Economic Analysis

Are Low Long-Term Rates Here to Stay?

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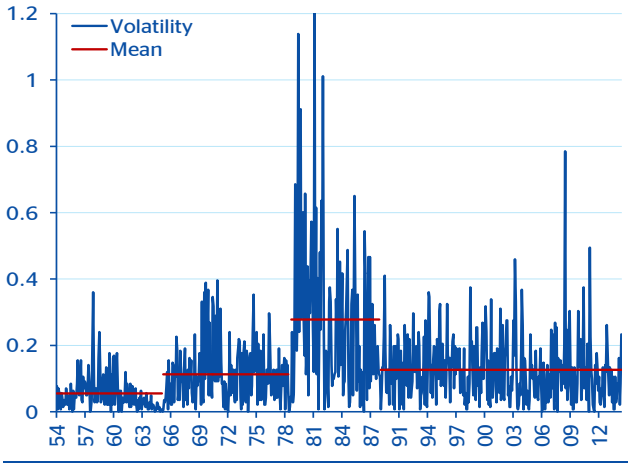
- **Low inflation and duration risks, and reduced monetary policy uncertainty are behind the negative term premium and compression in long to medium term premium spread**
- **Downward pressure on long-term yields due to the supply-demand imbalance will remain, with many long-run structural factors to contribute**
- **Milder long-term rate increases and flatter yield curve forecasts, even when accounting for macroeconomic factors and short-term rate liftoff**

Contrary to investor expectations, the end of the Federal Reserve's (Fed) third large scale asset purchase program (QE3) did not result in a steeper yield curve. The 10-year and 30-year Treasury yields have been on the decline since December 2013 – after the first reduction in the pace of the Fed's QE3 program. The FOMC attributed the January 2014 decline in long-term interest rates to the increase in safe-haven demand and decreased uncertainty about future short-term interest rates. Nonetheless, it was difficult to foresee the 10-year Treasury yield hitting a bottom of 1.68% in January 2015.

As the Fed kicks off the normalization process, it is not obvious whether long-term rates will increase significantly from their current low levels, nor when this will happen if it does. In fact, the downward pressure on long-term rates is not a result of the decline in Treasuries volatility. The past 7 years of unconventional monetary policy have not had much effect on long-term securities volatility, which has remained stable since the 1990s, with a mean of 13 basis points. The low long-term rates are a result of structural changes in both market dynamics and macroeconomic fundamentals, which has affected the equilibrium level of long-term Treasuries yields. Our analysis suggests that these trends are a direct result of the post-recession economic environment and financial regulations.

Chart 1
10-Year U.S. Treasury Yield Volatility (%)



Source: BBVA Research

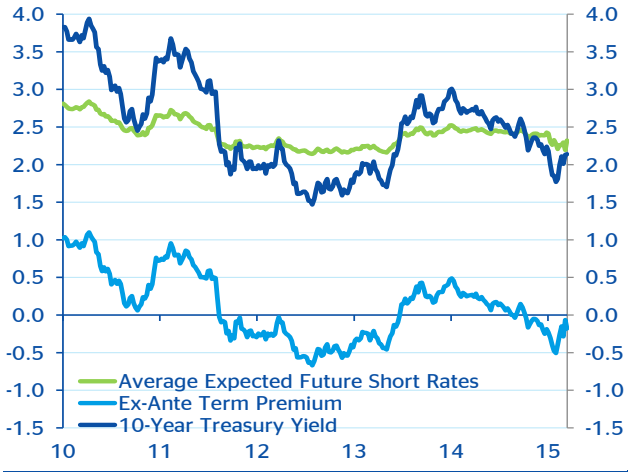
Chart 2
10-Year U.S. Treasury Note Volatility Index

Source: CBOE & BBVA Research

Forces Behind Low Long-Term Rates

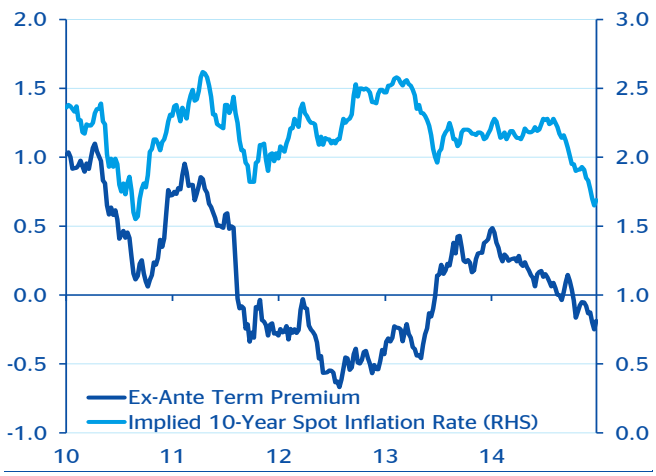
Low Inflation Risk: The term premium on long-term bonds – the compensation for both inflation and consumption risks – has been in negative territory since October 2014. This is the second lasting episode of the term premium being negative while the fed funds rate has been at the zero lower bound. Whereas in 2012-2013 we observed decoupling between term premium and inflation expectations, in the current environment (since 2014) both term premium and inflation expectations have consistently declined.

Chart 3
10-Year U.S. Treasury Yield and Term Premium (%)



Source: FRB & BBVA Research

Chart 4
10-Year U.S. Treasury Term Premium and Market Inflation Expectations (%)



Source: FRB & BBVA Research

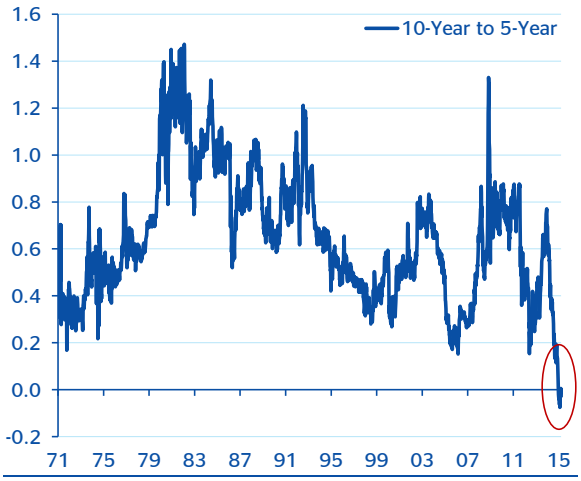
Reduced Monetary Policy Uncertainty: At the same time, lower inflation expectations and suppressed inflation risk alone are not sufficient to account for the lows in the long-term rates. The uncertainty about the future path for short-term rates is a primary source of risk in the yield curve, thus reduced monetary policy uncertainty is another pivotal cause of negative term premium.

The Fed learned a valuable lesson through the "taper tantrum" experience, during which the misalignment between market expectations on the timing of the tapering and the Fed's communication resulted in increased market volatility and tightening. Since then, FOMC communication, including forward guidance and economic projections have been crafted to avoid surprises and align market expectations with the Fed's future reaction function. Furthermore, in preparation for the federal funds liftoff, the median of the FOMC's March projections of the appropriate pace of policy firming, flattened and moved closer to the slower path implied by federal funds futures market. As noted by former Fed governor Stein "to avoid unsettling markets Fed officials have an incentive to stick to the path investors infer."[1]

Supply-Demand Imbalance: In addition to negative term premium, for the last 3 months there has been a compression of medium to long-term treasury term premium curves, while the 5-year to 3-year and the 3-year to 1-year term premium spreads are in line with their historic averages. This phenomenon is a first of a kind historic event.[2]

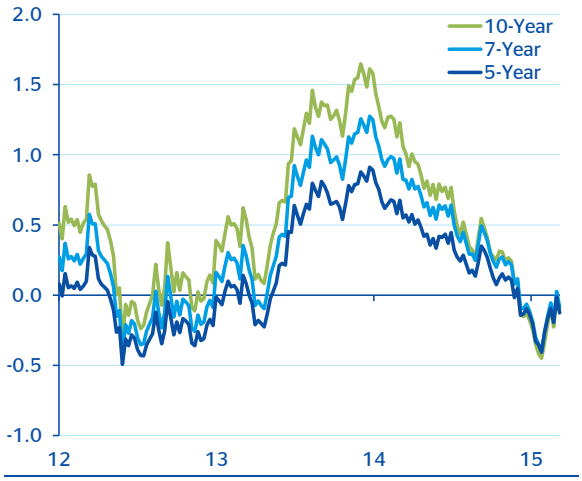
[1] The Wall Street Journal interview on March 17, 2015
[2] Financial five-factor, no-arbitrage term structure model by Adrian, Crump and Moench (2008)

Chart 5
Term Premium Spread (%)



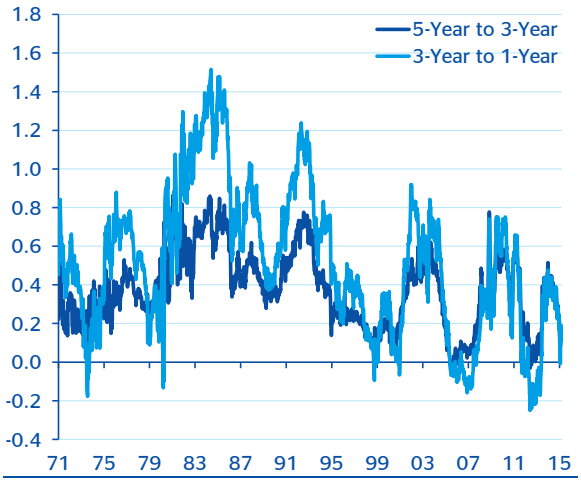
Source: FRBNY & BBVA Research

Chart 6
Term Premium (%)



Source: FRBNY & BBVA Research

Chart 7
Term Premium Spread (%)

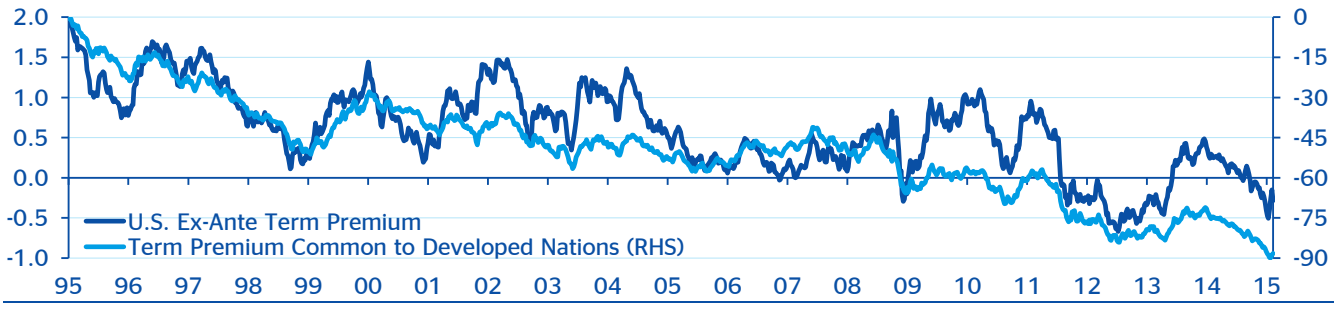


Source: FRBNY & BBVA Research

Chart 8
Term Premium (%)

Source: FRBNY & BBVA Research

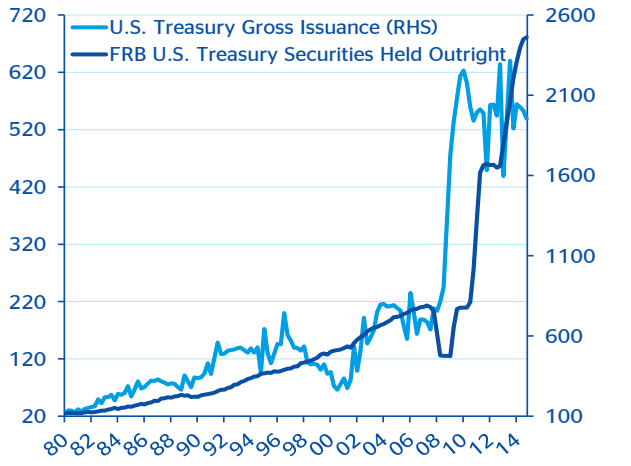
Chart 9
U.S. and Developed Nations Term Premium (%)



Source: BBVA Research

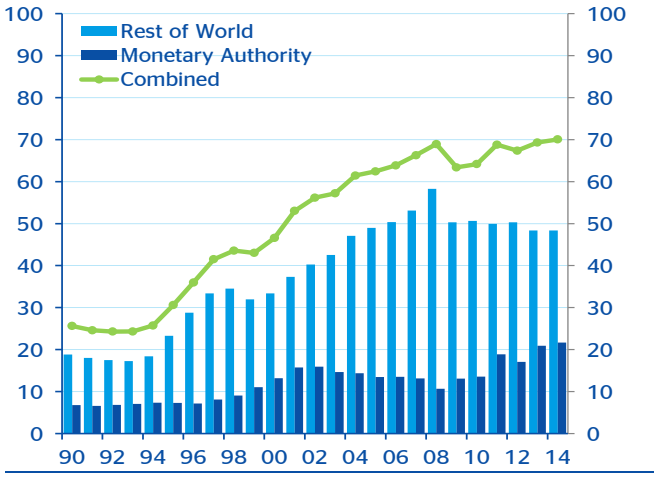
Along with the reduced inflation risk and policy uncertainty, compression of the 10-year to 5-year term premium is a result of the supply-demand imbalance. Economic theory notes that a reduction of the aggregated amount of longer-term bonds shortens the average maturity of outstanding securities resulting in a decline of duration risk (portfolio balance channel).[3] Notably, while the issuance of the government debt has slowed, the Fed remains one of the largest holders of public debt. The FOMC maintains the reinvestment policy of not depleting its sizable holdings of longer-term securities. It presently holds $2.46 tn. of Treasury securities, which represents 19.6% of total outstanding Treasuries and 15.1% of GDP. Around 52% of Fed's Treasury holdings mature in 5-years or more. Since 1990, Fed Treasury holdings have averaged around 14.4% of total outstanding debt and 5.4% of GDP.

Chart 10
Issuance and Fed Holdings of Treasury Securities (Bn. $)



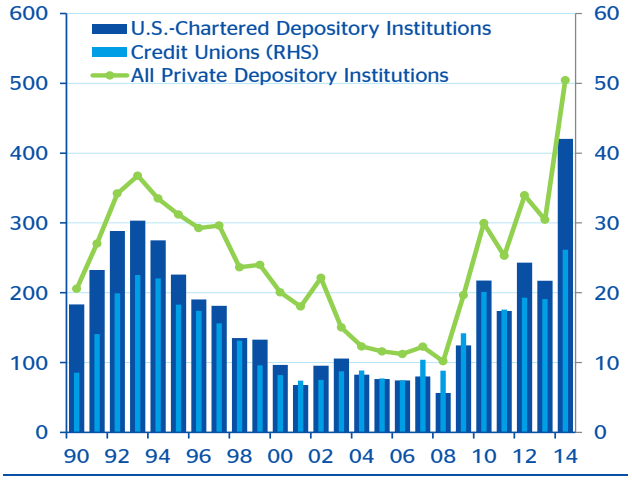
Source: Bureau of Public Debt, FRB, Haver Analytics & BBVA Research

Chart 11
Fed and Foreign Holdings as Share of Government Liabilities of Treasury Securities (%)



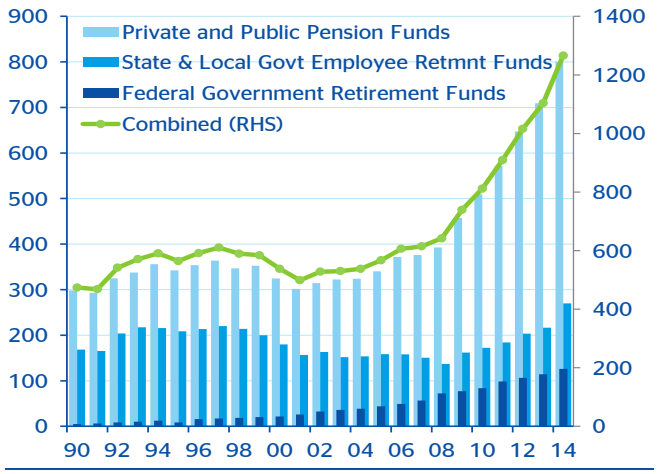
Source: FRB & BBVA Research

Chart 12
Treasury Securities Holdings (Bn. $)



Source: FRB & BBVA Research

Chart 13
Treasury Securities Holdings (Bn. $)



Source: FRB & BBVA Research

[3] Diebold and Rudebusch (2013), Hamilton and Wu (2010), and Vayanos and Vila (2009)

U.S. debt has not lost its appeal to foreign investors either. Despite the common downward trend in term premium among developed nations' long-term government bonds,[4] the U.S. term premium appears to be more attractive in comparison to that of its counterparts, offering lower deflationary risk and greater promise for economic growth. The U.S. Treasury holdings by the rest of the world were at $5.5 tn. and accounted for 48% of U.S. debt issuance in 2014. The combined holdings of U.S. Treasuries by the Fed and the rest of the world was at 70% of U.S. debt issuance in 2014.

Moreover, there is further domestic pressure on the demand for long-term securities due to new financial regulations on liquidity rules, which are also contributing to the supply-demand imbalance. Liquidity rules have steadily increased banks' demand for Treasury securities and have led pension funds to "de-risk" their investments by moving more heavily into low risk government bonds.

Downward Pressure on Long-Term Rates will Remain

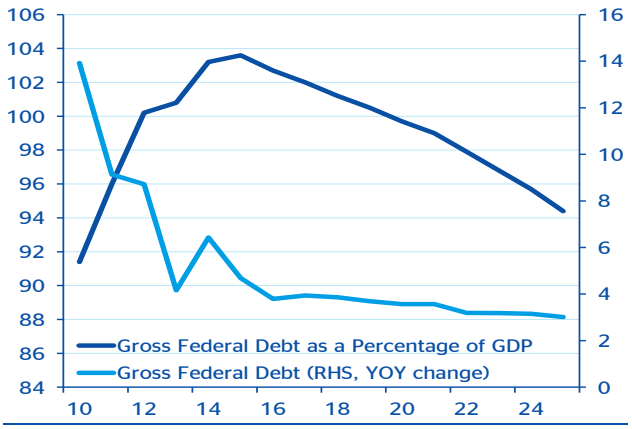
The liftoff of short-term rates will likely introduce some volatility to the bond market. However, the liftoff may not steepen the yield curve as some are expecting, since many of the present drivers keeping long-term rates low are likely to linger for years. For example, while inflation expectations are expected to revert to their historic mean (2.17% for implied 10-year expectations), inflation risks are not expected to pick up in the foreseeable future (see Economic Watch on Inflation). In addition, the reduced policy uncertainty environment will continue through the course of monetary tightening (2015 -2017), at least relative to the period when Congress and the administration where bitterly fighting over the fiscal budget and debt ceiling. Moreover, although the Fed may experience a communication hiccup or two as they cautiously start increasing the fed funds rate, they will continue to manage the signal content of the policy action and the investor future reaction function with well-crafted forward guidance.

Furthermore, the downward pressure on duration risk from the supply-demand imbalance is expected to remain, with many long-run structural factors to contribute. On the supply side, debt issuance will further stabilize, as the gross federal debt year-over-year growth rate is projected to normalize around 3.5% in comparison to the post-recession year-over-year mean of 7.8%. On the demand side, regulations will keep upward pressure on domestic demand for bonds from financial institutions. Moreover, foreign demand is likely to increase further as the flight to safety and flight to quality continue in tandem with elevated global risk perception. Additionally, the ongoing quantitative easing programs by foreign central banks and the decoupling between the policies of the Fed and the European Central Bank (ECB) will likely result in an additional flow of funds from foreign private investors into U.S. capital markets.

Moreover, the share of foreign holders of U.S. debt will continue to grow far into the future, as aging populations become one of the pivotal structural obstacles to potential growth in the developed world. In this context, the U.S. is considered a relatively "younger" developed country in comparison to "older" countries (the most prominent being Japan, Germany and Italy). Thus, while in the "older" countries the demand for capital will increase in order to replace the dwindling labor force, there will be a consistent flow of capital to the "younger" countries that will be the providers of future consumer goods. The pursuit by the aging population of high quality, safe investments will increase the demand for U.S. debt and will lower future long-term bond rates.[5]

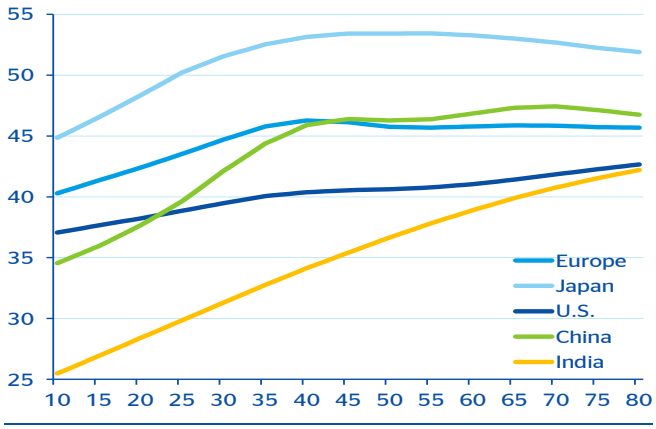
[4] Common term premium among developed nations is estimated as common stochastic trend among U.S., Canada, Germany, UK, Japan, and Australia's 10-year government bonds.
[5] Börsch-Supan and Ludwig (2009)

Chart 14
Gross Federal Debt (%)



Source: Office of Management and Budget & BBVA Research

Chart 15
Median Age (Years)



Source: United Nations & BBVA Research

Macroeconomic Fundamentals and the Yield Curve Forecasts

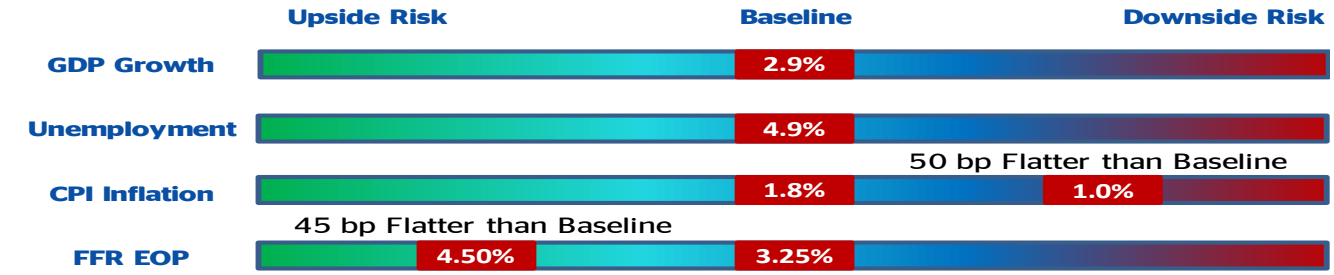
Years of unconventional monetary policy has resulted in yield curve movements that are directly linked to the term premium. However, with the Fed moving into the liftoff phase of policy normalization, movements in long-term rates will be linked closer to macroeconomic fundamentals and short-term rates. Economic literature has demonstrated that the linkages between macro factors and yields are bidirectional, and accounting for these bidirectional interactions results in macro fundamentals explaining half of the long yield variance.[6]

To examine the sensitivity of the future path of long-term yields with regard to macroeconomic variables we employ a latent factor model to forecast the zero-coupon yield curve. The model employed is a three-factor term structure model, an empirical approximation of the shape of the yield curve, which also incorporates macro fundamentals – growth, inflation and the fed funds rate. The outcomes below compare the baseline scenario of 4-year average real GDP growth of 2.9%, CPI inflation of 1.8%, and federal funds rate tightening by 300 basis points by the end of 2018, to two possible risk scenarios: 1) a steeper path of policy rate tightening (4-year increase in federal funds rate of 425 basis points) and 2) low inflation with a 4-year average inflation rate of 1.0%.

Both the baseline and the two alternative scenarios project a flatter yield curve than the historical average by the end of 2018. The steeper federal funds rate path in combination with our baseline assumptions for growth and inflation result in a higher but much flatter yield curve. A 125 basis points higher policy rate results in almost an equivalent increase in 10-year Treasury yields and 45 basis point flatter than the baseline yield curve. Meanwhile, a lower inflation rate with the remaining baseline assumptions for GDP growth and the federal funds rate, results in a 63 basis point decline in 10-year yield and flattens the yield curve by 50 basis points. The higher GDP growth assumption did not result in a steeper forecast for the yield curve, implying that both inflation and the fed funds rate are far more relevant than economic growth when it comes to forecast the future path of long-term yields.

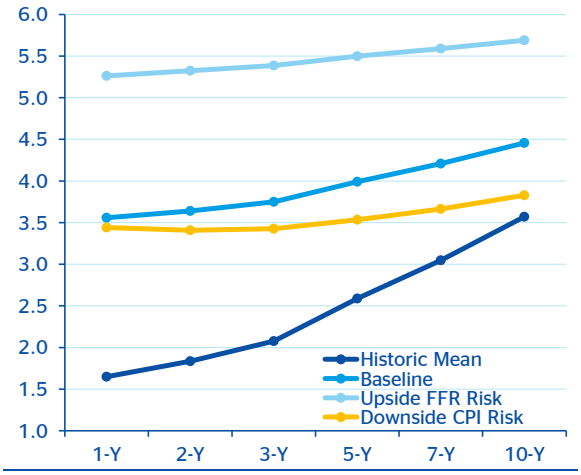
[6] Diebold and Rudebusch (2013), Diebold et al (2006), and Ang et al (2007)

Chart 16
Macroeconomic Scenarios (2015-2018 averages for growth, unemployment and inflation, and 2018 EOP for FFR)



Source: BBVA Research

Chart 17
2018 Zero-Coupon Yield Curve (EOP, %)

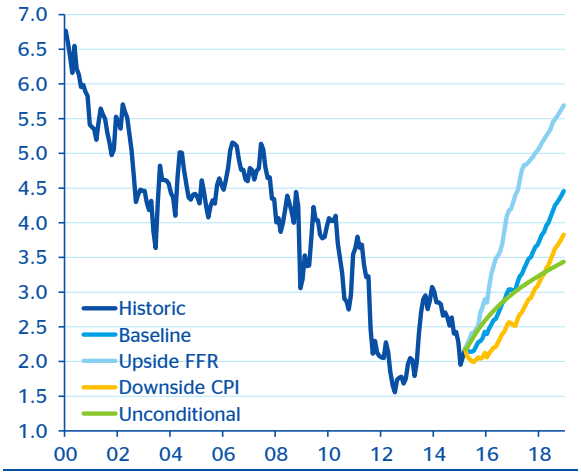


Source: BBVA Research

Chart 18
Zero-Coupon Yield Curve Slope (10Y-2Y, %)

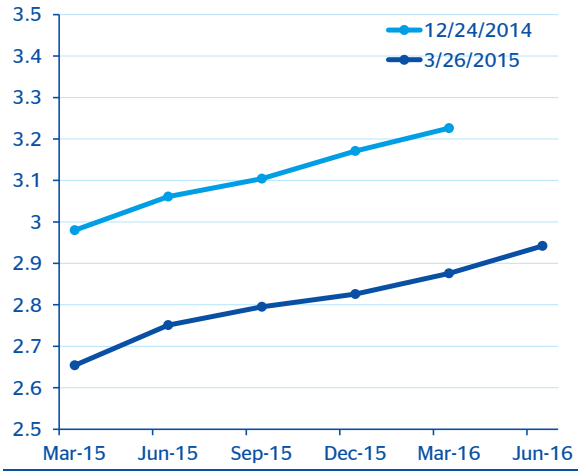
Source: FRB & BBVA Research

Chart 5
Zero-Coupon 10-Year U.S. Treasury Yield (%)



Source: FRB & BBVA Research

Chart 6
10-Year U.S. Treasury Yield Futures (%)



Source: Bloomberg & BBVA Research

Bottom Line: The increase may be milder and the yield curve flatter

Our analysis suggests that future increases in long-term yields could be moderate and that the yield curve could flatten significantly after the Fed begins raising rates. Both structural and cyclical factors such as lower potential output and low inflation, which help explain recent historical low levels of long-term rates, are unlikely to dissipate quickly. Moreover, improved fiscal conditions, new financial regulations, demographic changes and elevated global uncertainty could offset the absence of additional Fed asset purchases. This would not mean that long-term yields will remain at current levels but, rather, that the increase may be much milder than expected. If this materializes and the Fed moves forward with monetary policy normalization, the yield curve will flatten significantly.

The likelihood of upside pressure on long-term yields is small but can arise from an increase in the aggregate amount of longer-term bonds available to private investors. Domestic loosening of long-term treasuries supply would be possible if the Fed speeds the balance sheet normalization process and returns to the traditional maturity composition of its holdings, selling longer-term treasuries. This effect could be augmented if foreign central banks fall under financial distress and find themselves needing to sell-off their Treasury holdings.

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