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# The persistence and signalling power of central bank asset purchase programmes

New York City, US Monetary
Policy Forum, 23 February 2018

## Expected time to first rate hike

(in months)



Sources: Bloomberg and ECB.

Notes: This chart shows the time horizon (in months) to the first 10 basis points interest rate increase fully priced in the OIS forward curve. The horizon is defined as the difference between (i) the date at which the OIS forward curve exceeds the minimum of the current EONIA and all OIS forward rates by 10 basis points and (ii) the current date, where current refers to the dates on the horizontal axis. The dashed lines refer to major recalibrations of the APP, namely (1) December 2015, (2) March 2016, (3) December 2016 and (4) October 2017. Last observation: 20 February 2018.

**Time variation in sensitivity to macro surprises:**

**3-month OIS in 1-year**
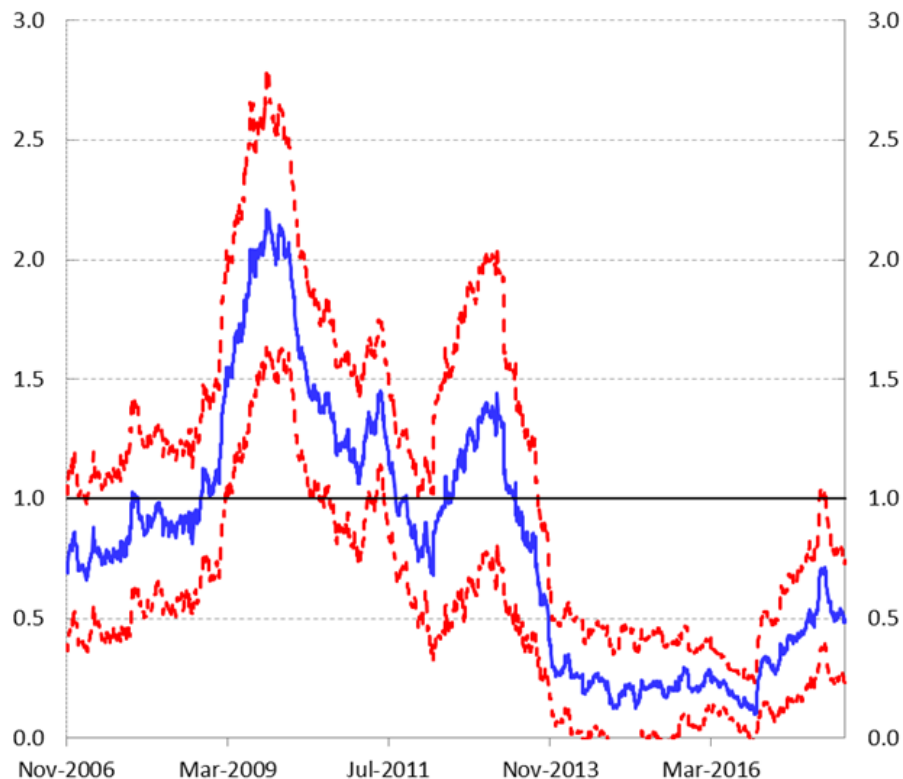
Source: Estimation based on Altavilla, C., G. Giannone and M. Modugno (2017), "Low frequency effects of macroeconomic news on government bond yields," *Journal of Monetary Economics*, Elsevier, vol. 92(C), pp. 31-46. Note: The blue line indicates the sensitivity of forward rates to macroeconomic surprises. The red lines represent the associated confidence bands. When larger (smaller) than one, the sensitivity is higher (lower) than historical regularities.

# A stylized representation of stock effects
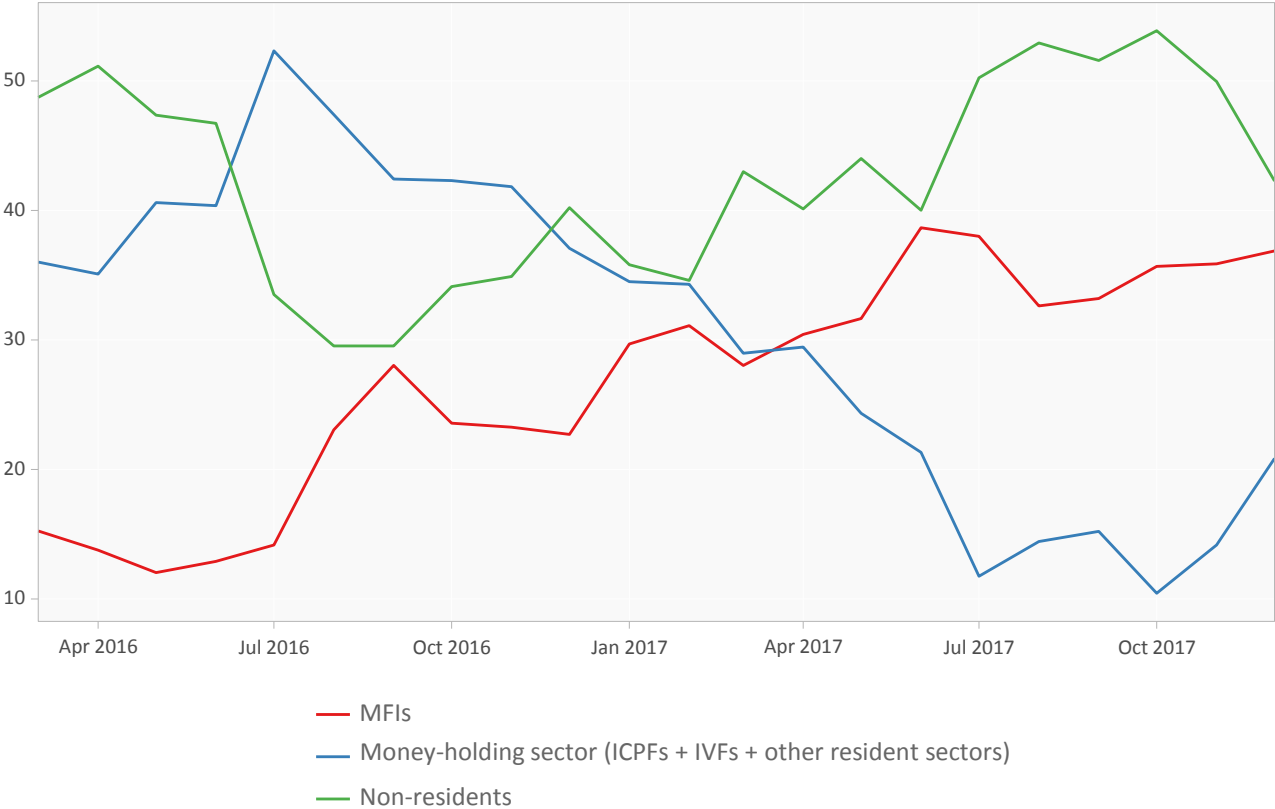
**Central bank demand and secondary market supply**
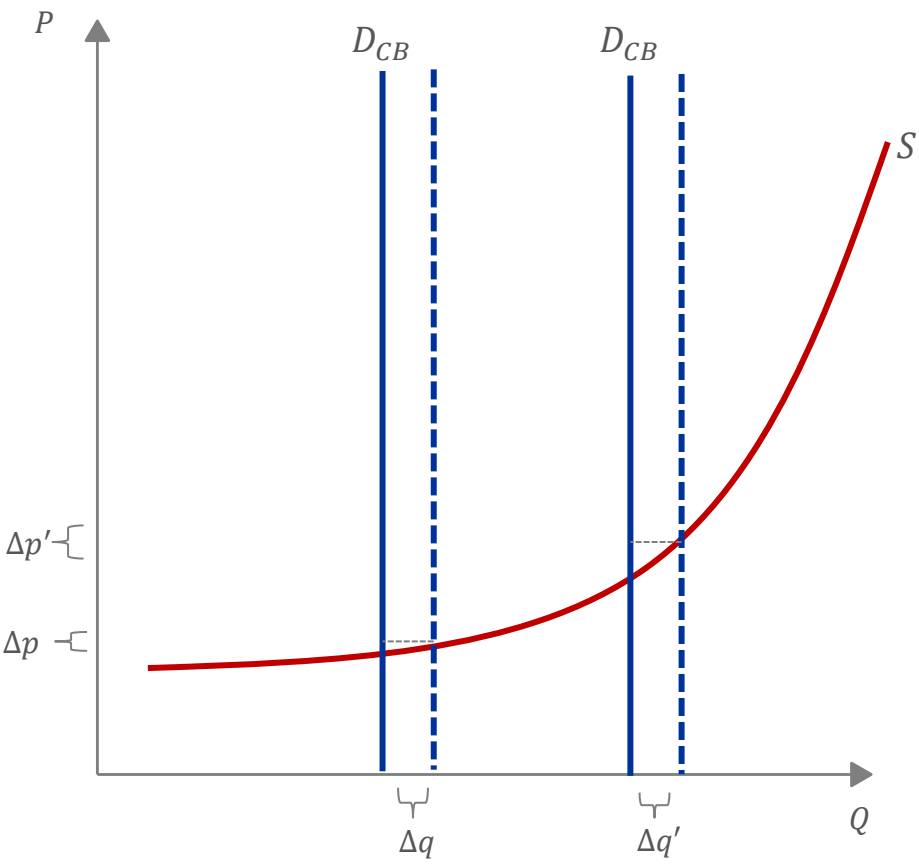


**Private investor demand and secondary market supply**
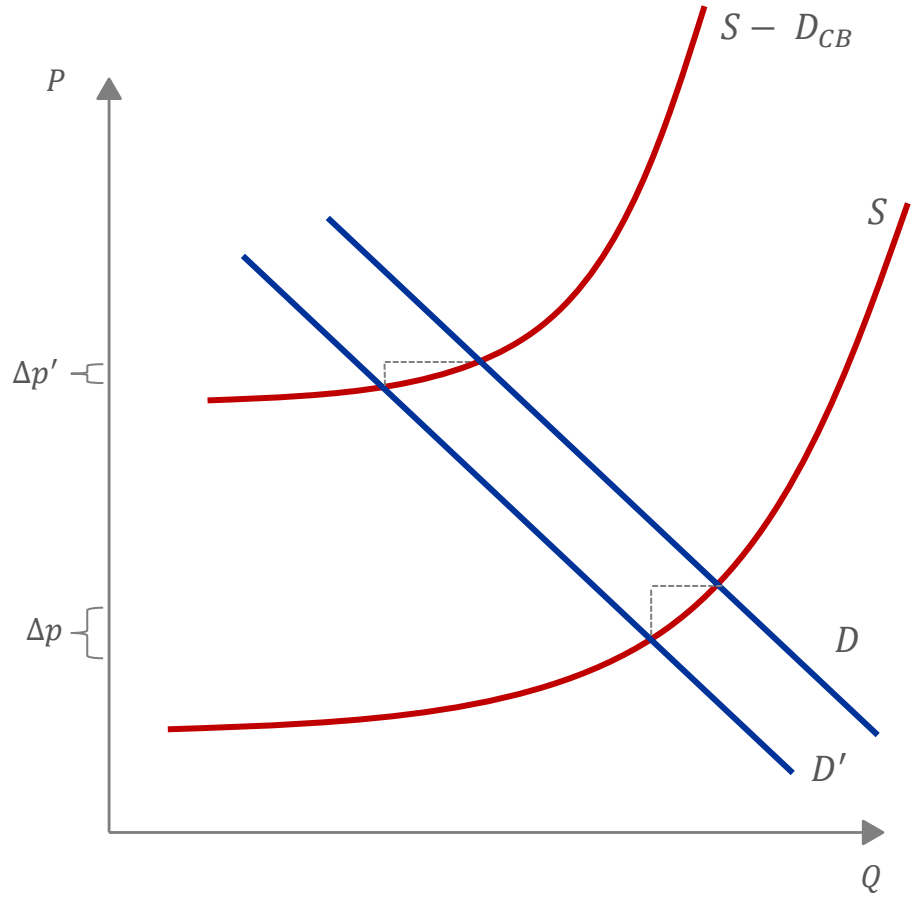


Source: ECB.

# Allocation of PSPP purchases across sectors

(% of Eurosystem purchases of government securities, 12-month cumulated flows)



- MFIs
- Money-holding sector (ICPFs + IVFs + other resident sectors)
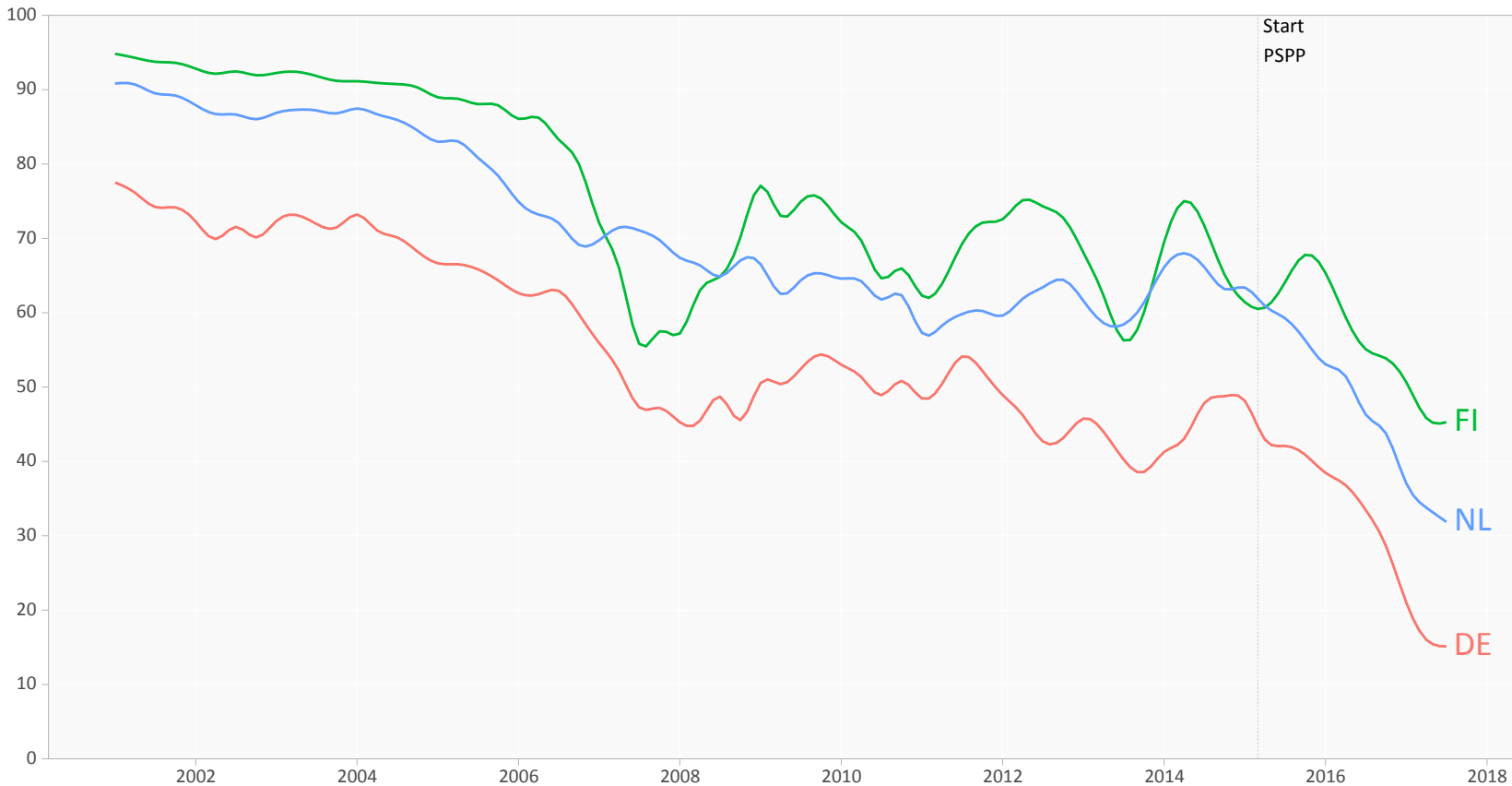- Non-residents

Source: ECB calculations.

Note: For more details, see box "Which sectors sold the government securities purchased by the Eurosystem?", ECB Economic Bulletin, Issue 4/2017. Last observation: December 2017.

## Bond free float for selected economies

(estimated percentage share of outstanding central government bonds held by private sector)



Sources: IMF and ECB calculations.

Notes: The free float is constructed by subtracting from outstanding central government bonds the bond holdings of foreign central banks and of the Eurosystem under the PSPP. Non-monetary policy portfolios are not considered. Foreign exchange holdings are taken from the IMF's COFER and CPIS survey, where the assumption is made that unallocated reserves are distributed similar to allocated reserves and that 80% of total reserves are invested in central government bonds. This follows a methodology proposed by Arslanalp, S. and T. Tsuda (2012), "Tracking Global Demand for Advanced Economy Sovereign Debt", IMF Working Paper, WP 12/284. Last observation: September 2017. This is an updated version of the original slide that corrects for a computational error that has mainly affected the historical part of the time series.

## 10-year Bund term premium and free float

(term premium: percent per annum; free float: estimated percentage share of outstanding central government bonds held by private sector; estimated slopes for selected periods)
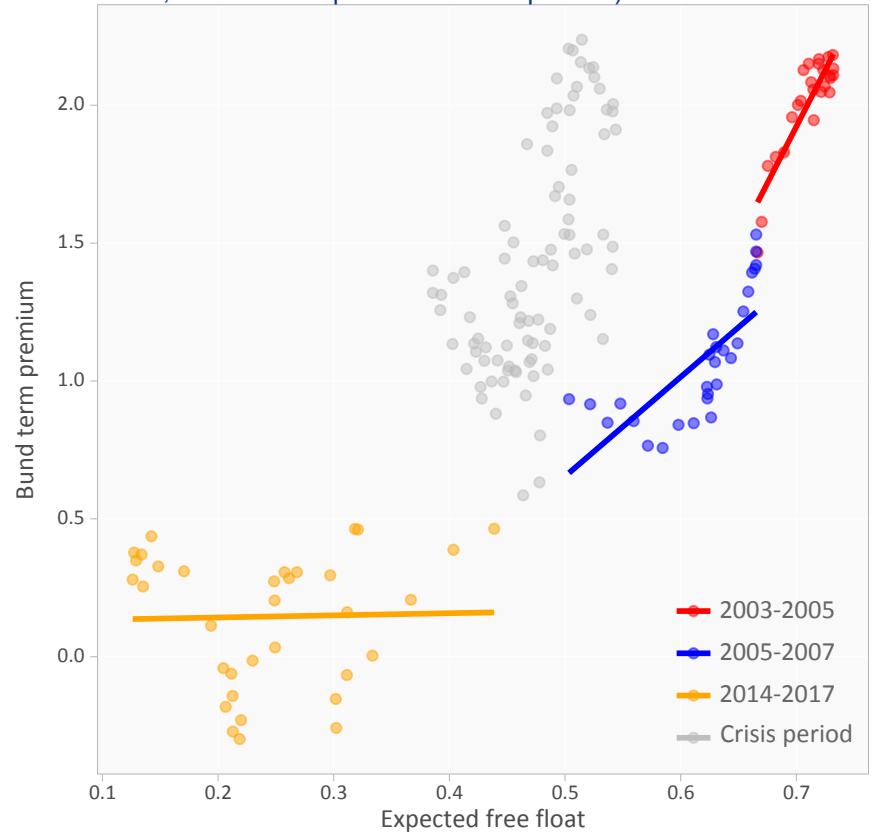


Sources: IMF, Reuters and ECB calculations.

Notes: The free float has been computed as described on the previous slide but has been adjusted to reflect market expectations about PSPP purchases rather than actual PSPP purchases. The Bund term premium is taken from Lemke, W. and T. Werner (2017), "Dissecting long-term Bund yields in the run-up to the ECB's Public Sector Purchase Programme", ECB Working Paper No 2106. This is an updated version of the original slide that corrects for a computational error that has mainly affected the historical part of the time series.

## Model-based decomposition of 10-year US Treasuries

(%)
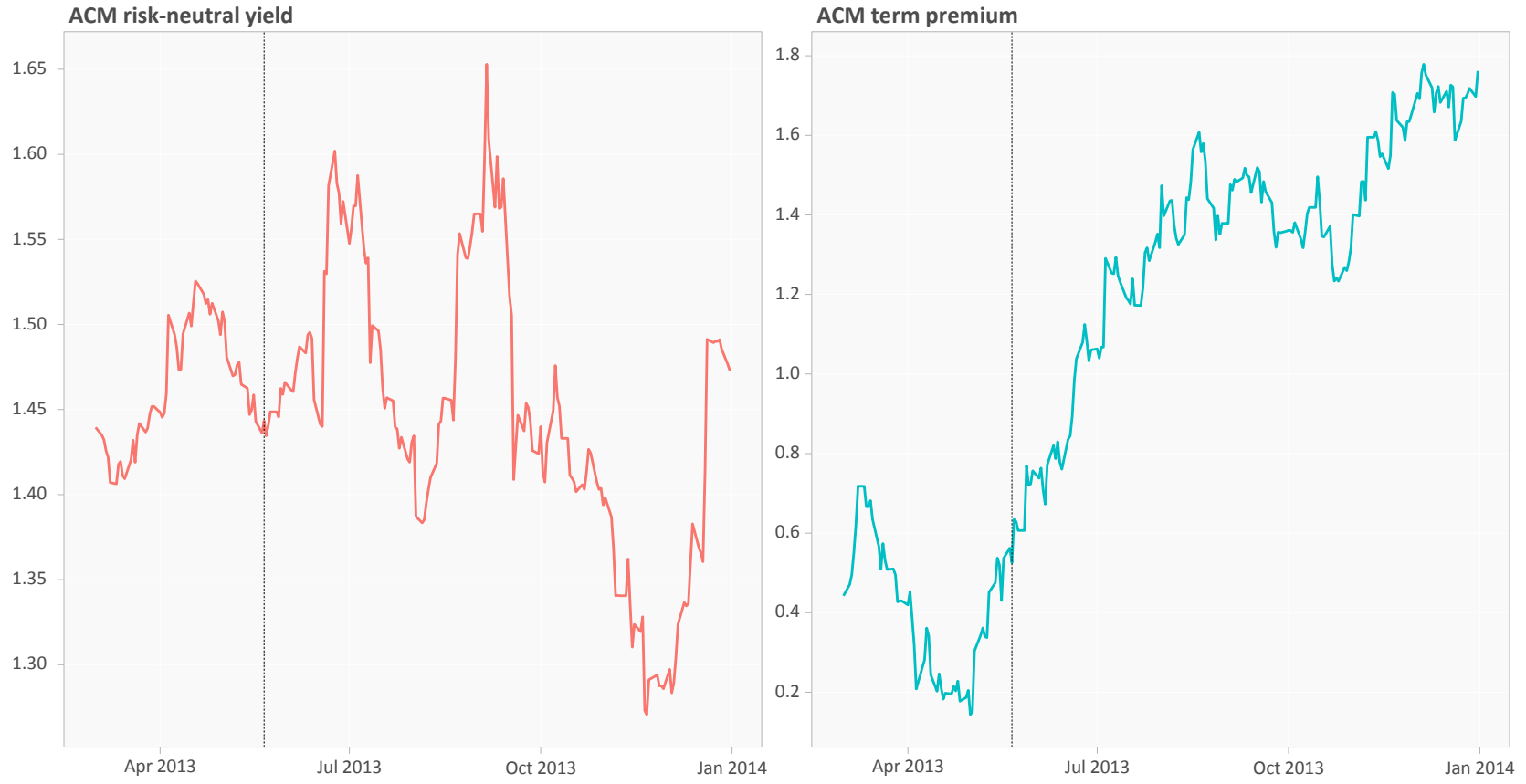


Source: Adrian, T., R. K. Crump and E. Moench (2013), "Pricing the Term Structure with Linear Regressions", *Journal of Financial Economics* 110, No. 1: 110-38. Note: Dashed lines refer to the day before the hearing of then Fed Chairman Bernanke before the US Congress on 22 May 2013. "ACM" refers to the Adrian, Crump, Moench.

# The US likely in a steeper part of the curve

## 10-year term premia and free float

(black dots refer to the United States; red dots to
Germany; term premium: percent per annum; free float:
estimated percentage share of outstanding marketable
or central government bonds held by private sector)
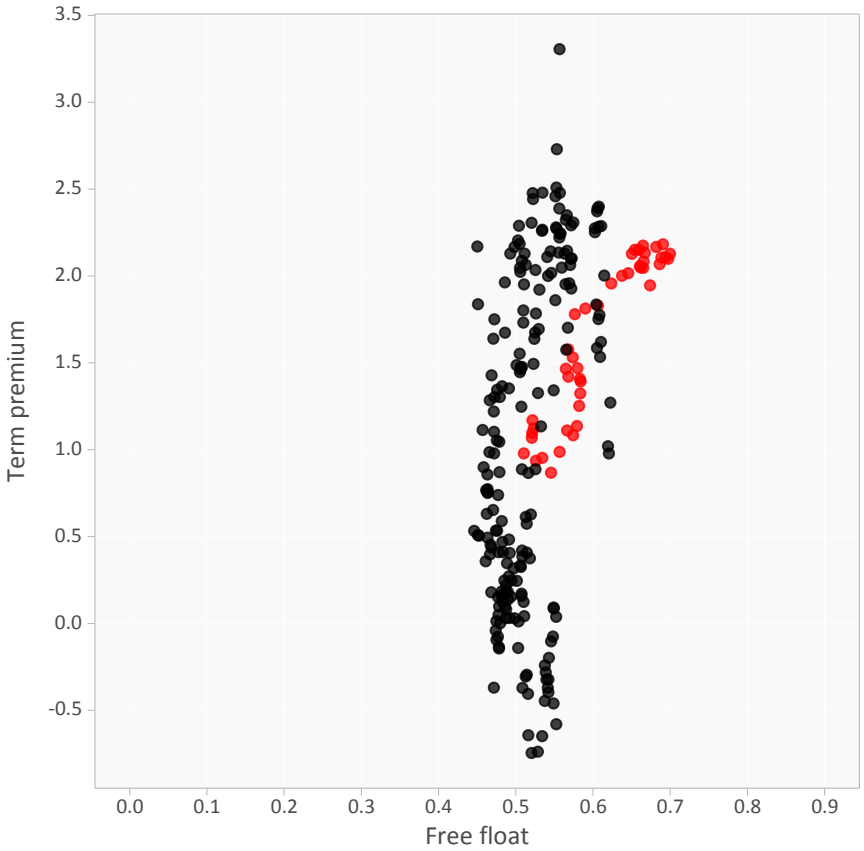


Sources: Haver, IMF and ECB calculations.

Notes: Bund term premia and free float shown only for free float levels above 0.5. The free float for the US is constructed by subtracting from total outstanding marketable US Treasuries the securities held outright by the Federal Reserve and the Treasury holdings of foreign official institutions as reported under TIC. Please refer to the notes of the previous slide for the term premium. Last observation is December 2017.

# The stock effect may help temper term premium shocks in the euro area

## Shock decomposition of 10-year euro area OIS and US Treasury yields

(percent per annum and percentage points)
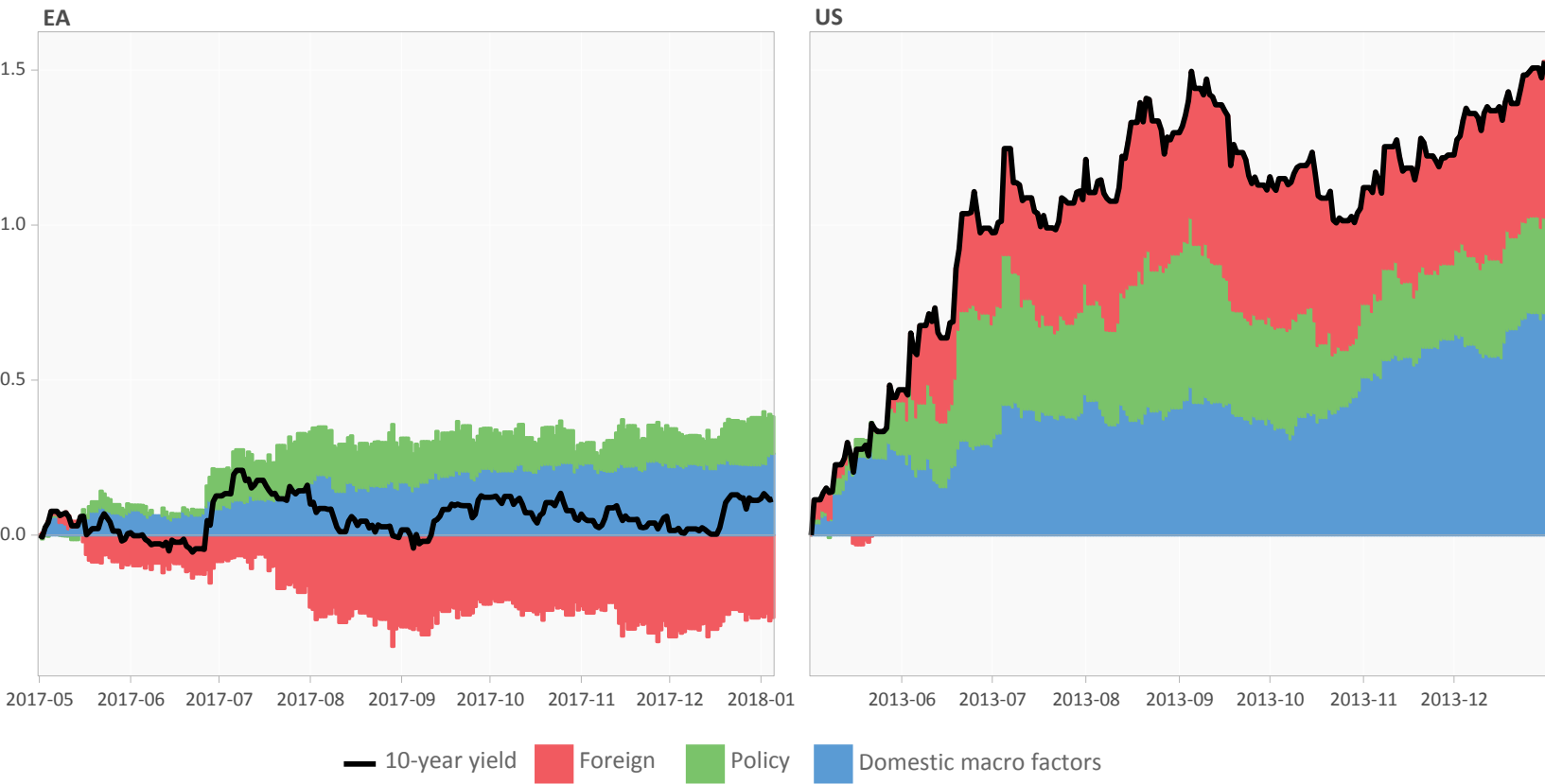


Source: ECB staff calculations based on Matheson and Stavrev (2014), "News and Monetary Shocks at a High Frequency: A Simple Approach", IMF Working Paper WP/14/167. Notes: Shocks are identified by applying sign restrictions in an estimated vector auto regression (VAR) model of long-term bond yields, stock prices, and the nominal effective exchange rate. It is assumed that positive "policy" shocks push up long-term yields, reduce stock prices, appreciate the domestic currency. Positive domestic macro shocks push up the three variables. Foreign shocks move yields in the opposite direction of the exchange rate. For the euro area, the period May 2017 to January 2018 is shown. For the US, the period is May to December 2013.

# Spreads over OIS rates indicate rising stock effects in the euro area
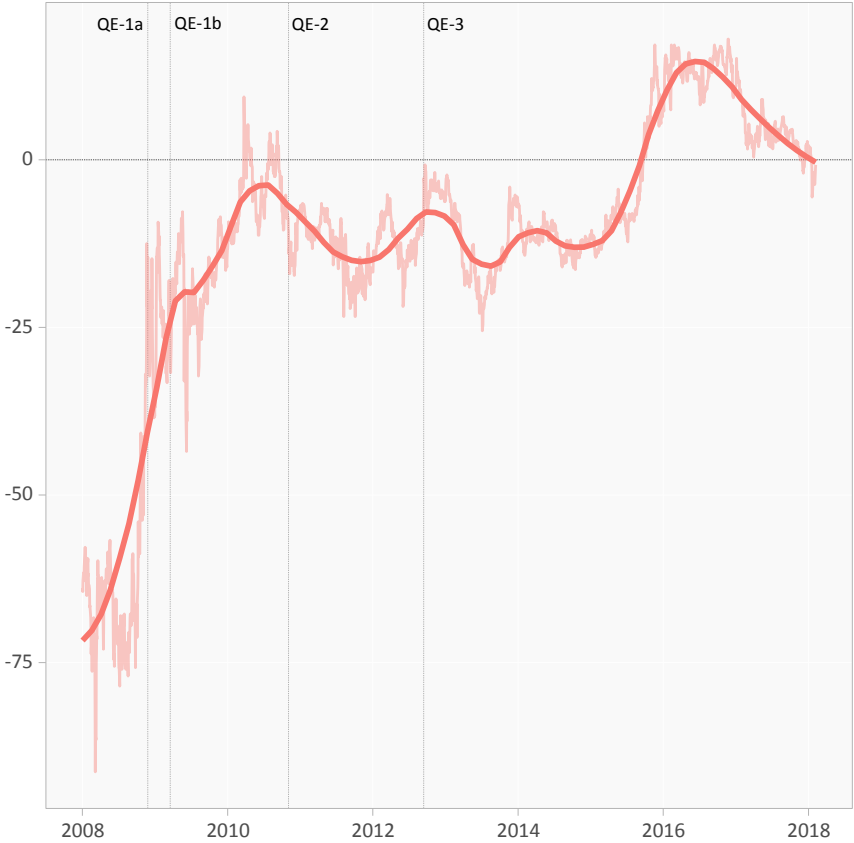
## Bund-OIS spread

(basis points)
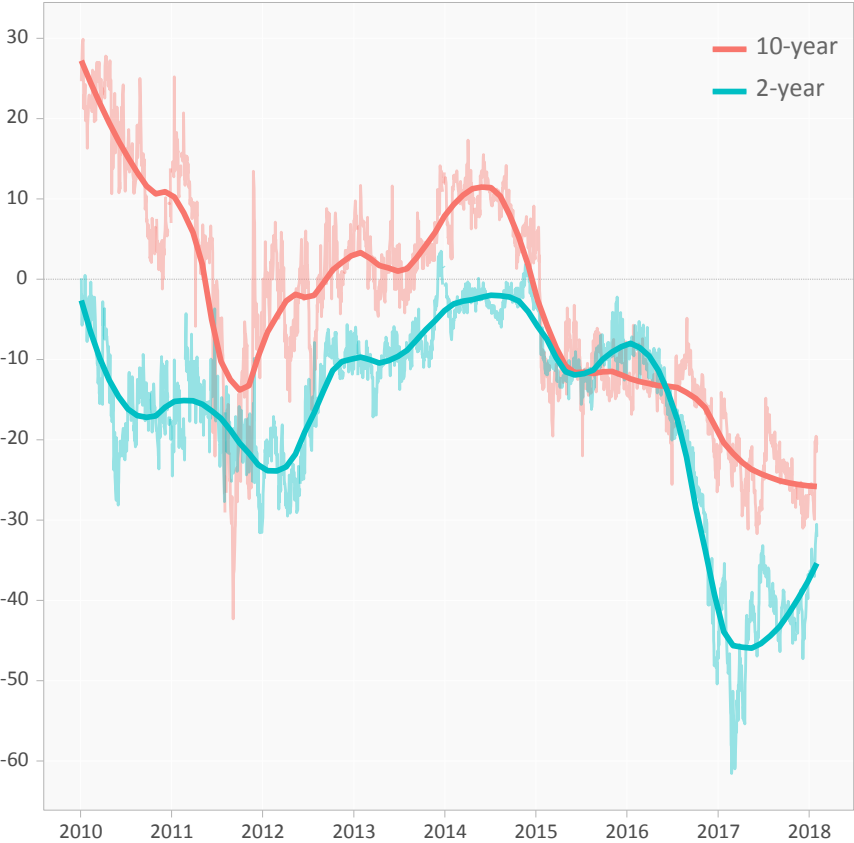


Sources: Haver and ECB calculations.
Last observation: February 2018.
Note: Smooth lines are based on LOWESS regression.

## US 10-year Treasury-OIS spread

(basis points)



Source: Bloomberg and ECB calculations
Last observation: February 2018.
Note: Smooth line is based on LOWESS regression.

# Thank you