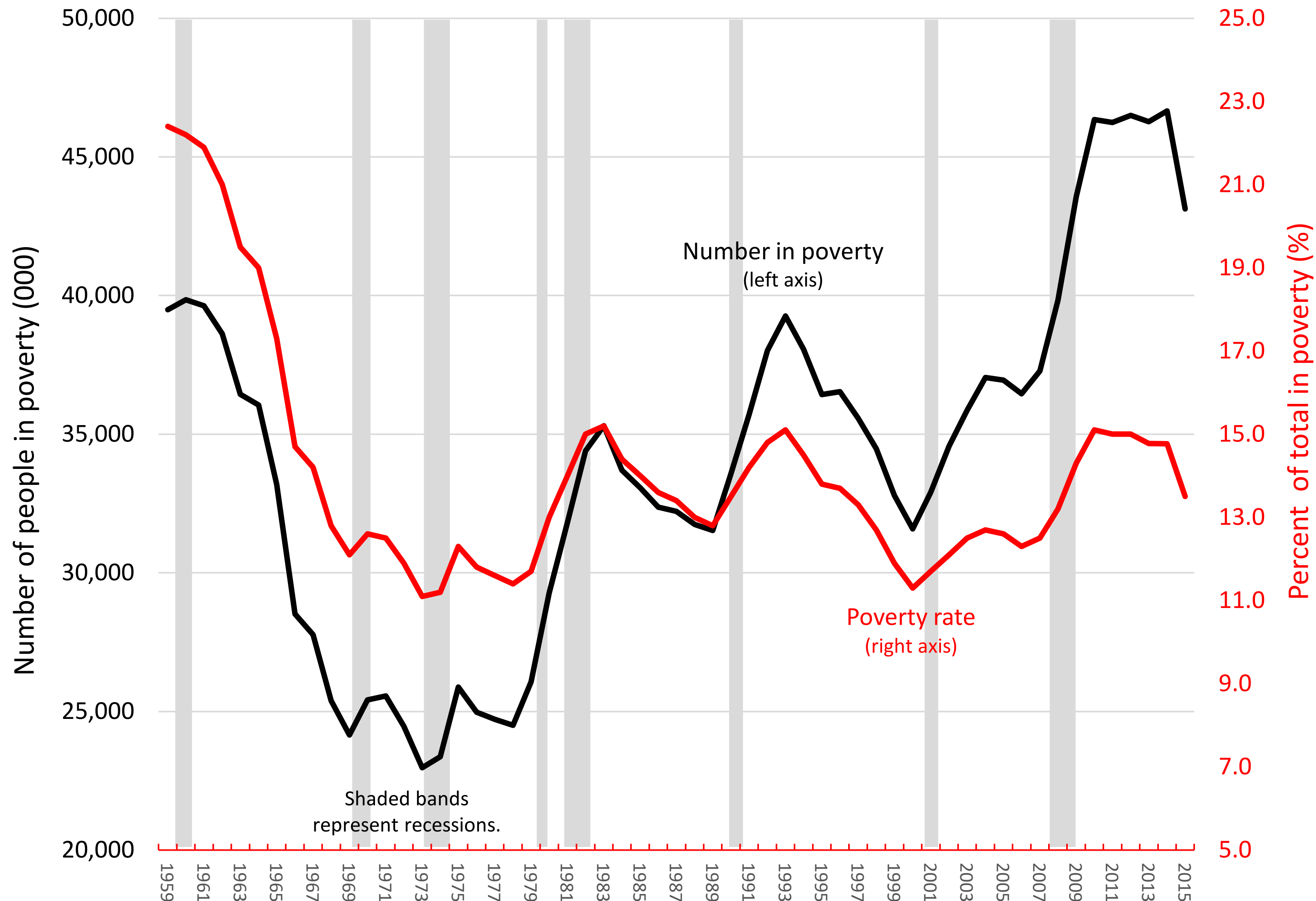


Recessions bring increased poverty.

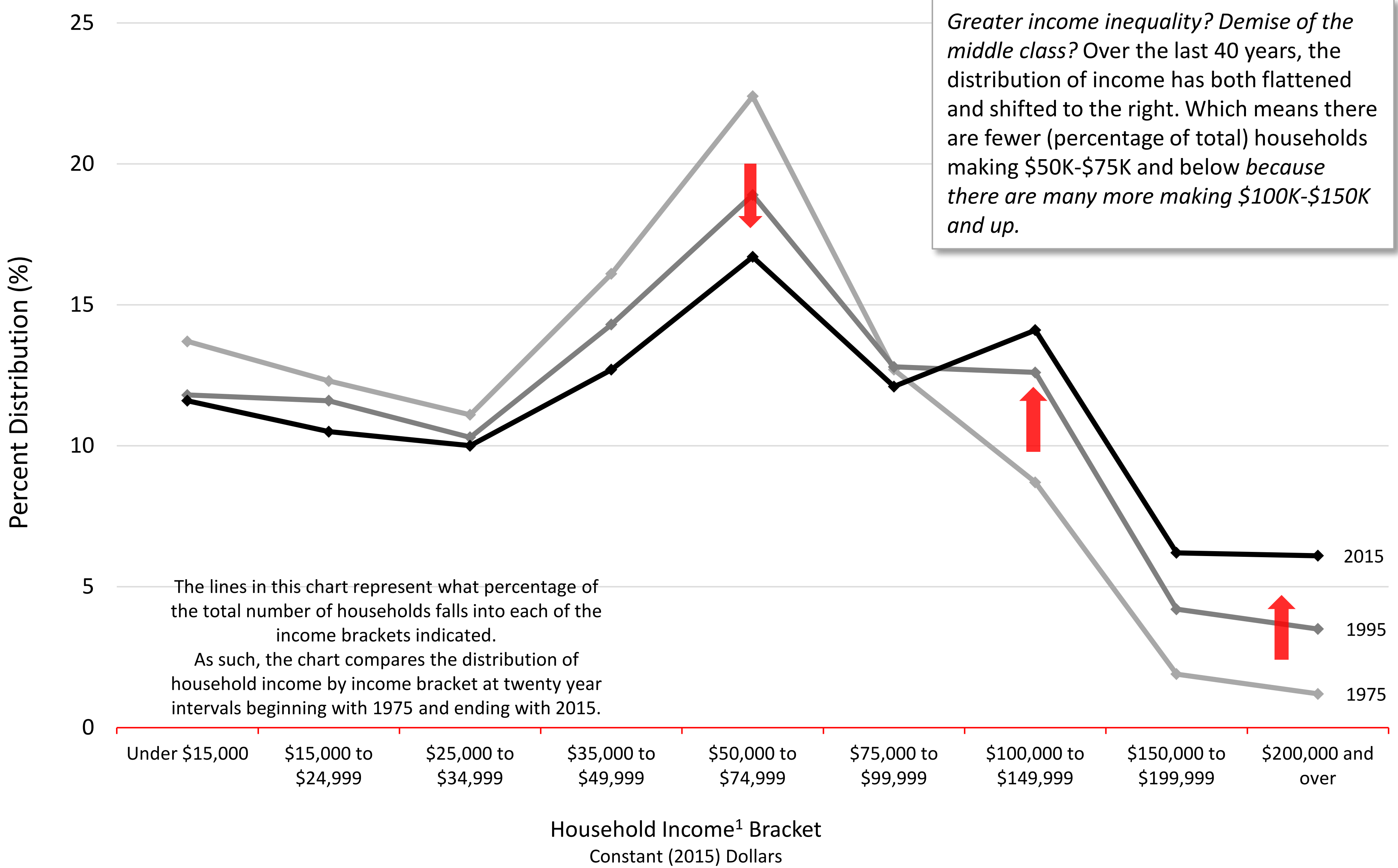
The poverty rate dropped in 2015.

Source: U.S. Census Bureau. Income and Poverty in the United States: 2015, issued September 2016.

[1] The Census Bureau's income estimates are based solely on money income before taxes and do not include the value of non-cash benefits such as food stamps, Medicare, Medicaid, public housing and employer-provided fringe benefits.

Rising income inequality?

Income distribution – behind the Gini index



Source: U.S. Census Bureau. Income and Poverty in the United States: 2015, issued September 2016.

[1] The Census Bureau's income estimates are based solely on money income before taxes and do not include the value of non-cash benefits such as food stamps, Medicare, Medicaid, public housing and employer-provided fringe benefits.

Income distribution – behind the Gini index

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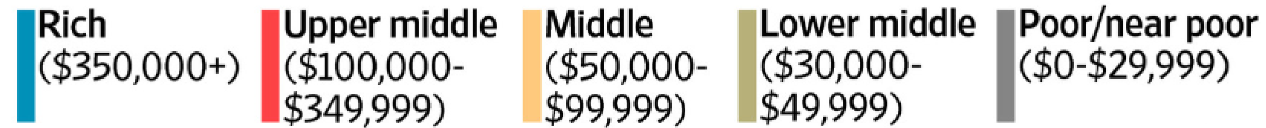
Share of the U.S. population in each income class
(Income for a family-of-three equivalent)



100%
75
50
25
0
1980
1990
2000
2010

12.9%
38.8%
23.9%
24.3%

2014:
1.79%
29.36%
32.01%
17.08%
19.76%

Note: Income threshold levels are adjusted for inflation
Source: Urban Institute

THE WALL STREET JOURNAL.

Source: *The Wall Street Journal,* June 22, 2016; Urban Institute, *The Growing Size and Incomes of the Upper Middle Class*, by Stephen J. Rose, June, 2016.

Modern Portfolio Theory = Asset Allocation

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Modern portfolio theory was introduced by Harry Markowitz with his paper "Portfolio Selection," which appeared in the 1952 *Journal of Finance*.

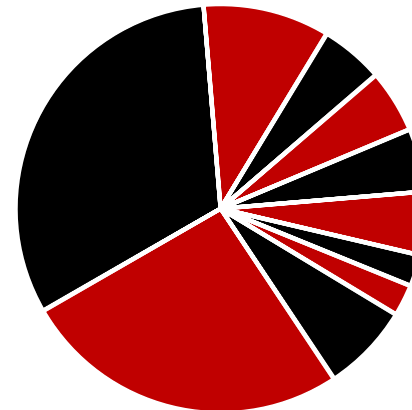
Thirty-eight years later, he shared a Nobel Prize with Merton Miller and William Sharpe for what has become a broad theory for portfolio selection.

Modern Portfolio Theory

Diversify

Optimize

Rebalance



Asset allocation and diversification do not guarantee a profit or eliminate the risk of loss.
Source: Riskglossary.com

Asset Allocation — An Example

Let's construct a global balanced portfolio using 7 asset classes …

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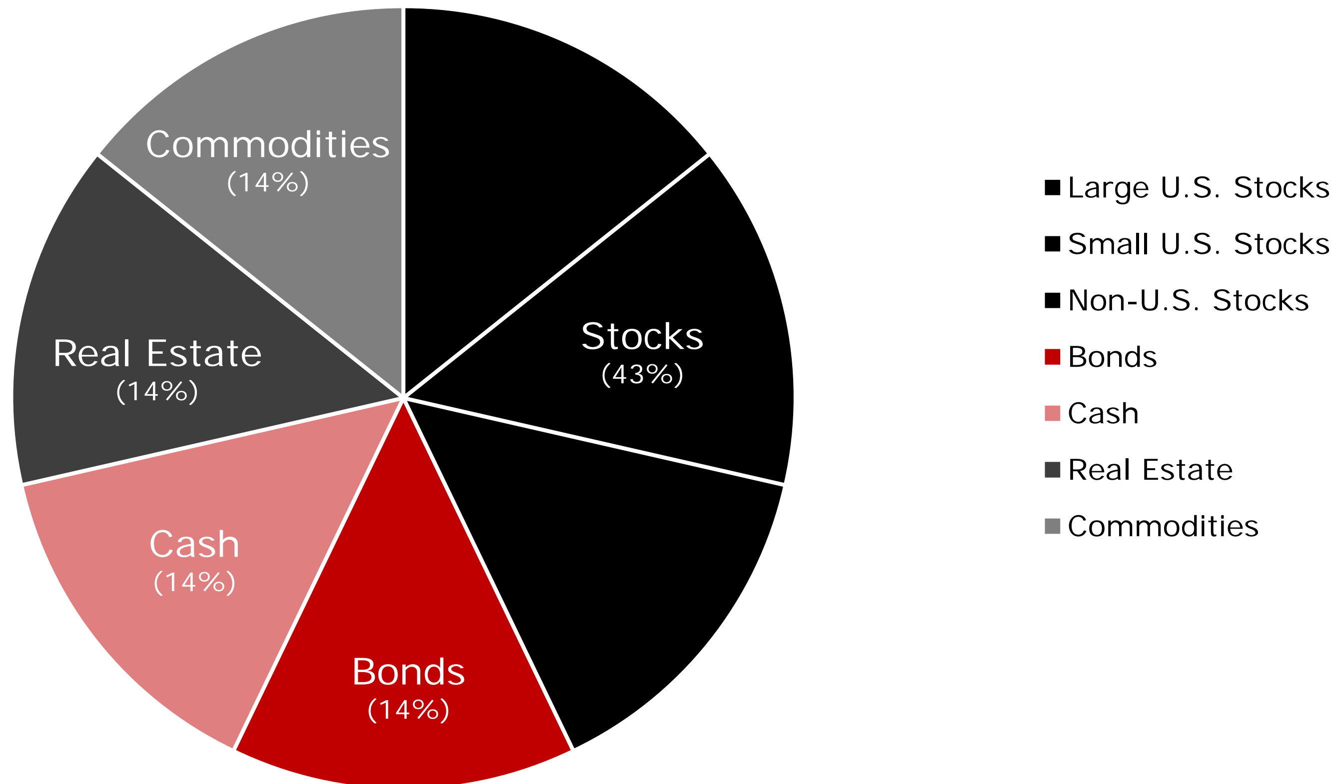

Source: ©2012 The 7Twelve ™ Portfolio powerpoint presentation, by Craig Israelsen. Used with permission. Indexes used in this illustration: Large-cap US equity represented by the S&P 500 Index. Small-cap US equity represented by the Ibbotson Small Companies Index from 1970-1978, and the Russell 2000 Index starting in 1979. Non-US equity represented by the MSCI EAFE Index. Real estate represented by the NAREIT Index from 1970-1977 and the Dow Jones US Select REIT Index starting in 1978.Commodities represented by the Goldman Sachs Commodities Index (GSCI). As of February 6, 2007, the GSCI became the S&P GSCI Commodity Index.U.S. Aggregate Bonds represented by the Ibbotson Intermediate Term Bond Index from 1970-75 and the Barclays Capital Aggregate Bond index starting in 1976. Cash represented by 3-month Treasury Bills.

Asset Allocation — An Example

Large US Equity
Small US Equity
Non-US Equity
Aggregate US Bonds
Cash
Real Estate
Commodities
Equally Weighted Diversified Portfolio

REITs CAGR[1] = +11.5%
S&P 500 CAGR[1] = +10.3%
Diversified Portfolio CAGR[1] = +9.8%

Index (1/1/70=100)
(logarithmic scale)

5000
500
50

1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

[1]Compound annual growth rate.

Past performance is not a guarantee of future results. An investment cannot be made directly in the indexes used in this illustration.
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Asset Allocation — MPT has delivered

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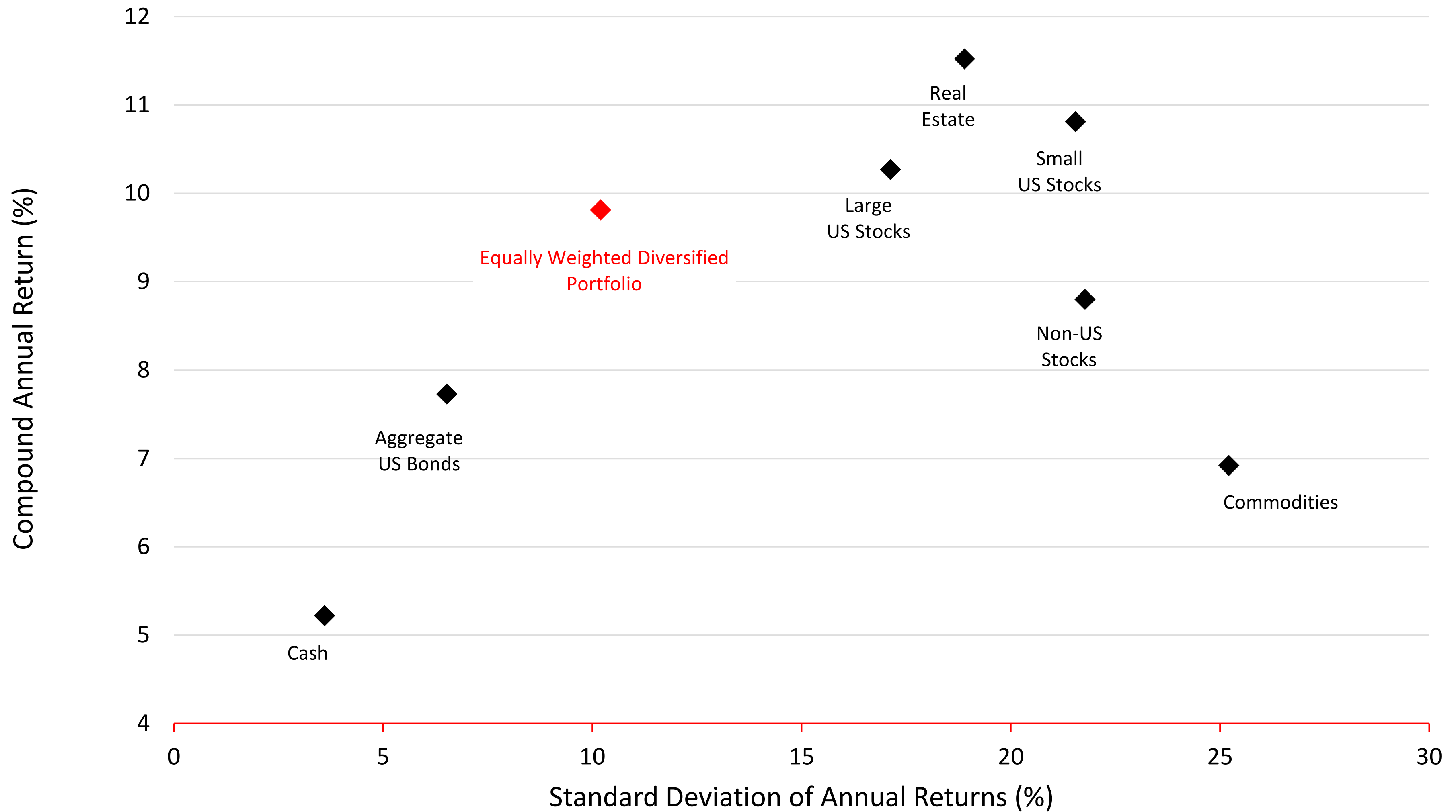

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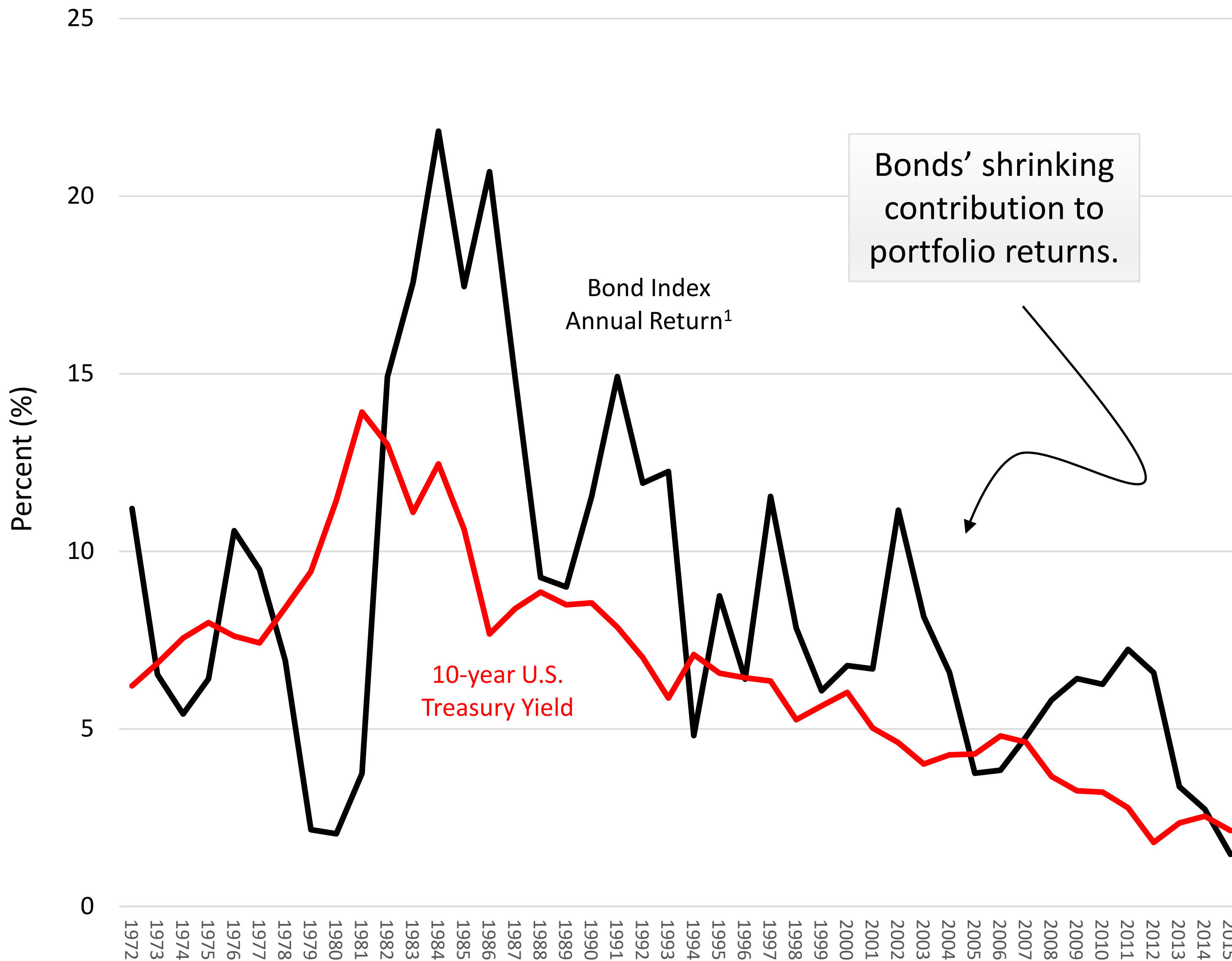
Declining bond returns



Fixed income returns can no longer boost portfolio total returns as they have over the last 40 years.

Expect very modest fixed income returns going forward.

3-year average annual return of just +1.5%

Source: Federal Reserve and ©2015 The 7Twelve ™ Portfolio powerpoint presentation, by Craig Israelsen. Used with permission.

[1] 3-year average annual return of the U.S. Aggregate Bond index represented by the Ibbotson Intermediate Term Bond Index from 1970-75 and the Barclays Capital Aggregate Bond index starting in 1976. Annual data through 2015.

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Pensions Brace for Lower Returns

By Timothy W. Martin

Public pension funds from California to New York are cutting investment-return predictions to their lowest levels since the 1980s, a shift that portends greater hardships for employees and cash-strapped governments as Americans age.

New upheavals in global markets and a sustained period of low interest rates are forcing officials who manage retirements for nearly 20 million U.S. beneficiaries to abandon a long-held belief that stocks, bonds and other holdings would earn 8% each year, as well as expectations that those gains would fund hundreds of billions of dollars in liabilities.

More than two-thirds of state retirement systems have trimmed assumptions since 2008 as the financial crisis and an uneven U.S. recovery knocked many below their long-term goals, according to an analysis of 126 plans provided by the National Association of State Retirement Administrators. The average target of 7.68% is the lowest since at least 1989. The peak was 8.1% in 2001.

Pension funds are trimming their total return assumptions.

my back of the envelope figures:

New portfolio arithmetic?

60/40 stocks/bonds
stocks: .6 X 8% = 4.8%
bonds: .4 X 1.5% = 0.6%
5.4%

average target of 7.68%

Source: *The Wall Street Journal*, September 5-6, 2015.

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The opinions expressed are those of the author, are based on current market conditions and are subject to change without notice.

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