



Implications of Low Inflation Rates for Monetary Policy

Eric S. Rosengren
President & CEO
Federal Reserve Bank of Boston

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Major Central Banks Missing Their Inflation Targets

- ▶ Inflation rate is too low rather than too high
 - ▶ U.S. economy has been improving
 - ▶ FOMC stopped the asset-purchase program in October
 - ▶ Significant improvement in labor markets
 - ▶ Persistently below the Fed's 2 percent inflation target since the financial crisis
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Why is Too Low Inflation a Problem?

- ▶ Low inflation risks actual deflation if the economy experiences a negative shock
 - ▶ Deflation: Falling aggregate prices
 - ▷ Households and firms postpone expenditures
 - ▷ Debtors – real value of loan payment rises over time
 - ▶ Associated with slow economic growth
 - ▶ Japan experienced an extended period of slow growth while it experienced mild deflation
 - ▶ Some have concerns that Europe could potentially experience mild deflation
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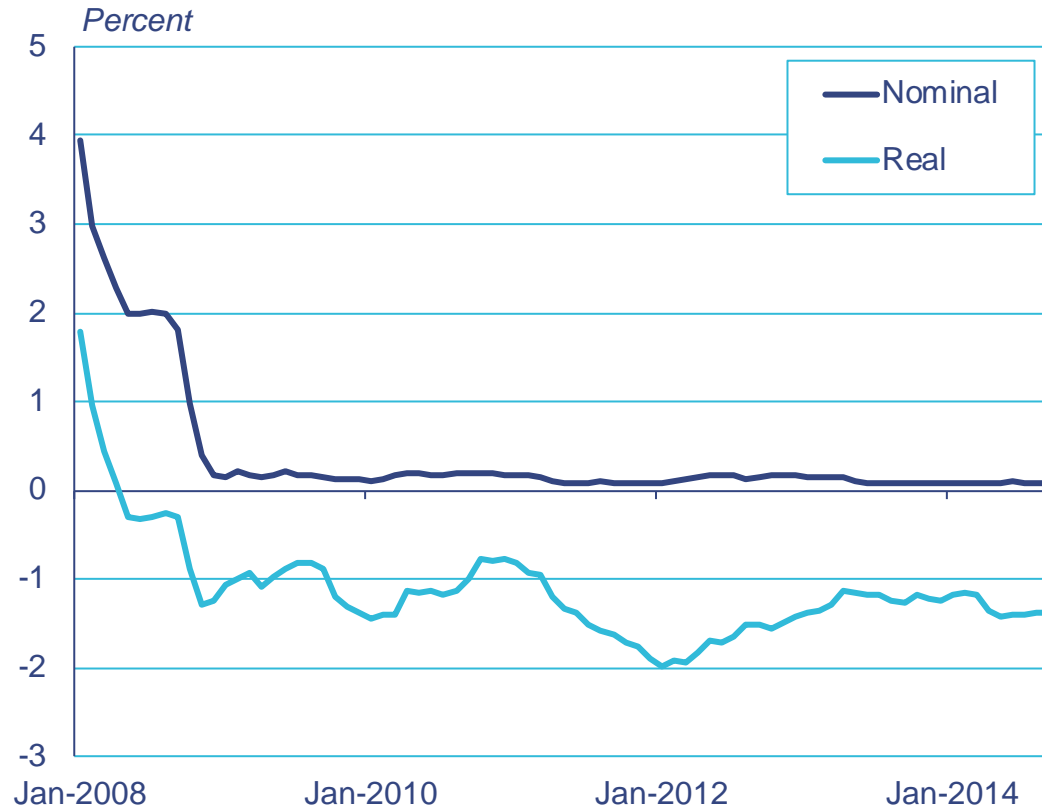
Why are Very Low Real Interest Rates a Problem?

- ▶ Economy with significant slack may require low real interest rates
 - ▶ Low nominal rates and low inflation rates make it difficult for monetary policy to offset negative shocks
 - ▶ Particularly a problem when short-term nominal interest rates are at the zero lower bound – as we have experienced since 2008
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Figure 1: Nominal and Real Federal Funds Effective Rate

January 2008 - September 2014



Note: The real federal funds effective rate is calculated by subtracting the core PCE inflation rate from the nominal federal funds effective rate.

Source: BEA, Federal Reserve Board, Haver Analytics



Labor Market Adjustments Can Be More Difficult With Low Inflation

- ▶ Workers and firms resist decreasing nominal wages – “downward nominal wage rigidity”
 - ▶ In recessions, when demand for workers falls, real wages tend to fall
 - ▶ At low inflation rates it is difficult for real wages to fall
 - ▶ Makes labor market recovery more protracted and painful
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Central Bank Credibility

- ▶ Confidence that a central bank can achieve its goals helps to keep expectations well anchored
 - ▶ Persistent undershooting of the inflation goal could cause expectations to drift down
 - ▶ Makes it more difficult to achieve inflation target
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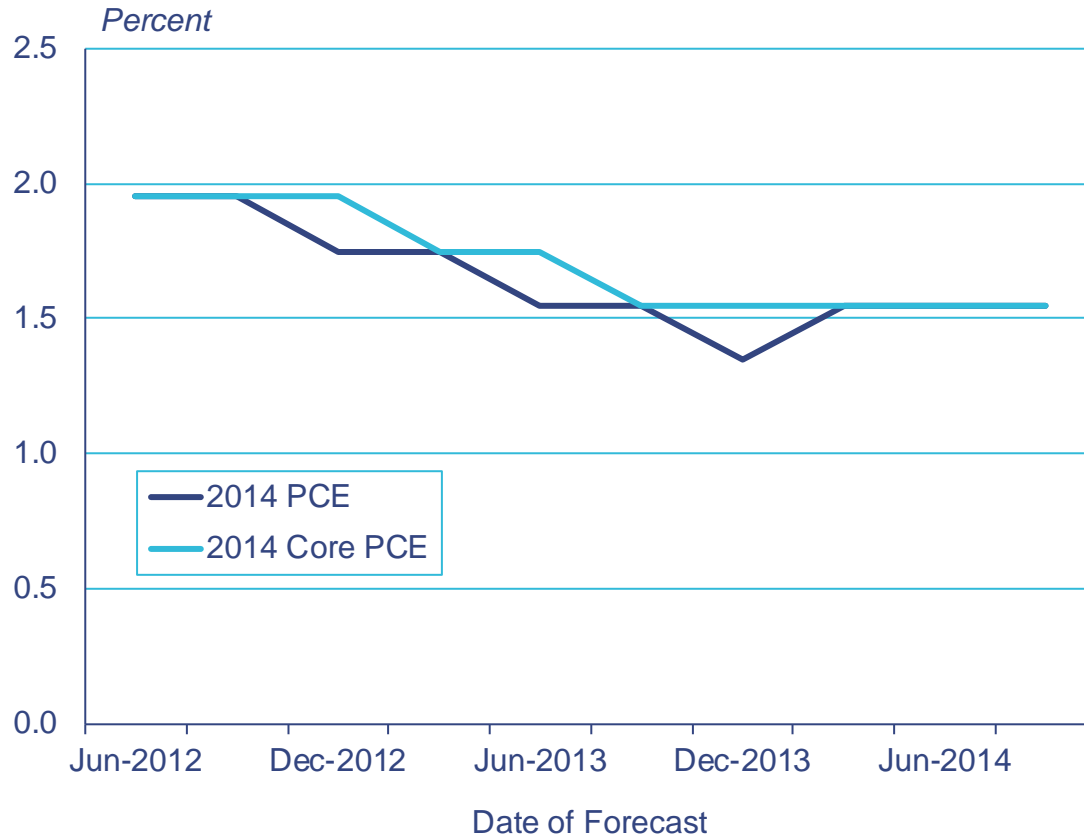


Importance of a Symmetric Inflation Target

- ▶ Persistently higher or lower inflation requires a monetary policy response
 - ▶ Total and core inflation have been below target
 - ▶ Falling oil and other commodity prices are likely to postpone return to target
 - ▶ Reason for monetary policymakers to be patient in removing accommodation (lifting off from the zero lower bound)
 - ▶ Such patience provides the opportunity to better determine how much labor market slack remains
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Figure 2: Median Inflation Forecasts for 2014 of Federal Reserve Board Members and Federal Reserve Bank Presidents

June 2012 - September 2014

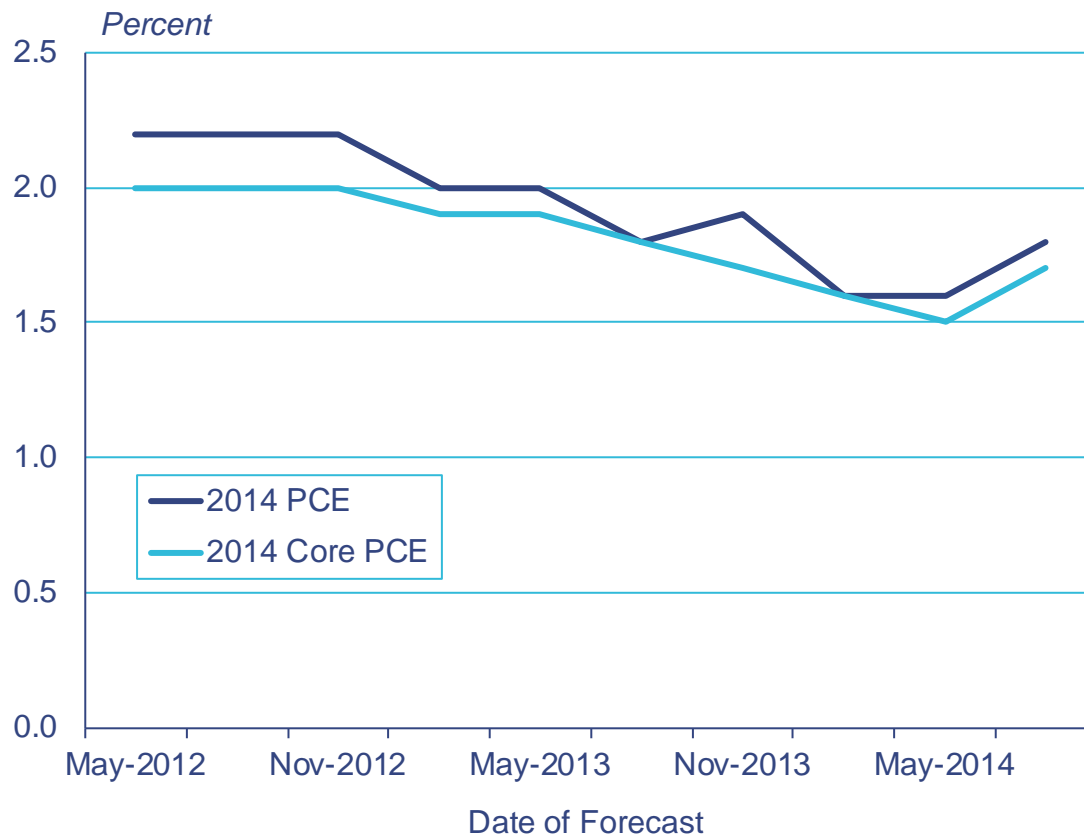


Note: Forecasts for both measures of inflation are for the percent change from the fourth quarter of 2013 to the fourth quarter of 2014.

Source: FOMC, Summary of Economic Projections (SEP), Minutes of FOMC Meetings



Figure 3: Median Inflation Forecasts for 2014 from the Survey of Professional Forecasters May 2012 - August 2014



Note: Forecasts for both measures of inflation are for the percent change from the fourth quarter of 2013 to the fourth quarter of 2014.

Source: Federal Reserve Bank of Philadelphia



Figure 4: Measures of Labor Market Slack

January 1994 - October 2014

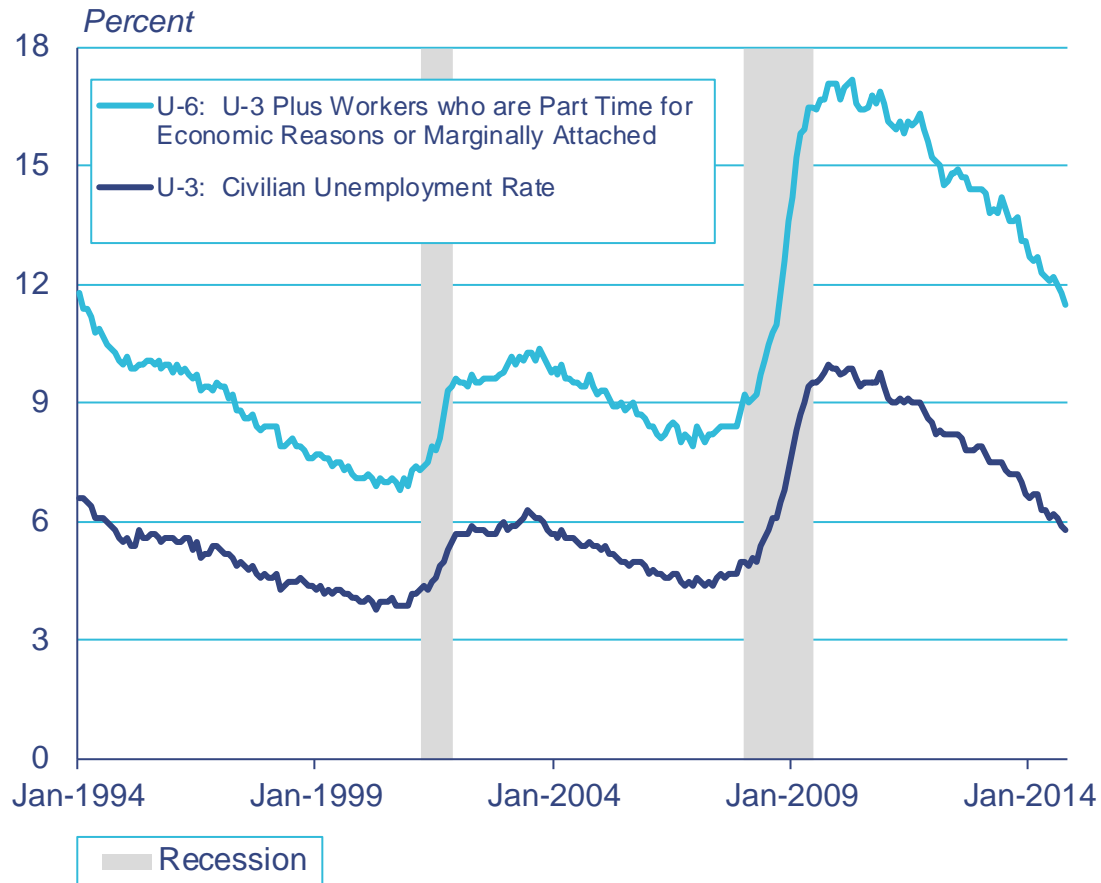
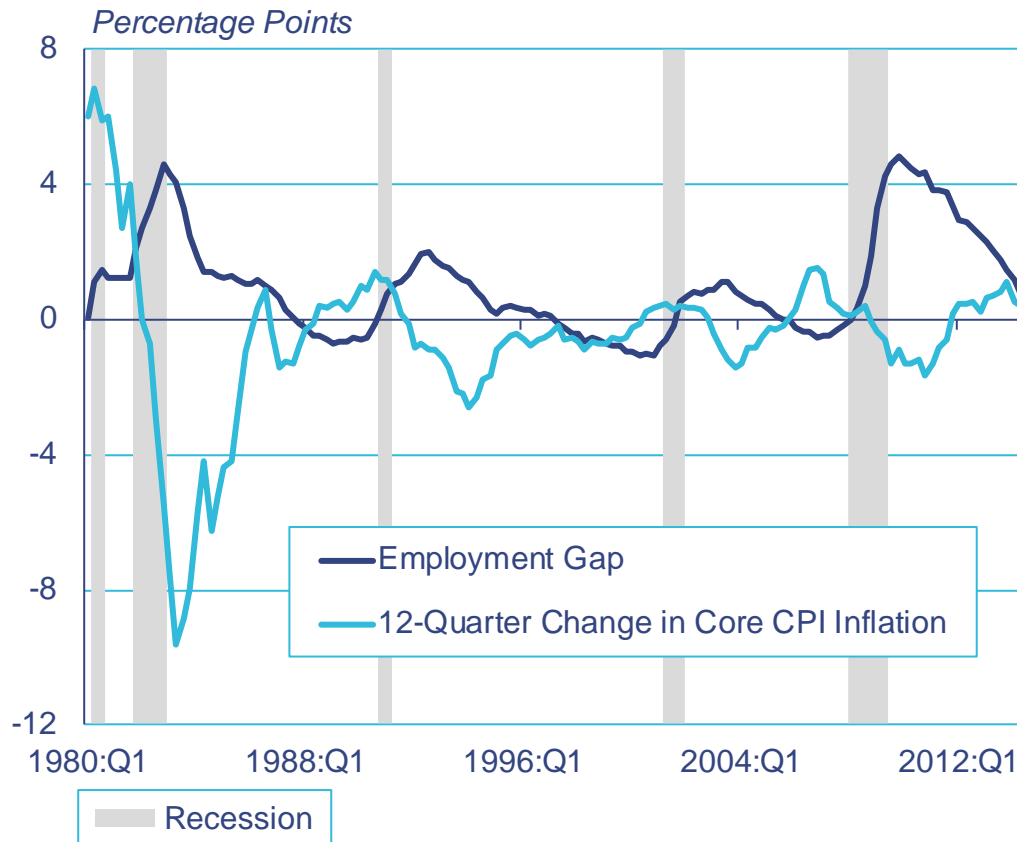




Figure 5: Employment Gap and Inflation 1980:Q1 - 2014:Q3



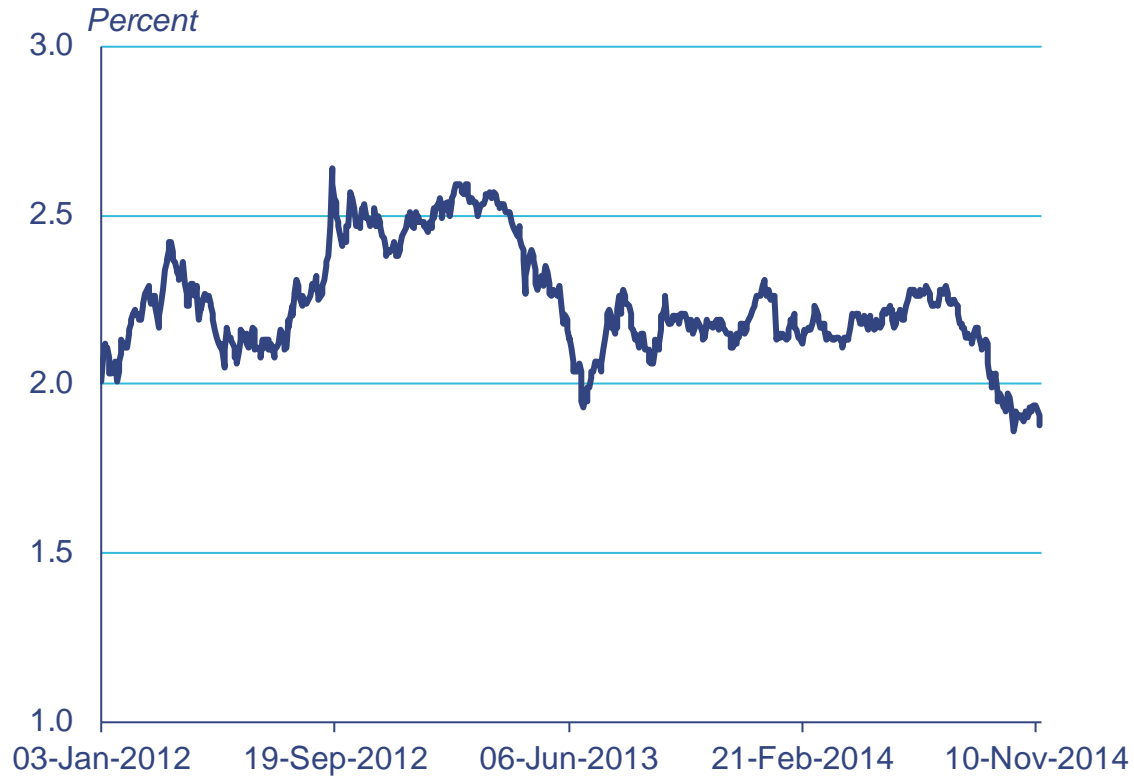
Note: The employment gap is the difference between the unemployment rate and the CBO estimate of the natural rate of unemployment.

Source: BLS, CBO, NBER, Haver Analytics



Figure 6: Ten-Year Treasury Yield Minus Ten-Year Inflation-Indexed Treasury Yield

January 3, 2012 - November 13, 2014



Note: Yields at Constant Maturity

Source: Federal Reserve Board, Haver Analytics



Figure 7: Inflation Expectations January 2012 - October 2014

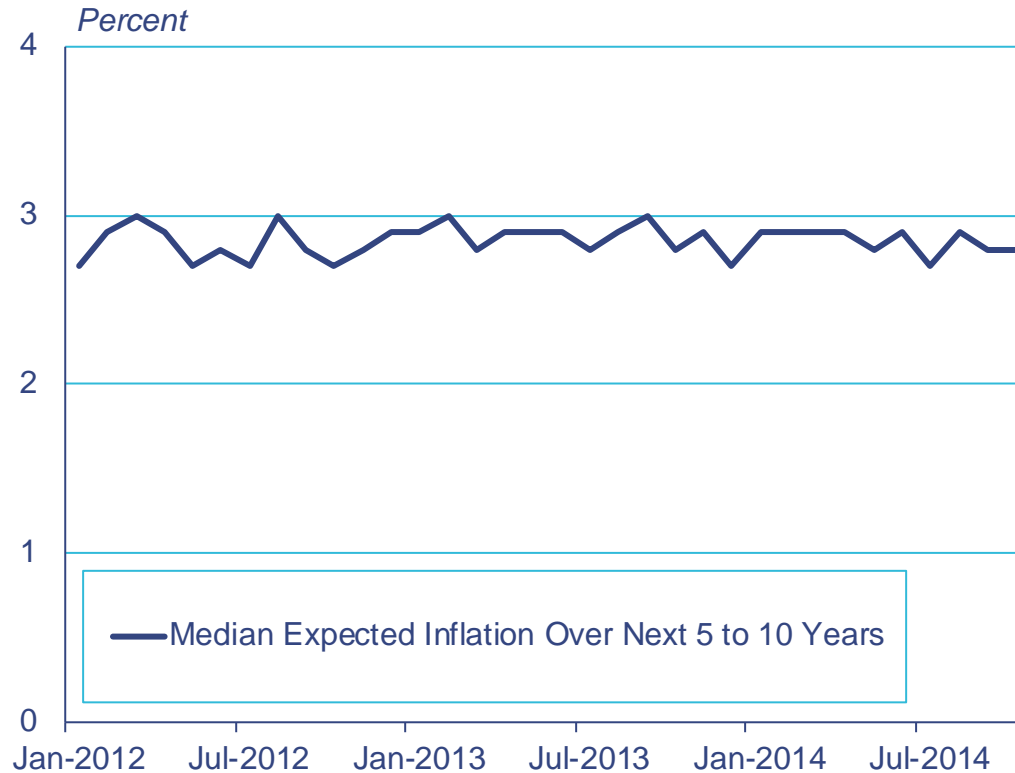




Figure 8: Spot Oil Price:
West Texas Intermediate Crude Oil
January 3, 2012 - November 13, 2014

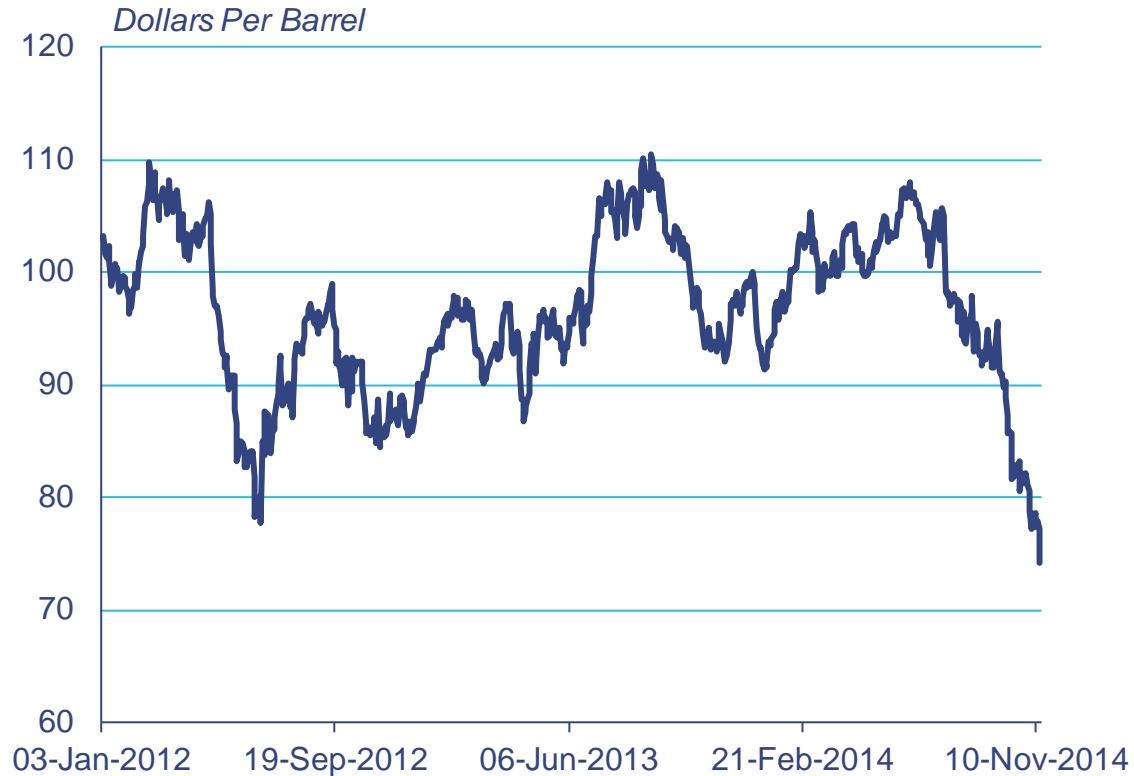




Figure 9: U.S. Field Production of Crude Oil
January 2000 - August 2014

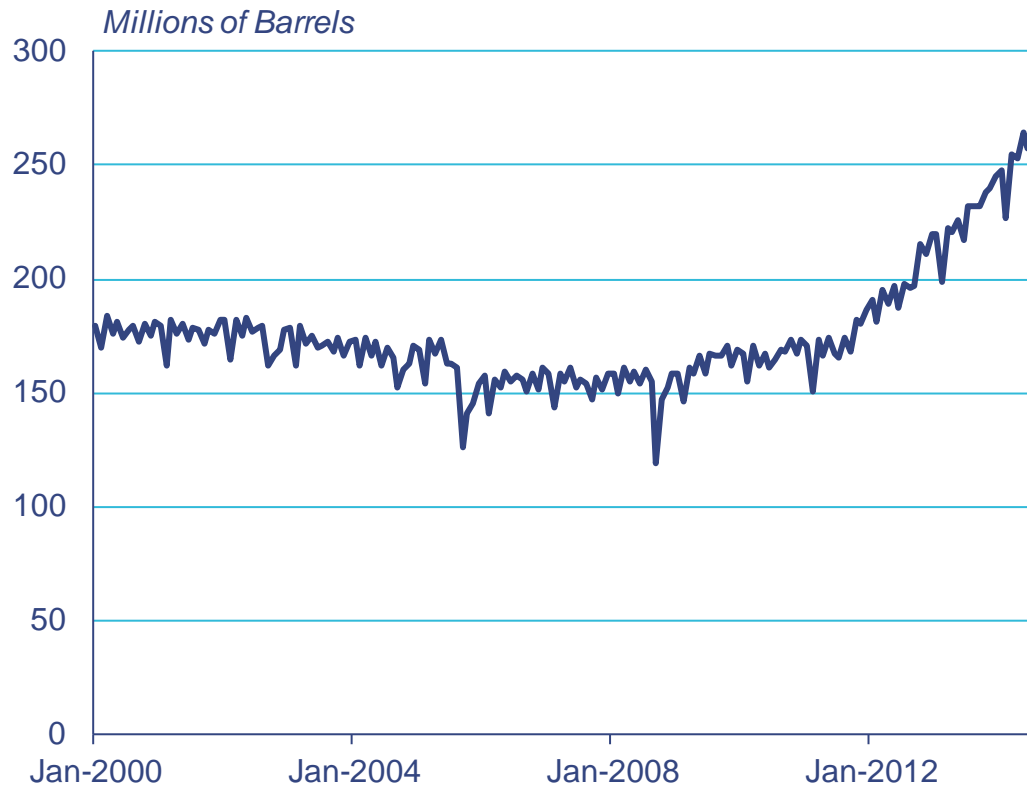




Figure 10: S&P Goldman Sachs Commodity Price Indices (January 2012 = 100)

January 2012 - October 2014

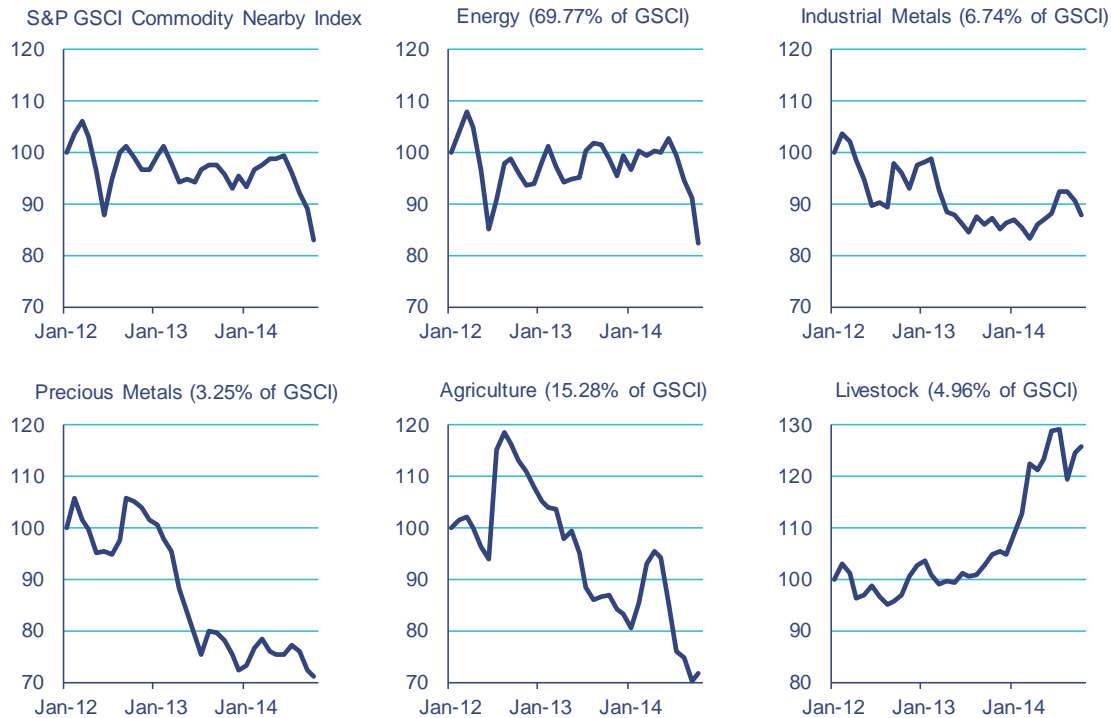


Figure 11: JP Morgan Nominal Broad Trade-Weighted Effective Exchange Rate Index for the U.S. Dollar

January 3, 2012 - November 13, 2014

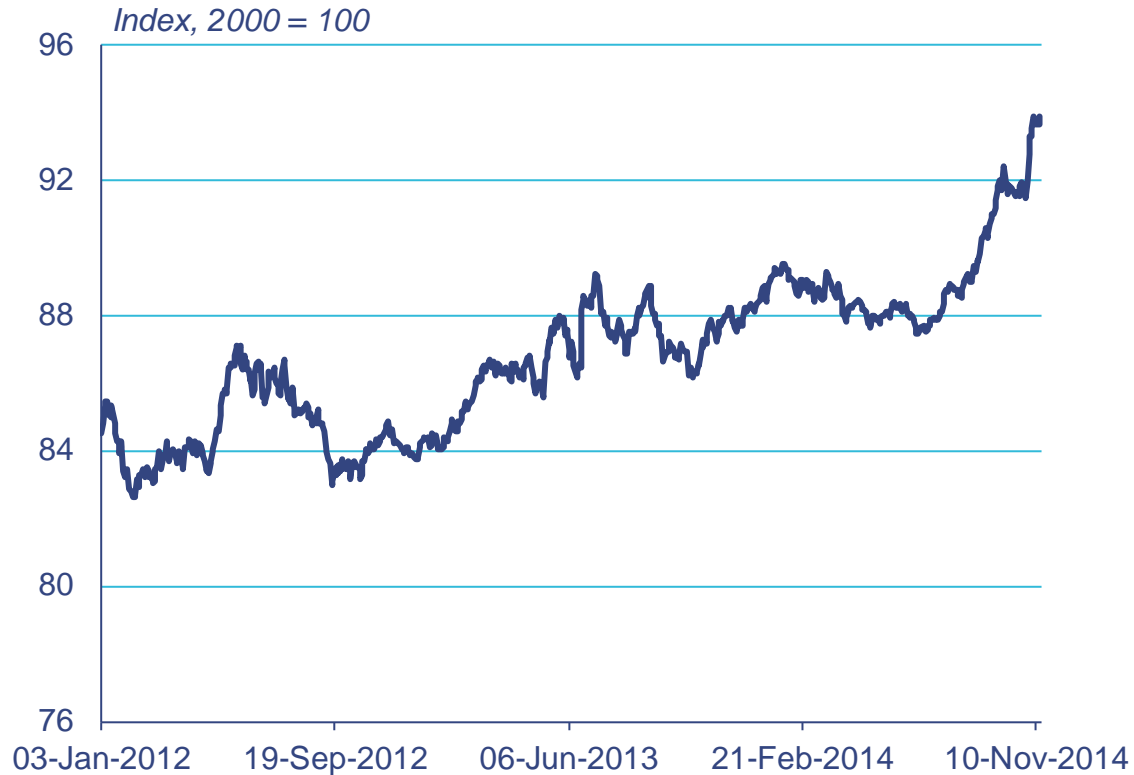


Figure 12: Employment Cost Index for Total Compensation for Private Industry Workers by Occupational Group

2003:Q1 - 2014:Q3

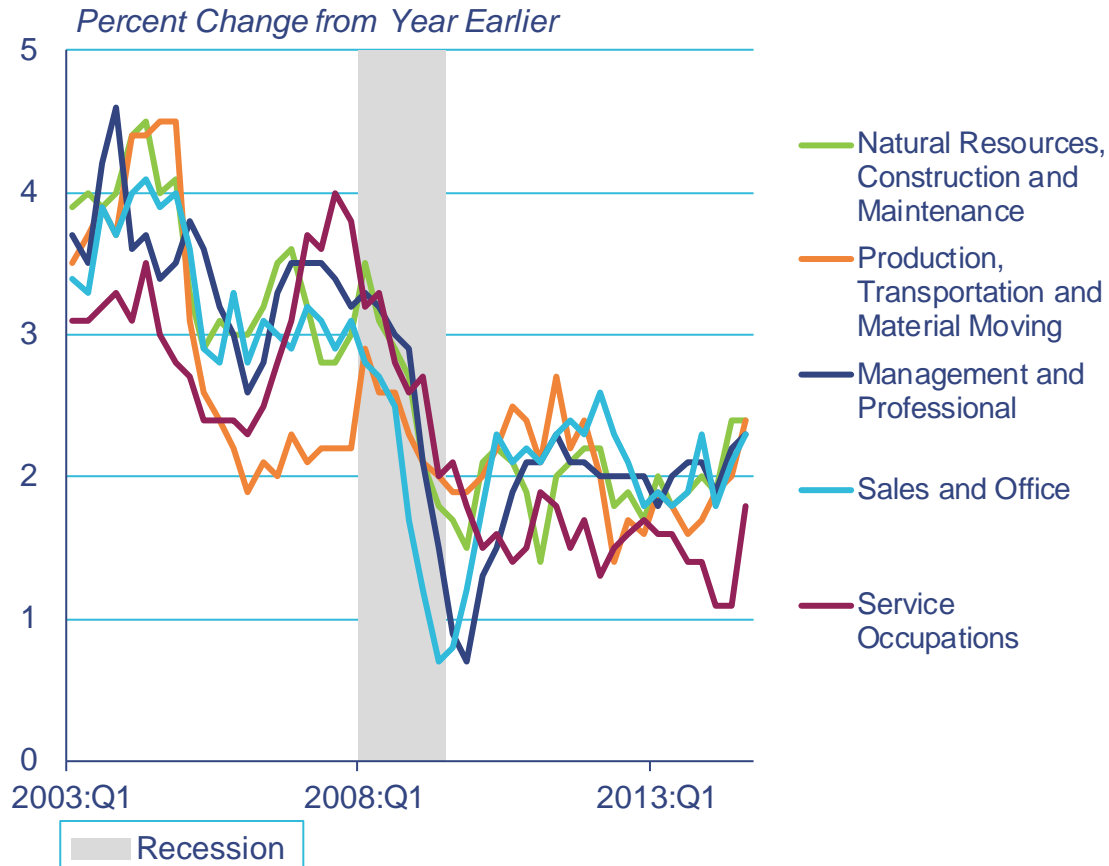


Figure 13: Employment Cost Index for Total Compensation for Private Industry Workers by Census Region

2003:Q1 - 2014:Q3

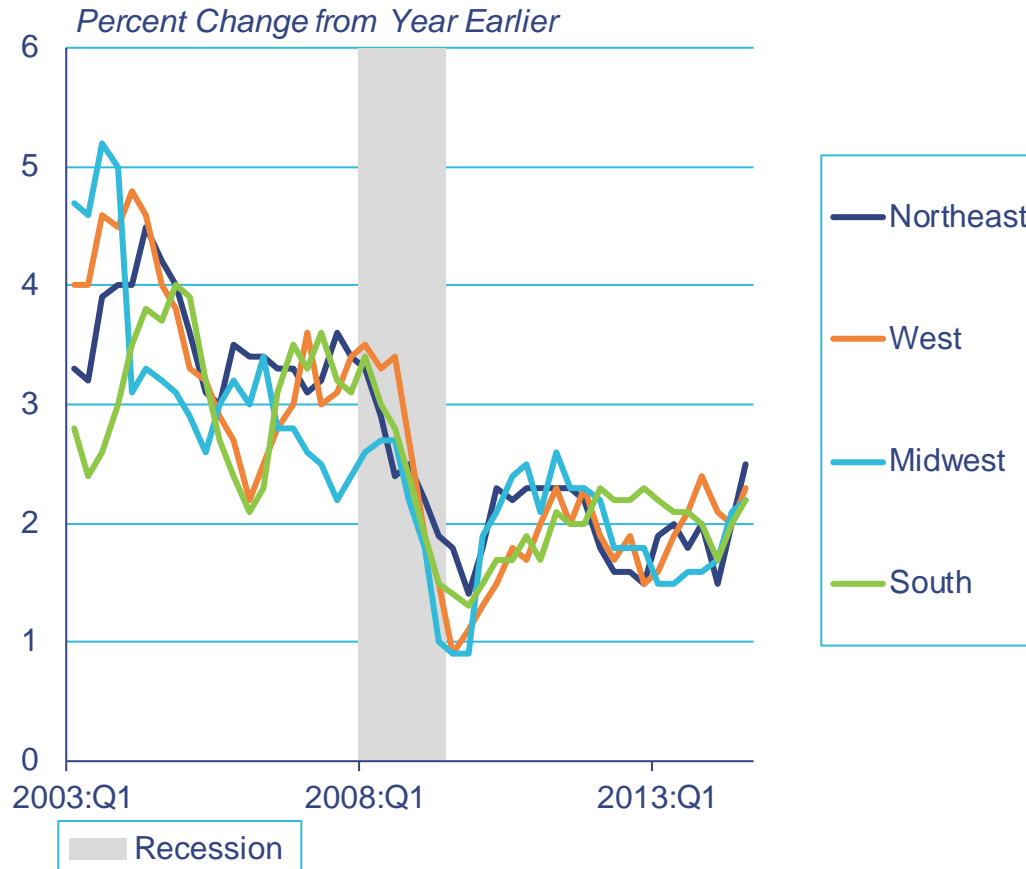
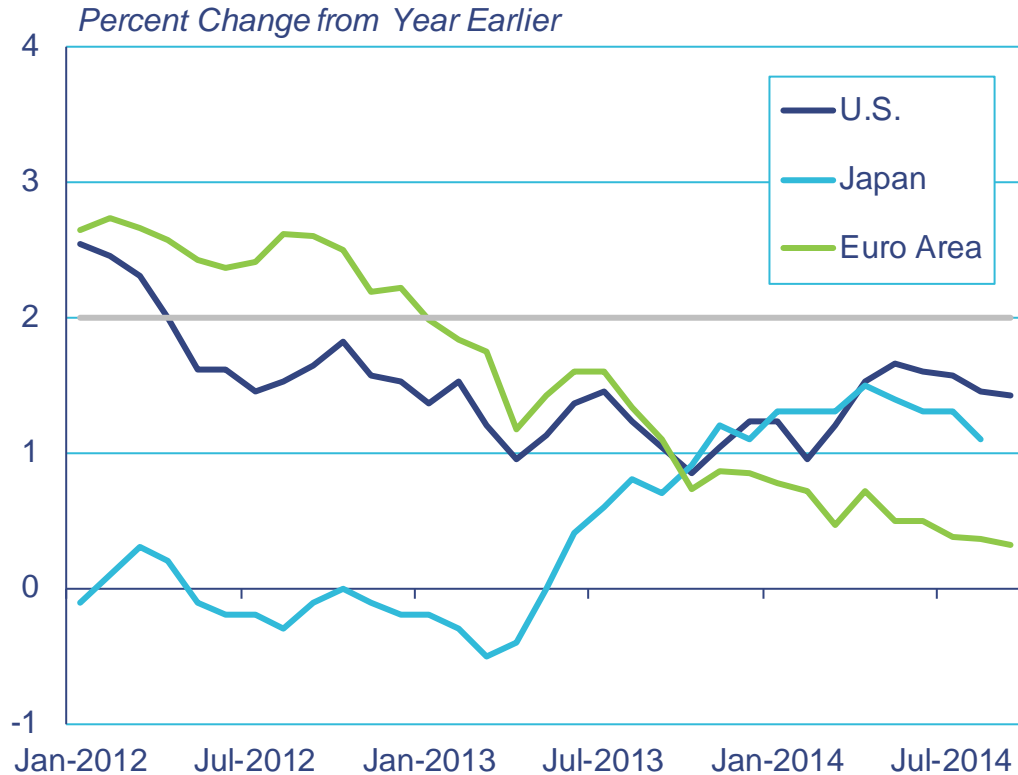




Figure 14: Measures of Inflation Targeted by Central Banks

January 2012 - September 2014



Note: The U.S. series is the PCE. The Euro Area series is the Harmonized Index of Consumer Prices. Japan's series is the CPI, All Items less Fresh Food, and adjusted for Japan's April 2014 consumption tax increase.

Source: BEA, Eurostat, Japan's Ministry of Internal Affairs and Communications, Bank of Japan, Haver Analytics

Figure 15: Overnight/Policy Rates for the Euro Area, Japan, and the U.S.

January 3, 2012 - November 13, 2014

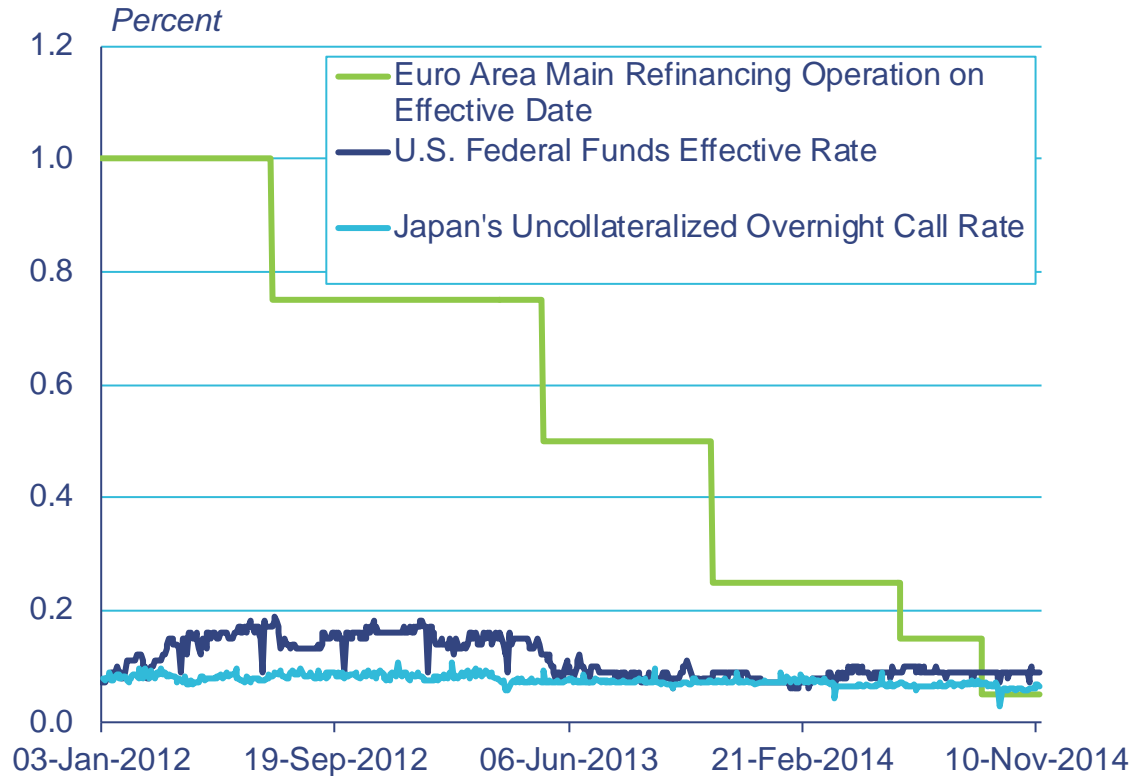
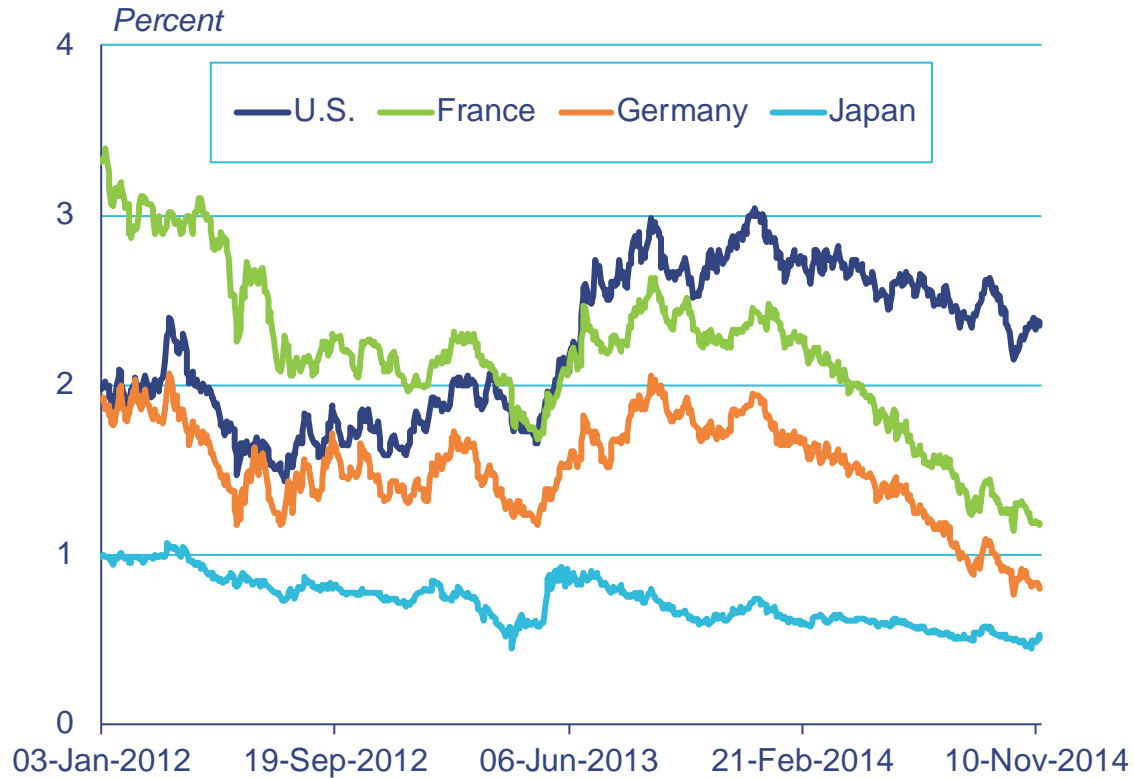




Figure 16: Ten-Year Government Bond Yields
January 3, 2012 - November 13, 2014





Concluding Observations

- ▶ Central banks around the world have persistently missed their stated inflation targets
 - ▶ Experiences in Japan and Europe increasingly indicate that it can be costly to be complacent when inflation gets too low
 - ▶ It is important for the Federal Reserve to achieve the 2 percent target it has set for itself
 - ▶ Until there is stronger evidence that inflation *will* return to 2 percent, monetary policymakers should remain patient about removing accommodation
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