



EUROPEAN CENTRAL BANK

EUROSYSTEM

ECB-Public

Katrin Assenmacher

Directorate General Monetary Policy
Monetary Policy Strategy Division

The ECB's monetary policy: Standard and non-standard measures

ECB Central Banking Seminar
Frankfurt, 11 July 2018

- 1 The ECB's mandate and strategy**
- 2 The situation in 2014
- 3 The ECB's monetary policy measures since June 2014
- 4 The June 2018 decision

The ECB's Mandate: Price Stability

Article 127 of the Treaty on the Functioning of the European Union :

The primary objective of the ESCB [Eurosystem] shall be to maintain **price stability**.

Without prejudice to the objective of **price stability**, the **ESCB** shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union.“



The ECB's monetary policy strategy

The quantitative definition of price stability

Medium-term orientation

The two-pillar approach

- **Economic analysis**
- **Monetary analysis**

Quantitative Definition of Price Stability (1998)

Year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of **below 2%** over the medium term.

Clarification of the Strategy (2003)

The Governing Council will aim to maintain inflation rates **below, but close to, 2%** over the medium term (NB: symmetry = both upside and downside deviations)

Why 2%?

- Possible upward bias in consumer price index (HICP).
- Allows for cross-country inflation differentials to occur at positive euro area inflation rates.
- Zero inflation restricts central bank's room for maneuver in case of negative shocks (*Zero Lower Bound* problem).

Why price stability over the medium-term?

Transmission of monetary policy impulse and economic shocks to prices subject to “**long and variable lags**”

(e.g.: M. Friedman, 1961)

Excessive **activism raises volatility** of output and inflation and may render monetary policy **pro-cyclical**

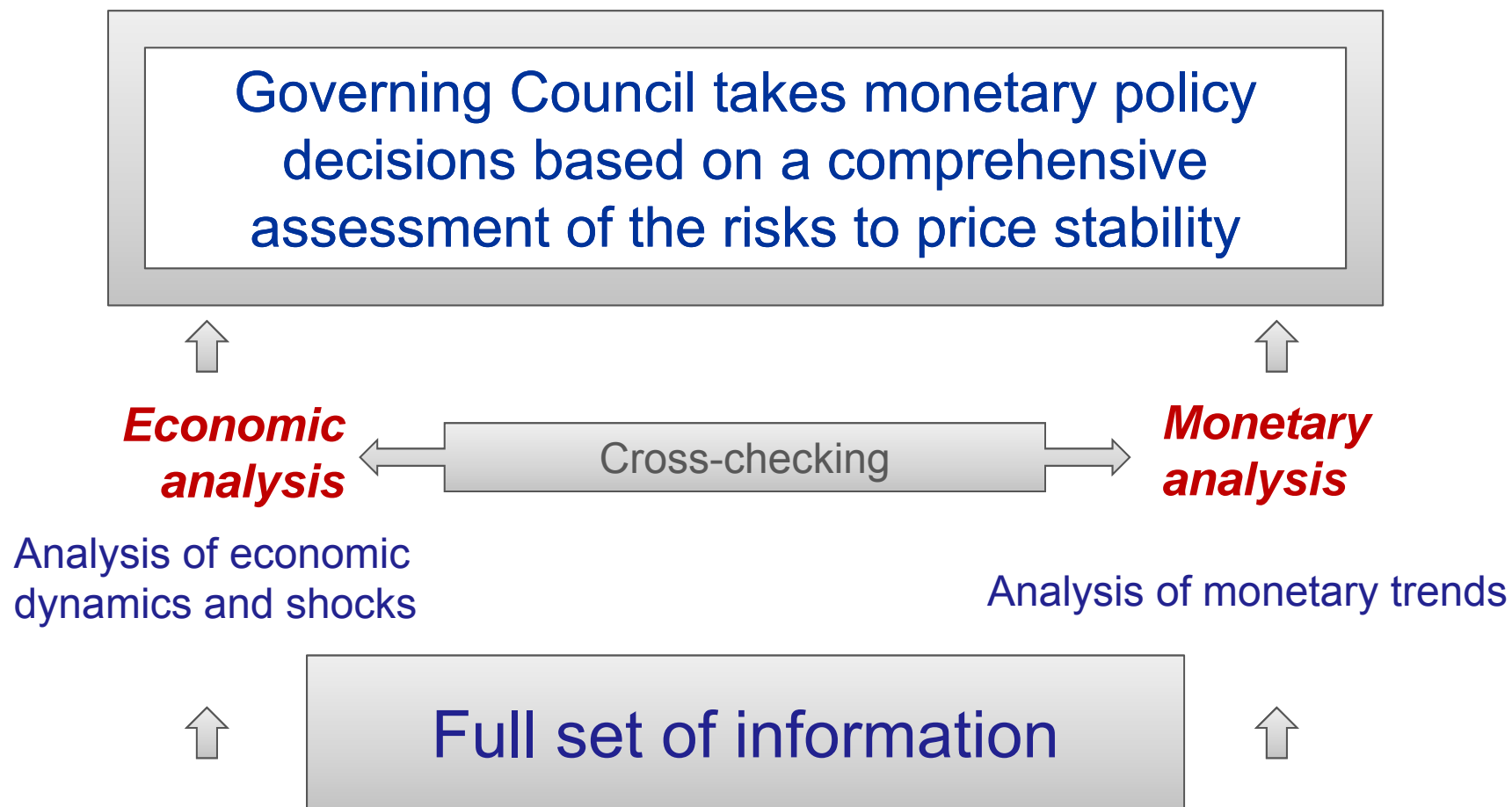
(e.g.: A. Orphanides and J.C. Williams, 2004)

Medium-term orientation of monetary policy is more conducive to macroeconomic stability

The ECB's mandate and monetary policy strategy – two pillar strategy

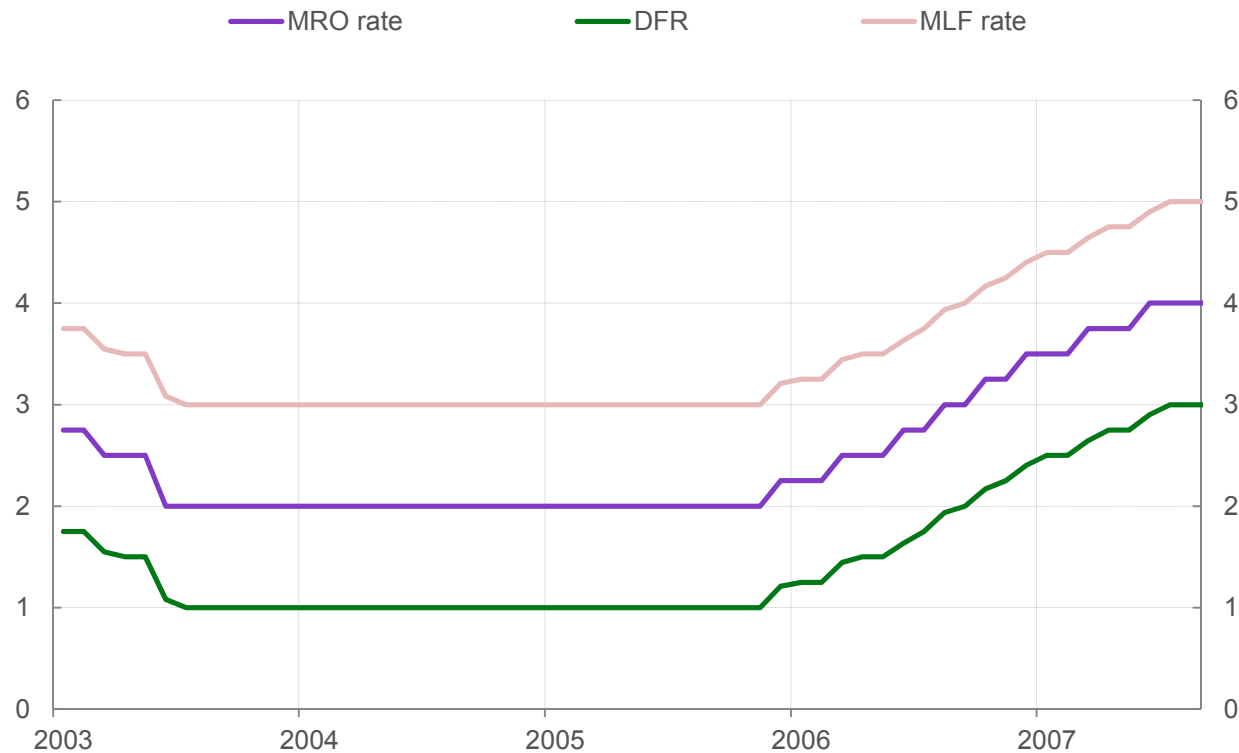
“To sum up, a **cross-check** of the outcome of the **economic analysis** with the signals coming from the monetary analysis confirmed that today's monetary policy decisions will ensure the ample degree of monetary accommodation necessary for the continued sustained convergence of inflation towards levels that are below, but close to, 2% over the medium term.”

(Introductory Statement, 14 June 2018)



Pre-crisis: implementation of monetary policy via key interest rates...

ECB key interest rates (percentages per annum, January 2003 – August 2007)

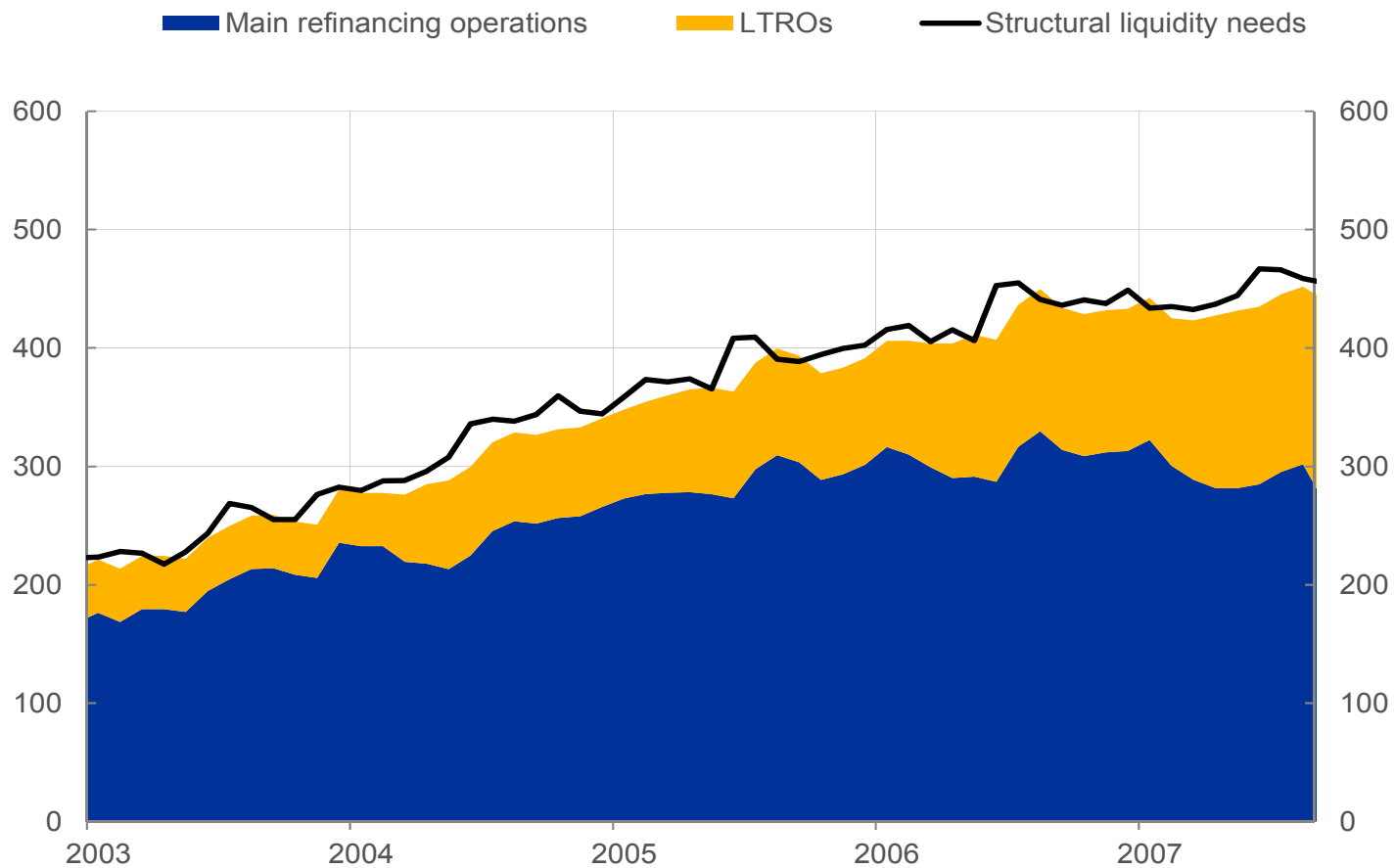


Source: ECB.

Notes: Monthly data. "MLF" stands for marginal lending facility, "MRO" stands for main refinancing operations and "DFR" is the rate on the deposit facility.

...and limited liquidity provision via reverse repos

Eurosystem balance sheet – selected items
(EUR billions, January 2003 – August 2007)

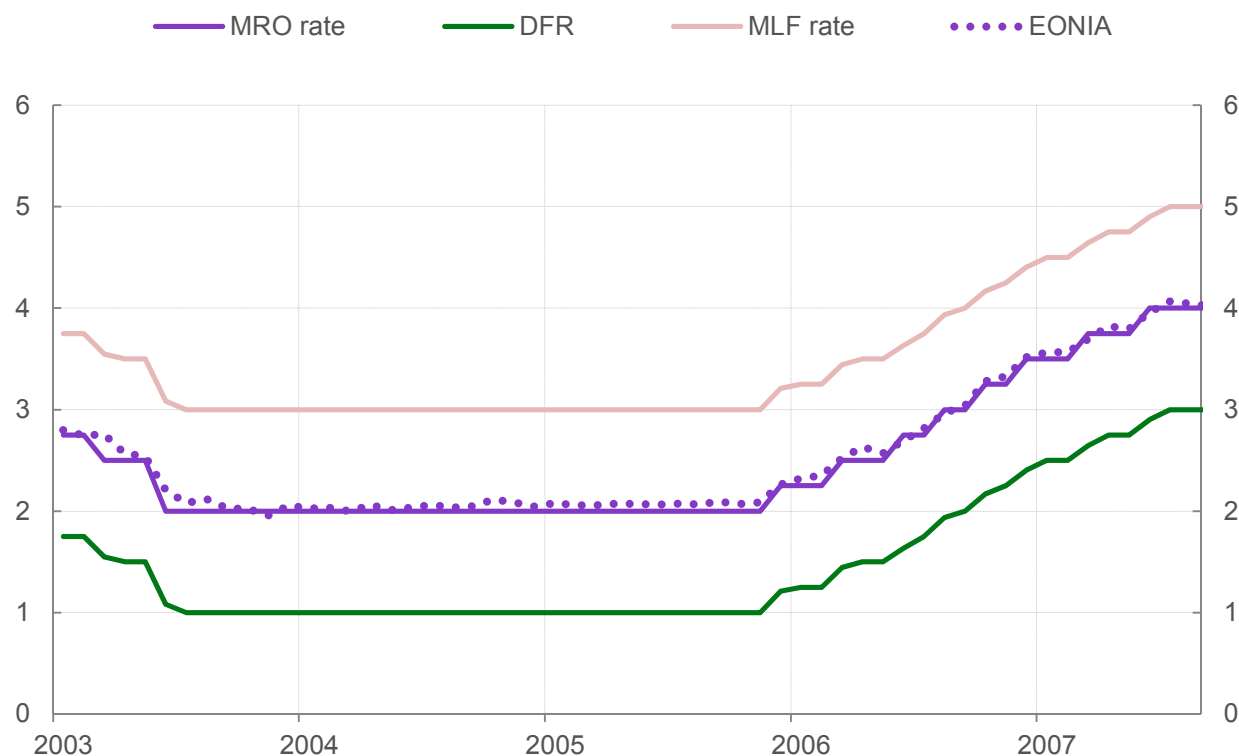


Source: ECB.

Notes: Monthly data. The structural liquidity needs of the banking sector equals the sum of autonomous factors and reserve requirements. "LTROs" stands for longer-term refinancing operations.

Smooth transmission to money market rates...

ECB key interest rates and EONIA (percentages per annum, January 2003 – August 2007)



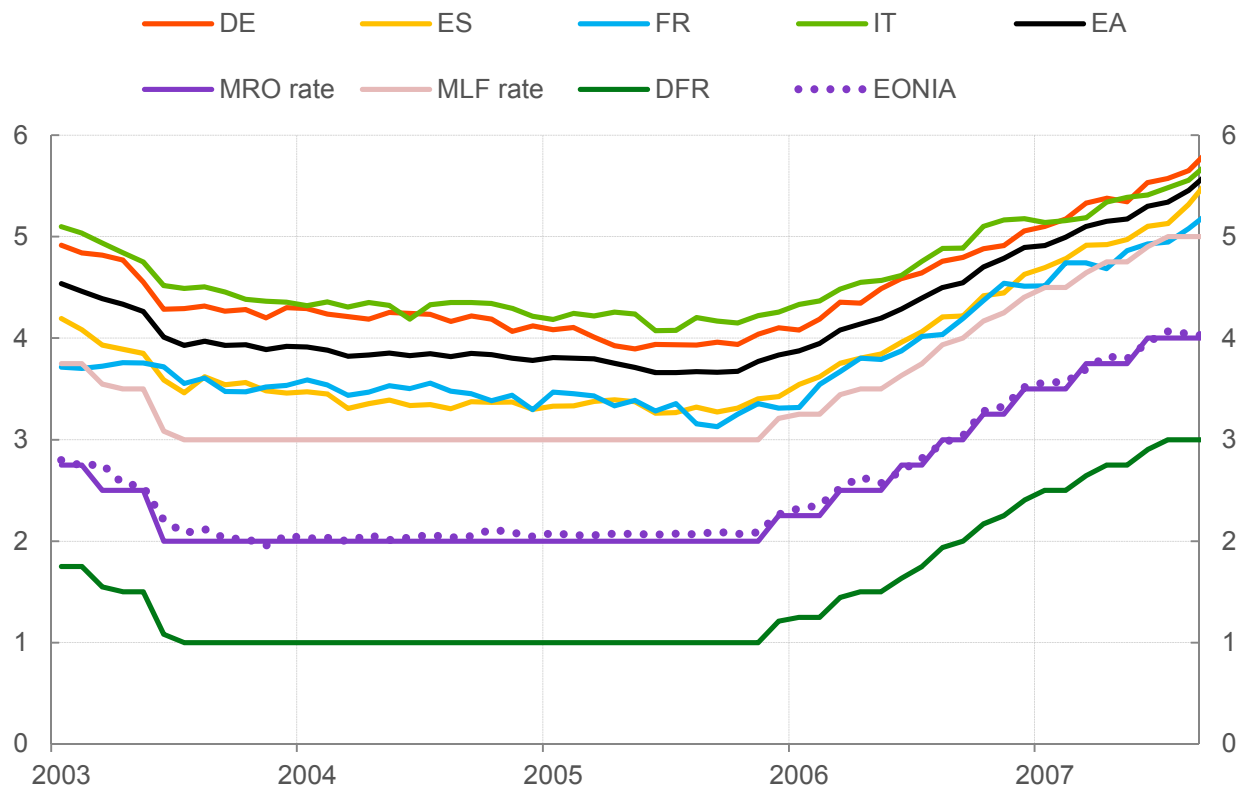
Source: ECB.

Notes: Monthly data. "MLF" stands for marginal lending facility, "MRO" stands for main refinancing operations, "DFR" is the rate on the deposit facility and "EONIA" is the euro overnight unsecured interbank rate.

...and bank lending rates

ECB key interest rates, EONIA and bank lending rates on loans to NFCs

(percentages per annum, January 2003 – August 2007)



Source: ECB.

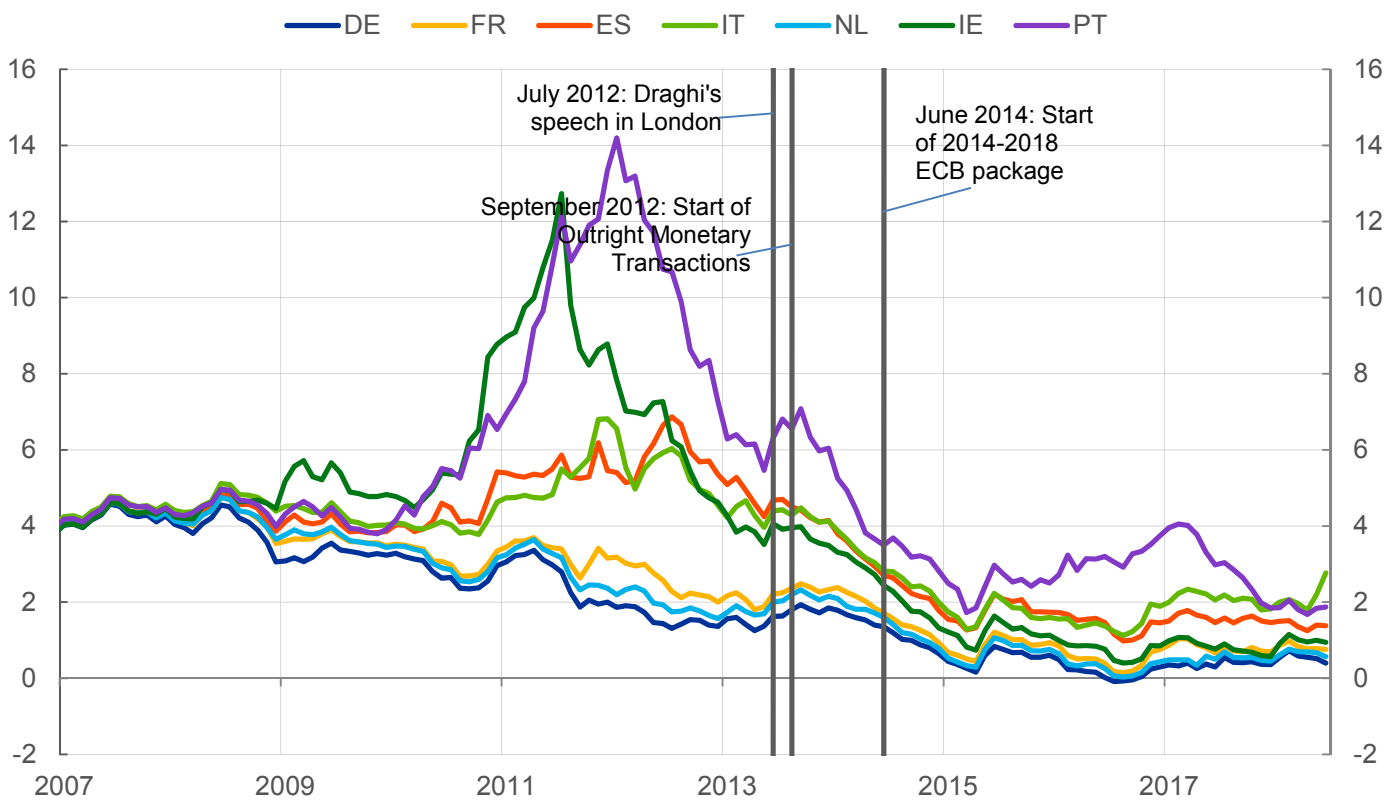
Notes: Monthly data. "MLF" stands for marginal lending facility, "MRO" stands for main refinancing operations, "DFR" is the rate on the deposit facility and "EONIA" is the euro overnight unsecured interbank rate. Bank lending rates are calculated by aggregating short- and long-term rates using a 24-month moving average of new business volumes.

Overview

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Sovereign debt crisis let bond spread soar

10-year government bond yields (percentages per annum)

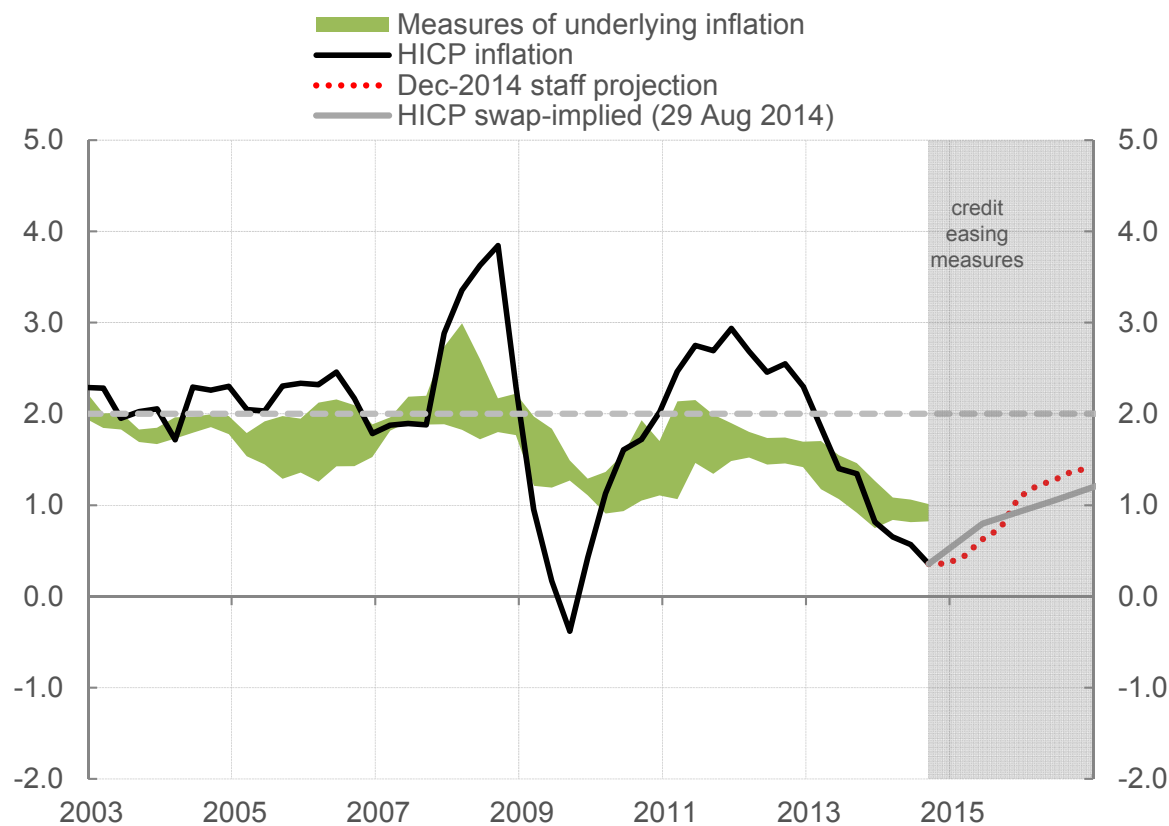


Source: ECB, Thomson Reuters Datastream.
Latest observation: June 2018.

Sustained disinflation and bleak inflation outlook...

Actual and projected HICP inflation, and measures of underlying inflation

(year-on-year percentage change)

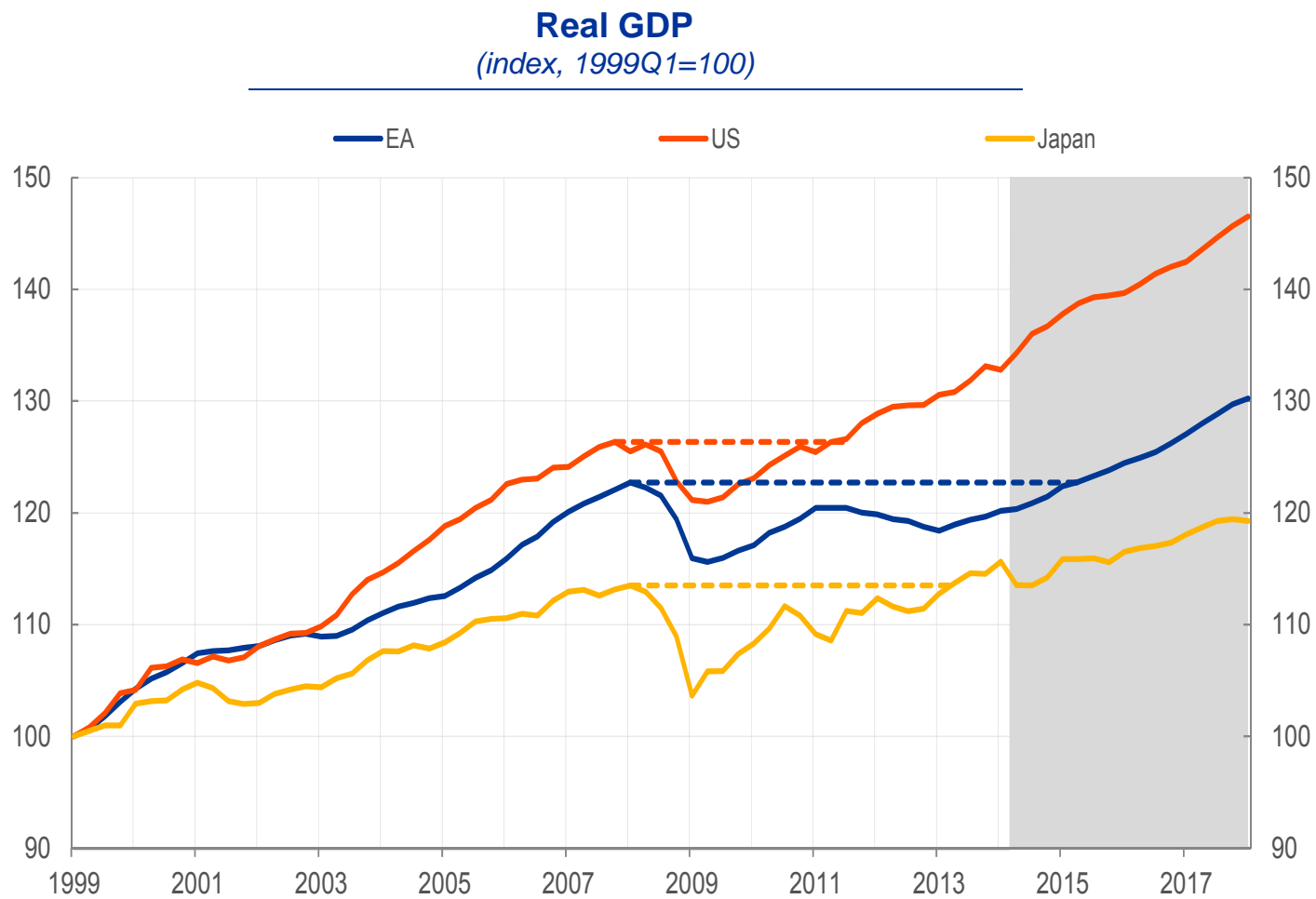


Source: ECB staff projections and calculations.

Notes: The measures of underlying inflation (green range) include HICP inflation excluding food and energy, and HICP excluding food, energy, travel-related items and clothing.

Latest observation: 2014Q3 for realised figures, December 2014 MPE for macroeconomic projections, 29 August 2014 for swap-implied HICP.

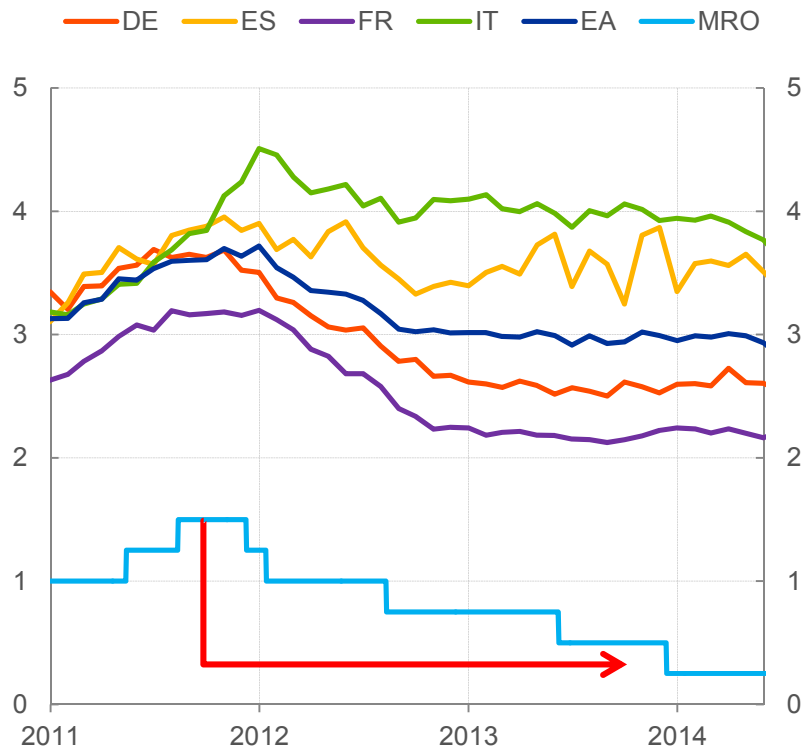
... amid a double-dip recession...



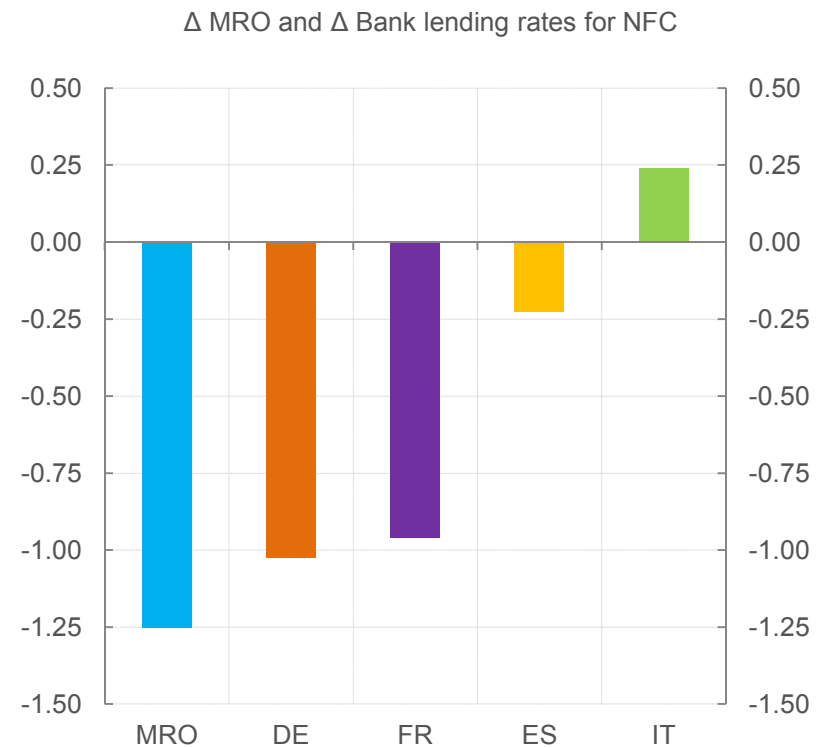
Sources: Eurostat, BEA, Cabinet Office, ECB calculations.
Notes: horizontal dotted lines represent pre-crisis peak real GDP level.
Latest observation: 2018 Q1.

... and impaired bank lending transmission...

Bank lending rates for loans to non-financial corporates (NFCs)
(percent per year, 2011-2014)



Change in key policy rate and bank lending rates for loans to NFCs from 07/2011 to 01/2014
(percentage points, 2011-2014)



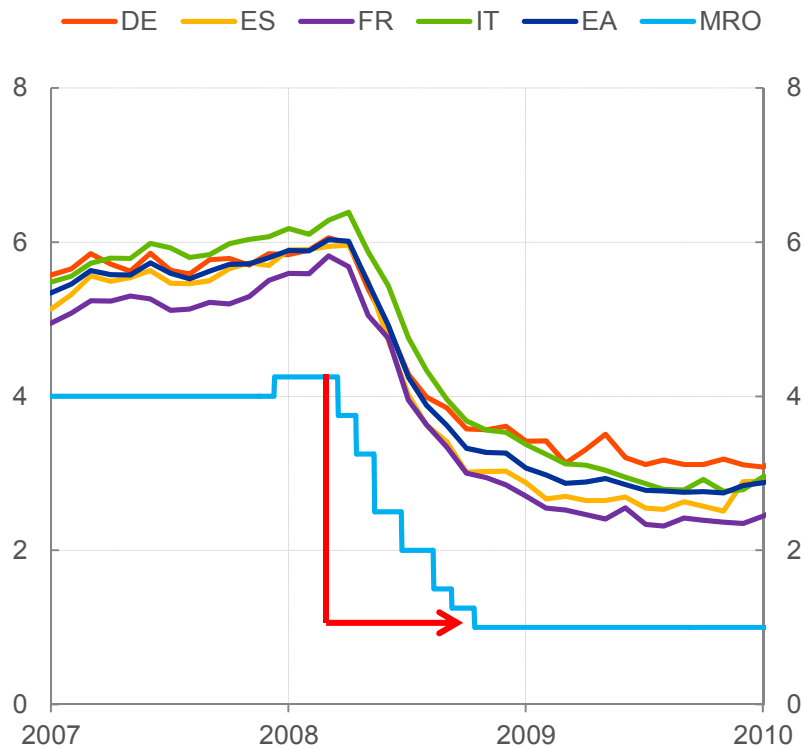
Sources: ECB, ECB calculations.

Notes: Lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes.

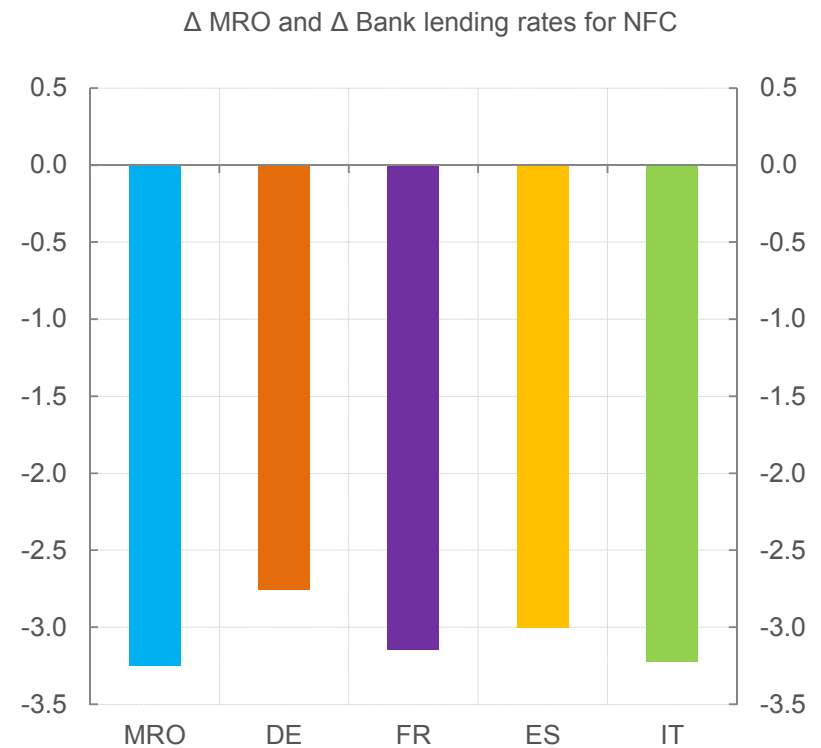
Latest observation: May 2014

...compared to normal times

Bank lending rates for loans to non-financial corporates (NFCs)
(percent per year, 2007-2010)



Change in bank lending rates for loans to NFCs from 07/2008 to 07/2010
(percentage points)



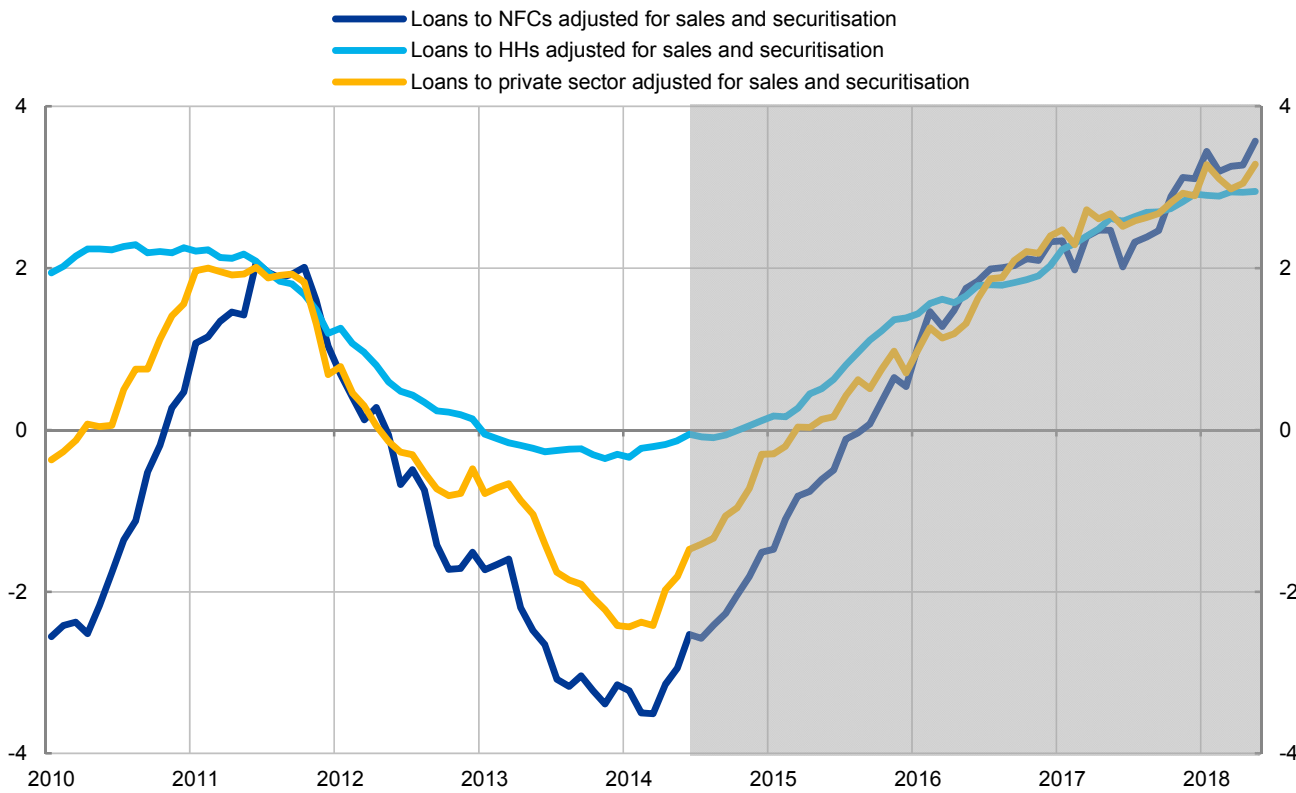
Sources: ECB calculations.

Notes: Lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes.

Latest observation: July 2010

... with a resulting credit crunch

MFI loans to the private sector (annual growth rates)



Source: ECB.

Notes: Monthly data. "NFCs" stands for non-financial corporations and "HHs" stands for households.

Latest observation: May 2018.

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The ECB's monetary policy measures in pursuit of its price stability mandate

Policy instrument

Reductions in **main policy rates** counteract downside risks to price stability

Non-standard measures complement/substitute reductions in main policy rate in the presence of...

...impairments in monetary policy transmission mechanism

...limited room for further loosening via conventional policy instruments

A three-pronged approach

➤ **Credit Easing**

Longer-term loans to banks with incentive mechanisms to ensure an effective pass-through to households and firms (e.g. “Targeted Longer-Term Refinancing Operations” - TLTROs)

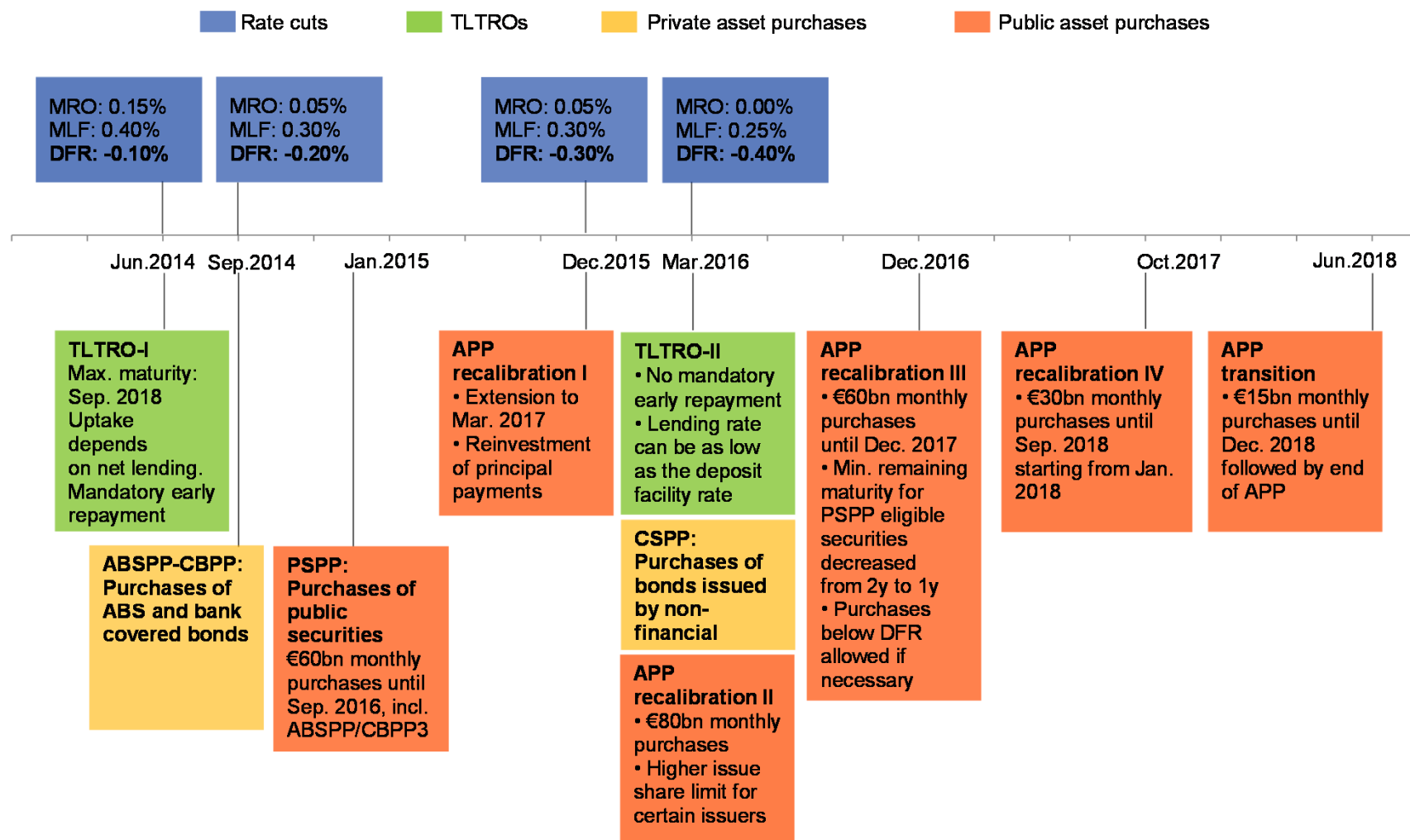
➤ **Forward Guidance**

Signaling the future course of monetary policy action (e.g. “[The Governing Council] expect[s] [key ECB interest rates] to remain at their present levels for an extended period of time, and well past the horizon of [the ECB’s] net asset purchases.”)

➤ **Asset Purchase Programme**

Purchases of private and public securities to lower risk-free interest rates, compress risk premia across financial assets and encourage portfolio rebalancing towards lending to households and firms

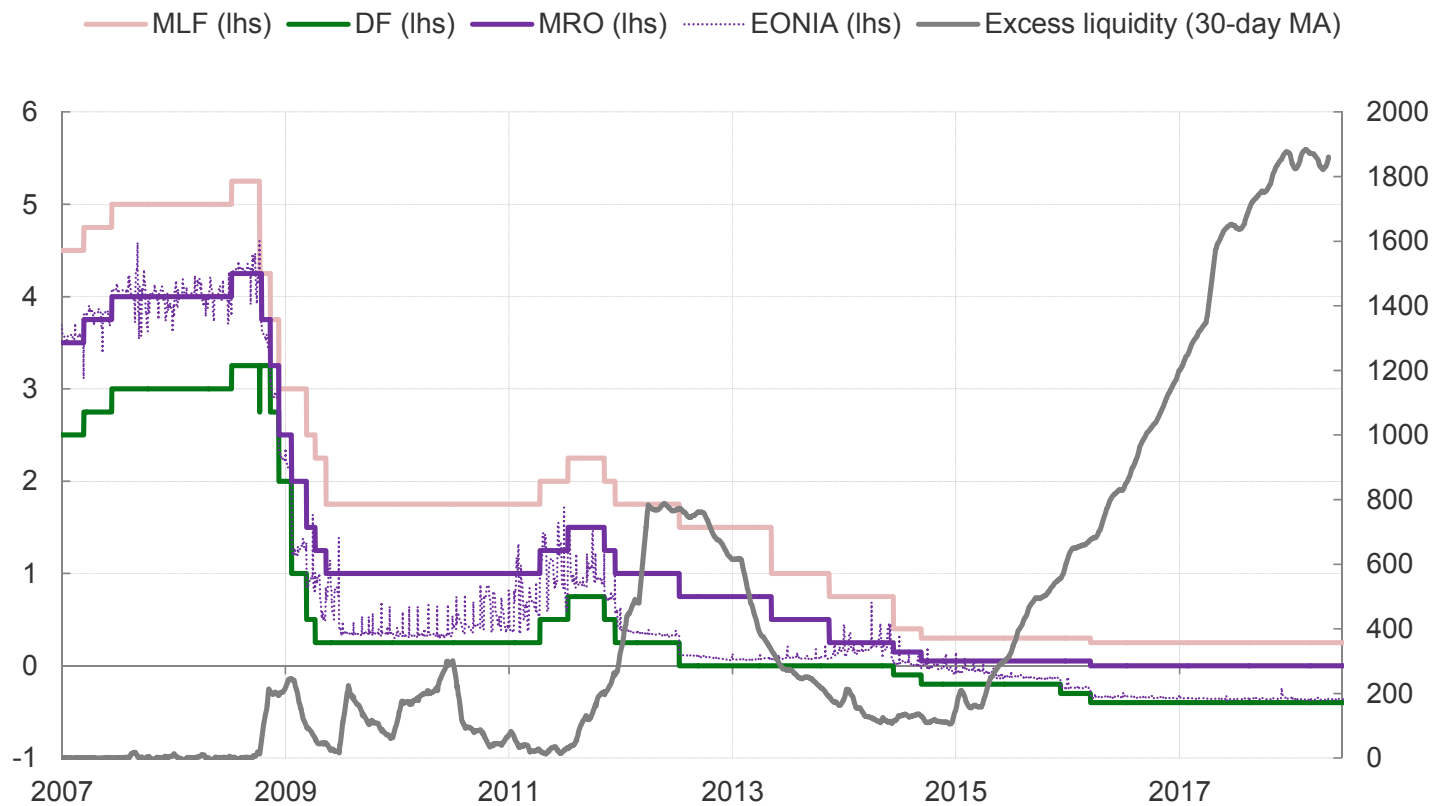
The ECB's unconventional measures since June 2014



Negative interest rates and excess liquidity

ECB key interest rates, EONIA and excess liquidity

(lhs: percentages per annum; rhs: EUR billions)



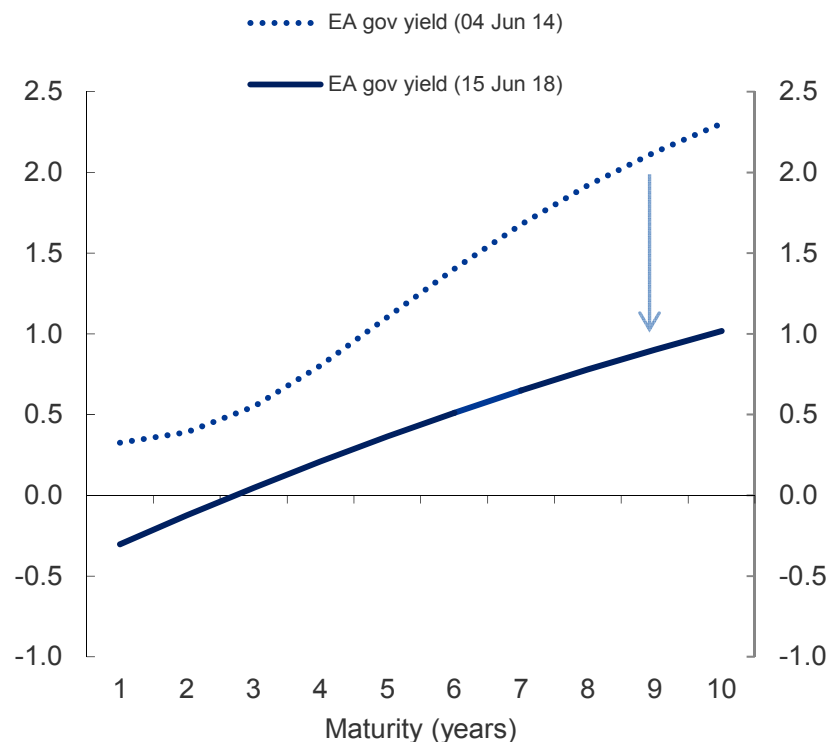
Source: ECB.

Notes: Daily data. "MLF" stands for marginal lending facility, "MRO" stands for main refinancing operations, "DFR" is the rate on the deposit facility and "EONIA" is the euro overnight unsecured interbank rate.

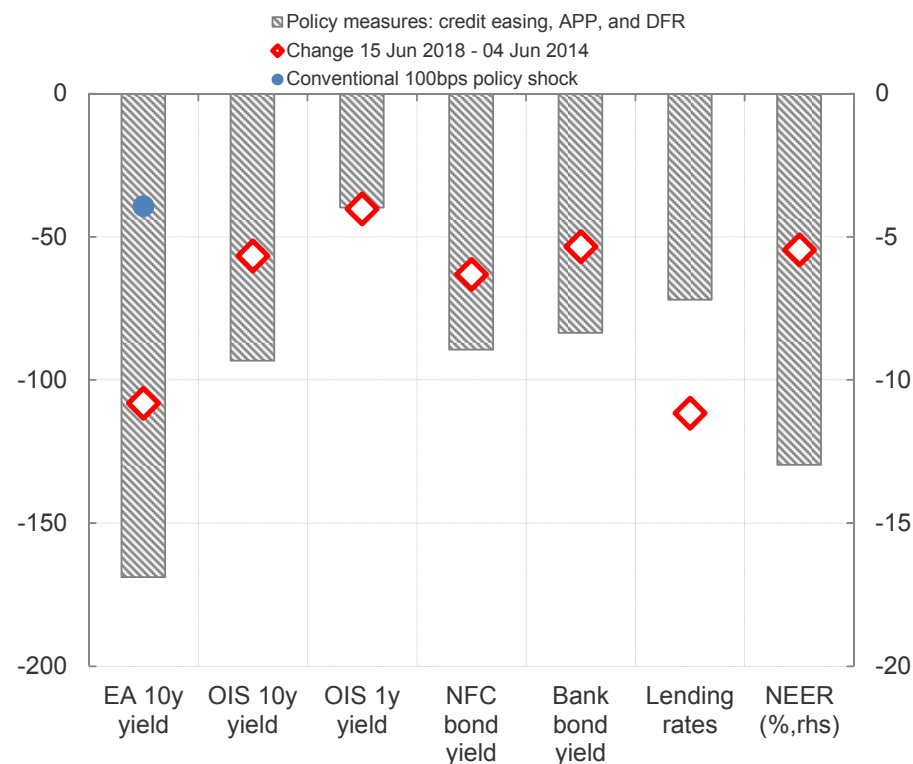
Latest observation: 13 June 2018.

APP compresses term premia over the whole range of the yield curve

Synthetic euro area sovereign term structure (percentages per annum)



Changes in key financial indicators and policy contribution since June 2014 (basis points; NEER in percent)



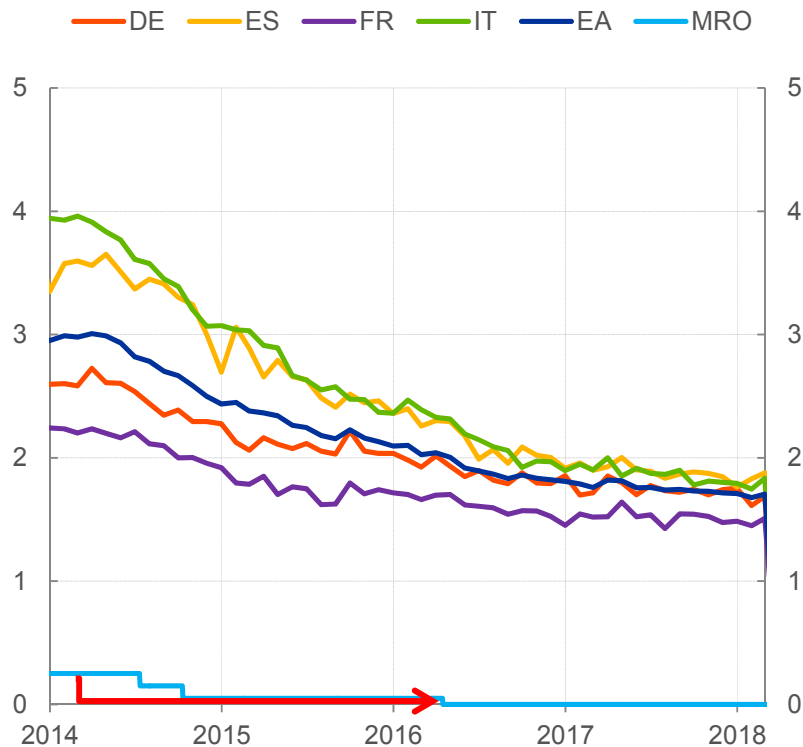
Sources: Bloomberg, ECB, ECB calculations.

Notes: The impact of credit easing is estimated on the basis of an event-study methodology which focuses on the announcement effects of the June-September 2014 package; see the ECB Economic Bulletin Issue 7 / 2015. The impact of the deposit facility rate (DFR) cut rests on the announcement effects of the September 2014 DFR cut. APP encompasses the effects of the asset purchase measures adopted at the January and December 2015 Governing Council meetings, the March and December 2016 meetings and the October 2017 meeting, see Altavilla, C. Carboni, G. and Motto, R. (2015) "Asset purchase programmes and financial markets: lessons from the euro area", De Santis, R. (2016), "Impact of the asset purchase programme on euro area government bond yields using market news". For the underlying term structure modelling framework see Li, C. and Wei, M. (2013), "Term Structure Modeling with Supply Factors and the Federal Reserve's Large-Scale Asset Purchase Programs". For the underlying ISIN-by-ISIN regression framework see to D'Amico, S. and King, T. B. (2013), "Flow and stock effects of large-scale treasury purchases: Evidence on the importance of local supply". The response of long-term yields to a conventional 100bps monetary policy shock (memo item) is computed by (i) regressing the daily change in sovereign yields on the policy surprise, which is identified as the change in the 2y OIS instrumented with its intra-daily change around Governing Council policy meetings and (ii) re-scaling the policy shock to 100bps. The sample spans January 2005 to June 2014. Lending rates refer to rates to NFCs. Changes in lending rates are based on monthly data, the reference period for which is June 2014 to March 2020.

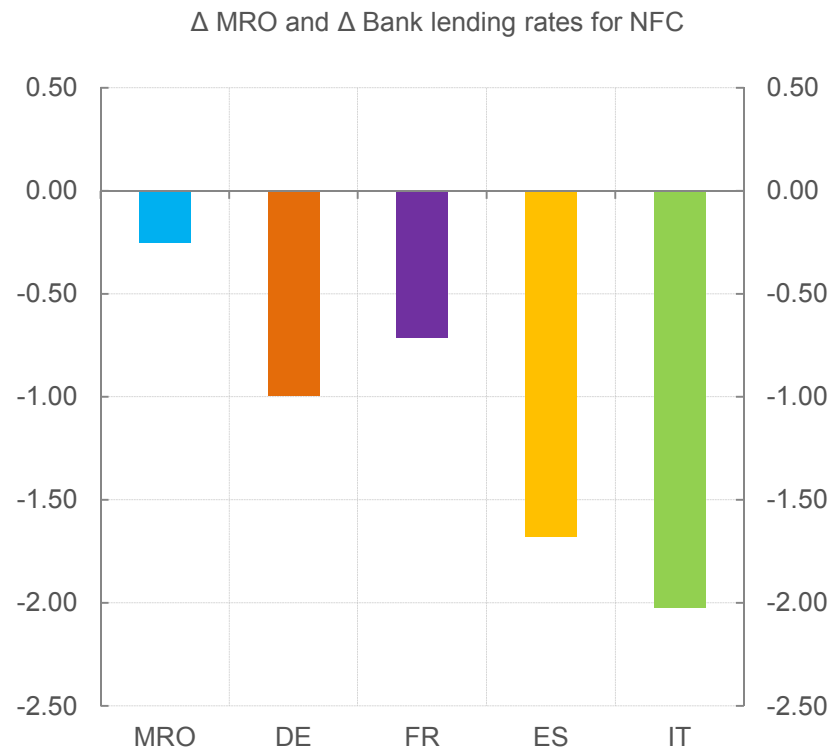
Latest observation: 15 June 2018

NIRP, TLTROs and APP together unclogged bank-based transmission

Bank lending rates for loans to non-financial corporates (NFCs)
(percent per year, 2014-2018)



Change in bank lending rates for loans to NFCs from 05/2014 to 02/2018
(percentage points, 2014-2018)



Sources: ECB, ECB calculations.

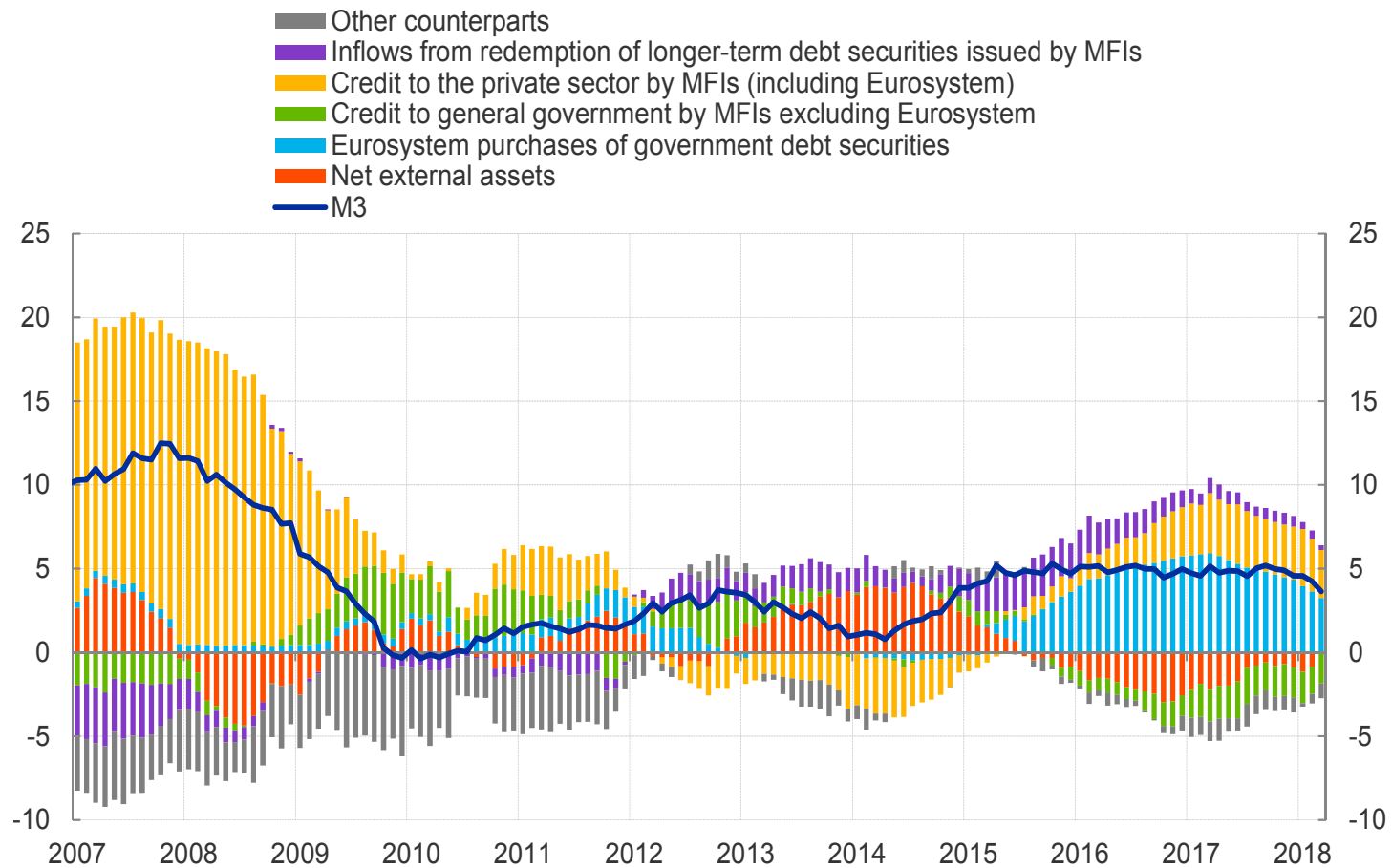
Notes: The indicator for the total cost of lending is calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes.

Latest observation: February 2018.

...and restore money and credit growth

M3

(annual percentage changes; percentage point contributions)



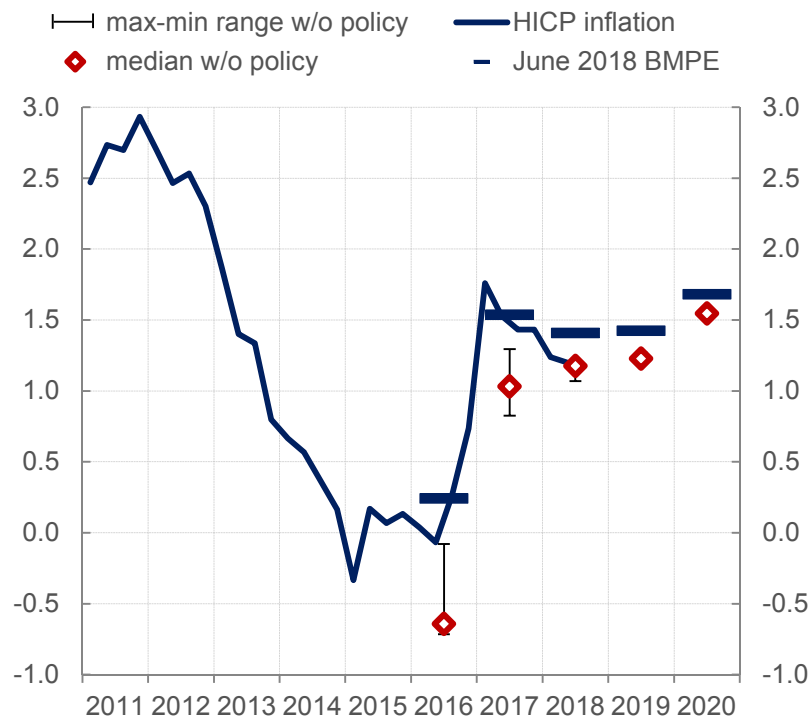
Source: ECB.

Note: Other counterparts include capital and reserves (inverted).

Latest observation: March 2018.

The macroeconomic impact of NIRP, TLTRO and APP has been material

HICP inflation: actual, baseline projection and counterfactual without policy contribution
(year on year percentage change)



Real GDP growth: actual, baseline projection and counterfactual without policy contribution
(year on year percentage change)



Source: ECB computations, SAPI Task Force, March 2018 MPE, BMEs.

Notes: HICP inflation and real GDP growth are based on the June 2018 BMPE; the median and range reflect estimates of HICP inflation and real GDP growth over the projection horizon in the absence of monetary policy support; these estimates are obtained from three different exercises: BMEs, the SAPI Task Force and the Expert Group.

Latest observation: 2018Q1 for real GDP and 2018Q2 (May flash) for HICP.

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[T]he Governing Council today made the following decisions:

- First, as regards non-standard monetary policy measures, we will continue to make net purchases under the APP at the current monthly pace of **€30 billion until the end of September 2018**. We anticipate that, after September 2018, subject to incoming data confirming our medium-term inflation outlook, we will reduce the monthly pace of the net asset purchases to **€15 billion until the end of December 2018** and **then end net purchases**.
- Second, we intend to maintain our policy of **reinvesting the principal payments** from maturing securities purchased under the APP for an **extended period of time after the end of our net asset purchases**, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.
- Third, we decided to keep the key ECB interest rates unchanged and we expect them **to remain at their present levels at least through the summer of 2019** and in any case for as long as necessary to ensure that the evolution of inflation remains aligned with our current expectations of a sustained adjustment path.”

Asset purchases to continue until there is “sustained adjustment in the path of inflation”

Forward Guidance (Press conference 26 April 2018)

“[...] **net asset purchases, at the current monthly pace of €30 billion**, are intended to run until the end of September 2018, or beyond, if necessary, and in any case until the Governing Council sees a **sustained adjustment in the path of inflation** consistent with its inflation aim.”

“We continue to expect [key interest rates] to remain at their present levels for an extended period of time, and **well past the horizon of our net asset purchases.**”

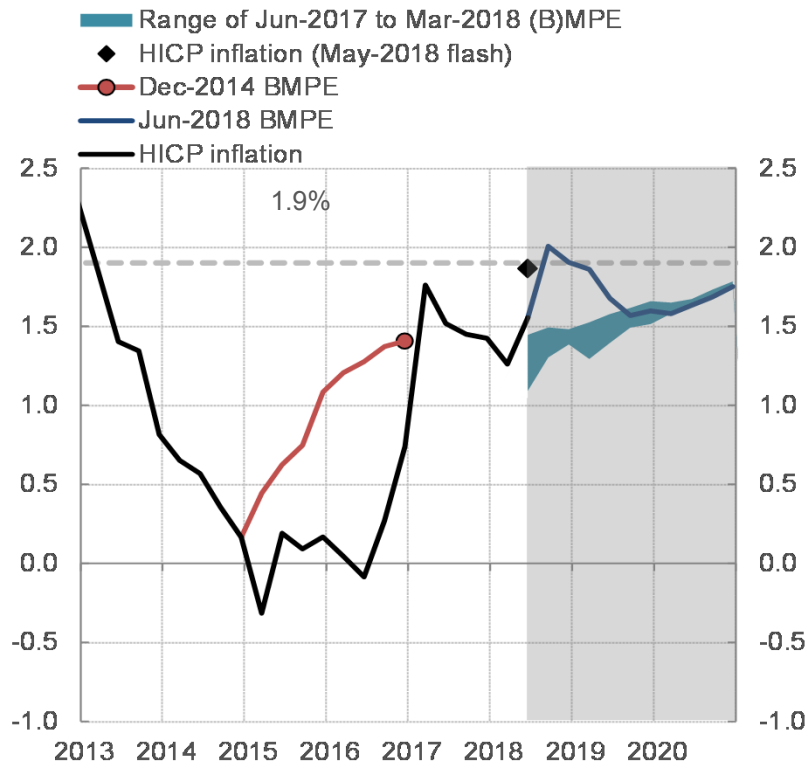
Sustained adjustment in the path of inflation

1. Inflation is on a path to **levels below, but close to 2%** over a meaningful medium-term horizon;
2. Inflation is **durable** and stabilises around those levels with **sufficient confidence**;
3. Inflation is **self-sustained**, meaning it will maintain its trajectory even with diminishing support from monetary policy

[The relevant metric in each case is **euro area inflation**, not the inflation rates of any individual country.]

Convergence expected within meaningful medium-term horizon

June 2018 BMPE: Actual, projected HICP inflation and projected HICP inflation from previous (B)MPE vintages (year-on-year percentage change)



Source: Eurosystem and ECB staff projections.

Sustained Adjustment

[T]he Governing Council concluded that **progress towards a sustained adjustment in inflation has been substantial** so far.

Looking ahead, underlying inflation **is expected to pick up** towards the end of the year and thereafter to **increase gradually over the medium term** [...]

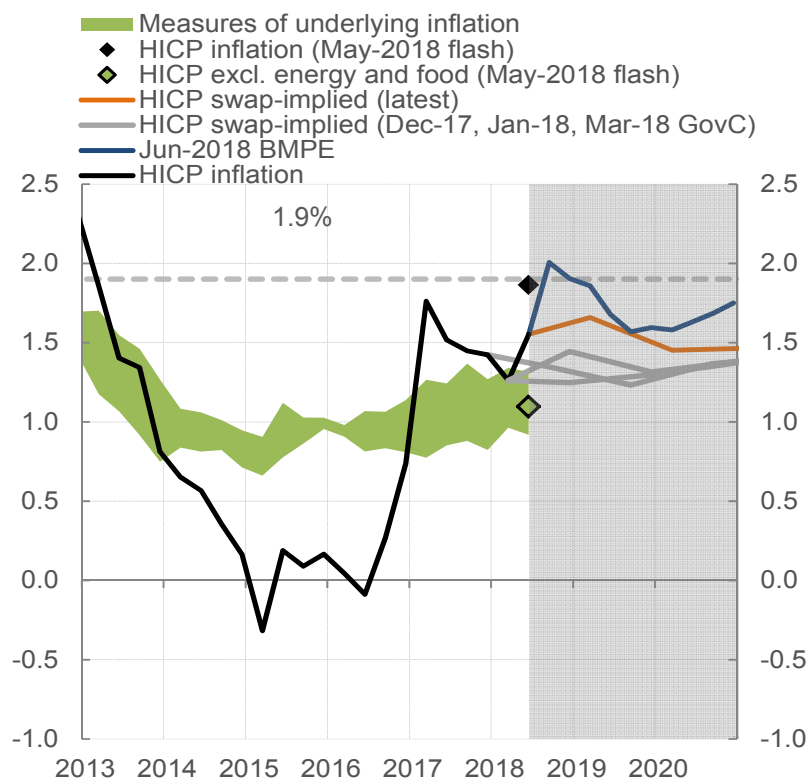
This assessment is also broadly reflected in the June 2018 **Eurosystem staff macroeconomic projections** for the euro area, which foresee annual HICP inflation at 1.7% in 2018, 2019 and 2020.

Introductory Statement 14 June 2018

Confidence from increased underlying inflation measures

June 2018 BMPE: Actual and projected HICP inflation, measures of underlying inflation and market-based inflation expectations

(year-on-year percentage change)



Sources: Bloomberg, ECB staff projections and calculations.

Notes: The green range includes measures of underlying inflation, i.e. HICP inflation excluding food and energy, HICP inflation excluding food, energy, travel-related items and clothing, PCCI (formerly U2 core) and Super-core. Measures of underlying inflation refer to 2018Q2 (April estimates). The grey lines indicate forward curves of inflation expectations implied by the HICP inflation-linked swaps observed at various past dates. The orange line is the latest observation of such curves (8 June 2018).

Sustained Adjustment

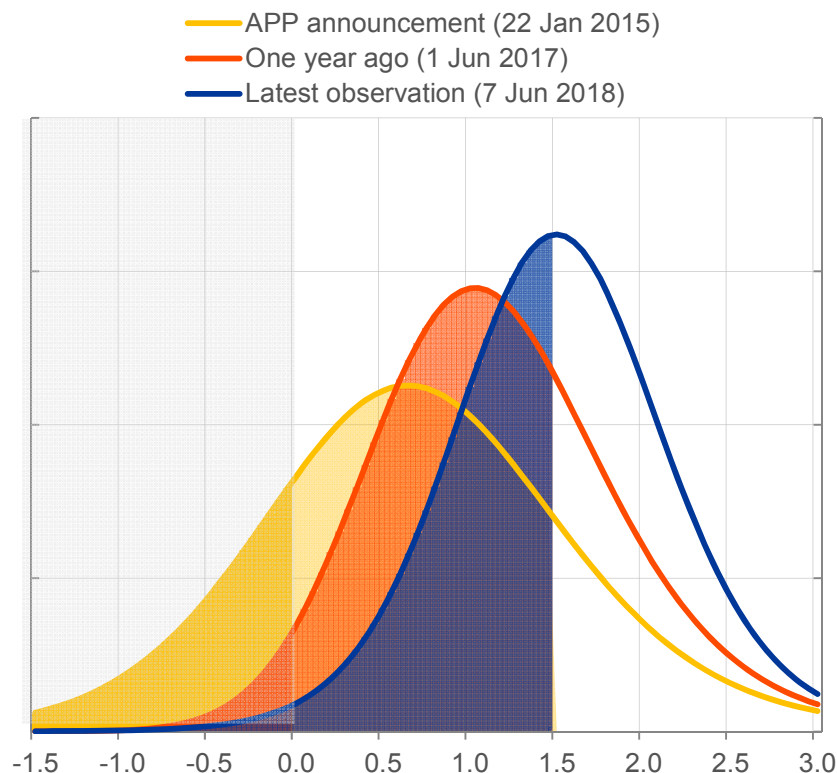
[T]he **underlying strength of the euro area economy** and the continuing ample degree of monetary accommodation provide grounds **to be confident** that the sustained convergence of inflation towards our aim **will continue** in the period ahead.

Looking ahead, underlying inflation is [...] **supported** by our **monetary policy measures**, the continuing **economic expansion**, the corresponding **absorption of economic slack** and **rising wage growth**.

Introductory Statement 14 June 2018

Confidence: lower inflation uncertainty in markets

Risk neutral density function of euro area inflation over next five years (density)



Sources: Thomson Reuters and ECB calculations.

Note: Implied probability density functions are computed from 5-year maturity zero-coupon inflation option floors. Risk neutral probabilities may differ significantly from physical (or "true") probability distributions. Shaded areas indicate the probability mass assigned to an inflation rate below 0% (grey area) and 1.5% over the next 5 years.

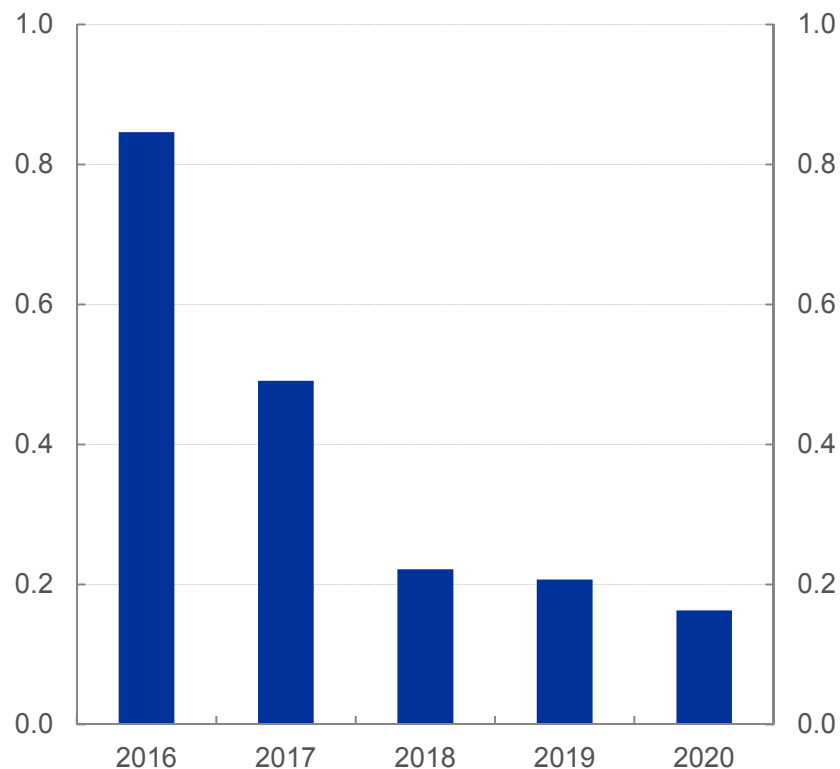
Sustained Adjustment

With **longer-term inflation expectations well anchored**, the underlying strength of the euro area economy and the continuing ample degree of monetary accommodation provide grounds to be confident that the sustained convergence of inflation towards our aim will continue in the period ahead.

Introductory Statement 14 June 2018

Resilience: waning influence of past policies

Contribution of ECB's non-standard measures taken since 2014 to HICP inflation (annual, percentage points)



Source: ECB staff projections and calculations. Notes: The contribution of policy is estimated on the basis of macroeconomic elasticities taken from the SAPI models, the Expert Group models and the Basic Model Elasticities (BMEs).

Sustained Adjustment

[T]he **continuing ample degree of monetary accommodation** provide[s] grounds to be confident that the sustained convergence of inflation towards our aim will continue in the period ahead, and will be maintained **even after a gradual winding-down of our net asset purchases**.

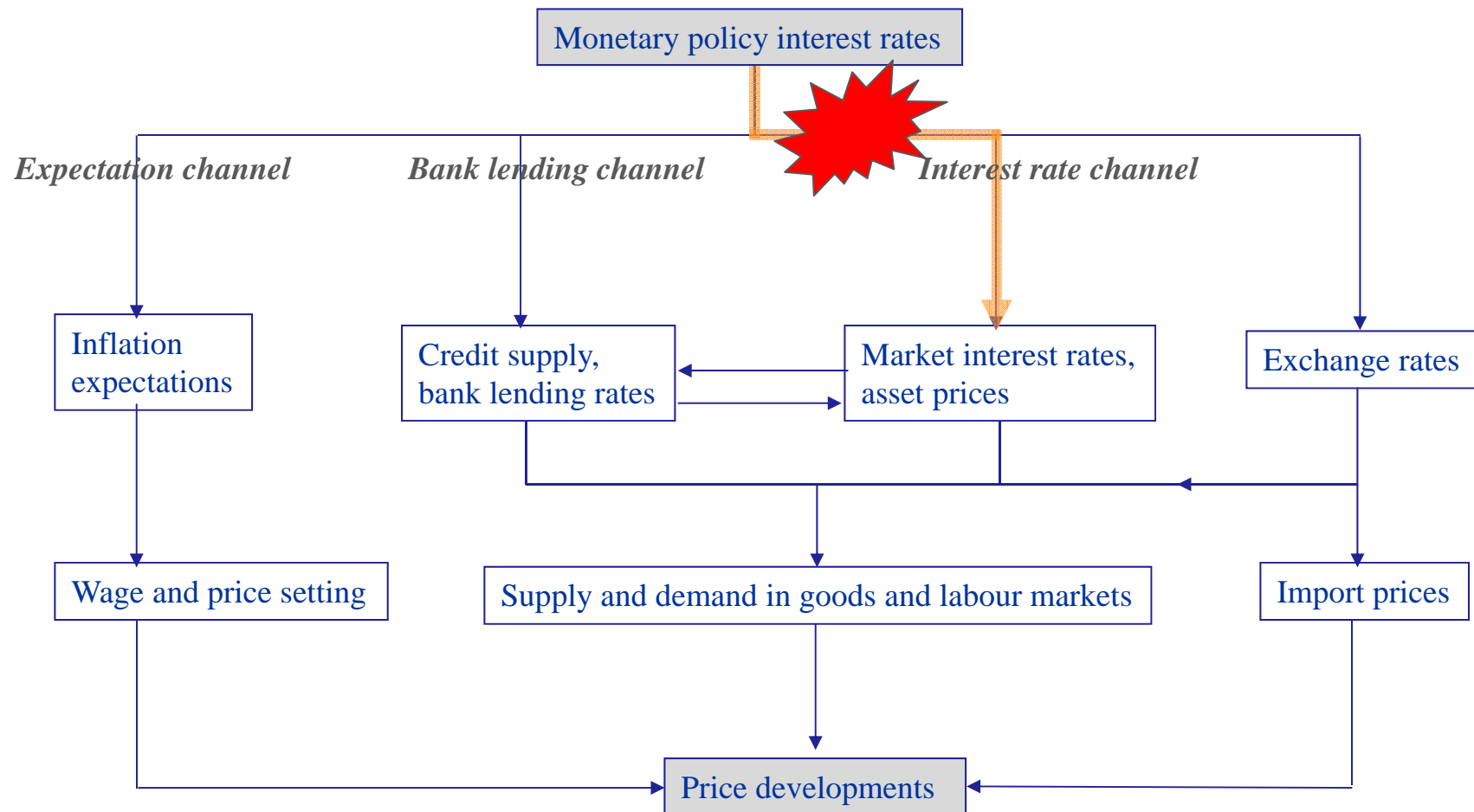
Today's monetary policy decisions **maintain the current ample degree of monetary accommodation** that will ensure the continued sustained convergence of inflation towards levels that are below, but close to, 2% over the medium term. [...] This support will continue to be provided by the **net asset purchases** until the **end of the year**, by the sizeable **stock of acquired assets** and the associated **reinvestments**, and by our enhanced **forward guidance** on the key ECB interest rates.

Introductory Statement 14 June 2018



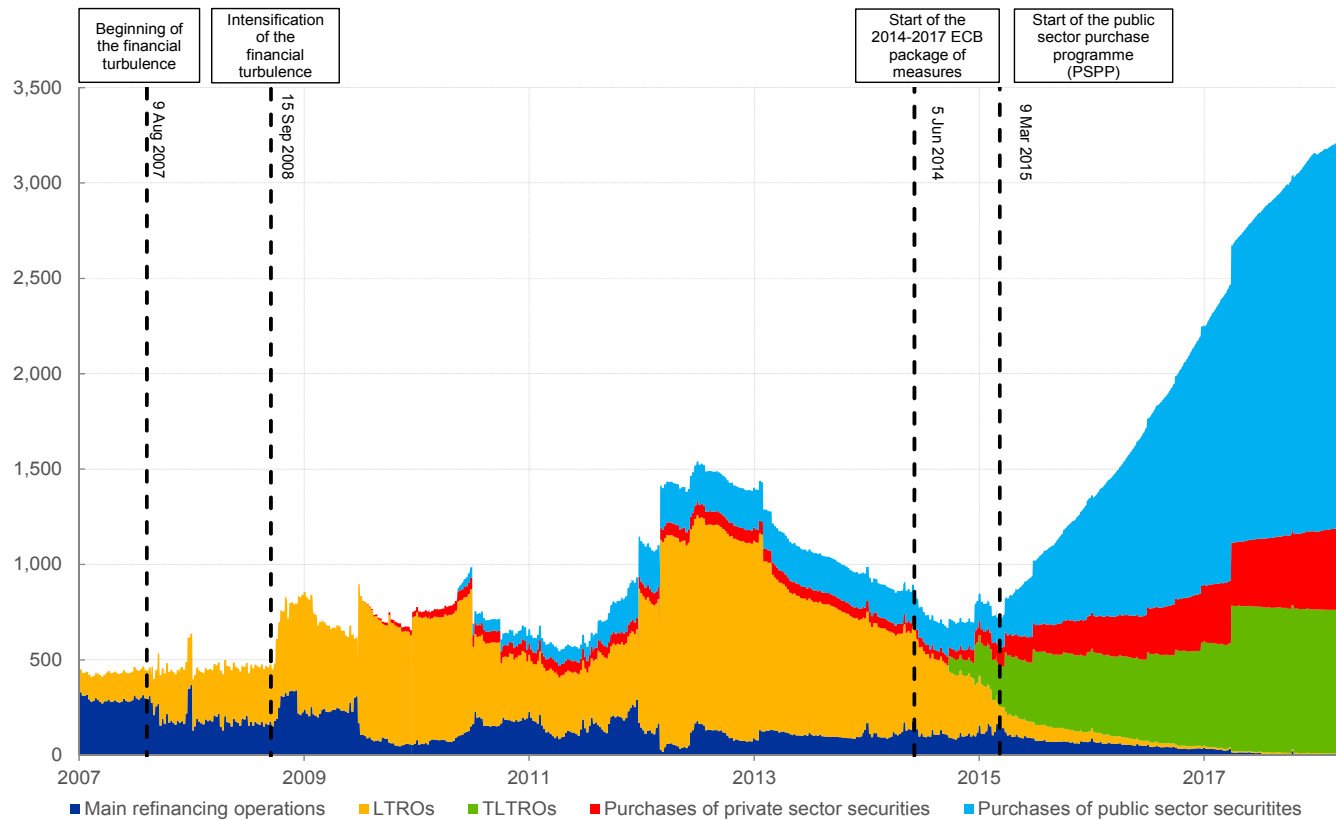
Thank you

Transmission via interest rate channel blocked



Balance sheet expansion: TLTROs and Asset Purchase Programme

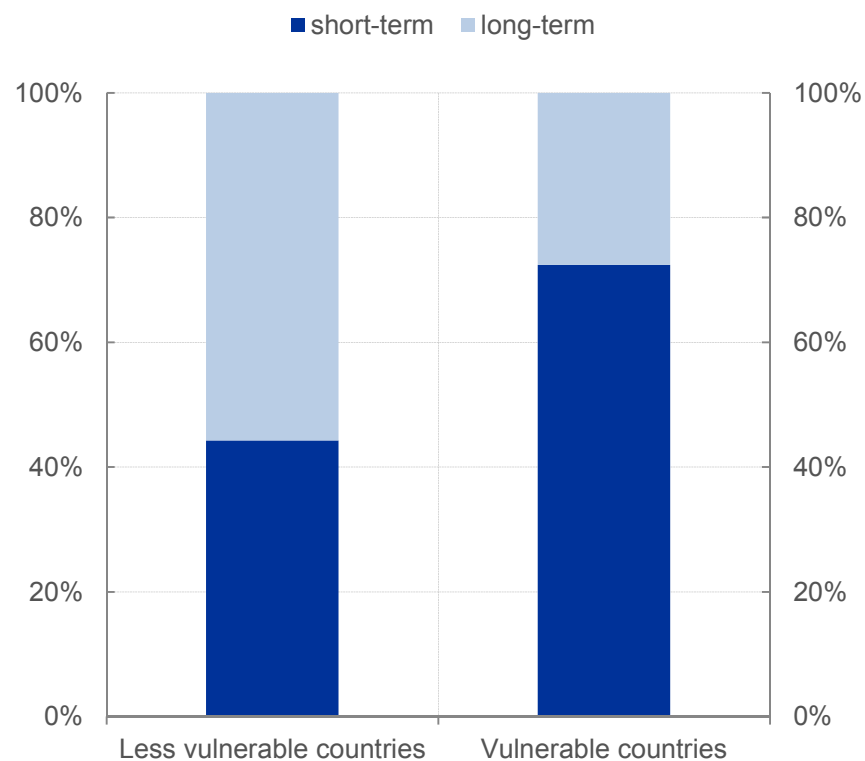
ECB monetary policy assets (in billion €)



Source: ECB
Latest observation: 10 April 2018.

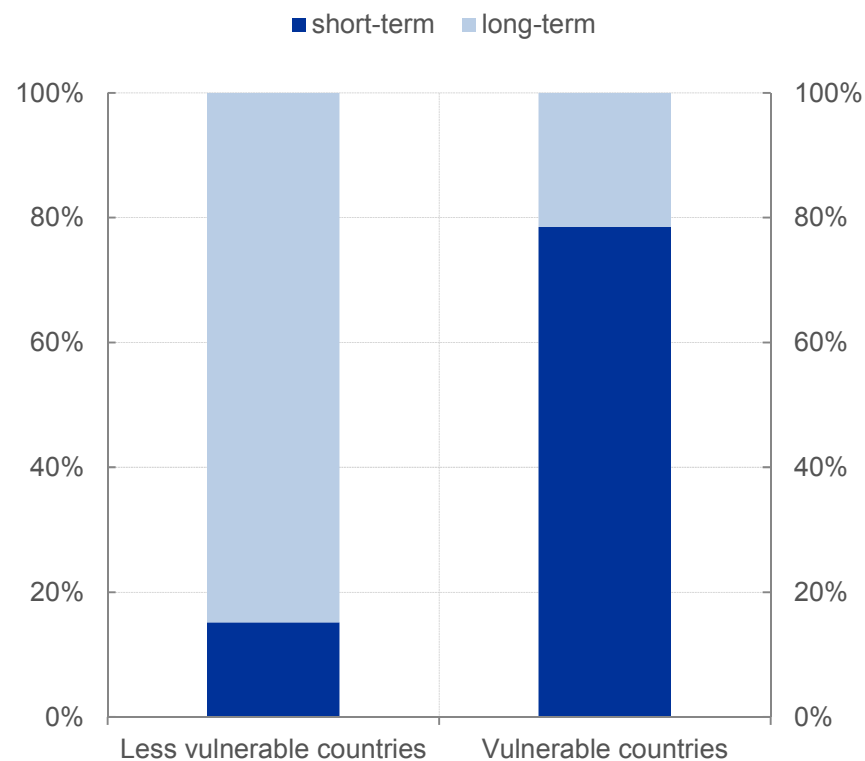
Vulnerable countries rely more on short-term loans

Loans to non-financial corporations by original maturity or time to interest rate reset
(percent)



Source: ECB
Notes: Breakdown as of December 2017. Based on outstanding amounts of loans. Short-term refers to loans with original maturity up to 1 year and overdrafts plus loans with a remaining maturity over 1 year and interest rate reset within the next 12 months.

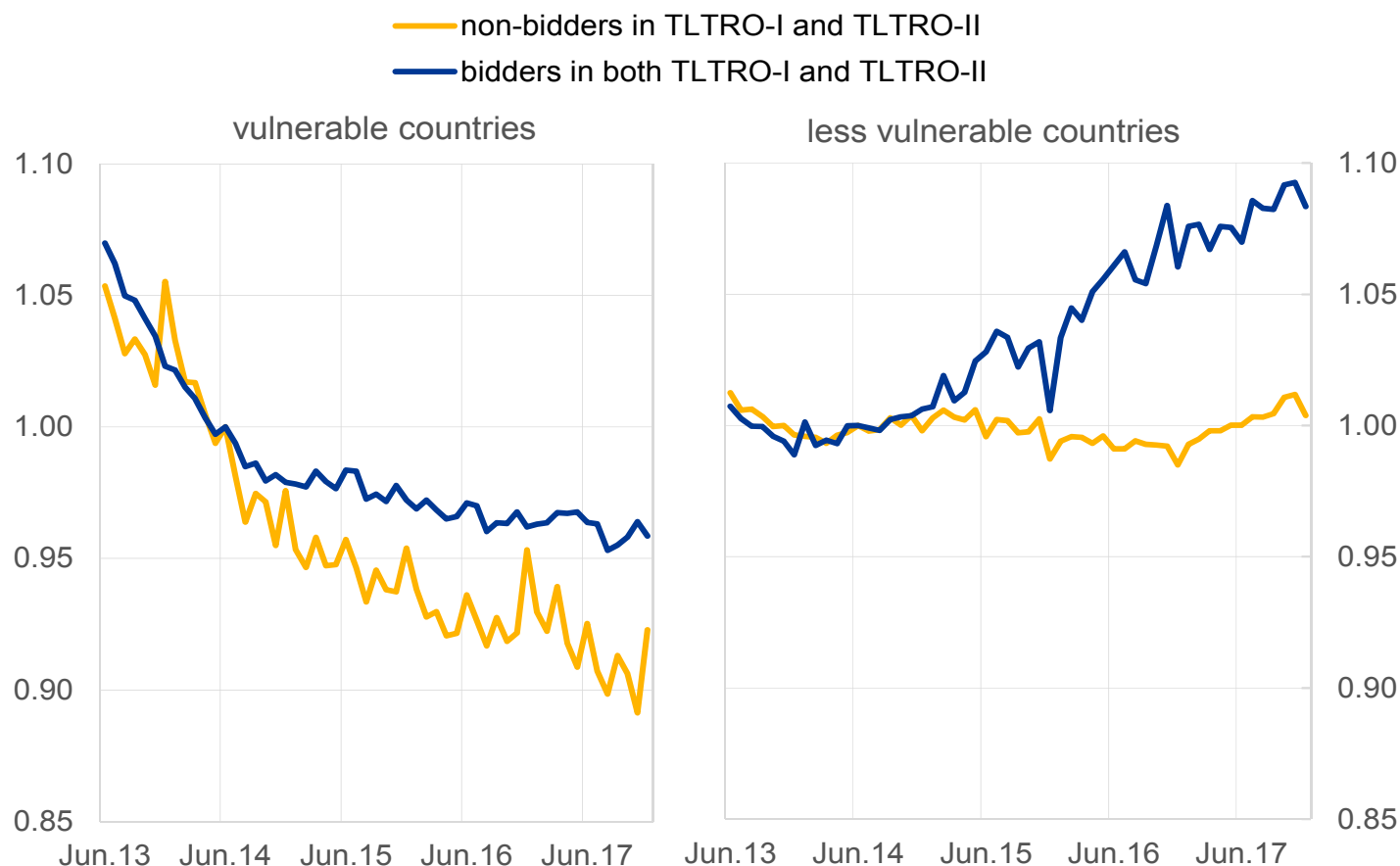
Loans to households by original maturity or time to interest rate reset
(percent)



Source: ECB.
Notes: Breakdown as of December 2017. Based on outstanding amounts of loans. Short-term refers to loans with original maturity up to 1 year and overdrafts plus loans with a remaining maturity over 1 year and interest rate reset within the next 12 months.

TLTROs reinforce incentives for banks to lend on borrowed funds

Lending to NFCs by TLTRO-bidders and non-bidders (index=1 in June 2014)

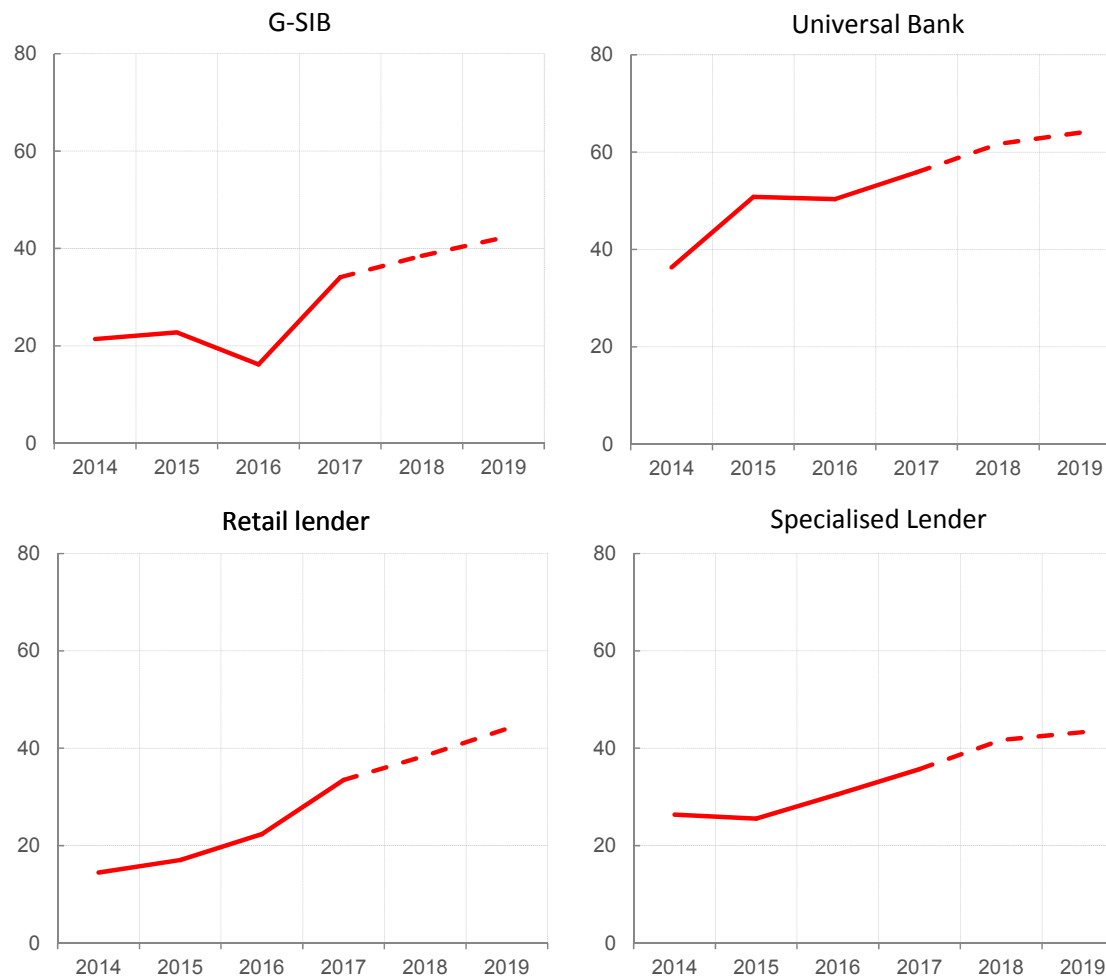


Source: ECB.

Notes: Notional stock of loans to non-financial corporations. It is constructed by adding the net flows of loans to NFCs to the stock of NFC loans as of June 2013. Depicted is the aggregate evolution for the group of banks that borrowed from both the TLTRO-I and II and the group of banks which did not access any of the two. Based on sample of euro area MFI for which individual balance sheet information is available. Vulnerable countries are Spain, Italy, Greece, Cyprus, Portugal and Slovenia. Less vulnerable countries are the remaining euro area countries. The series are not seasonally adjusted. Latest observation is December 2017

Recovery in profitability for all categories of banks

Cumulated change in ROA across bank business model (basis points)

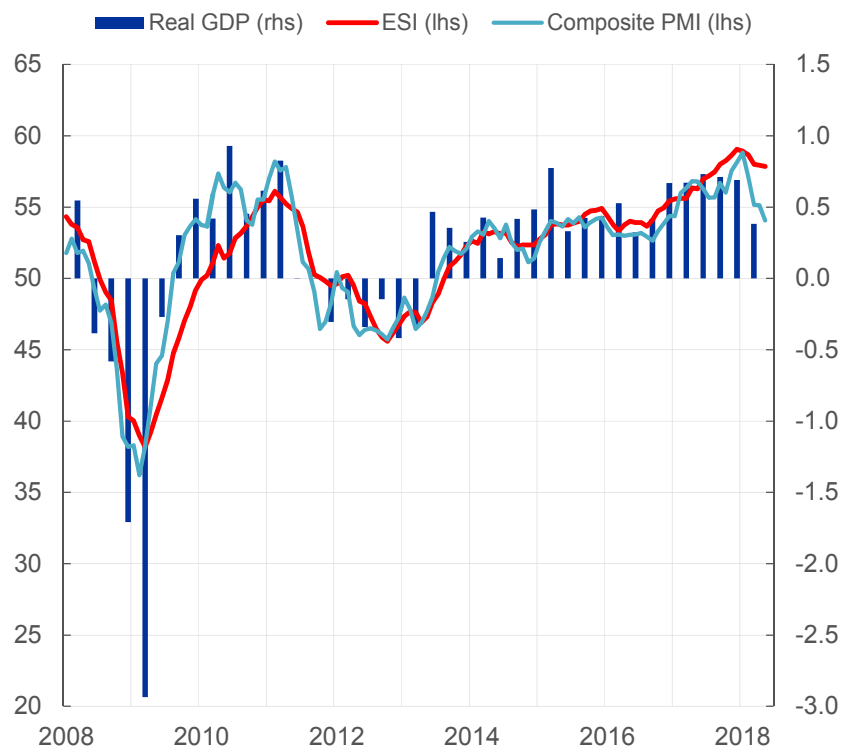


Source: ECB calculations. Note: The charts report the changes in return on assets (ROA) by bank business model historically observed in 2014-2017Q4 (red solid line) and projected ROA (red dashed line). Projections are based on a dynamic panel VAR model that uses individual balance sheet data from the iBSI dataset matched with Supervisory and SNL data. The variables included in the model are: ROA, lending rates to NFPS, deposit rates, NPLs, real GDP growth, inflation rate and interest rates with a remaining maturity of 2-, 5-, and 10-years. The baseline is constructed as a conditional forecast where the ROA of individual banks are projected for the next 3-year horizon conditional on the interest rates and macroeconomic outlook consistent with the September 17 MPE.

20 quarters of positive real GDP growth

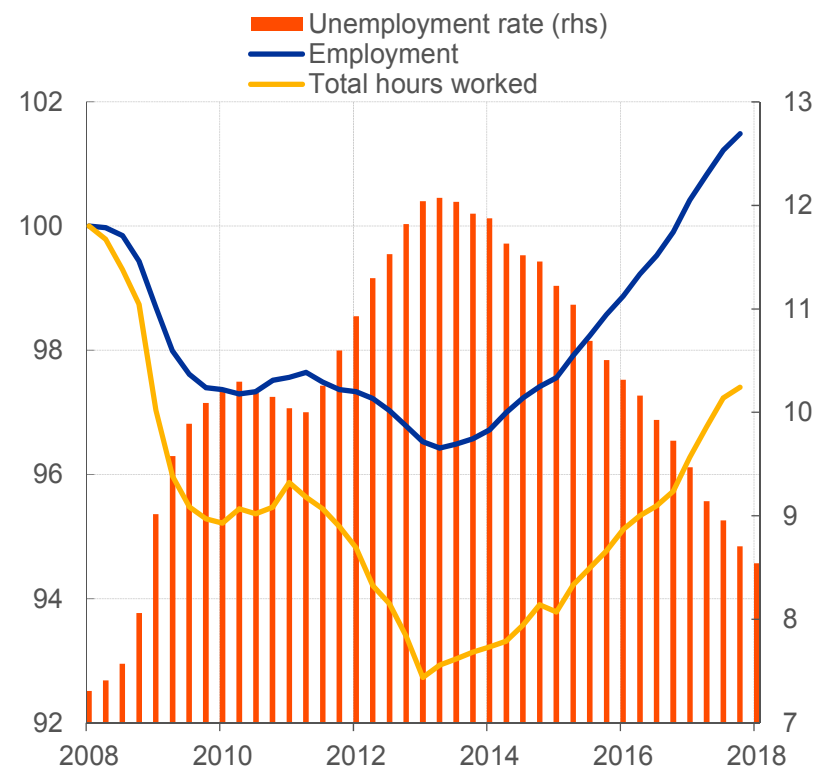
Real GDP growth – survey indicators

(lhs: diffusion index; rhs: q-o-q % change)



Unemployment rate, level of employment and total hours worked

(lhs: index, rhs: percentage points)



Sources: Eurostat, ECB calculations.

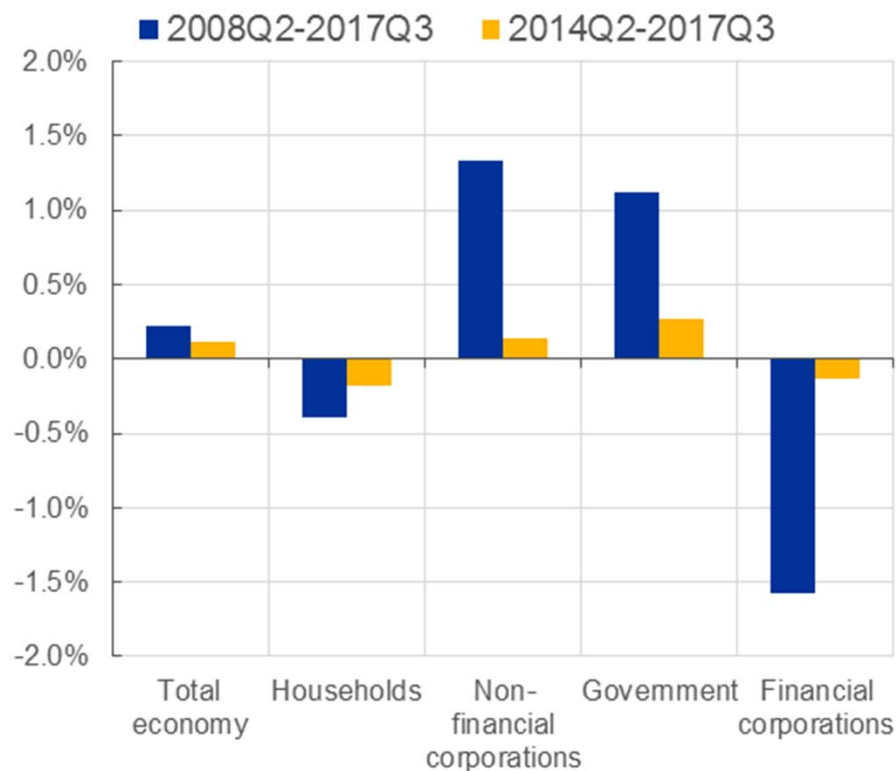
Note: Other income comprises operating surplus, property income, direct taxes and transfers. All income components are deflated with the GDP deflator. The contribution from the terms of trade is proxied by the differential in the GDP and consumption deflator. Consumption and total disposable income are deflated with the consumption deflator. Latest observations: 2017Q4.

Sources: Eurostat, ECB calculations.

Latest observations: 2017Q4 (employment, hours worked), 2018Q1 (unemployment).

Expropriating savers?

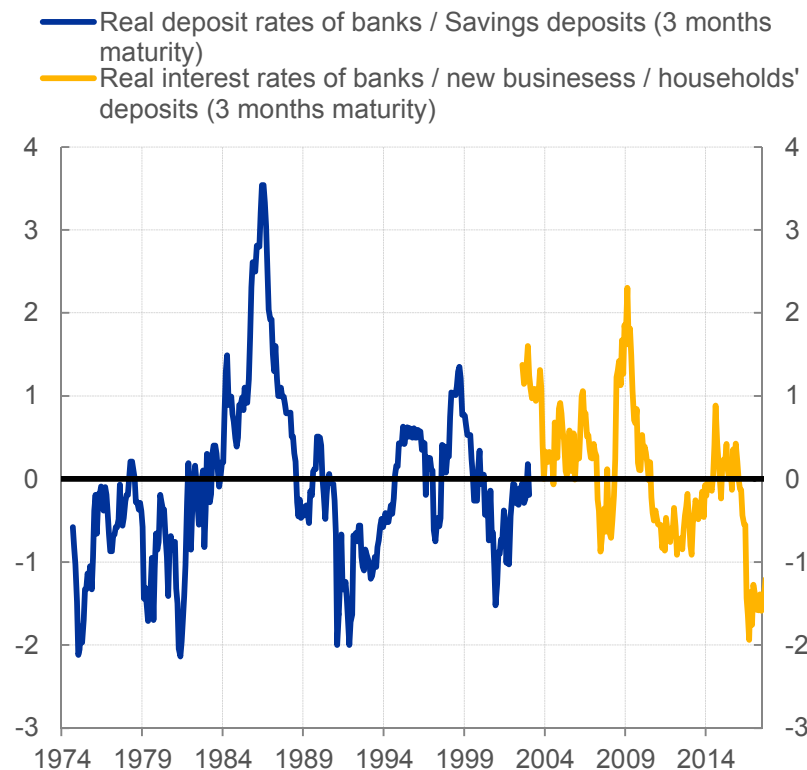
Changes in net interest income by sector
(percent of GDP)



Source: ECB.

Note: The chart reflects the changes from Q2-2008 to Q3-2017, and from Q2-2014 to Q3-2017, in the 4-quarter moving average of net interest income. To exclude the impact of variations in the stocks of assets/liabilities on net interest income, the changes are computed by applying the asset and liability rates of return on the notional asset and liability stocks in Q1-2008 and Q1-2014, respectively. Changes in net interest income are expressed as percentages of GDP, with GDP fixed at the respective starting points.

Real term deposit rates in Germany
(percent)

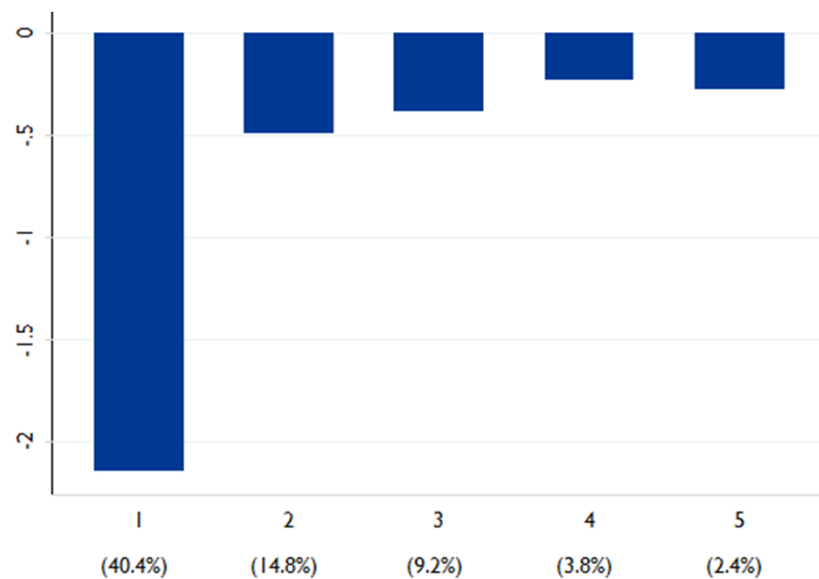


Source: Deutsche Bundesbank.

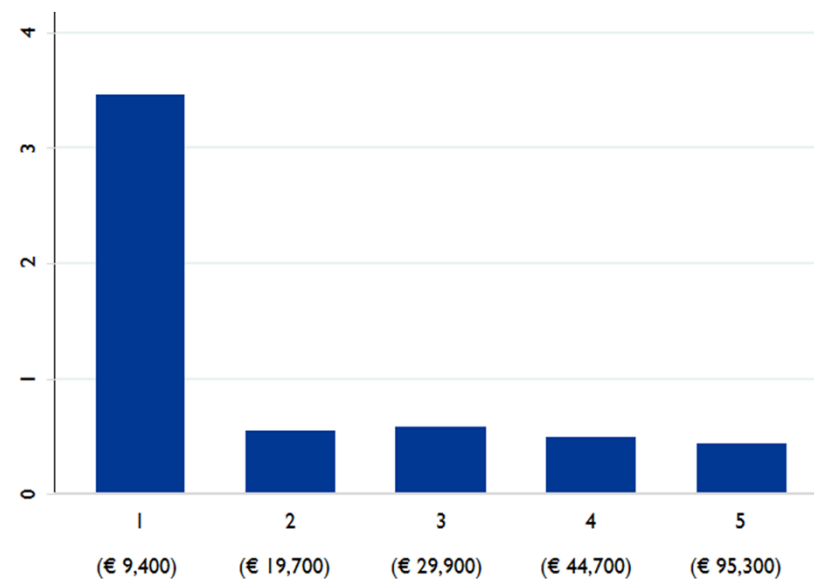
Latest observation: February 2018.

APP effects are strongly skewed toward low-income households

Estimated APP impact on unemployment rate by income quintile
(percentage points)



Estimated APP impact on mean income by income quintile
(percent)

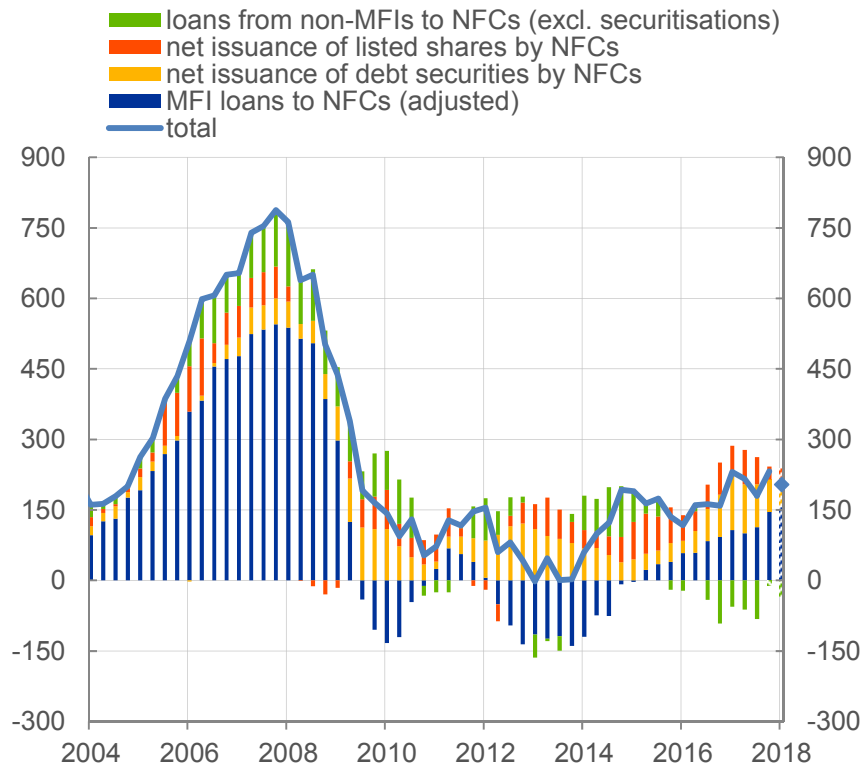


Sources: Lenza and Slacalek (2018).

Note: The numbers in brackets on the RHS chart show levels of mean gross household income 4 quarters after the impact of APP. Euro area aggregates are calculated as the total for the four large countries: Germany, Spain, France and Italy.

NFC loan growth consistent with corporate deleveraging

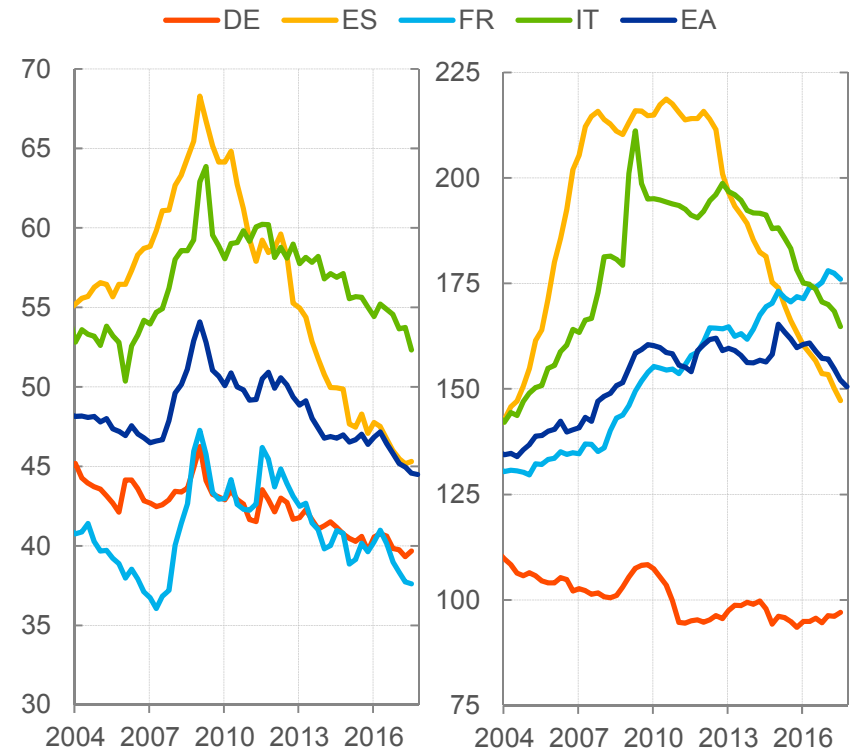
External financing of euro area NFCs based on selected instruments
(annual flows in EUR bn)



Sources: Eurostat, Dealogic, ECB estimates.

Notes: MFI loans adjusted for sales, securitisation and cash pooling activities. Loans from non-MFIs include loans from OFIs and ICPFs. Latest observation: 2017 Q4 for EAA data. Estimates for 2018 Q1 (the blue diamond) are based on the ECB BSI and SEC data and Dealogic.

NFCs' leverage at market value (LHS) and consolidated gross debt (RHS)
(percent of total assets; percent of gross value added)



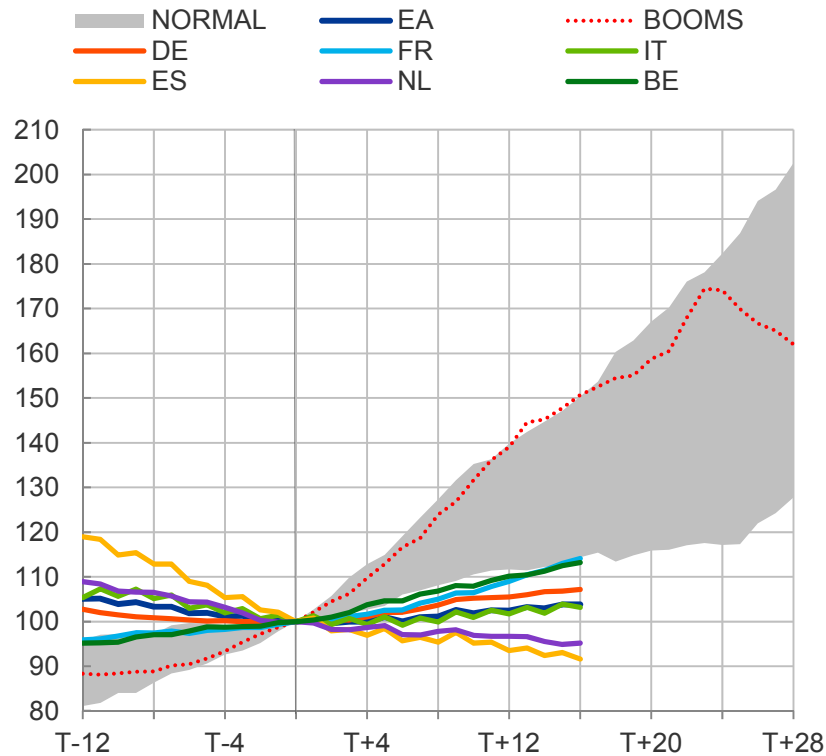
Source: Eurostat, ECB calculations.

Notes: Leverage is calculated by dividing total liabilities net of shares and other equity with total assets. Consolidated gross debt is defined as the sum of total loans granted to NFCs net of intra-sectoral lending, debt securities issued and pension liabilities. Latest observation: 2017Q3 for DE, ES, FR, IT; 2017Q4 for EA.

No signs of real estate bubble

Real household loans around starting period of house price booms

(indices, normalised to 100 at T=trough; T=2013Q4)

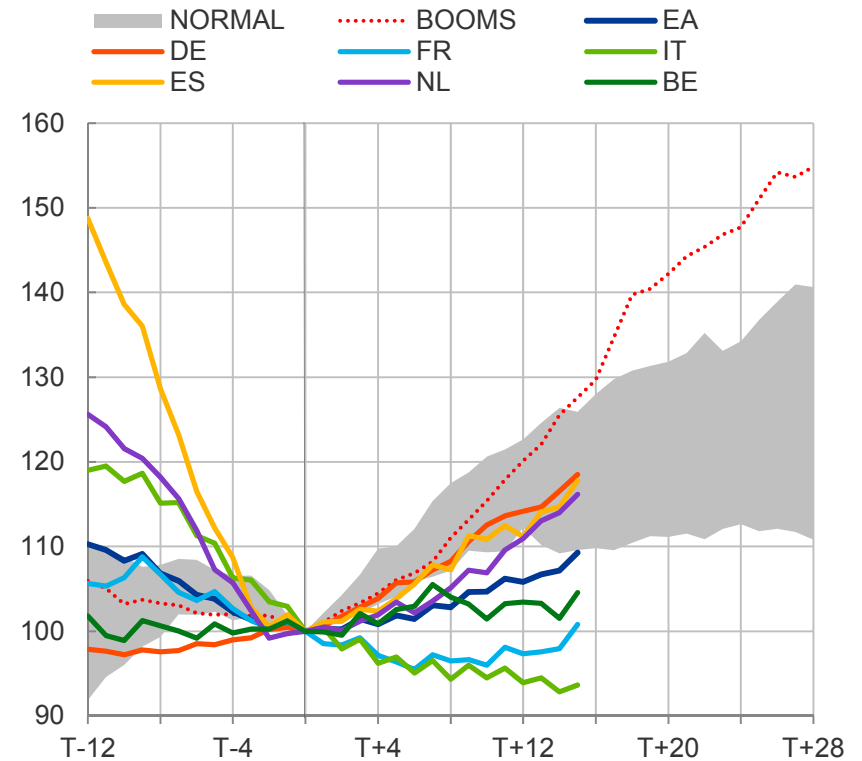


Sources: BIS, Fed Dallas, OECD and ECB calculations.

Notes: Based on data from 1975Q1 to 2017Q4 for euro area countries. Trough (starting point of house price normal increases or booms) identified via quarterly version of Bry-Boschan algorithm by Harding and Pagan, 2002. Dotted line refers to median during house price booms. Grey range refers to interquartile range during normal house price increases.

Real house prices around starting period of house price booms

(indices, normalised to 100 at T=trough; T=2013Q4)



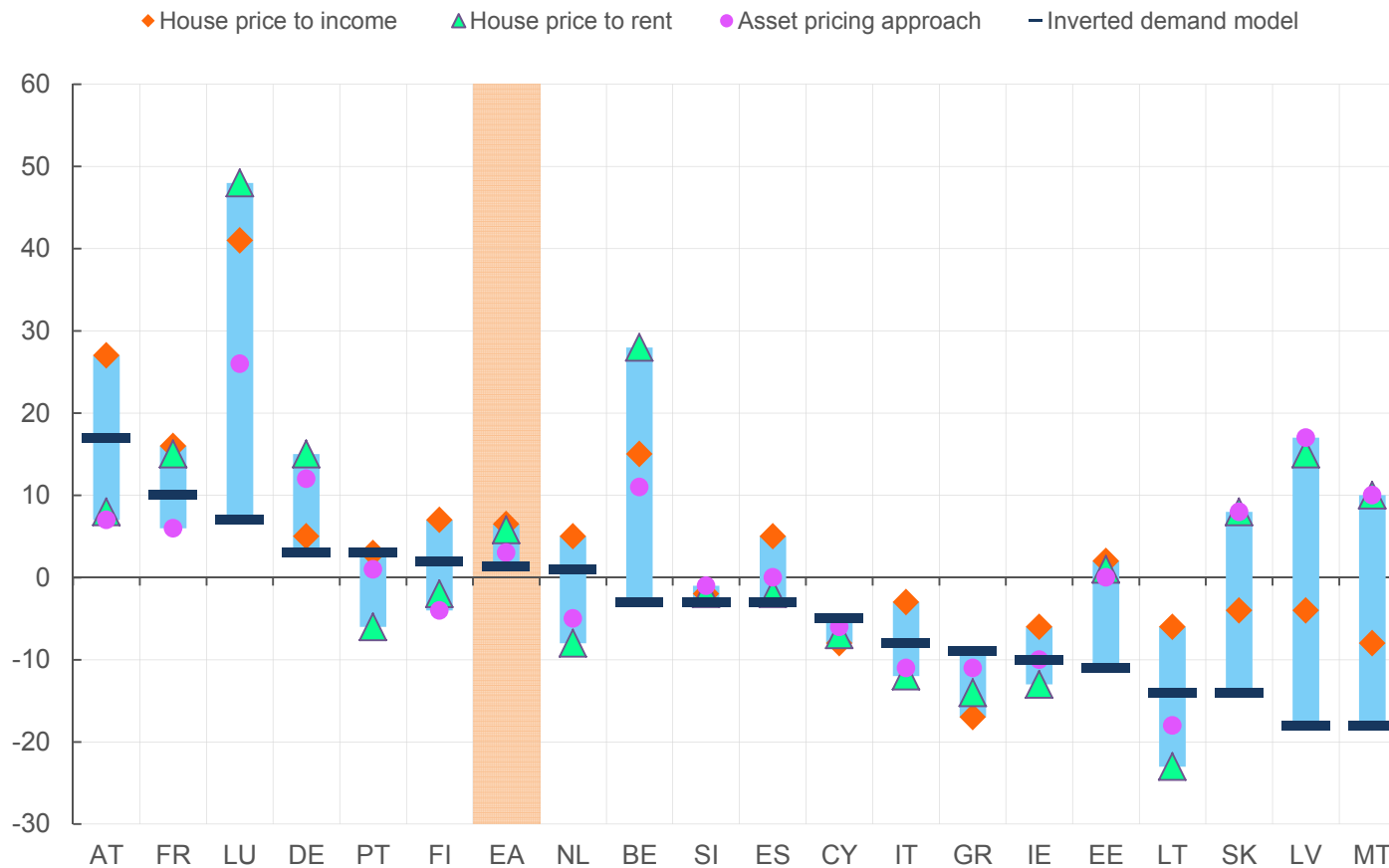
Sources: BIS, Fed Dallas, OECD and ECB calculations.

Notes: Based on data from 1975Q1 to 2017Q3 for euro area countries. Trough (starting point of house price normal increases or booms) identified via quarterly version of Bry-Boschan algorithm by Harding and Pagan, 2002. Dotted line refers to median during house price booms. Grey range refers to interquartile range during normal house price increases.

Real estate valuations do not appear overly stretched

Estimates of over/undervaluation of residential property prices in 2017Q3

(Percentages and distribution of estimates)



Sources: Eurostat, national sources, ECB and ECB calculations.

Notes: Estimates based on four different valuation methods: price-to-rent ratio, price-to-income ratio, asset pricing approach and a Bayesian estimated inverted demand model. For further details see Box 3, Financial Stability Review, ECB, June 2011; and box 3, Financial Stability Review, ECB, November 2015. For each country, the blue bars represent the range of estimates across the four valuation methods. Last observation refers to 2017Q3, except for CY (2017Q2).