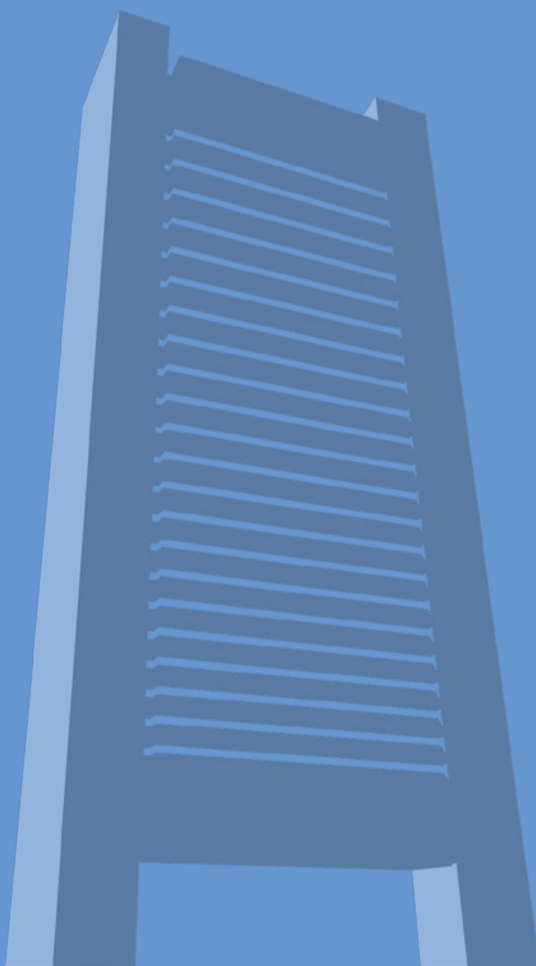

Following a Balanced Approach

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Assessing the Two Elements of the Fed's Dual Mandate

- Pattern during the recovery from the Great Recession:
  - The unemployment rate has been too high
  - The inflation rate too low
  - This justified the highly accommodative monetary policy
- More recently:
  - Inflation has remained stubbornly below the Fed's 2 percent inflation target
  - The unemployment rate is now below the level viewed by most FOMC participants as sustainable

To Balance the Dilemma of the Two Mandate Elements, Consider the FOMC Statement on Longer-Run Goals

- "Under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate."

Determining the Magnitude of Deviations of the Dual Mandate Variables

- How far is inflation from the 2 percent goal, and how far are we from maximum sustainable employment?
- Calculating the inflation deviation is straightforward
  - The total PCE inflation rate in the U.S. is currently 1.6 percent
  - The Fed’s inflation goal is 2 percent
  - The deviation is 0.4 percentage points

Determining Deviations from Maximum Sustainable Employment

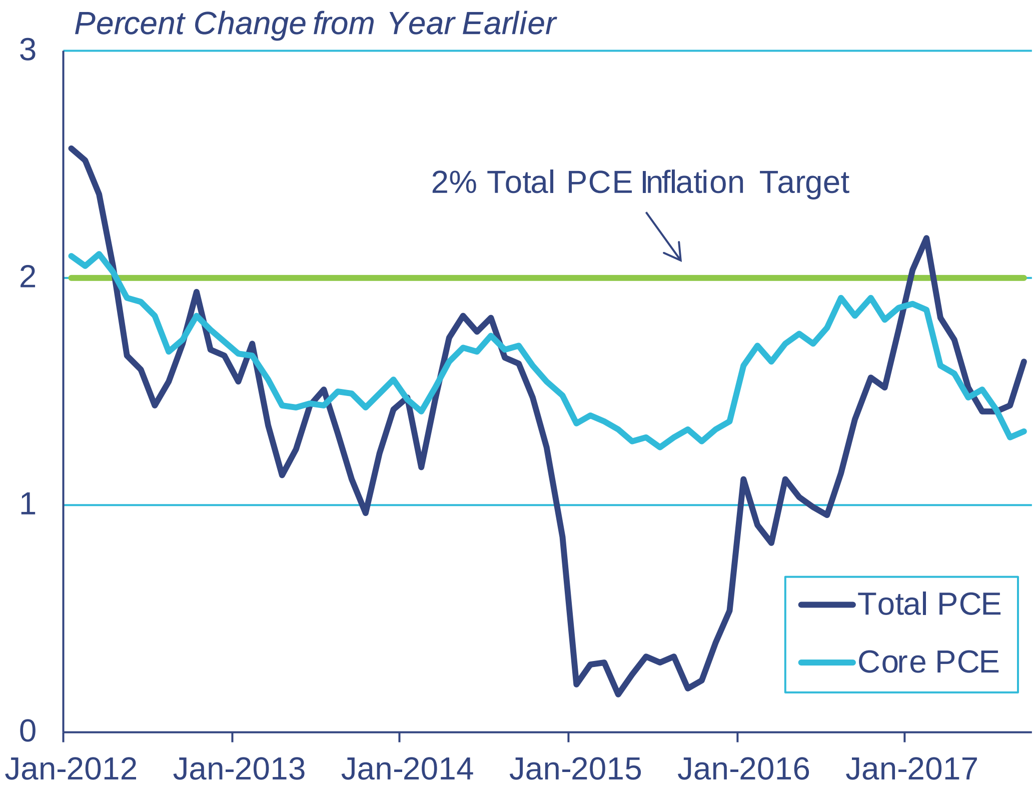
- Based on estimates, so less straightforward
- Estimates of the natural rate of unemployment in the economy vary over time
  - Demographic and other changes in the workforce
  - Changes in the efficiency with which workers find jobs
- Central bankers must infer the level indirectly, using information in wages, prices, expectations, and labor market conditions
- Still, indicators suggest to me that the low unemployment rate appears to be beyond what is sustainable

How Long Are Employment and Inflation Likely to Deviate from Goals?

- Monetary policy works with lags
- Factors other than monetary policy impact inflation and unemployment
- Forecasts of unemployment and inflation are subject to substantial error
- Forecasts are the only means policymakers have for assessing how long we are likely to deviate from the Fed's dual mandate, so we must rely on them

Figure 1: Inflation Rate: Change in Personal Consumption Expenditures (PCE) Price Indices

January 2012 - September 2017

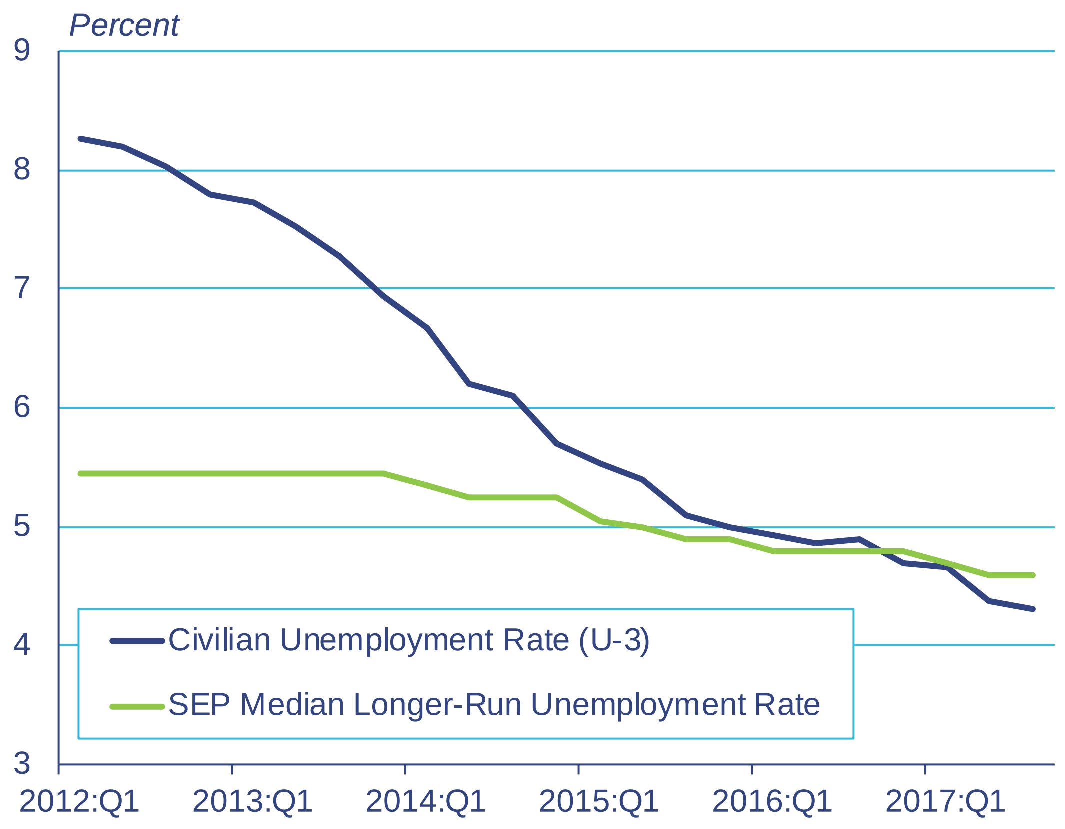


Note: Core PCE excludes food and energy.

Source: BEA, Haver Analytics

Figure 2: Civilian Unemployment Rate (U-3) and SEP Estimates of the Longer-Run Unemployment Rate

2012:Q1 - 2017:Q3

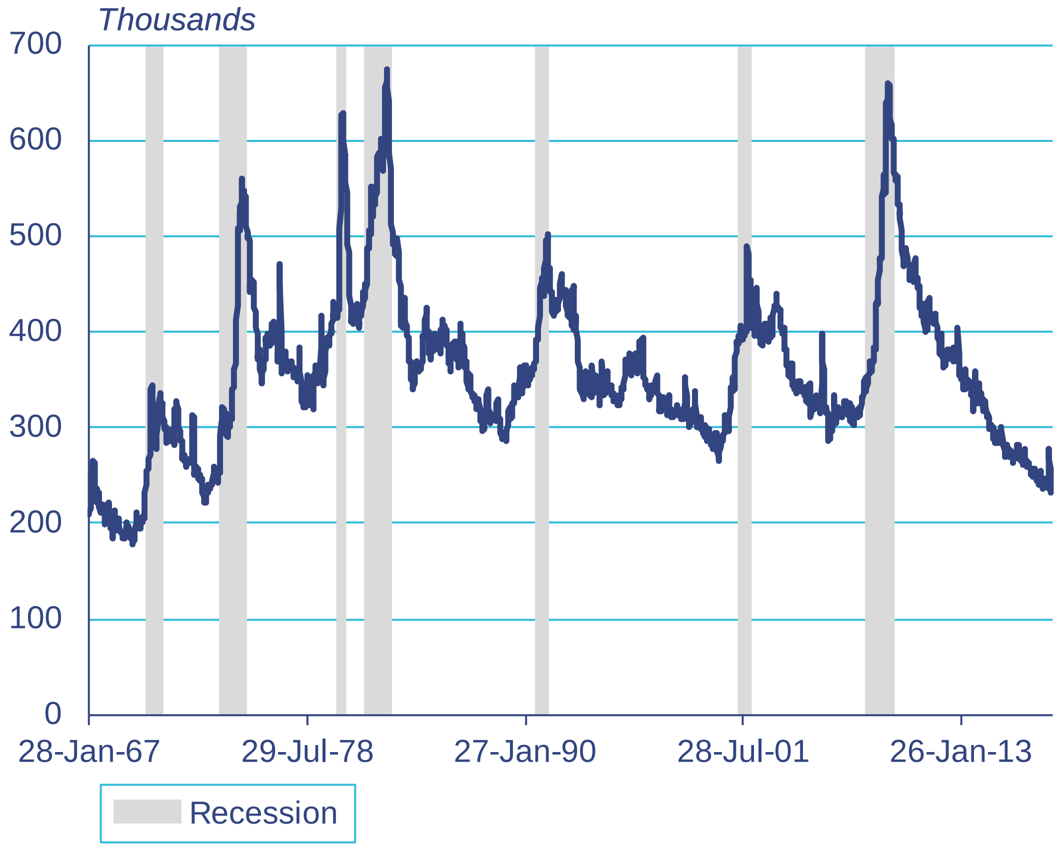


Note: Prior to June 2015, SEP median unemployment rates are publicly available only with a five-year lag. Proxies for the medians for 2012 – March 2015 are calculated from the distribution of participants' projections reported in ranges of tenths in the meeting minutes.

Source: FOMC, Summary of Economic Projections (SEP); BLS; Haver Analytics

Figure 3: Initial Claims for Unemployment Insurance

January 28, 1967 - November 4, 2017

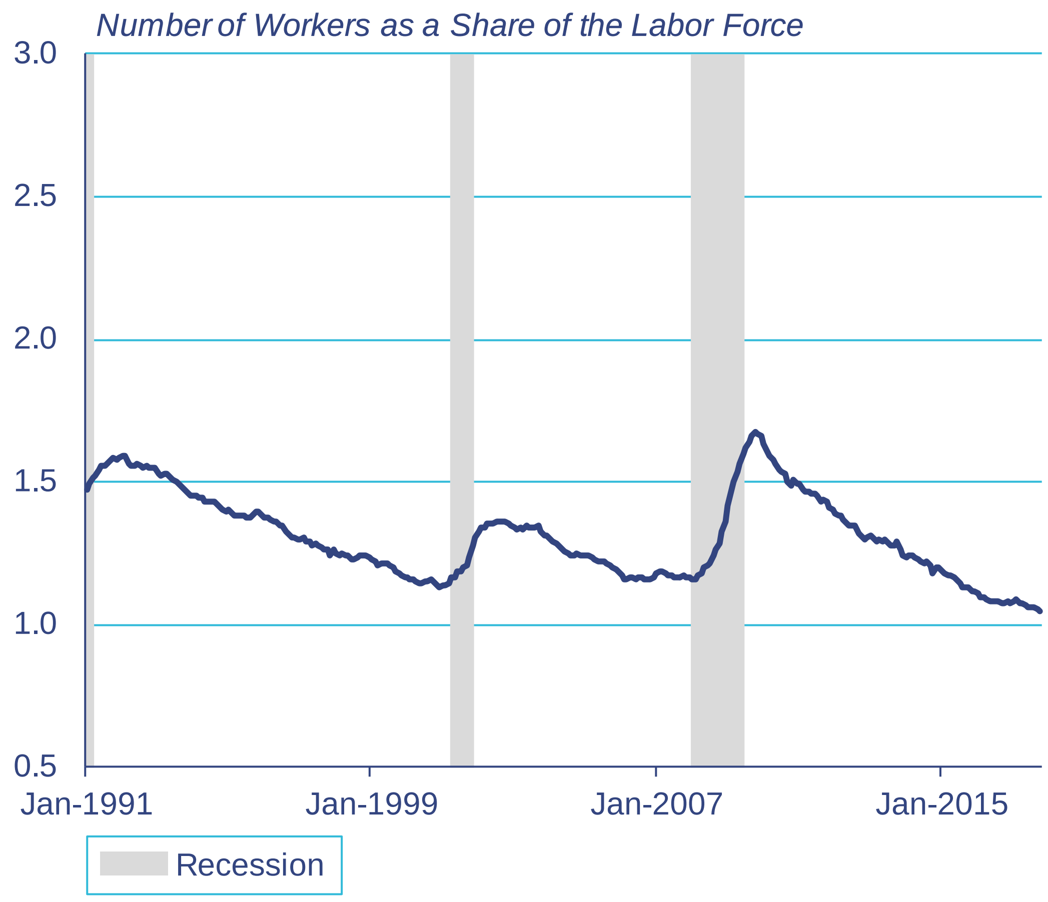


Note: Four-week moving average

Source: U.S. Department of Labor, Haver Analytics

Figure 4: Flow from Employed to Unemployed Relative to the Labor Force

January 1991 - October 2017

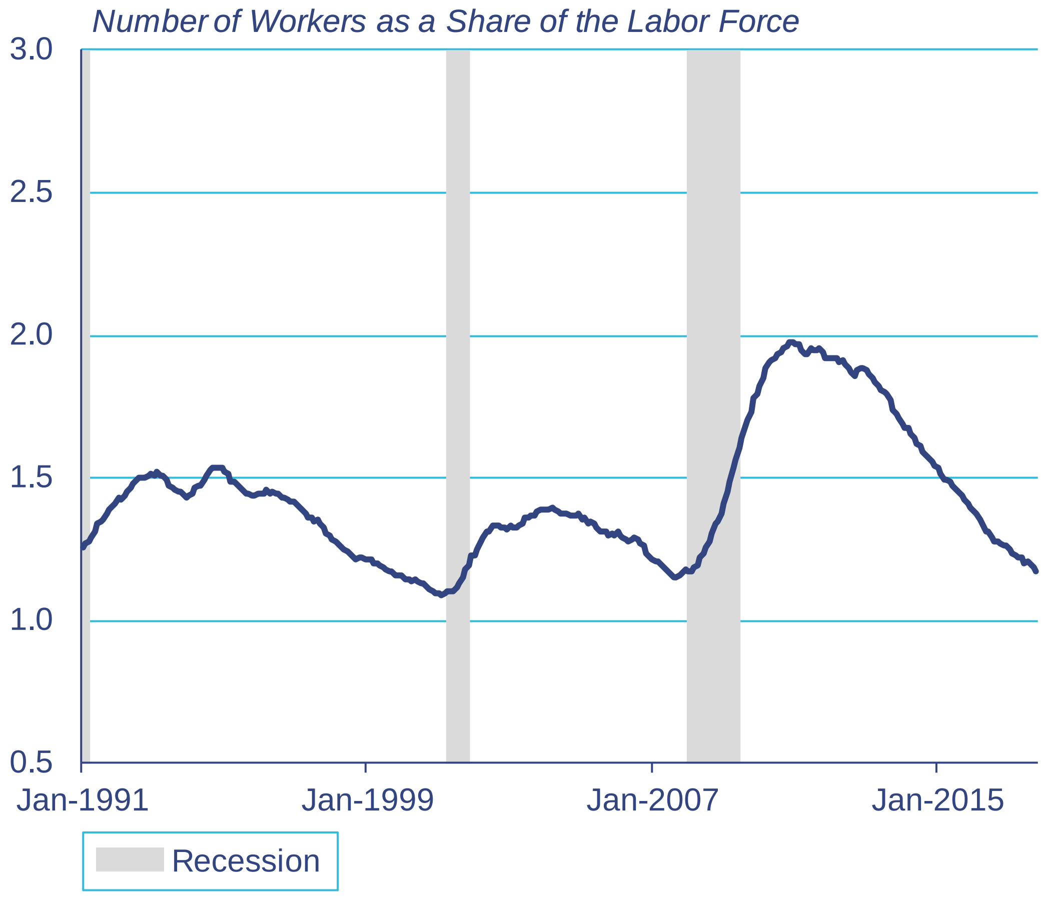


Note: Twelve-month moving average

Source: BLS, NBER, Haver Analytics

Figure 5: Flow from Not in the Labor Force to Unemployed Relative to the Labor Force

January 1991 - October 2017

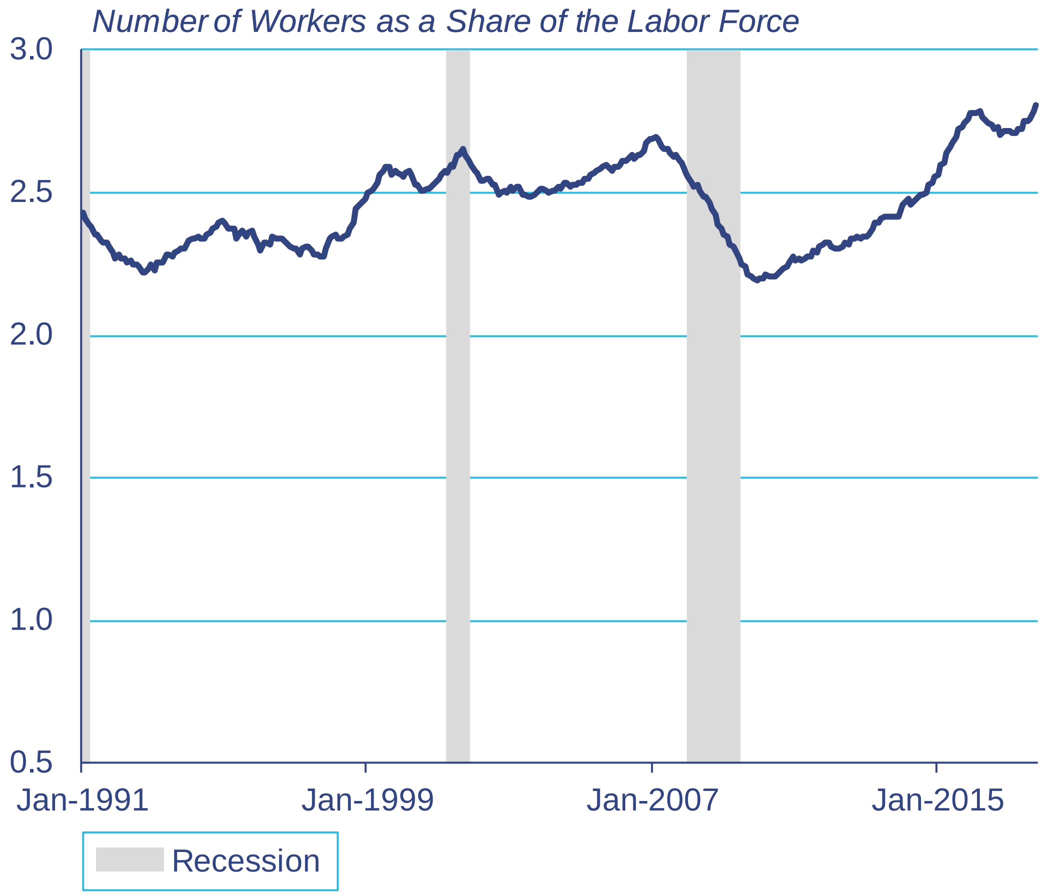


Note: Twelve-month moving average

Source: BLS, NBER, Haver Analytics

Figure 6: Flow from Not in the Labor Force to Employed Relative to the Labor Force

January 1991 - October 2017

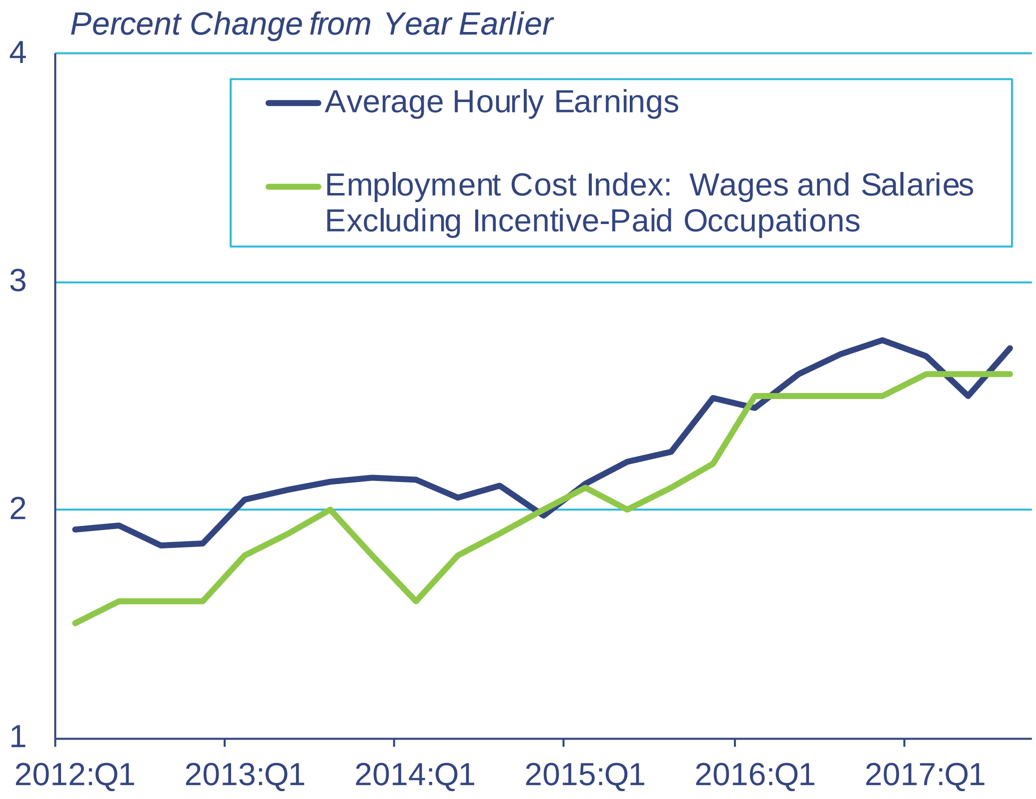


Note: Twelve-month moving average

Source: BLS, NBER, Haver Analytics

Figure 7: Wage Growth for Private Industry Workers

2012:Q1 - 2017:Q3



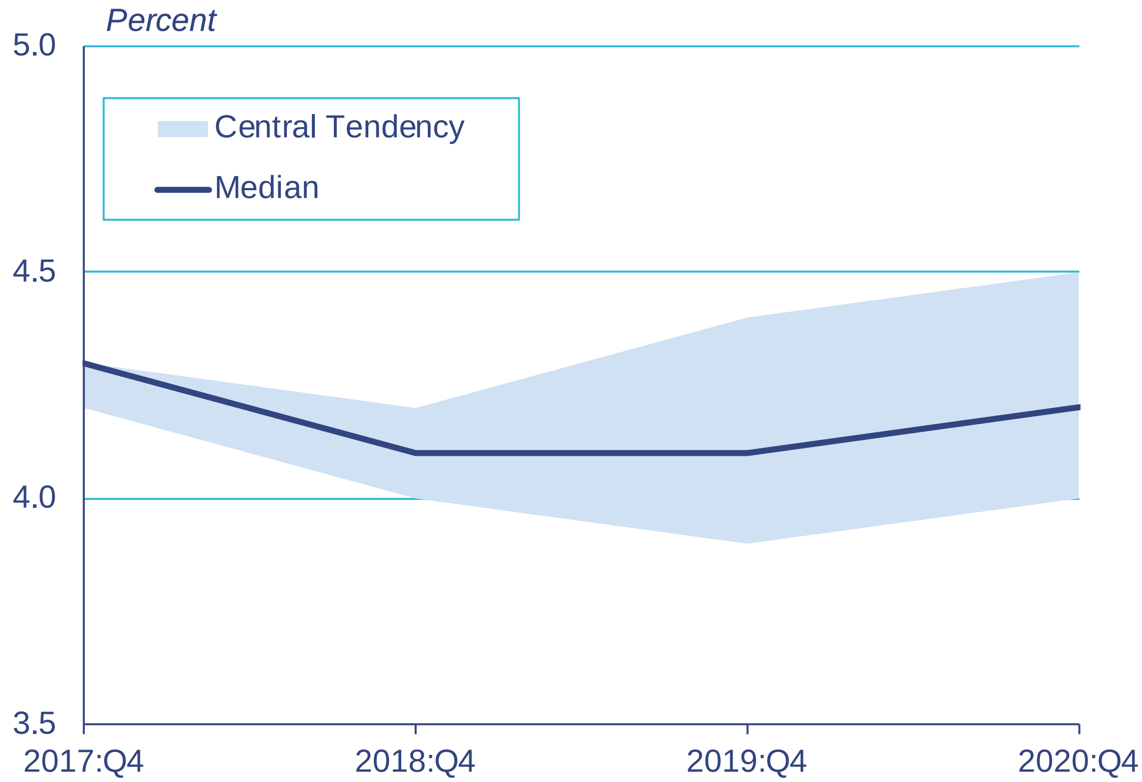
Source: BLS, Haver Analytics

Labor Markets are Quite Tight

- Data seem consistent with U-3 unemployment being below its sustainable rate
  - Lows in initial claims (last seen over 40 years ago)
  - Labor flows that avoid spells of unemployment
  - Gradually rising wages and salaries
- Data are consistent with tight labor markets (good news for individuals, but raises questions more broadly)

Figure 8: Civilian Unemployment Rate Forecast from the Summary of Economic Projections

2017:Q4 - 2020:Q4

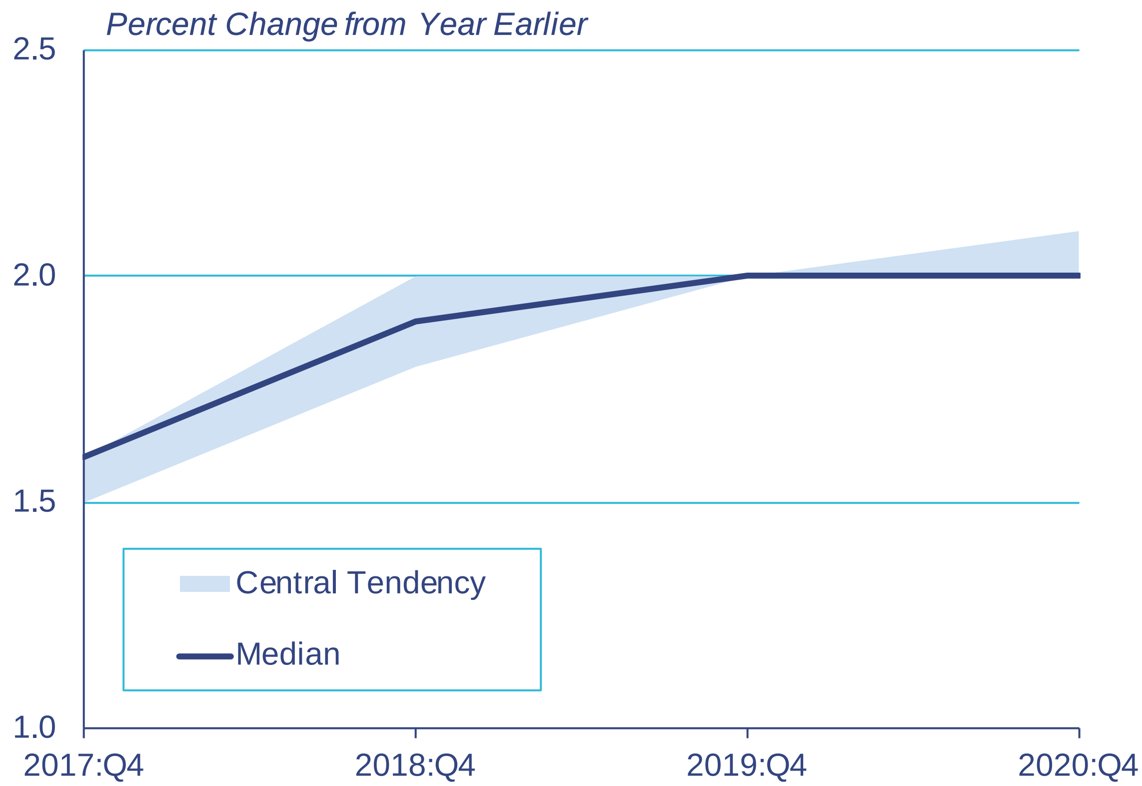


Note: The central tendency excludes the three highest and three lowest observations.

Source: FOMC, Summary of Economic Projections (SEP), September 20, 2017; Haver Analytics

Figure 9: PCE Inflation Forecast from the Summary of Economic Projections

2017:Q4 - 2020:Q4

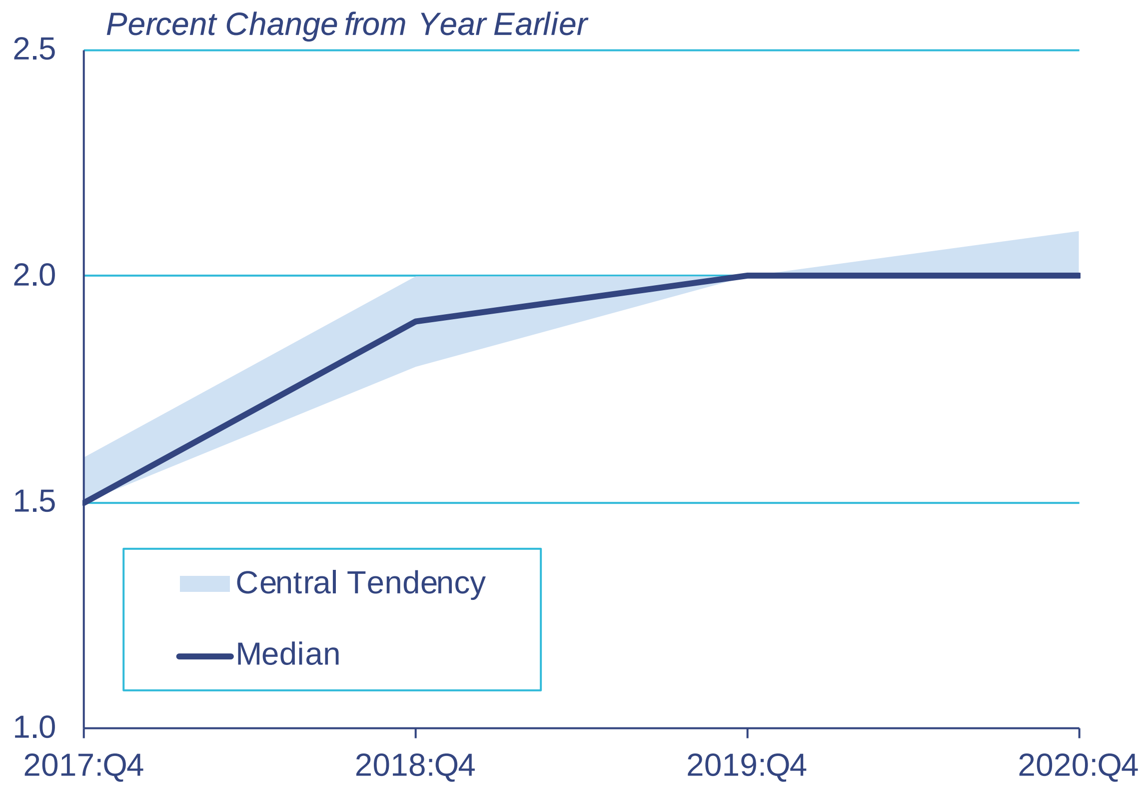


Note: The central tendency excludes the three highest and three lowest observations.

Source: FOMC, Summary of Economic Projections (SEP), September 20, 2017; Haver Analytics

Figure 10: Core PCE Inflation Forecast from the Summary of Economic Projections

2017:Q4 - 2020:Q4



Note: The central tendency excludes the three highest and three lowest observations.

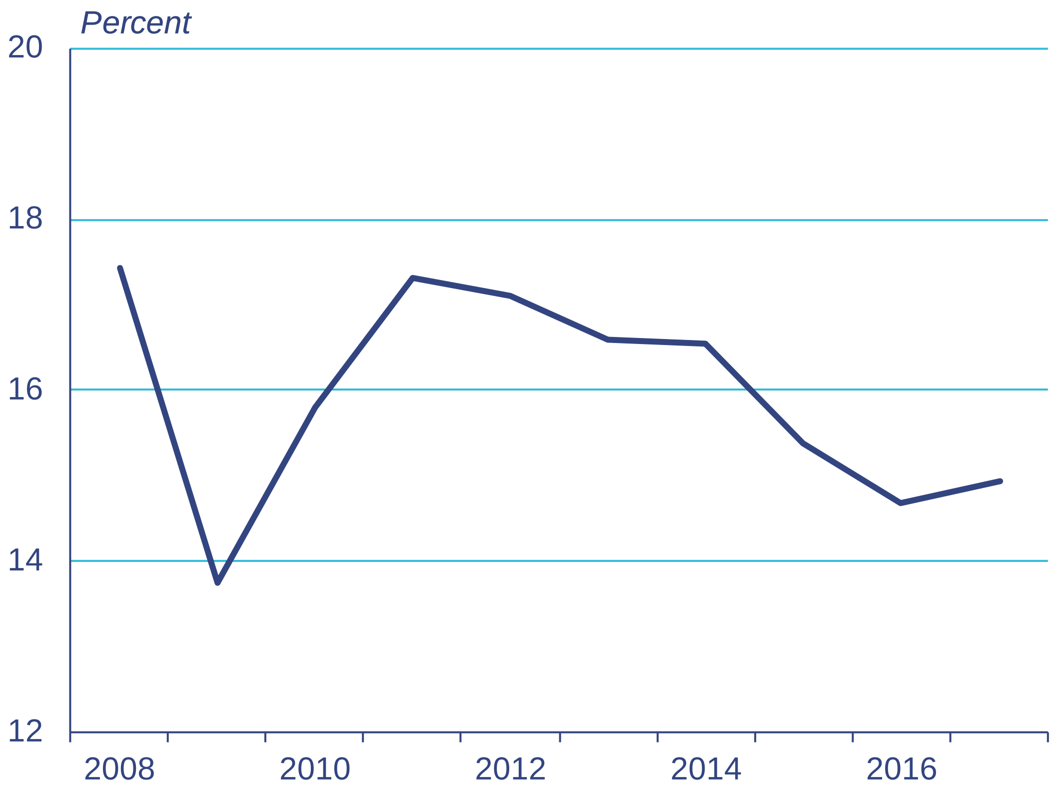
Source: FOMC, Summary of Economic Projections (SEP), September 20, 2017; Haver Analytics

How Long Will Deviations from the Dual Mandate Persist?

- Deviations from the inflation target are likely to be relatively *short-lived*
- Deviations of unemployment from its sustainable rate are likely to be *persistent*
- Indeed, these forecasts of inflation and unemployment deviations generally assume some further increase in interest rates, which strengthens the case for additional tightening going forward

Figure 11: Imports Relative to GDP

2008 - 2017

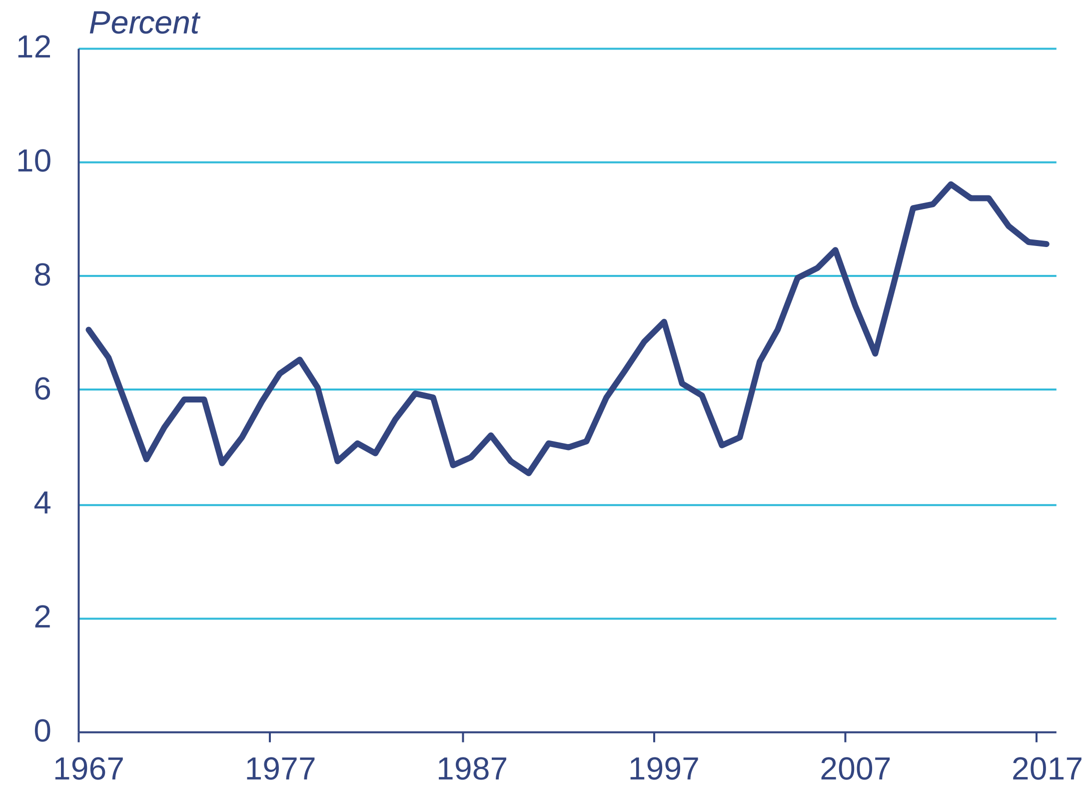


Note: Figure for 2017 is the average of the first three quarters of 2017.

Source: BEA, Haver Analytics

Figure 12: After-Tax Corporate Profits Relative to GDP

1967 - 2017

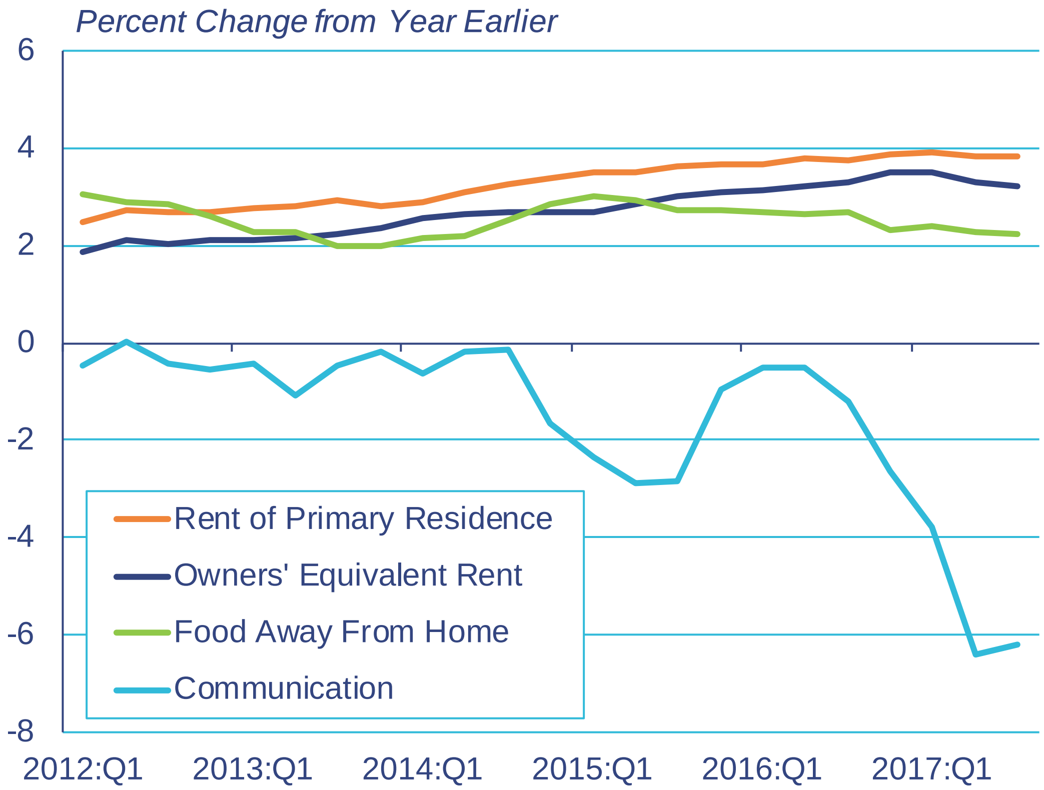


Note: Figures include inventory valuation and capital consumption adjustments. Value for 2017 is the average of the first two quarters of 2017.

Source: BEA, Haver Analytics

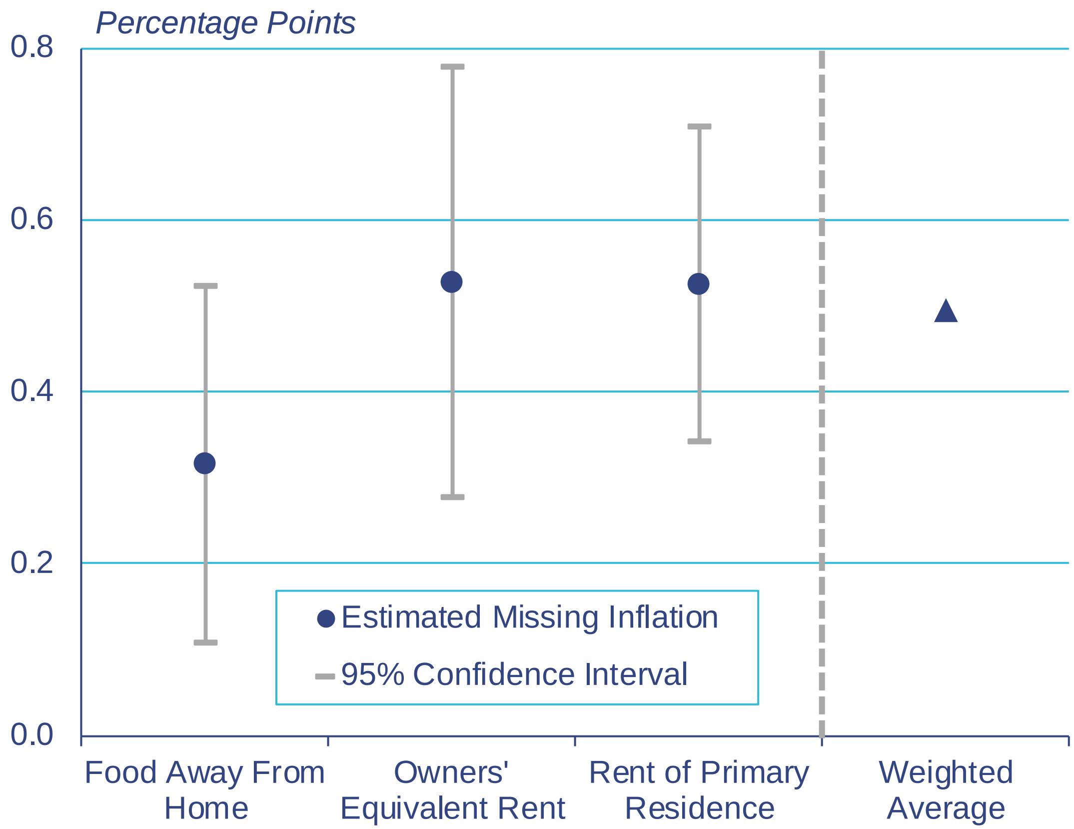
Figure 13: CPI: Selected Components

2012:Q1 - 2017:Q3



Source: BLS, Haver Analytics

Figure 14: Missing Inflation Attributable to Phillips Curve Flattening



Source: BLS; Federal Reserve Bank of Boston, Current Policy Perspectives, "Sectoral Inflation and the Phillips Curve: What Has Changed since the Great Recession?" by María José Luengo-Prado, Nikhil Rao, and Viacheslav Sheremirov (2017 Series, No. 17-5)

Concluding Observations

- Statement on Longer-Run Goals provides a balanced approach to somewhat conflicting factors
  - So-called “misses” in the mandate are of relatively similar magnitudes currently
  - The inflation “miss” is likely temporary, but the unemployment “miss” is likely more persistent
- My own view is that it is quite likely that unemployment will fall below 4 percent, which is likely to increase pressures on inflation and asset prices
- In my view, there is a need to continue to gradually remove monetary policy accommodation, which is quite consistent with market expectations of another increase in December