

Monetary Policymaking in Today's Environment: Finding "Policy Space" in a Low-Rate World

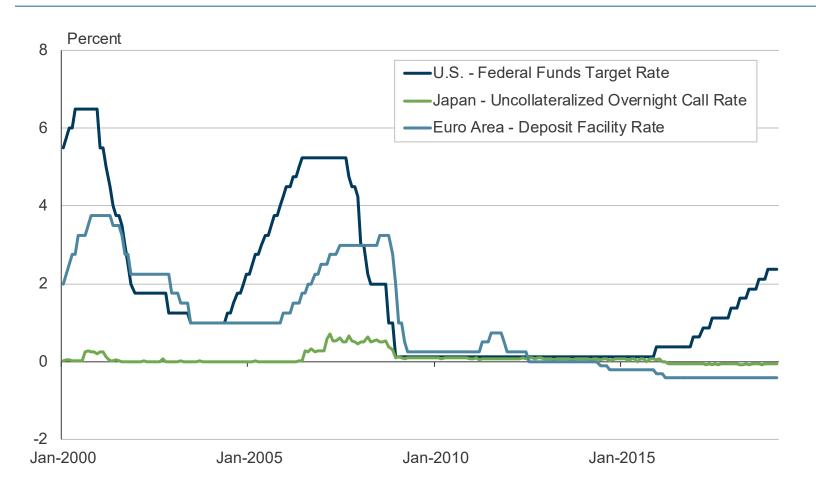
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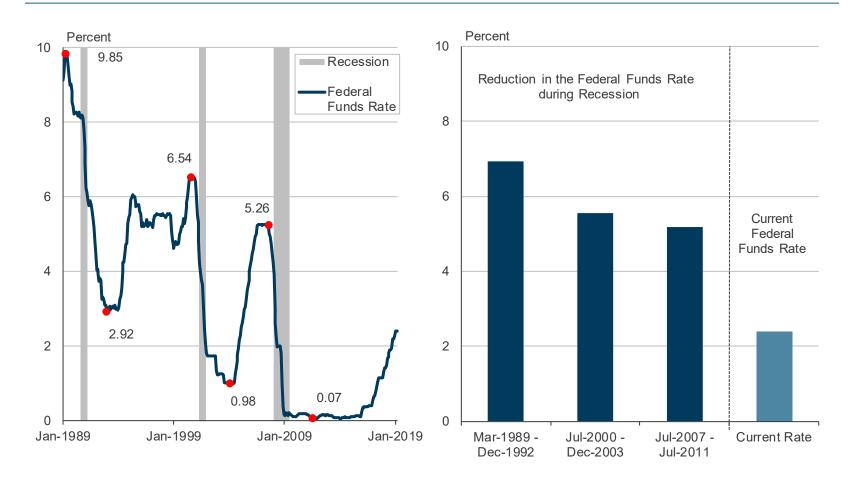
Figure 1: Overnight/Policy Rates for the Euro Area, Japan, and the U.S. January 2000 - March 2019



Note: Rates are as of end of period. U.S. target rate is the midpoint of the target range, beginning in 2008. Source: Bank of Japan, European Central Bank, Federal Reserve Board, Haver Analytics

Figure 2: Change in the Federal Funds Rate from Rate Peak to Rate Trough during the Last 3 Recessions

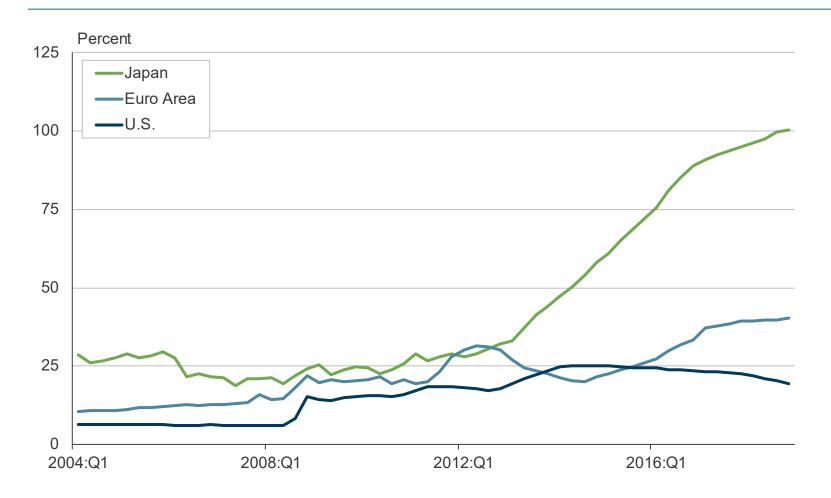
January 1989 - March 2019



Source: Federal Reserve Board, NBER, Haver Analytics

Figure 3: Central Bank Assets Relative to GDP

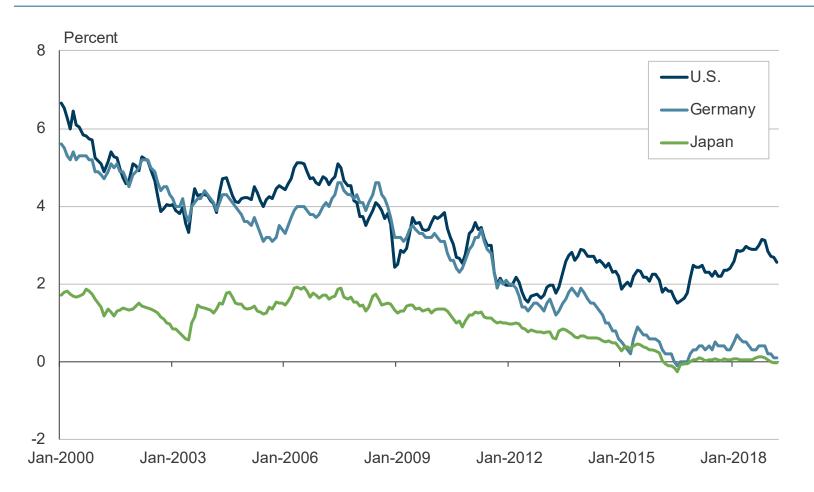
2004:Q1 - 2018:Q4



Source: Bank of Japan, Cabinet Office of Japan; European Central Bank, Eurostat; Federal Reserve Board, BEA; Haver Analytics

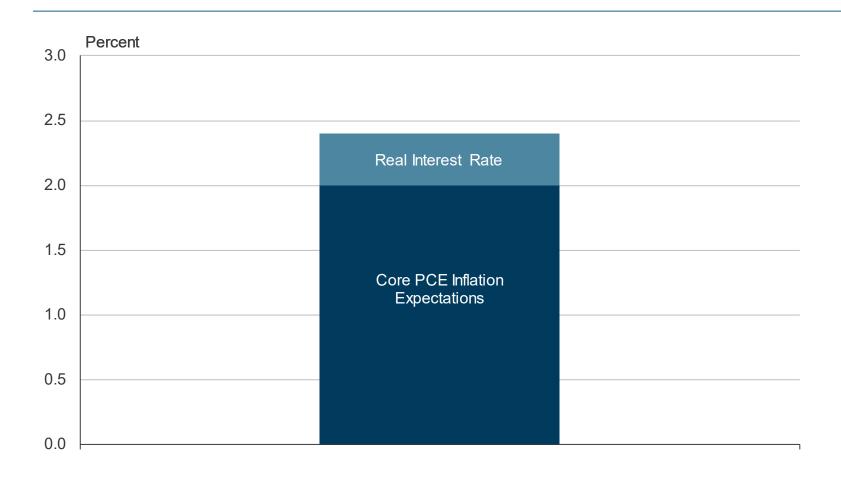
Figure 4: Ten-Year Government Bond Yields

January 2000 - March 2019



Source: Deutsche Bundesbank, Federal Reserve Board, Japan's Ministry of Finance, Haver Analytics

Figure 5: Components of Nominal Interest Rate

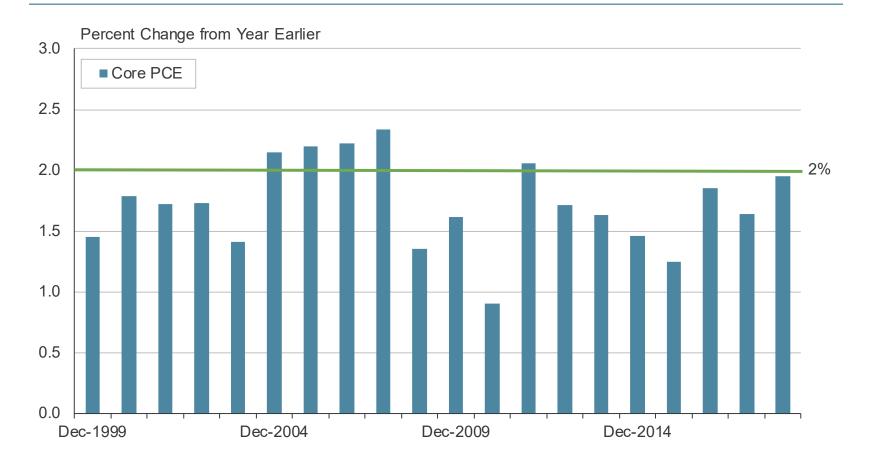


Note: Core PCE excludes food and energy. The proxy for Core PCE inflation expectations is the median forecast for core PCE inflation for 2019 measured on a fourth-quarter to fourth-quarter basis from the most recent Survey of Professional Forecasters.

Source: Federal Reserve Board; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters, March 22, 2019; Haver Analytics

Figure 6: Inflation Rate: Change in Core Personal Consumption Expenditures (PCE) Price Index

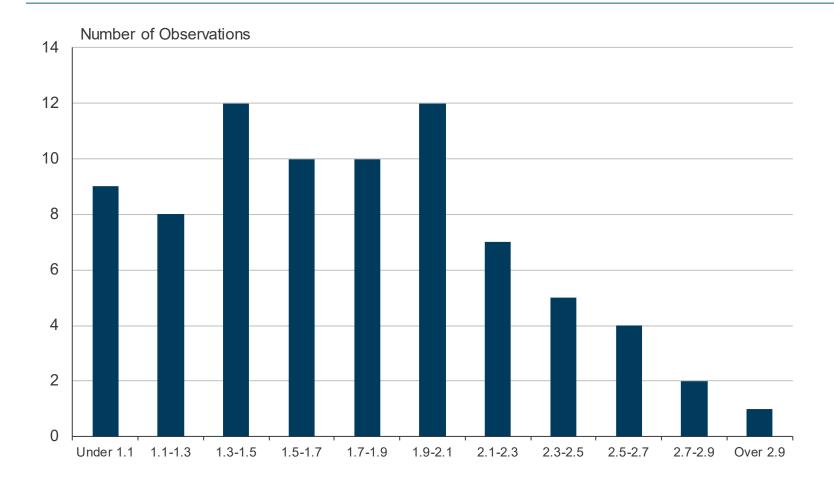
December 1999 - December 2018



Note: Core PCE excludes food and energy.

Figure 7: Distribution of Quarterly Percent Changes in Core Personal Consumption Expenditures (PCE) Price Index over 20 Years

1999:Q1 - 2018:Q4



Note: Core PCE excludes food and energy.

## Are We Reaching a Symmetric 2 Percent Inflation Target?

- Hard to argue that the target has been symmetric
  - Observations of inflation have tended to undershoot target
  - Would expect observations to be more symmetric around 2 percent
  - The 2 percent goal has acted more like a ceiling
- Provides a key reason to hold rates steady
- Symmetric 2 percent inflation target has been elusive over the past 20 years
- ► Should we alter the monetary policy framework to get more policy space?
  - If inflation expectations slip, we will have less policy space
  - Would a change in the framework improve the Fed's ability to reach its 2 percent goal?

Figure 8: Symmetric Inflation over the Business Cycle

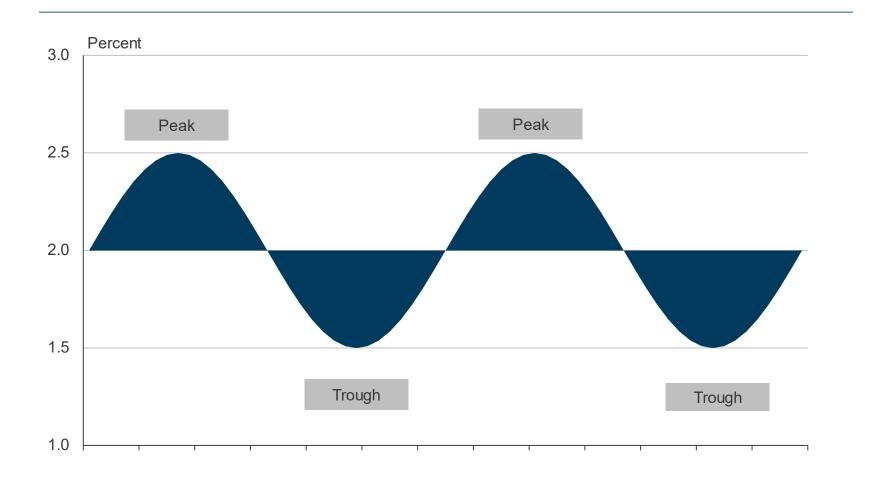
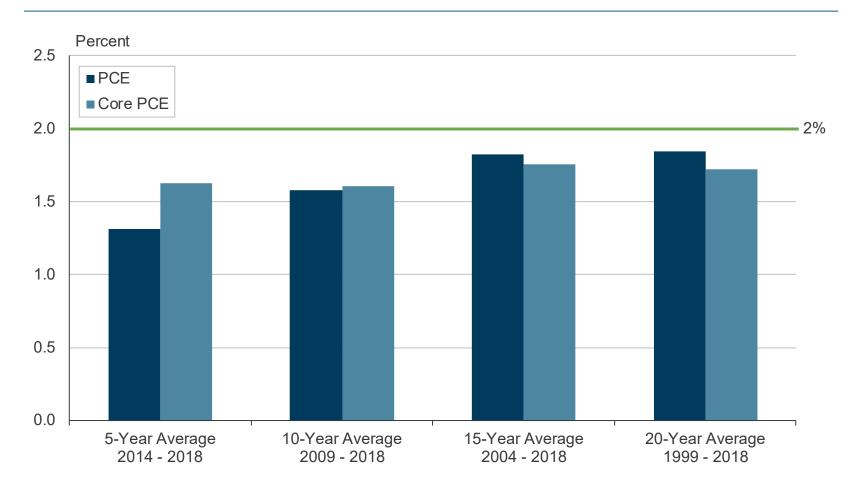


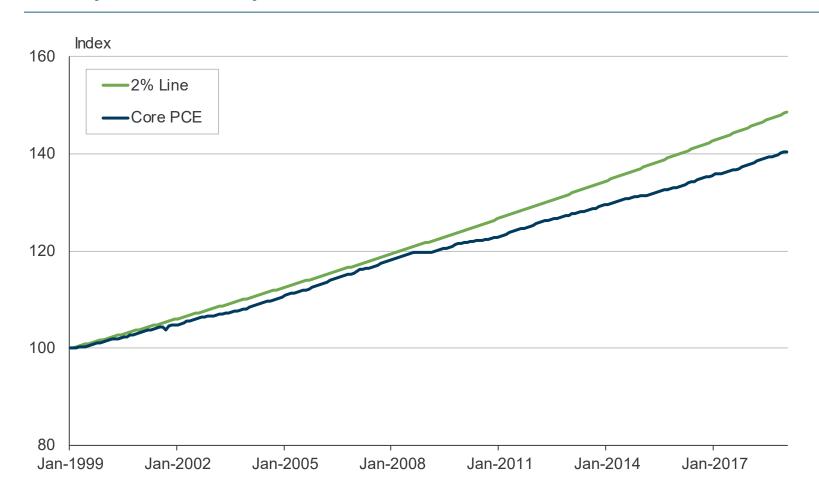
Figure 9: Average Inflation Rate: Change in Personal Consumption Expenditures (PCE) Price Indices

1999 - 2018



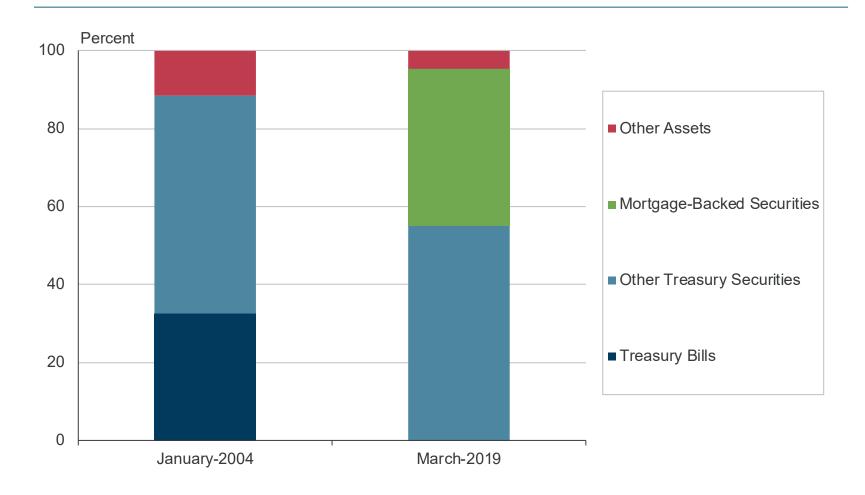
Note: Core PCE excludes food and energy.

Figure 10: Core PCE Inflation Rate and Price Level Target of 2 Percent January 1999 - January 2019



Note: Core PCE excludes food and energy. Index level January 1999=100.

Figure 11: Federal Reserve System Asset Composition January 2004 and March 2019



Source: Federal Reserve Board, Haver Analytics