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U.S. Interest Rates Chartbook

September 2017

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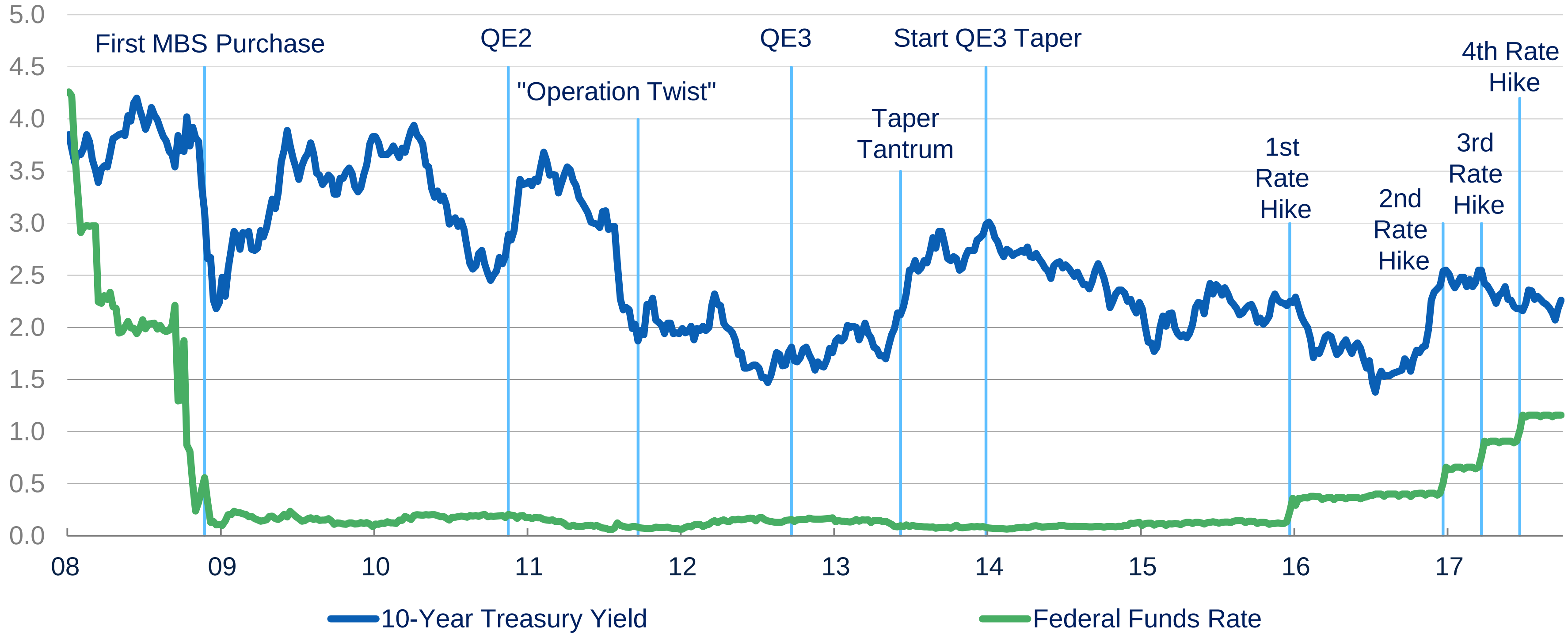
Takeaways

- The FOMC announced the start of the balance sheet normalization process to begin in October while maintained the Fed funds rate target range at 1%-1.25%
- The FOMC participants' trajectory for the Fed funds rate has maintained an additional rate hike by the end of 2017, revealed elevated uncertainty around the 2018-2020 path, while the longer-run median declined by 25 basis points
- The Fed funds futures market has aligned with the FOMC, pricing in a December 2017 rate hike with a 78% implied probability
- As geopolitical risks take backstage, the 10-Year Treasury yield has normalized to the higher rates seen in July, in line with attrition of the Fed's reinvestment policy already priced in
- The yield curve is expected to flatten due to upward pressure on short-term rates from the Fed funds rate hikes while long-term yields will remain under downward pressure from safe-haven flows and low term-premium

Unconventional Monetary Policy

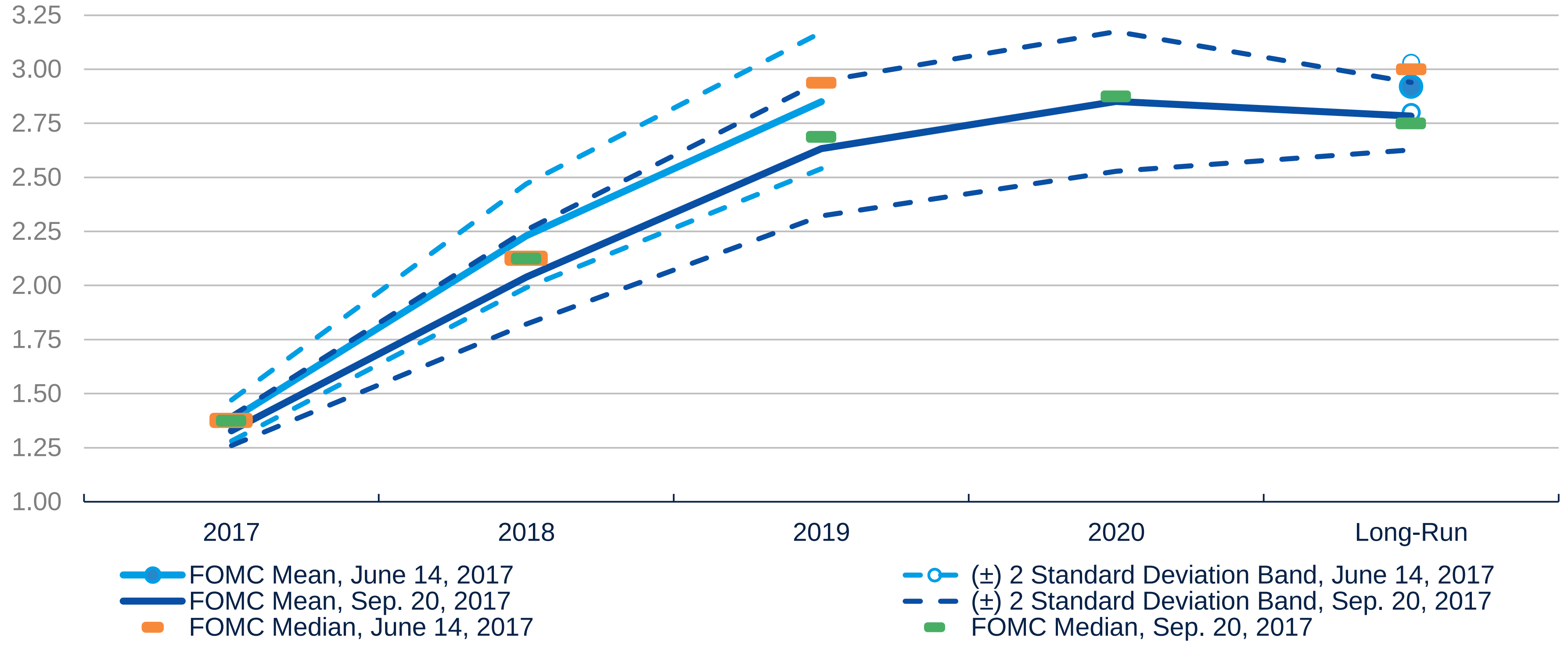
FEDERAL FUNDS RATE AND 10-YEAR TREASURY NOTE
(%)



Source: BBVA Research, Federal Reserve Board and Haver Analytics

FOMC 2017 and 2018 Policy Firming Trajectory Medians Remain Unchanged with a 25 Basis Points Decline in the Longer-Run

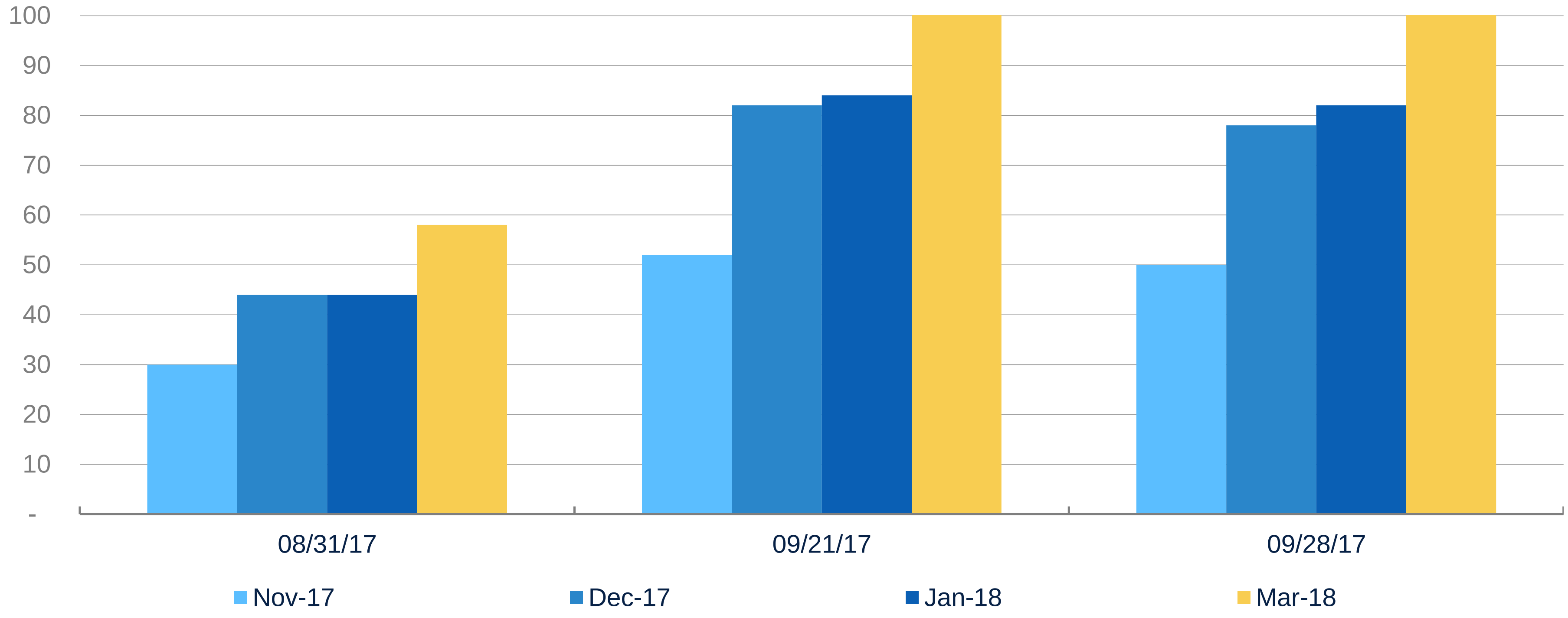
PROJECTED PACE OF POLICY FIRMING
(%)



Source: BBVA Research, Federal Reserve Bank of New York and Federal Reserve Board

A Fifth Rate Hike is Priced in for December 2017

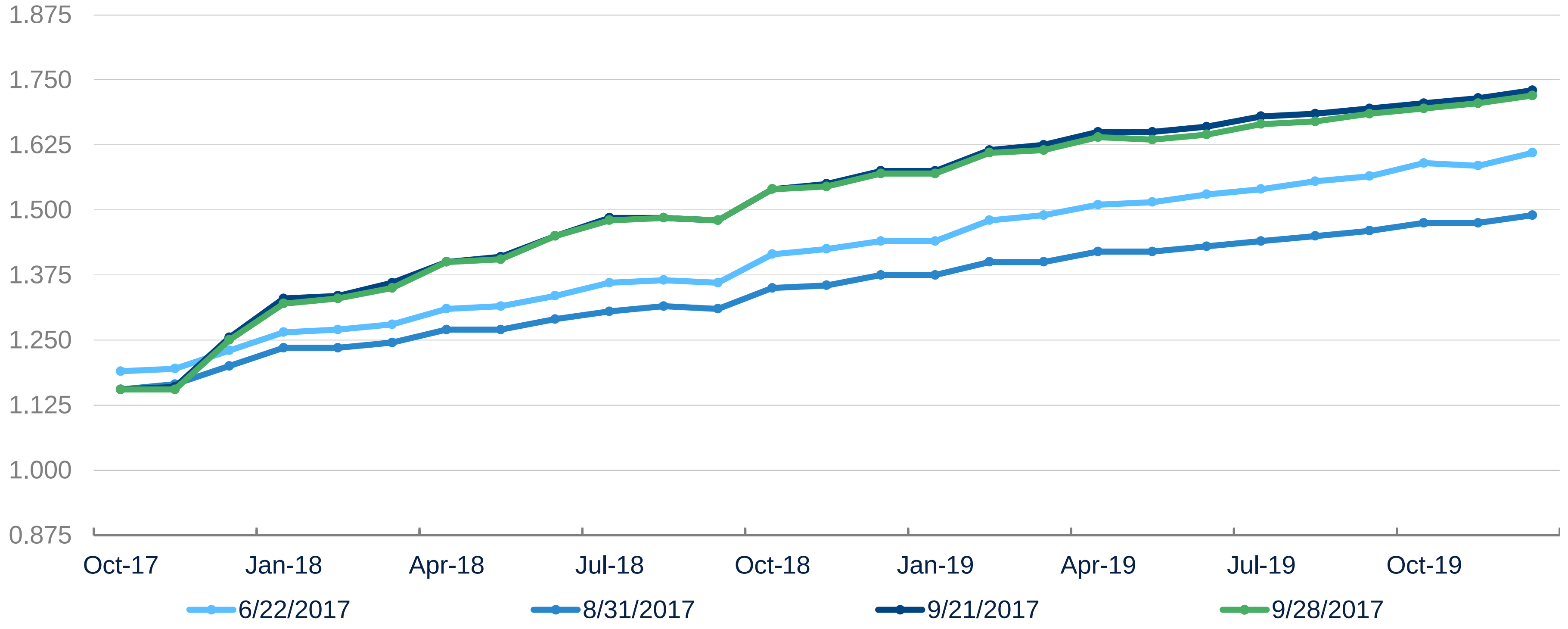
FED FUNDS FUTURES IMPLIED PROBABILITIES, FIFTH 25BP HIKE
(%)



Source: BBVA Research and Bloomberg

Fed Funds Futures Rise as the FOMC Near-Term Policy Outlook Firms

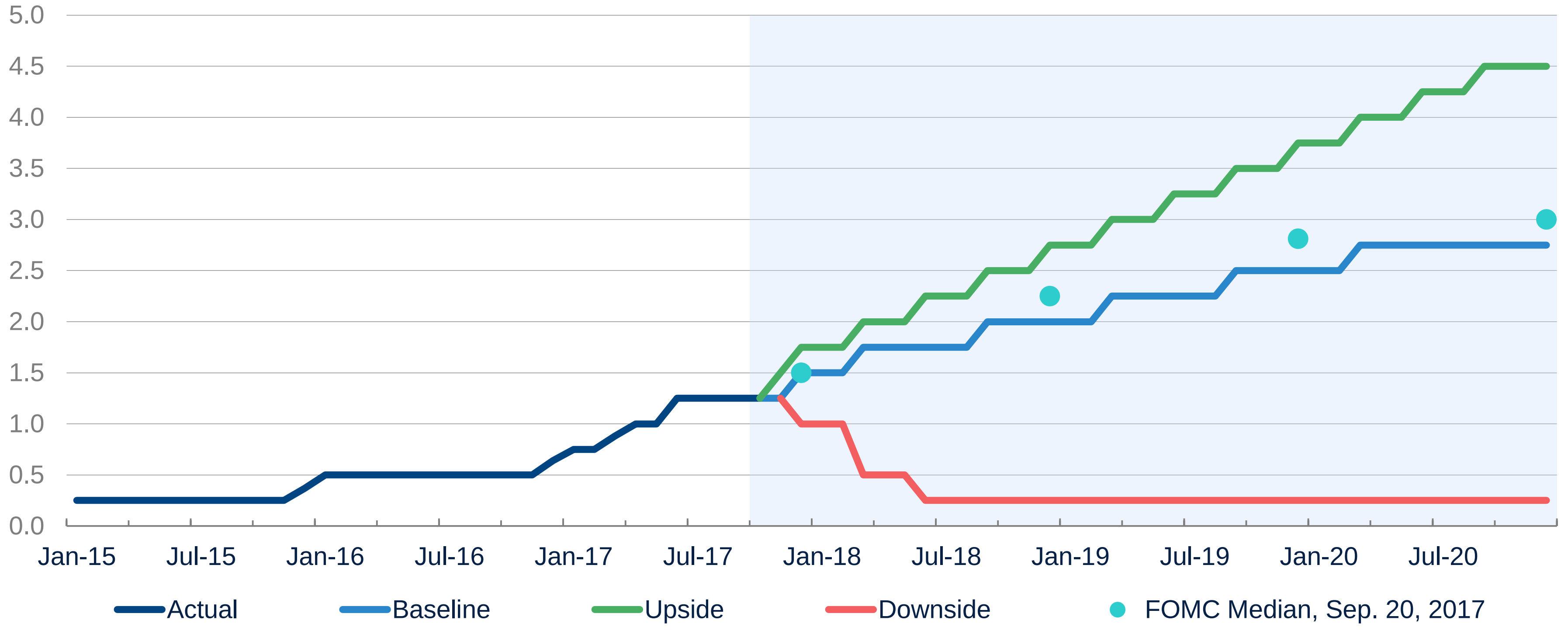
FED FUNDS FUTURES – MOST RECENT, 1 WEEK PRIOR, 1 MONTH PRIOR, 3 MONTHS PRIOR
(%)



Source: BBVA Research and Bloomberg

Fed Funds Firming Pace Forecast

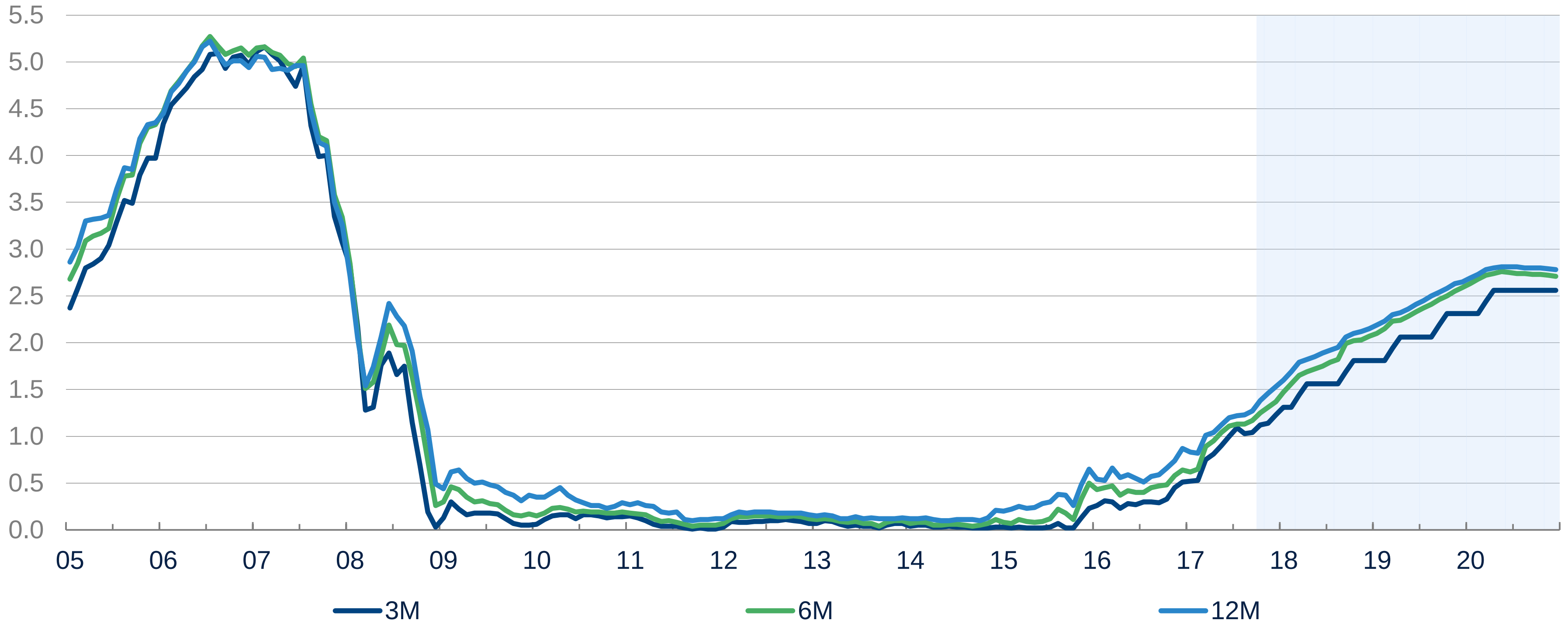
FEDERAL FUNDS RATE
(%, Upper Bound, End of Period)



Source: BBVA Research, Federal Reserve Board and Haver Analytics

Baseline Forecasts of Treasury Bill Yield

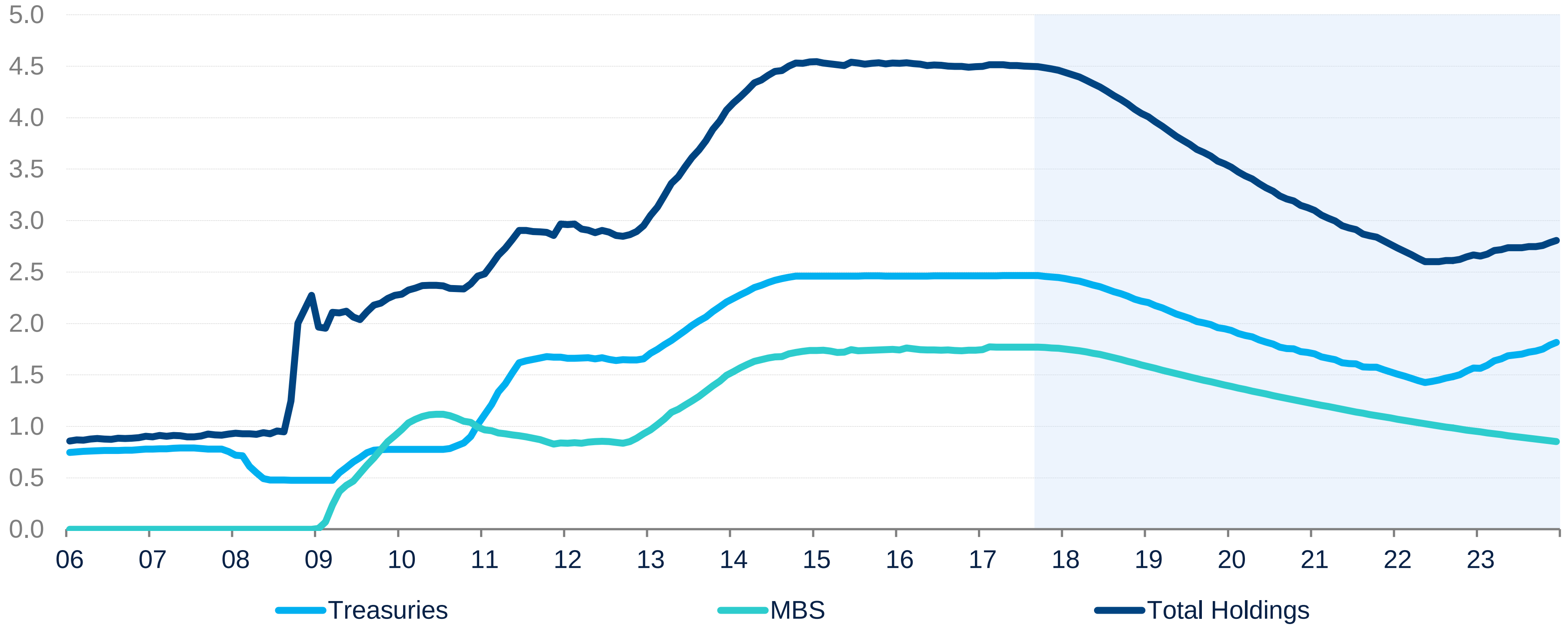
3-MONTH TO 12-MONTH RATES
(%)



Source: BBVA Research, Federal Reserve Board and Haver Analytics

Baseline Forecast of Federal Reserve's Balance Sheet

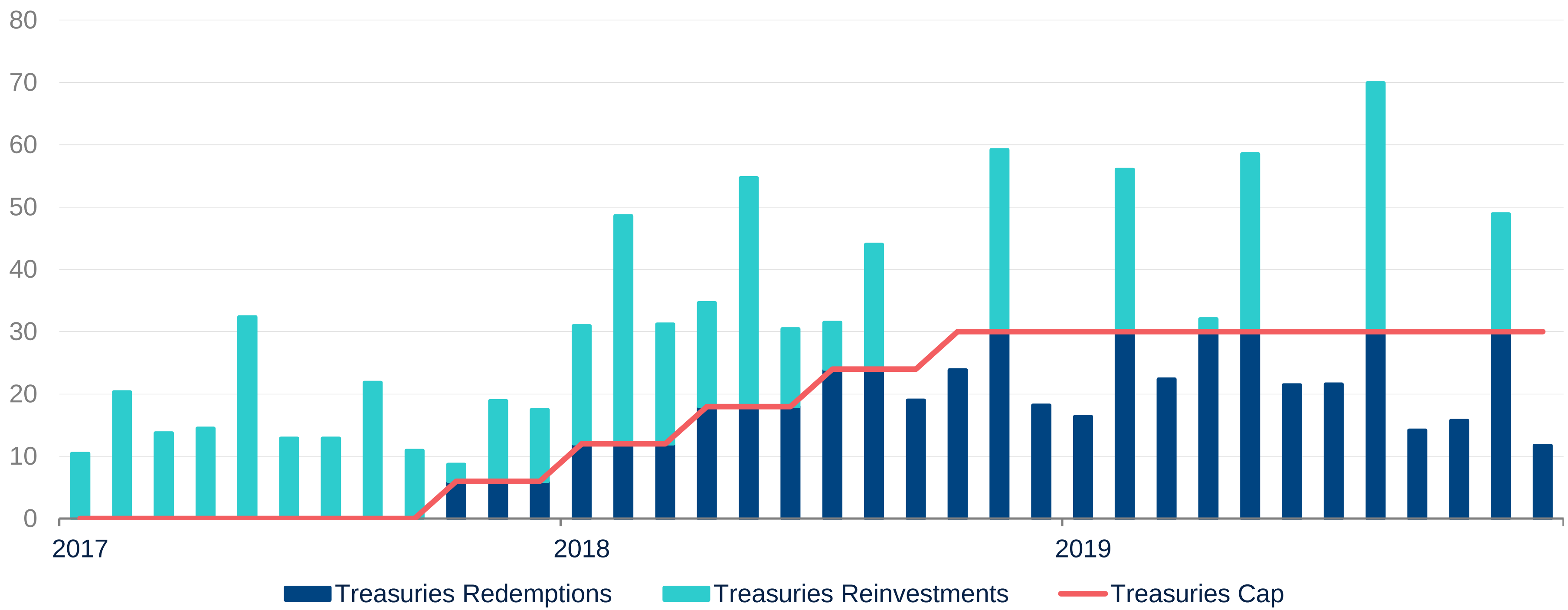
FEDERAL RESERVE TOTAL FACTORS SUPPLYING RESERVE FUNDS
(Monthly, Trillions $)



Source: BBVA Research and Federal Reserve Board

Treasuries Monthly Attrition Will Start with $6 Billion Cap in October and Increase to Reach $30 Billion per Month

SOMA* TREASURY SECURITIES MATURITY PROFILE
(Monthly, Billions $)



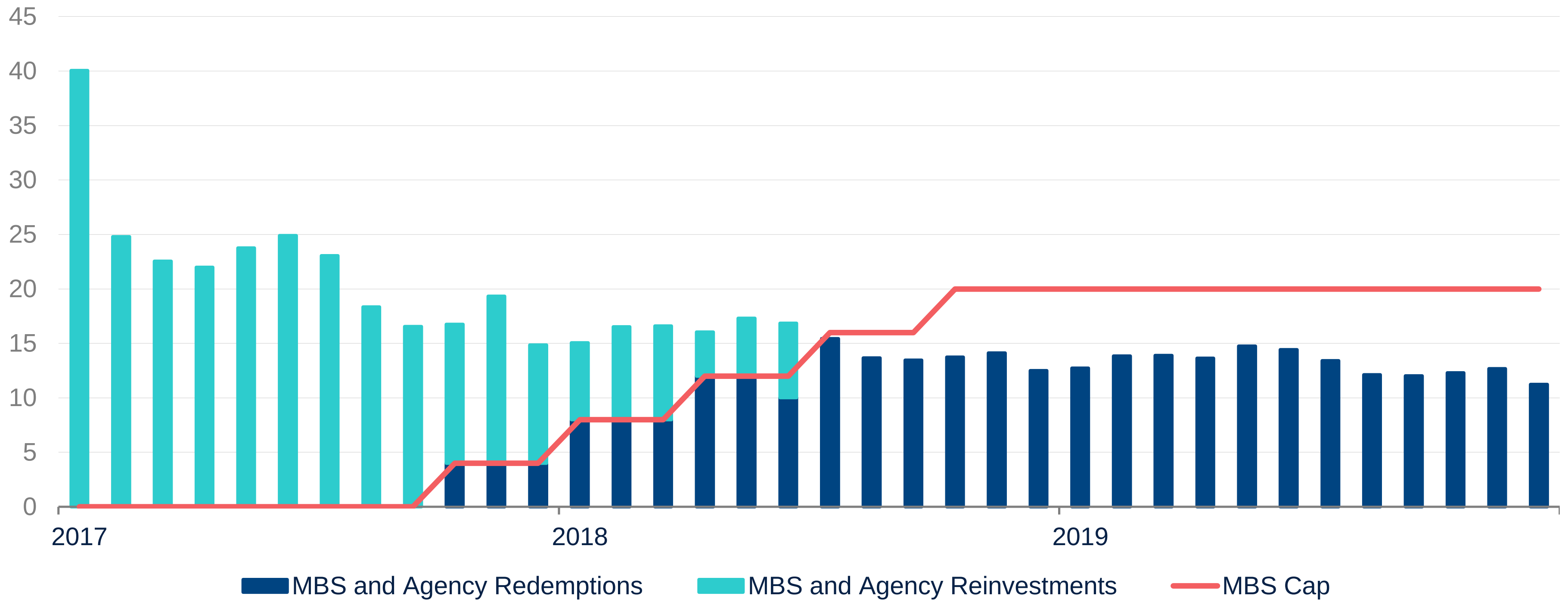
* The Federal Reserve System Open Market Account (SOMA) is a portfolio of U.S. Treasury and Federal Agency securities, foreign currency investments and reciprocal currency arrangements.

Source: BBVA Research and Federal Reserve Board

Agency Securities Monthly Attrition Will Start with $4 Billion Cap in October and Increase to Reach $20 Billion per Month

SOMA* AGENCY DEBT AND MBS PAY-DOWN PROFILE**

(Monthly, Billions $)



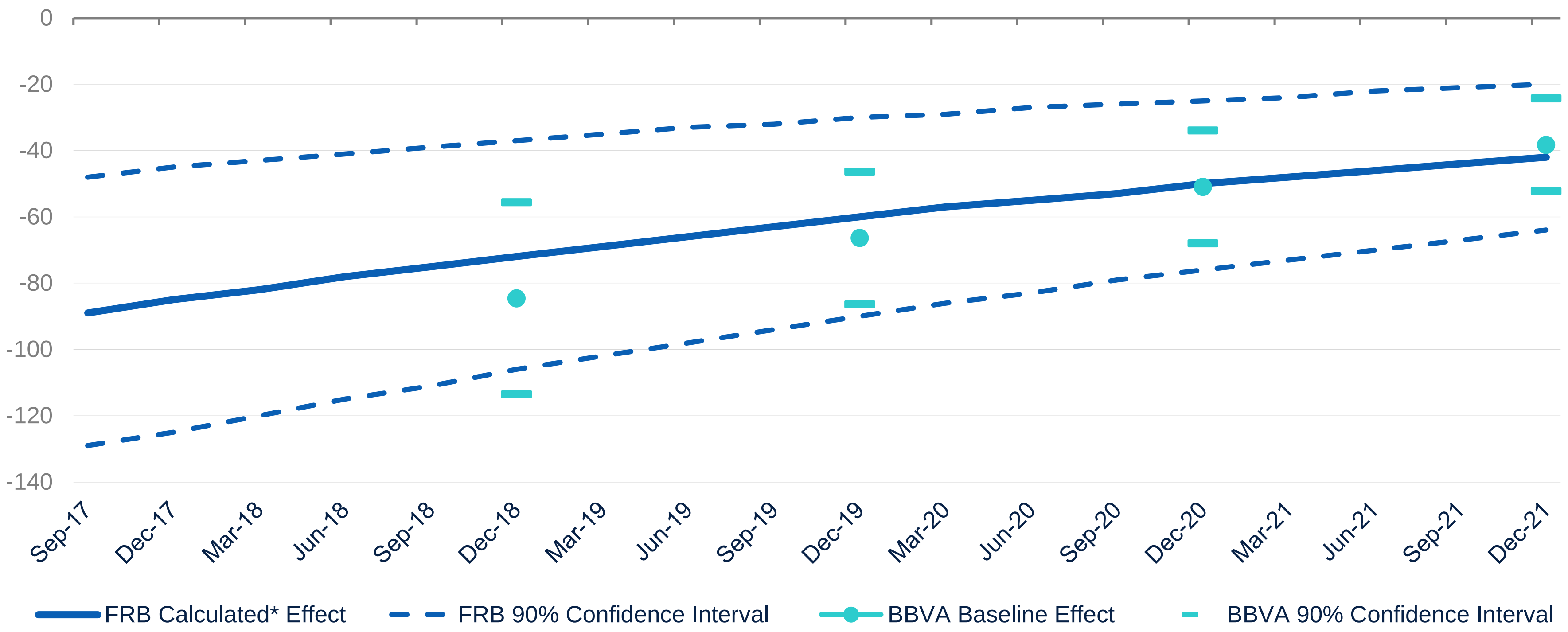
* The Federal Reserve System Open Market Account (SOMA) is a portfolio of U.S. Treasury and Federal Agency securities, foreign currency investments and reciprocal currency arrangements.

** Mortgage-backed security

Source: BBVA Research and Federal Reserve Board

Slow Adjustment of Term Premium to Balance Sheet Normalization

10-YEAR U.S. TREASURY TERM PREMIUM IMPACT
(Basis Points, Term Premium Effect = -100)



- Bonis, Brian, Jane Ihrig, and Min Wei (2017). "Projected Evolution of the SOMA Portfolio and the 10-year Treasury Term Premium Effect," FEDS Notes. Washington: Board of Governors of the Federal Reserve System, September 22, 2017, https://doi.org/10.17016/2380-7172.2081. $613 billion longer-run reserve balance scenario.

Source: BBVA Research and Federal Reserve Board

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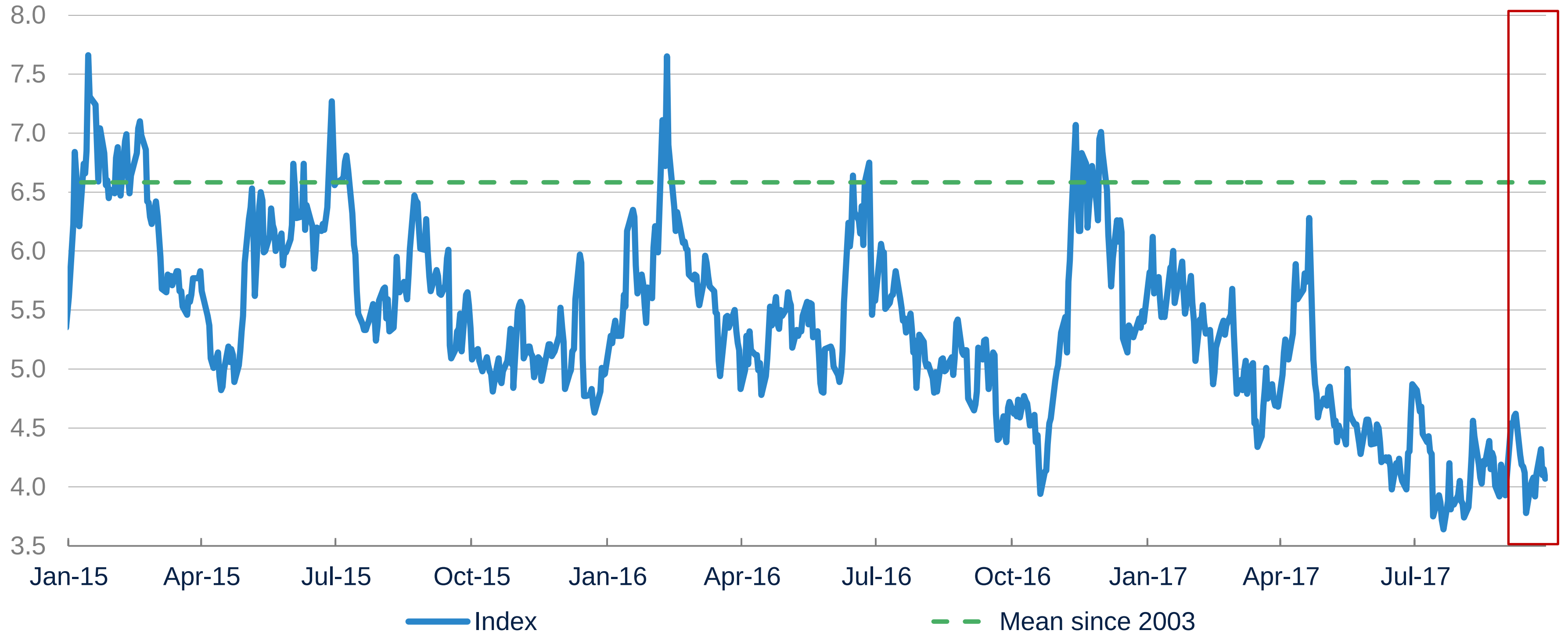
Long-Term Yield Volatility Has Normalized Substantially Below Its Historic Mean

10-YEAR U.S. TREASURY NOTE VOLATILITY

(Daily index)



Index measures a constant 30-day expected volatility of 10-Year Treasury Note futures prices, and is calculated based on transparent pricing from the Chicago Board of Trade's actively traded options on the Treasury Note futures

Source: BBVA Research, Chicago Board Options Exchange and Bloomberg

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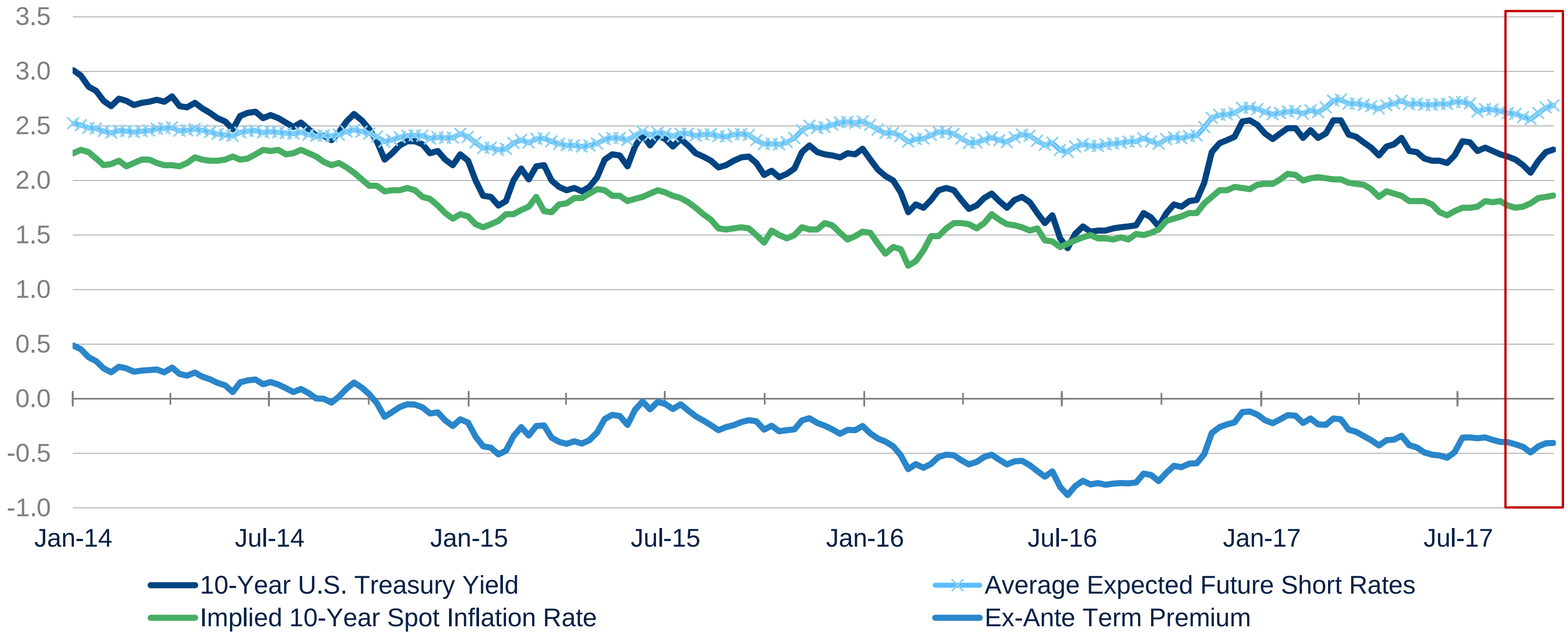
Downward Pressure on Term Premium Softens

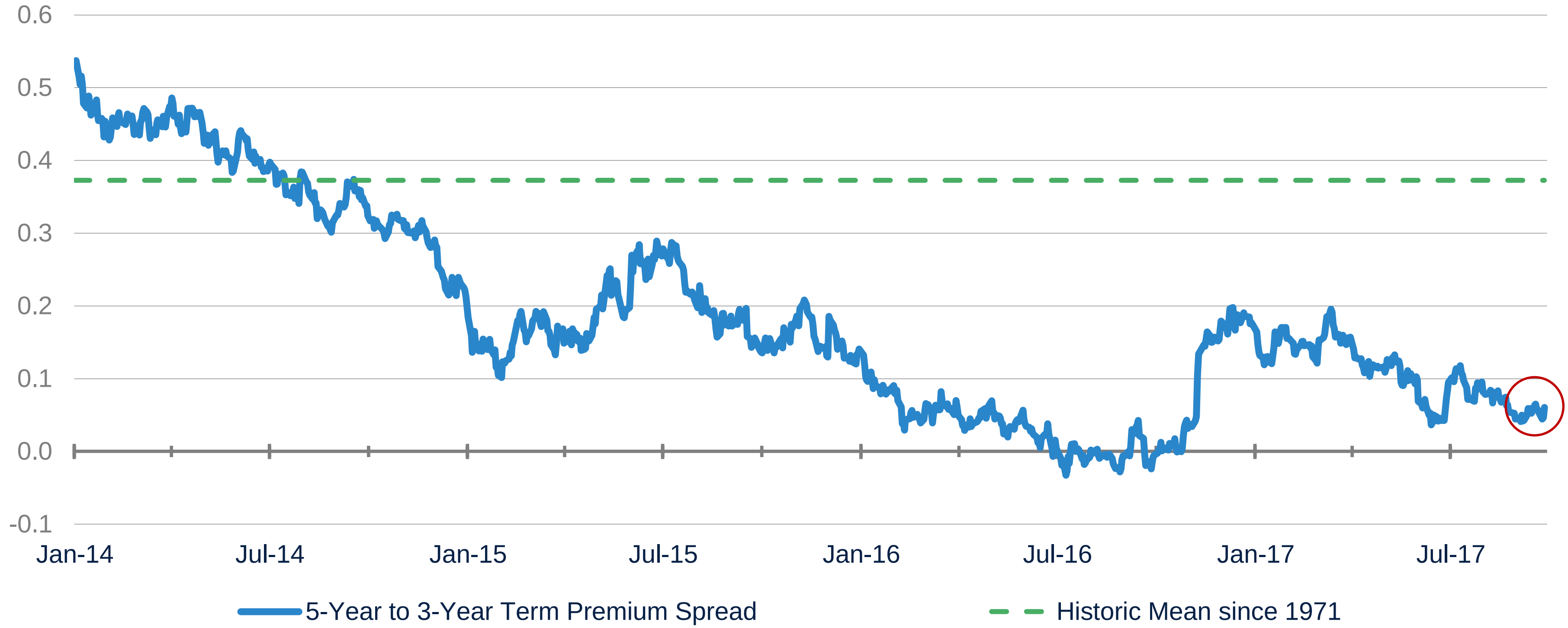
10-YEAR U.S. TREASURY TERM PREMIUM & MARKET INFLATION EXPECTATIONS
(Weekly, %)



Source: BBVA Research, Federal Reserve Board and Federal Reserve Bank of New York

Mid-Term Duration-Risk Compression Has Declined to 5 Basis Points

DURATION-RISK COMPRESSION
(Daily, %)



Calculated as the difference between 5-Year and 3-Year term premium reported by the New York Fed ACM (Adrian, Crump, and Moench) five-factor, no-arbitrage term structure model incorporating pricing factors.

Source: BBVA Research, Federal Reserve Bank of New York and Haver Analytics

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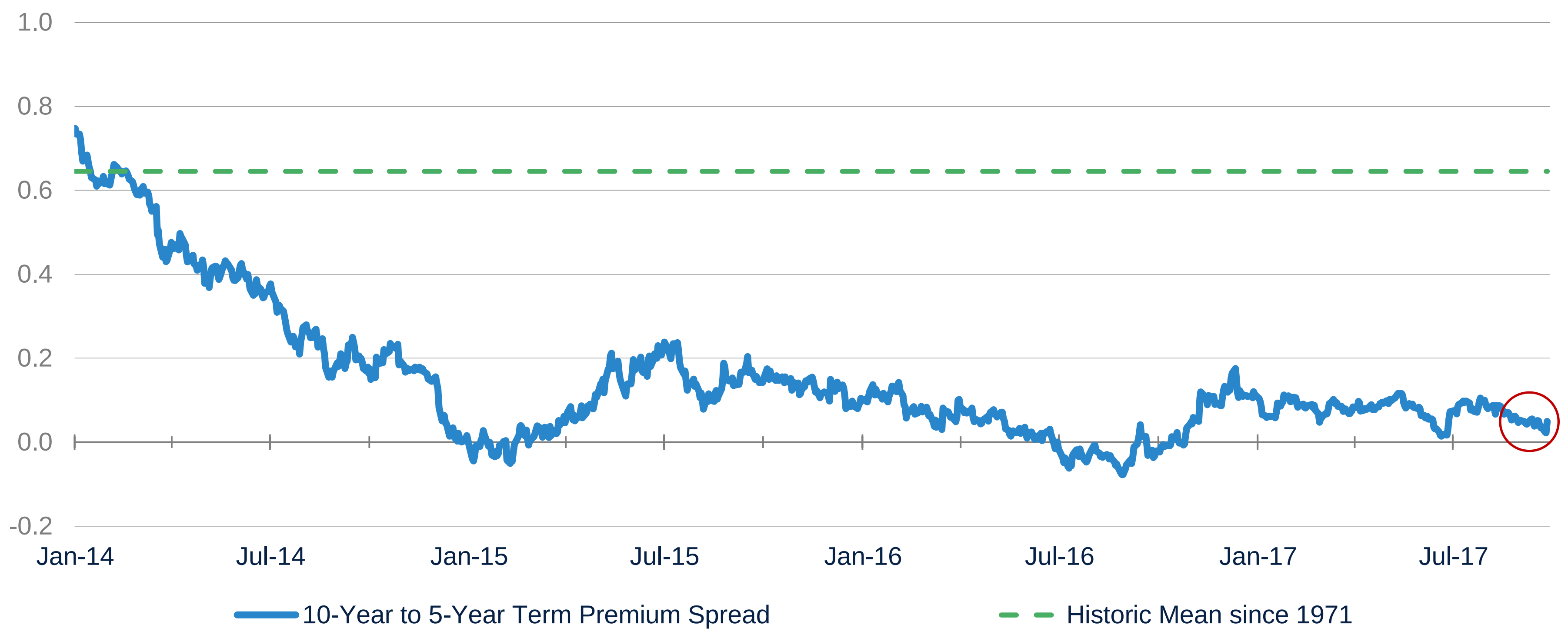
Long-Term Duration-Risk Compression Has Declined to Lows of 2 Basis Points

DURATION-RISK COMPRESSION
(Daily, %)

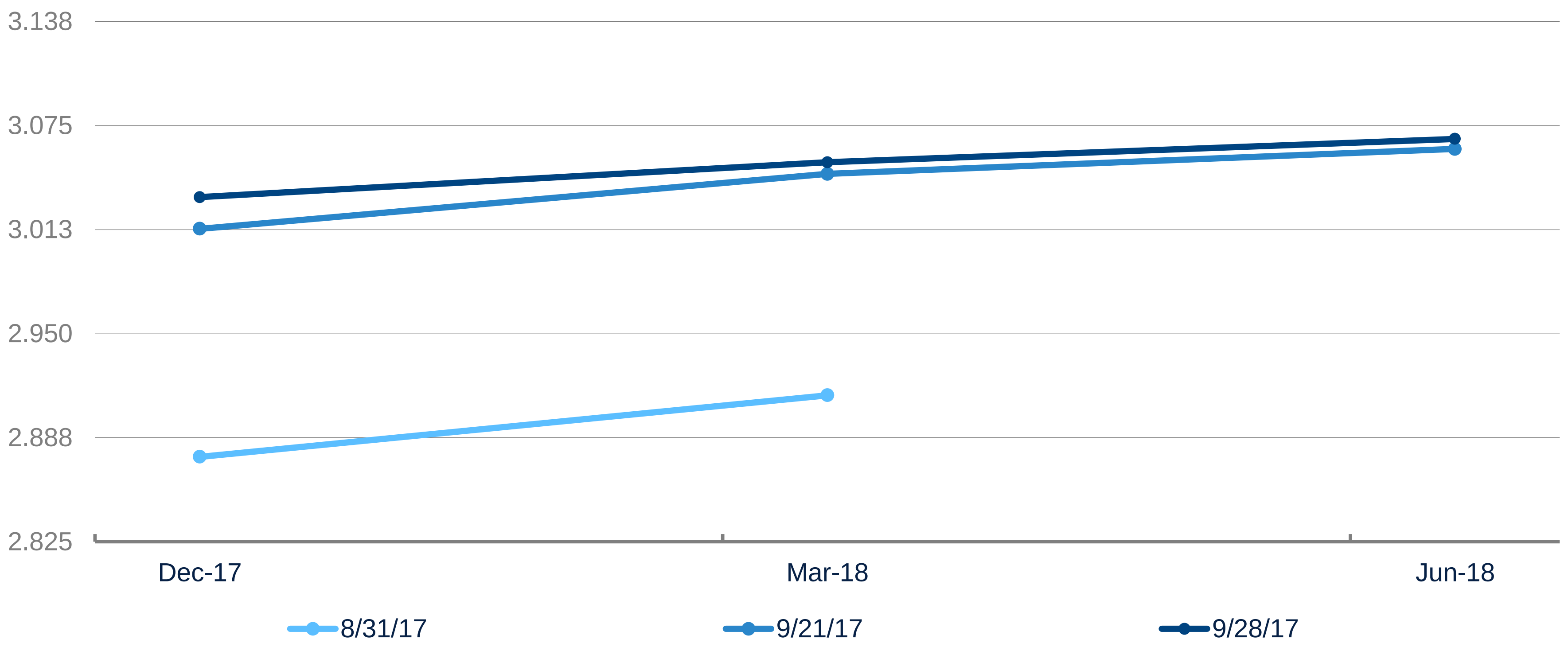


Calculated as the difference between 10-Year and 5-Year term premium reported by the New York Fed ACM (Adrian, Crump, and Moench) five-factor, no-arbitrage term structure model incorporating pricing factors.

Source: BBVA Research, Federal Reserve Bank of New York and Haver Analytics

Futures Discount an 3.5 Basis Points Raise in 10-Year Treasury Yield Over the Next 3 Quarters

10-YEAR U.S. TREASURY YIELD FUTURES – MOST RECENT, 1 WEEK PRIOR, 4 WEEKS PRIOR, 8 WEEKS PRIOR
(%)



Source: BBVA Research and Bloomberg

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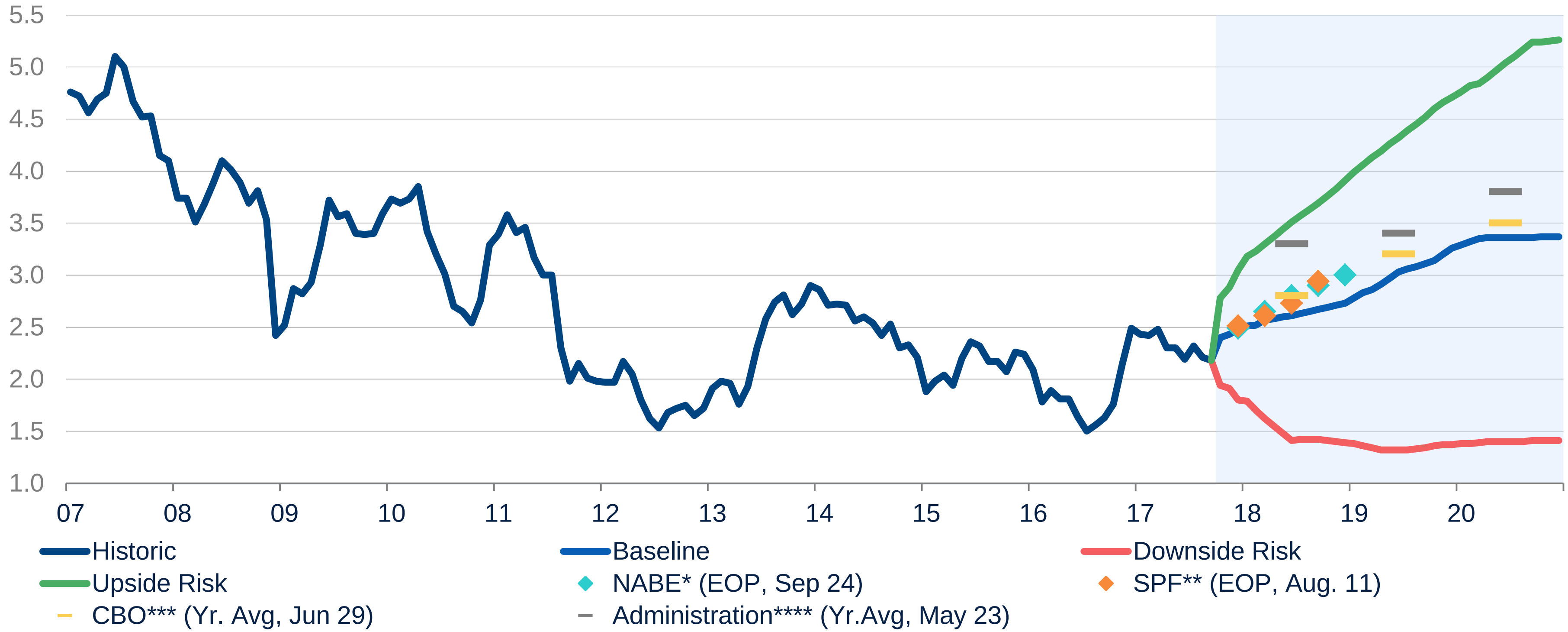
10-Year Treasury Yield Forecasts

10-YEAR U.S. TREASURY YIELD
(%)

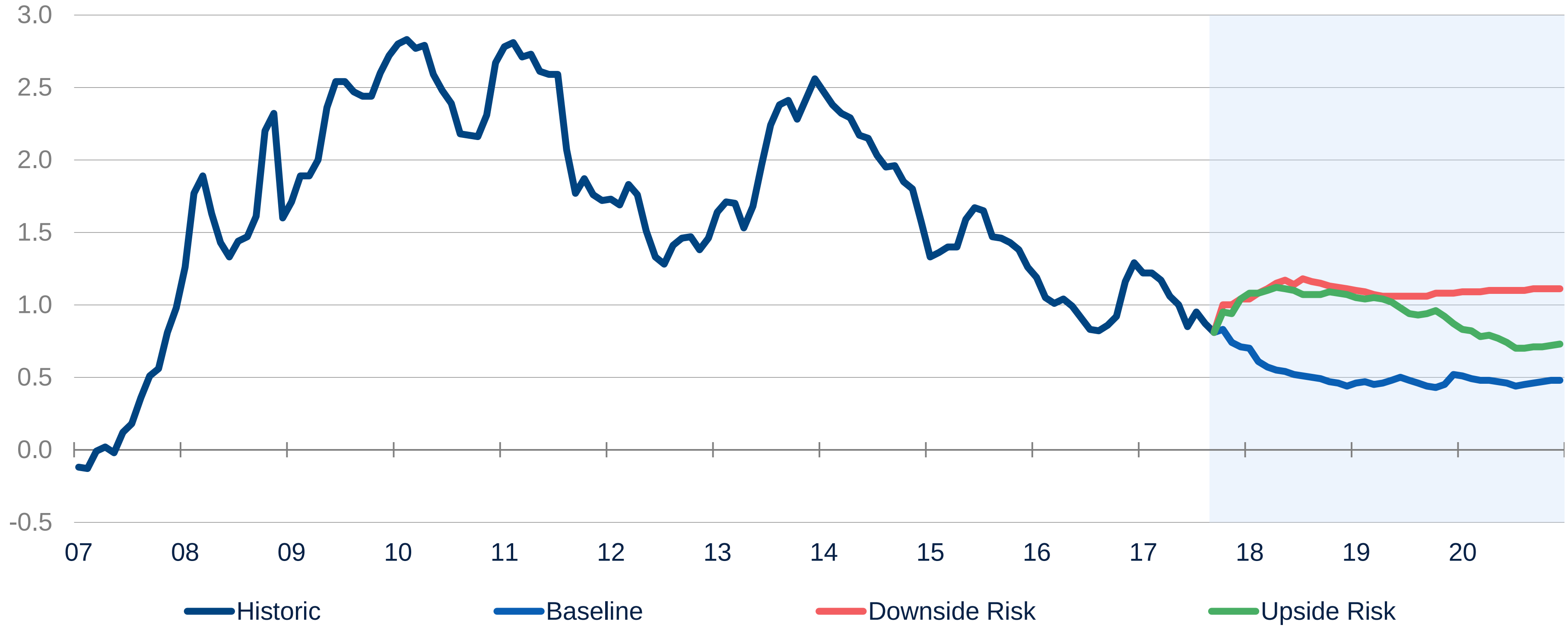


* National Association for Business Economics (NABE) Outlook median forecast compiled from a panel of NABE members. Last release date September 24, 2017
** Survey of Professional Forecasters (SPF) conducted by Federal Reserve Bank of Philadelphia. Last release date August11, 2017
*** Congressional Budget Office (CBO). Last release date June 29, 2017
**** Administration: 2018 Budget. Last release date May 23, 2017

Source: BBVA Research, NABE, FRB Philadelphia, FRB New York, CBO and Haver Analytics

Yield Curve Slope Forecasts

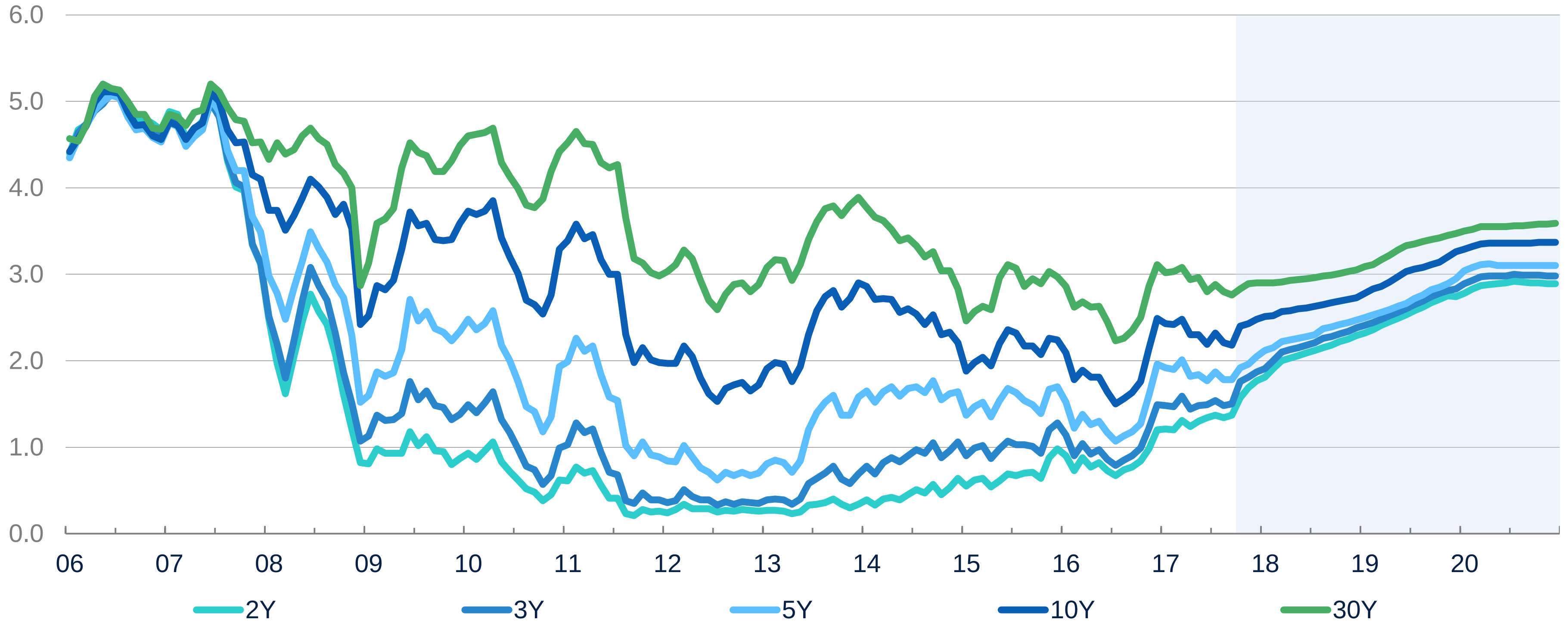
TREASURY YIELD CURVE SLOPE
(%, 10Y-2Y)



Source: BBVA Research, Federal Reserve Board and Haver Analytics

Treasury Yield Curve Baseline Forecasts

U.S. TREASURY YIELD CURVE
(%)



Treasury yield curve is estimated with a three-factor no-arbitrage model linked to macroeconomic factors measuring growth, inflation and monetary policy. Estimates are based on BBVA research baseline forecast for GDP growth, inflation and Fed funds rate.

Source: BBVA Research, Federal Reserve Board and Haver Analytics

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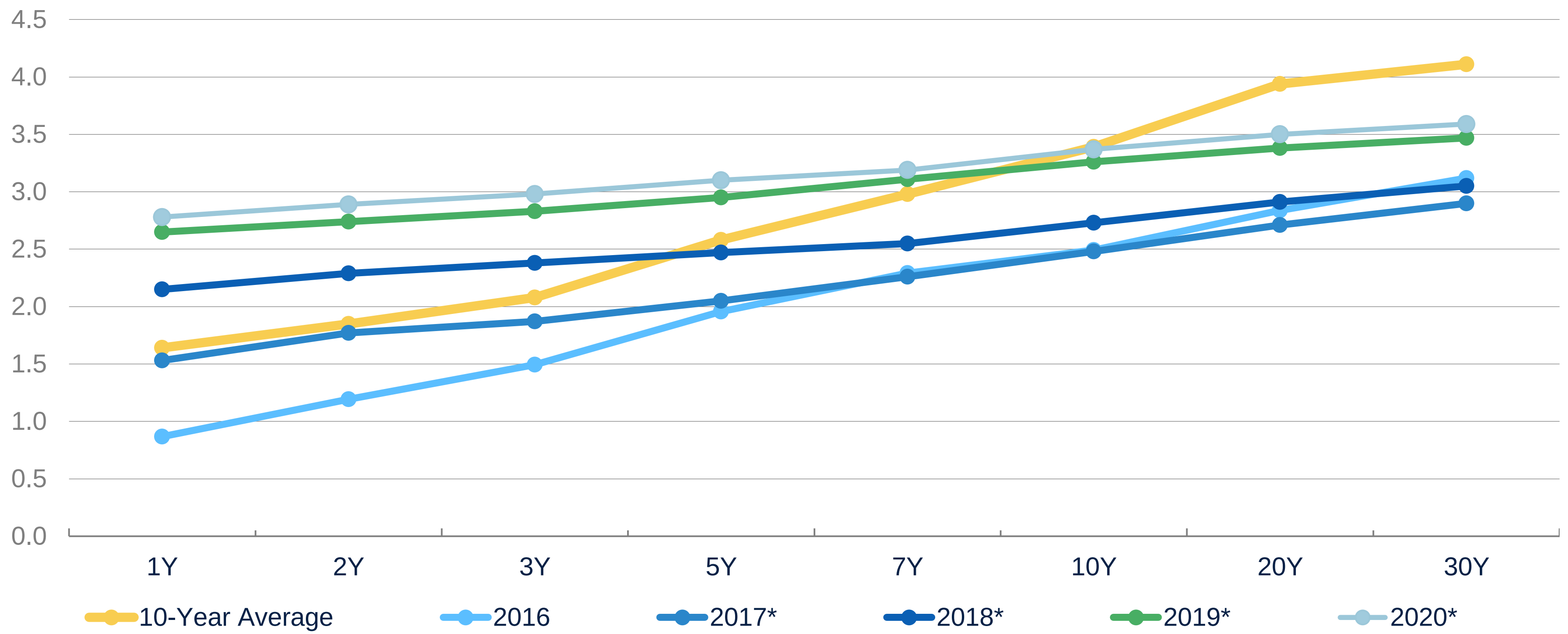
Yield Curve Forecasts

TREASURY YIELD CURVE BASELINE FORECAST
(%, End of Period)

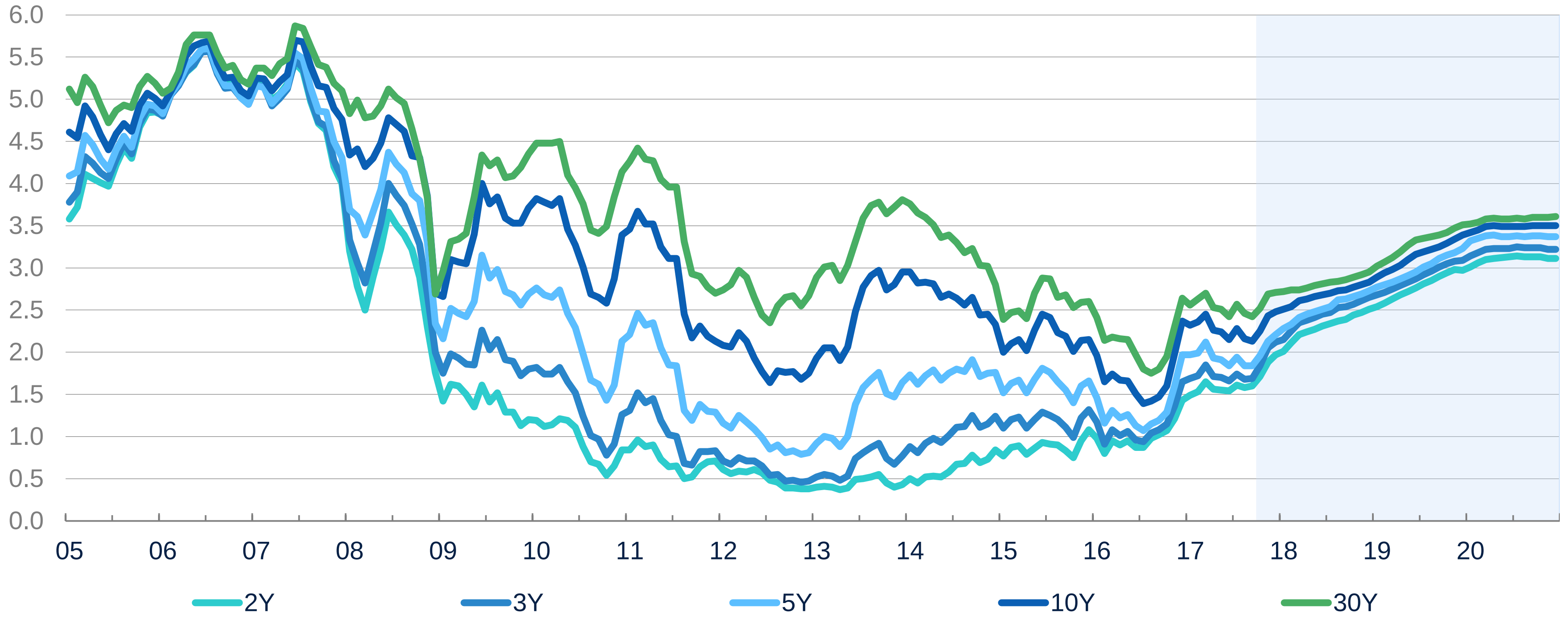


*BBVA Research baseline forecast. Treasury yield curve is estimated with a three-factor no-arbitrage model linked to macroeconomic factors measuring growth, inflation and monetary policy. Estimates are based on BBVA Research baseline forecast for GDP growth, inflation and Fed funds rate.

Source: BBVA Research, Federal Reserve Board and Haver Analytics

Swap Curve Baseline Forecasts

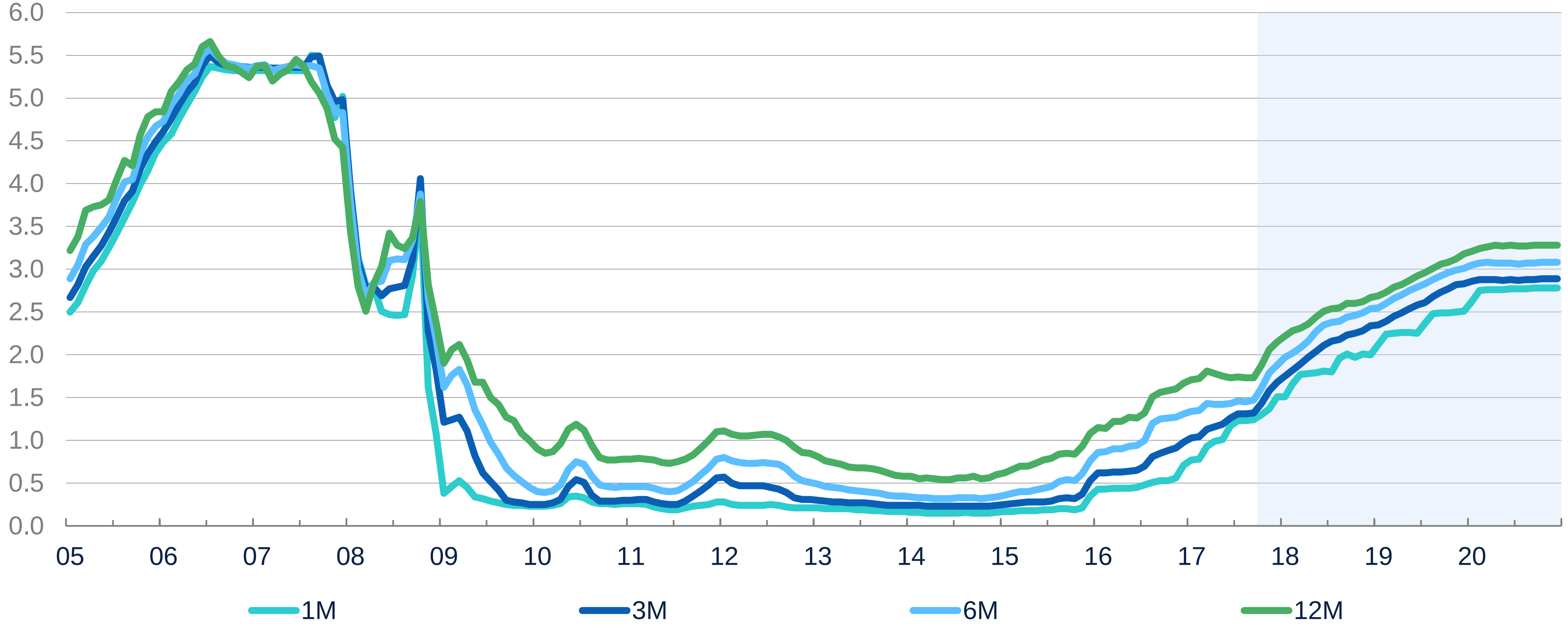
U.S. SWAP RATES
(%)



Source: BBVA Research, Federal Reserve Board and Haver Analytics

LIBOR Curve Baseline Forecasts

U.S. DOLLAR LIBOR RATES
(%)



Source: BBVA Research, Federal Reserve Board and Haver Analytics

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