

Economic Watch

United States

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Economic Analysis

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Inflation Expectations: What Lies Ahead?

- Current indicators suggest historically low expected inflation
- Shocks to inflation expectations will affect both the level and slope of the yield curve
- Fiscal sustainability is vital for stable inflation expectations

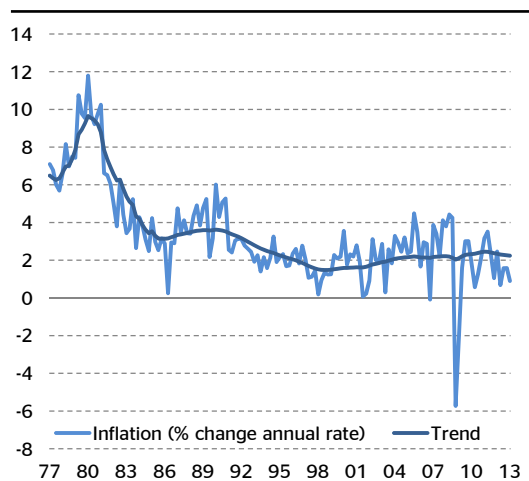
Inflation expectations are a fundamental component of nominal bond yields, and thus the Federal Reserve and market participants are maintaining a watchful eye on surveys and estimates of expected inflation. The Federal Reserve continues to emphasize that both current inflation and expectations are low and stable due to slack in product and labor markets, and thus inflation is not a cause for concern. Fed officials have been focused on communicating their policy actions and announcing their target inflation rate in a deliberate attempt to keep inflation expectations anchored.

We can decompose the yield on a nominal bond of maturity n at time t (y_t^n) as the sum of its real yield (r_t^n) plus a measure inflation compensation ($\pi_{t,n}^e$). The inflation compensation term is the sum of expected inflation and an inflation risk premium, $\phi_{t,n}$.

$$y_t^n = r_t^n + \pi_{t,n}^e, \quad \pi_{t,n}^e = E_t(\pi_{t+n,n}) + \phi_{t,n}$$

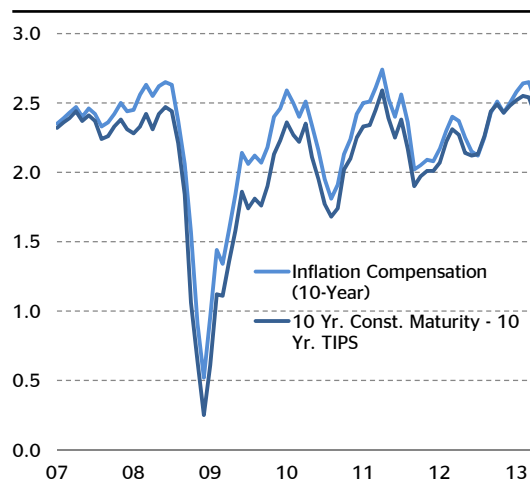
Current measures of expected inflation indicate that the market expects the annual inflation rate to be 2% or below during the next decade. This estimate is historically low, and although the Federal Reserve believes that these expectations are anchored safely today, they could quickly unravel beyond the Fed's control.

Chart 1
PCE Inflation and Estimated Trend



Source: BLS, BBVA Research

Chart 2
Estimated Inflation Compensation and 10-Year Breakeven Rate



Source: Federal Reserve, BBVA Research

When the market perceives that the pace of global expansion is picking up, food, energy and commodity prices could spike higher. Demand-side inflationary pressures may arise in the U.S., as disparate measures of the output gap suggest that potential output may be reached sooner than anticipated. In our [1Q13 U.S. Outlook](#), we show that the Congressional Budget Office (CBO) may be overestimating the size of the output gap. These scenarios may result in a gradual rise of inflation and expectations, but a decline in investor confidence in U.S. treasury securities could trigger an inflation shock today that the Fed would not likely be able to curtail.

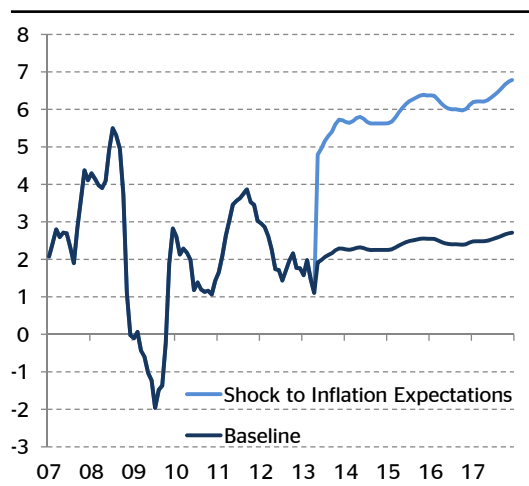
Fiscal sustainability necessary to reassure investors and stabilize inflation

A decline of investor confidence would be inherently linked with an unsustainable U.S. fiscal situation. Although the CBO sharply lowered its projected deficit for 2013 on higher-than-expected revenues, this pattern may be temporary. Some investors took advantage of lower capital gains tax rates at the end of 2012, and thus they opted to pay taxes sooner than otherwise. Additionally, as the Federal Reserve normalizes its balance sheet, its remittances to the Treasury will turn negative and subtract from revenue. See our [recent brief](#) on the CBO's updated budget projections for more detail.

Downward pressure on revenue growth and increasing spending on entitlements will produce persistently high projected deficits and rising debt service payments. Investors may begin to believe that the government will have to inflate away its debt burden by printing money to meet its obligations.

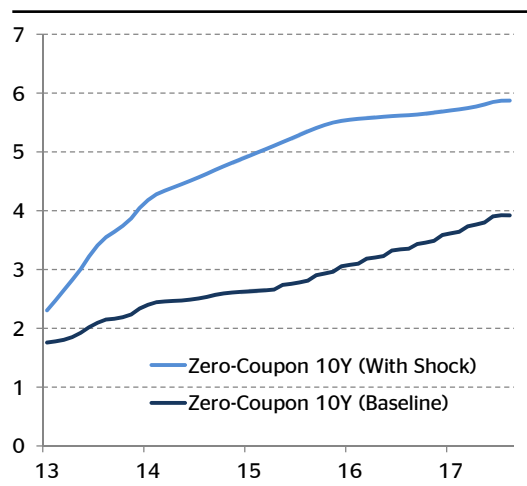
At this point, maturing debt would not be completely rolled over, as investors would shift to buying assets such as real estate and commodities. These actions would bid up prices and send inflation, inflation expectations and nominal treasury yields sharply higher, particularly at the long end of the yield curve.

Chart 3
CPI Scenarios, YoY % Change



Source: BLS, BBVA Research

Chart 4
10-Year Zero Coupon Yield Forecasts



Source: BBVA Research

The nominal yield curve slopes upward in normal times, and academic research by Andrew Ang, Geert Bekaert and Min Wei reveals that an upward sloping inflation compensation term structure is responsible for that pattern [1]. They find that expected inflation converges to its mean level across maturities, but the inflation risk premium increases with maturity. The authors find that variation in inflation compensation (due either to higher inflation expectations or a greater risk premium) accounts for 80% of the variation in both short and long-term nominal yields. Furthermore, they find that inflation compensation explains anywhere between 70% to over 100% of the variation in long-horizon nominal rate spreads - depending on the assumed patterns of real interest rates.

Thus, a jump in inflation expectations along with a higher inflation risk premium would result in not only a higher level of the nominal yield curve (higher rates across all maturities), but also a steeper slope due to the greater risk premium. If both expectations and the risk premium are positively correlated, we could see a rapid upward spiral in long-term interest rates that would be difficult for the Fed to tame.

Certainly, the world has seen episodes of high inflation after periods of profligate deficit-financed government spending, and the high inflation experience in the U.S. during the 1970s demonstrated that inflation can arise quickly despite modest growth prospects and elevated unemployment.

In [Chart 4](#), we present two scenarios from our three-factor Nelson-Siegel yield curve model with macroeconomic factors. In our baseline scenario of currently stable and low inflation expectations, the 10-year zero-coupon yield reaches 4.0% by 2017, and in a scenario in which inflation jumps above 6% by 2017, the 10-year yield climbs near 6% (the real yield remains negative). Our incorporation of macroeconomic factors into the three-factor yield curve model allows us to simulate possible outcomes in different scenarios. We include a version of the Taylor rule in our simulation of high inflation compensation. Future analysis will disentangle expected inflation and the risk premium in the inflation compensation term.

References

- [1] Andrew Ang, Geert Bekaert, and Min Wei. The term structure of real rates and expected inflation. *Journal of Finance*, 63(2):797--849, 04 2008.

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