Monetary Trends

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Deflation and the Fisher Equation

Irving Fisher (1867-1947), one of America's greatest monetary economists, is famous for many reasons. One of the most important is the Fisher equation, which states that the nominal interest rate is equal to the real interest rate plus the expected inflation rate. This is a statement about equilibrium in the market for bonds, not about the factors that determine these two components.

Depending on which market rate is used, the expected real return will include a premium for various sources of risk. For most of post-WWII U.S. history, estimates of this risk premium in the federal funds market have been small relative to estimates of the risk-free real interest rate and the expected inflation rate, so they are ignored in this essay.

The chart shows the Fed's policy rate—the federal funds rate—and the consumer price index (CPI) inflation trend. The trend is measured as a 25-month centered moving average. We use a 25-month window to filter out the noise or temporary deviations associated with temporary shocks and measurement error. The Blue Chip Consensus forecast is used as the inflation rate for the next 12 months to make the calculation current; that is, the last value in the chart is the monthly average of actual inflation from July 2009 through July 2010 and the Blue Chip Consensus monthly forecasts of CPI inflation through July 2011 (shown at an annual rate).

Since January 2000, the average federal funds rate has been 2.80 percent and the average CPI inflation rate has been 2.50 percent. The ex post real federal funds rate has been 0.30 percent. The low real interest rate is associated with a decade bracketed by two recessions and, consequently, relatively low economic growth. Looking back to the 1990s when real growth was surprisingly rapid, the average federal funds rate was 5.15 percent while the inflation rate averaged 2.97 percent. Yet, these values were low compared with the 1980s—the average federal funds rate was 9.97 percent and the average inflation rate was 5.36 percent. In the 1990s, the ex post real federal funds rate was 2.18 percent and, in the 1980s, it was a whopping 4.61 percent.

With the federal funds rate near zero since December 2008 and expected to remain there for the next year or two, the Fisher equation has important implications for the expected inflation rate. If the real economy is currently rebounding to a sustainable growth trend, the real interest rate will rise and the only outcomes possible will be either a higher nominal federal funds rate or a negative expected inflation rate.

The current consensus is that the Federal Open Market Committee cannot raise interest rates because the unemployment rate is so high. The unemployment rate, however, is a poor guide for setting the policy rate during a recovery because unemployment lags growth in gross domestic product. The high unemployment rate will persist even as the economy recovers and real interest rates rise. So, according to Irving Fisher, one reason to worry about deflation is that the federal funds rate is expected to be held near zero as the economy grows out of this recession.

—William T. Gavin

CPI Inflation and the Federal Funds Rate