



EUROPEAN CENTRAL BANK

EUROSYSTEM

# Monetary Policy and challenges

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# Overview

## 1. The ECB

- Organization
- Monetary Policy

## 2. Monetary Policy

- The situation before the pandemic
- The ECB's monetary policy response to the crisis
- The outlook today

## 3. Monetary Policy strategy review

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# 1.

## The ECB

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### Organisation and tasks

# The European Central Bank

We are an EU institution

We conduct monetary policy for the euro area

We supervise banks in the euro area (+HR and BG)




Around 3.500 staff in 3 buildings in Frankfurt

Employees come from all EU countries

Stable prices and safe banks benefit 340+ million Europeans

# Most EU countries have adopted the euro

 EU Member States which have adopted the euro

 EU Member States that have not yet adopted the euro

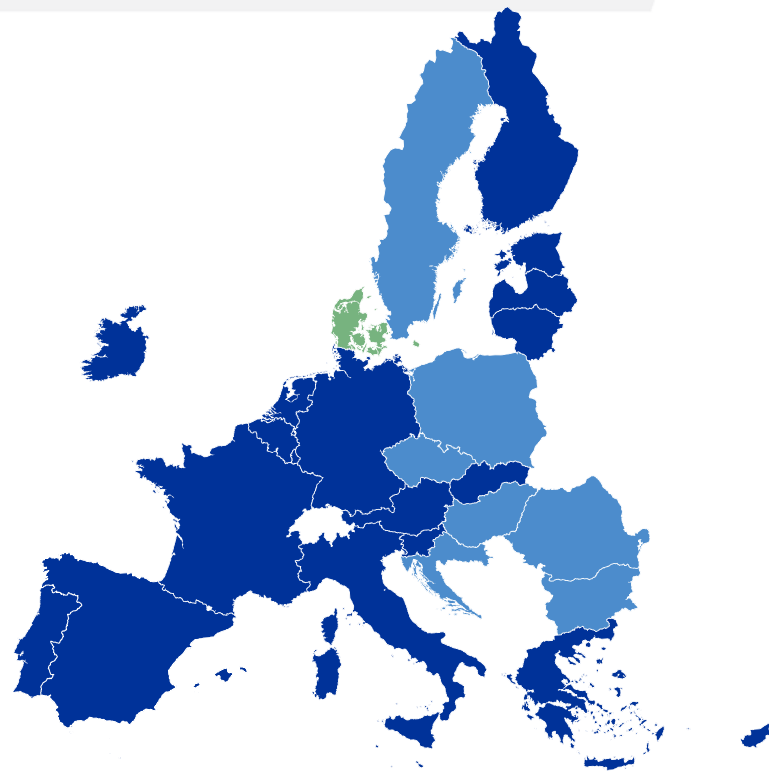
 EU Member States with an exemption



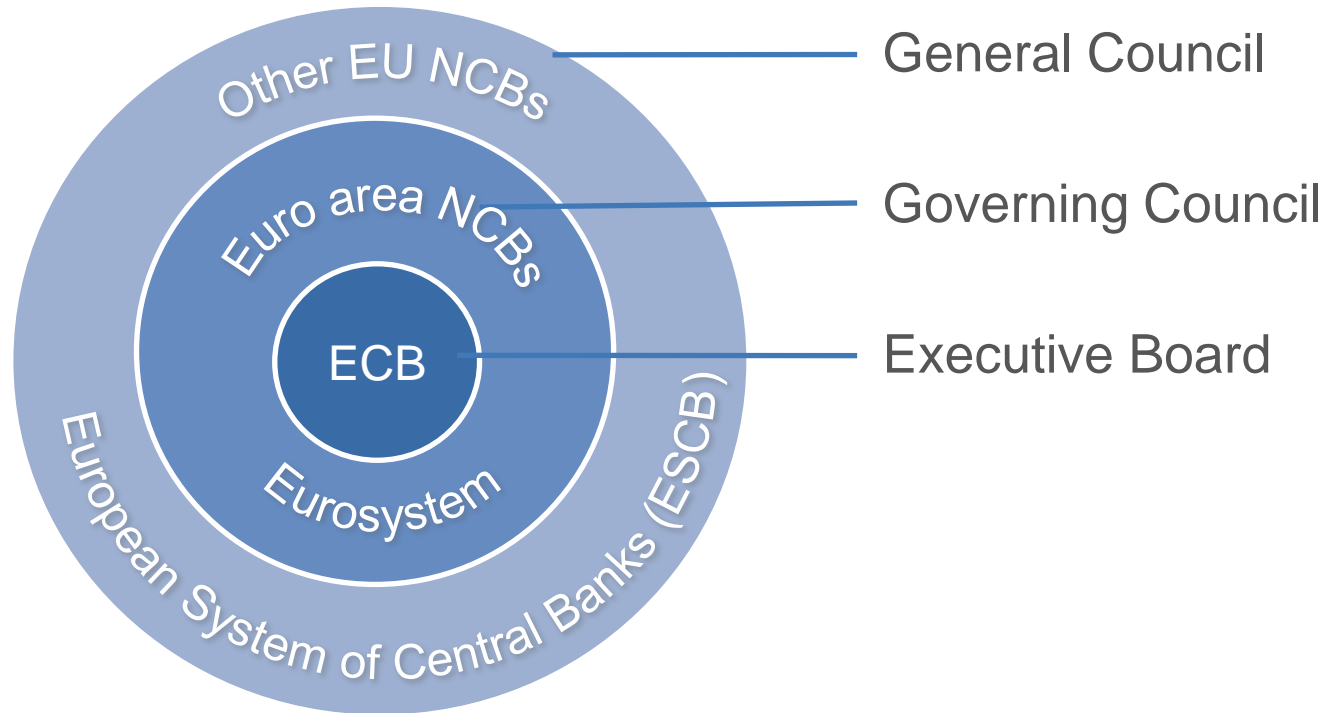
**Monetary policy** is centralised at supranational level



**Fiscal, economic and financial policies** are partly formulated at the national level



# The ECB is part of the European System of Central Banks





# The European Council appoints the ECB's Executive Board



**Christine Lagarde**  
President  
of the ECB

- Chief Services Officer
- DG-Secretariat
- DG-Communications
- ESRB Secretariat
- Directorate Internal Audit
- Counsel to the Executive Board



**Philip Lane**

- DG-Economics
- DG-Monetary Policy



**Isabel Schnabel**

- DG-Market Operations
- DG-Research
- DG-Statistics



**Luis de Guindos  
Jurado**  
Vice-President  
of the ECB

- Macroeprudential Policy and Financial Stability
- Directorate Risk Management



**Fabio Panetta**

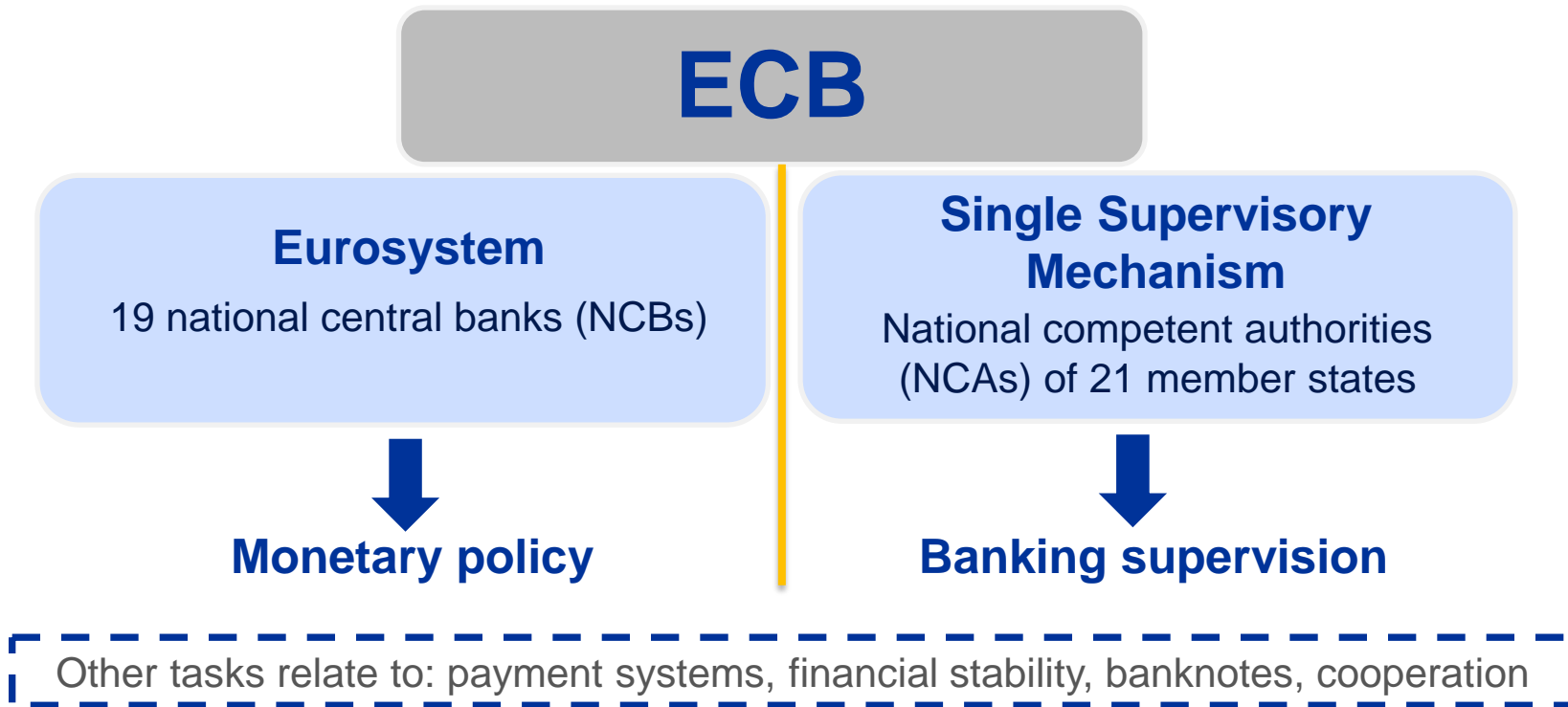
- DG-International and European Relations
- DG-Market Infrastructure and Payments
- Directorate Banknotes
- Division Oversight of Payment Systems



**Frank Elderson**

- DG-Legal Services
- SSM

# The ECB's monetary and supervisory functions are separated





# The ECB's strategy review in a nutshell:

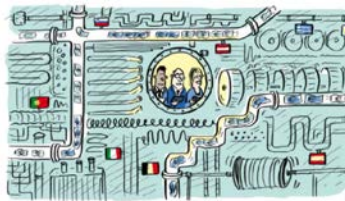
## *Content of the review*



1 Inflation measurement



2 Price stability objective



3 Analytical framework



4 Monetary policy and financial stability



5 Productivity, innovation and technological progress



6 Climate change



7 Monetary policy communication



8 Monetary policy instruments



9 Digitalisation



10 Globalisation



11 Inflation expectations



12 Shadow banking



13 Fiscal and monetary policy in a monetary union

# Price stability is the ECB's primary objective

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

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

*Without prejudice to the objective of price stability, the ESCB [Eurosystem] shall support the general economic policies in the Union [...].”*

The ECB's Governing Council has defined price stability as annual **inflation below, but close to, 2% over the medium term.**

Breaking News:

ECB's Strategy has  
been updated

See next slide

# The ECB's strategy review in a nutshell: *Outcome of the review*

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LANGUAGE: EN

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## An overview of the ECB's monetary policy strategy

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Publications 1 Introduction

### 1 Introduction

The new monetary policy strategy of the European Central Bank (ECB) was published on 8 July 2021. While the mandate is conferred upon the ECB by the Treaties, the ECB has to devise its monetary policy strategy. This strategy sets out how to achieve the primary objective of maintaining price stability in the euro area, referring to an appropriate set of monetary policy instruments, indicators and intermediate targets, as well as how to take into account other considerations without prejudice to price stability. A monetary policy strategy serves two main purposes: first, it provides policymakers with a coherent analytical framework that maps actual or expected economic developments into policy decisions; second, it serves as a vehicle for communicating with the public. The ECB's monetary policy strategy was last reviewed in 2003 and the changes that have since occurred to the economic and financial backdrop as well as to the predominant policy challenges warranted an update. This overview details the rationale and thinking behind the strategy and its main elements.

1 Introduction  
2 The economic backdrop and the past inflation narrative  
3 The new ECB monetary policy strategy  
4 The ECB's integrated analytical framework  
5 The communication of the ECB's monetary policy decisions  
6 A regular review cycle

## Core elements of the new strategy:

- ✓ Updated price stability definition (symmetric 2%-target)
- ✓ Roadmap to update HICP
- ✓ Take further relevant considerations within the ECB's price stability mandate into account, including climate change considerations.

# The ECB's strategy review in a nutshell:

## *Outcome of the review*

### **Aim:**

- monetary policy strategy → fit for purpose

### **Content:**

- All aspects related to price stability mandate
- One of them: measurement of inflation ([Occasional Paper](#))  
→ review of HICP including **Owner-Occupied Housing Price Index (OOHPI)**

### **Stakeholders:**

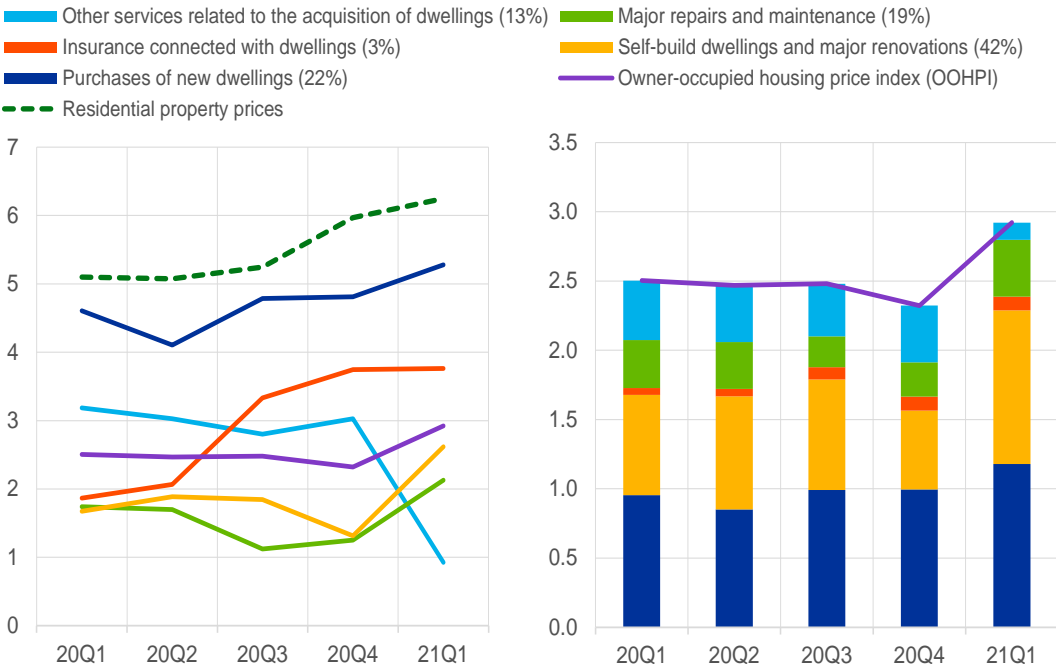
- Governing Council = ECB Board Members + Governors of National Central Banks

## Main messages on Owner-Occupied Housing

- **Inclusion of OOH in HICP:** most pressing in inflation measurement
- **Importance attached by citizens** (["ECB Listens"](#))
- **GovC welcomes good progress made by European Statistical System**
- **Steps:**
  - Quarterly HICP + OOHPI:** experimental, by 2023
  - Amending the legal basis**
  - HICP + monthly & timely OOHPI:** important target
- **Investment (asset component) vs. consumption:** requires further research

# Residential property prices and owner-occupied price index

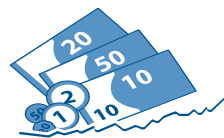
## Residential property prices and components of owner-occupied housing price index (OOHPI) (annual percentage change and pp contributions)



Sources: Eurostat and ECB staff calculations.  
 Note: As no official OOHPI weights are available a proxy based on the share of imputed rentals for housing is used. This proxy is likely to be more stable than weights that also include acquisitions and are likely to co-move more with the construction cycle.  
 Latest observations: 2021 Q1.



# Price stability supports income and employment



## How? By contributing to:

Recognizing changes in relative prices

Avoiding “inflation risk premium”

The productive use of resources

Reducing the distortionary impact of tax and social security systems

Maintaining social cohesion and stability

Financial stability

# Single Supervisory Mechanism (SSM)



ECB

Key pillar of the banking union. Ensures:

- safety and soundness of the banking system
- financial integration and stability
- consistency

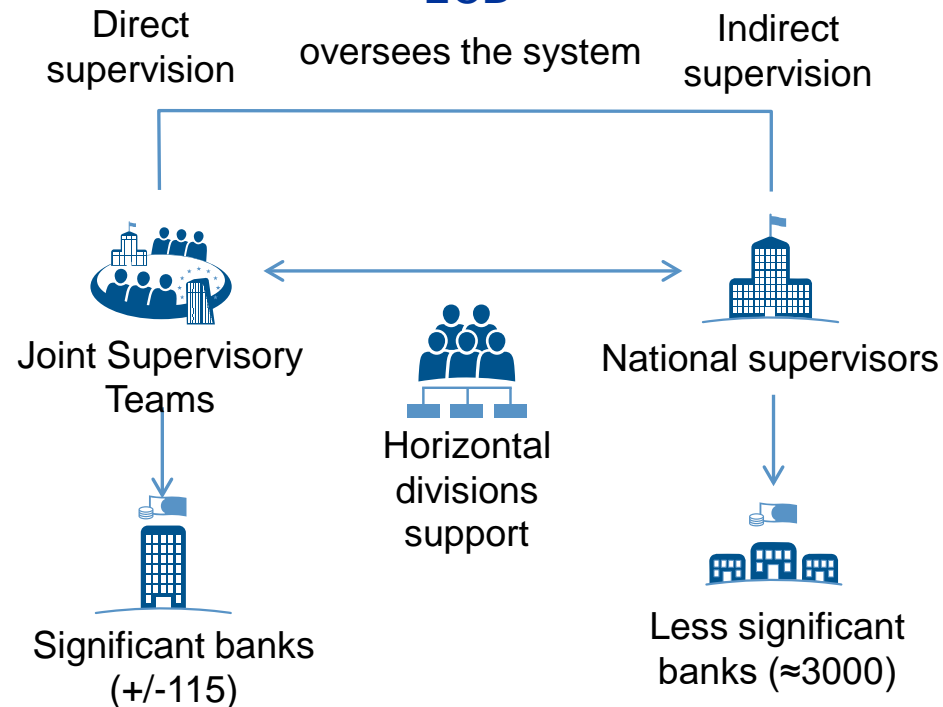
Based on common rulebook

Micro- and macro-prudential powers

Separation from monetary policy

Open to non-EA EU countries (BG, HR joined)

ECB 'call back right' for non-significant banks





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# 2.

## Monetary Policy

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- The situation before the pandemic
- The ECB's monetary policy response to the pandemic crisis
- The situation today

# The situation before the pandemic



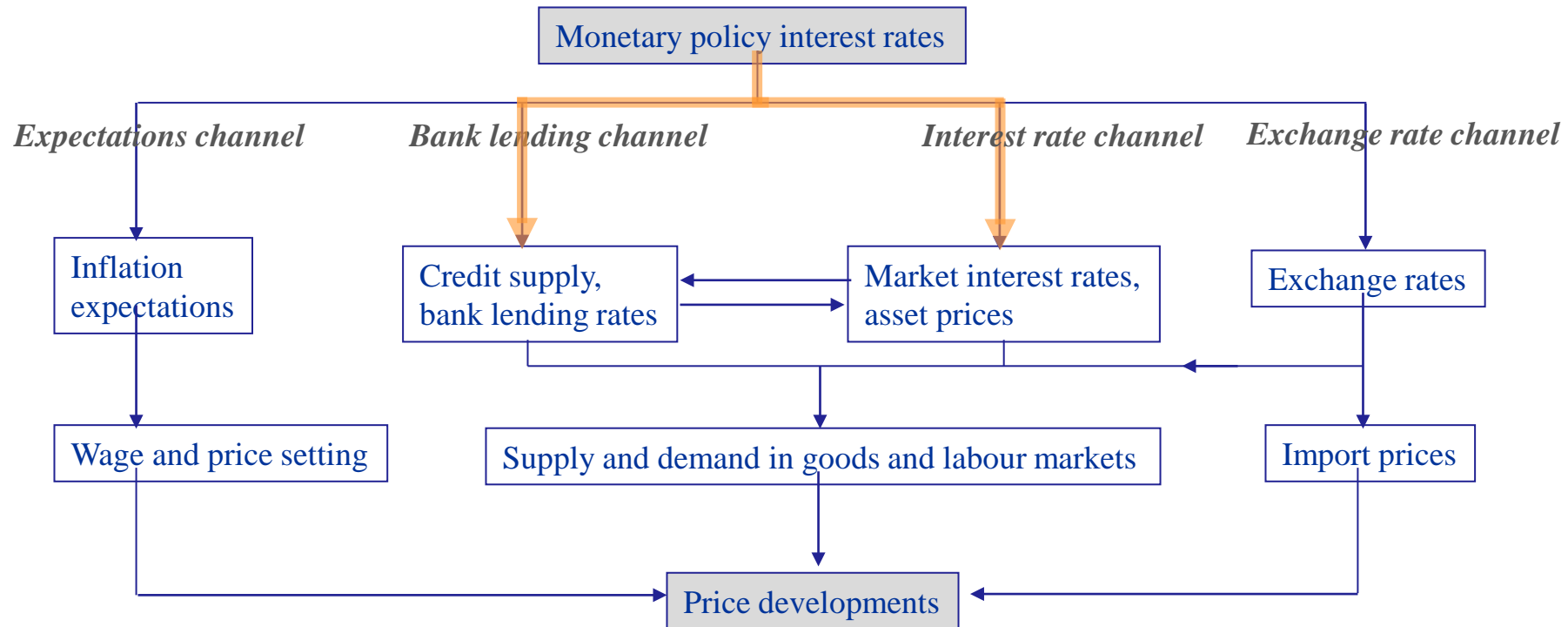
# Monetary policy in a nutshell

- The ECB tries to steer financial market interest rates by setting the price of short-term credit to commercial banks (**official interest rates**) and determining the amount of that credit (**liquidity**) to ultimately influence price developments
- In crisis situations and when official interest rates are no longer effective (**zero lower bound**), the ECB has to use alternative instruments to influence financial market conditions (**non-standard instruments**)

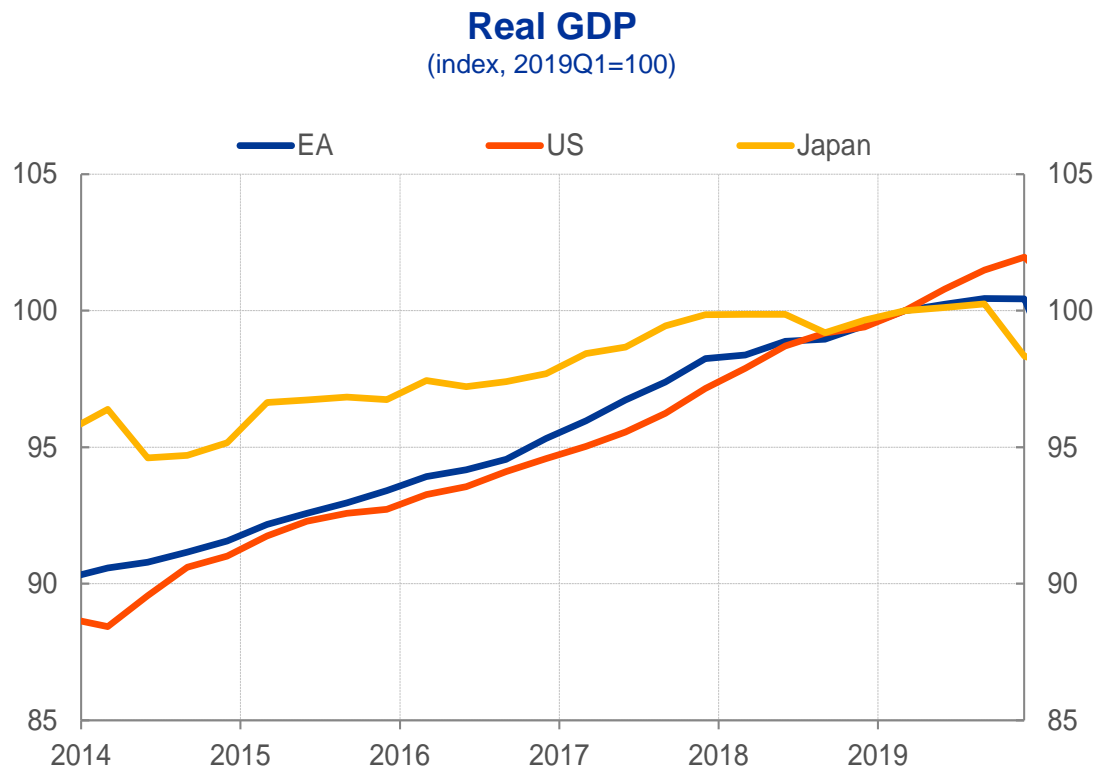




# Transmission channels of monetary policy decisions

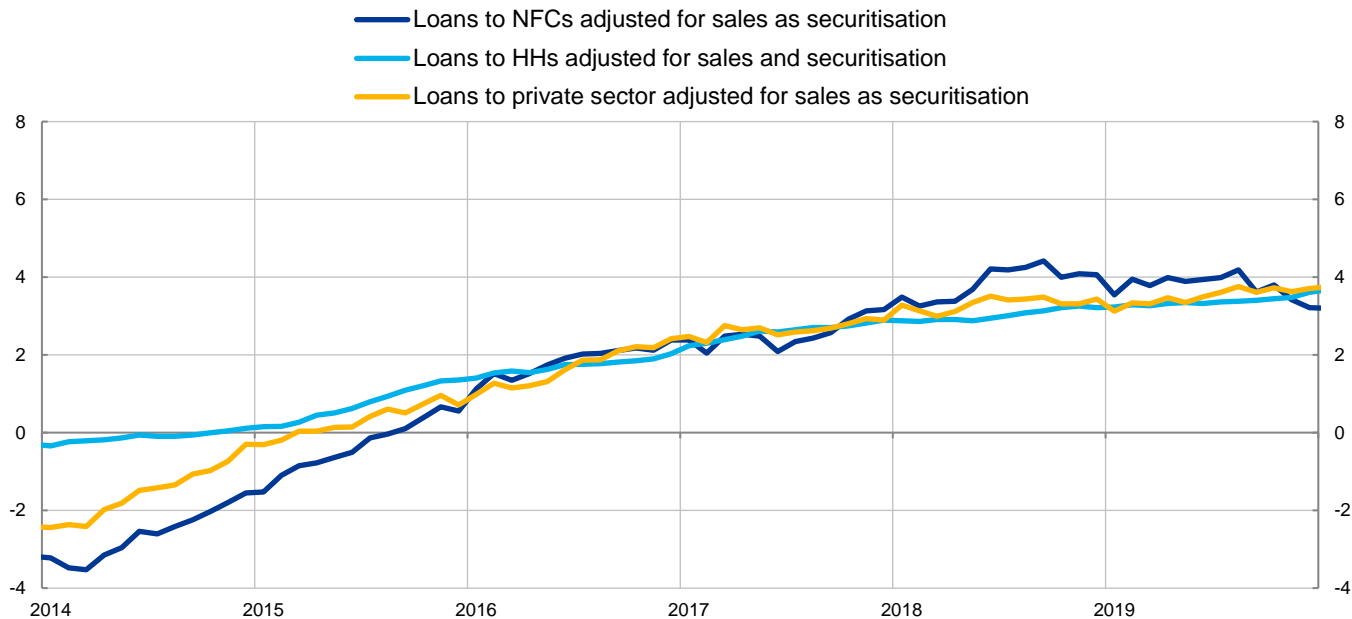


# Economic dynamics weakening in Europe already before the pandemic...



Sources: Eurostat, BEA, Cabinet Office, ECB calculations.  
Latest observation: 2019Q4 for the euro area, the US, and Japan.

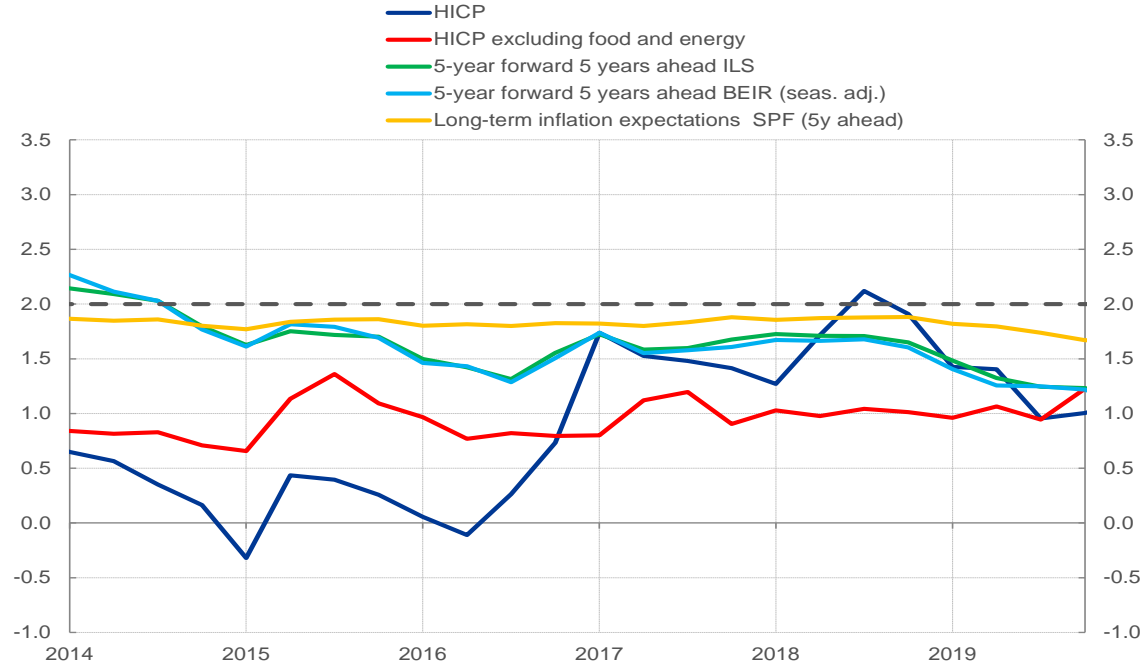
## MFI loans to the private sector (annual growth rates)



Source: ECB.

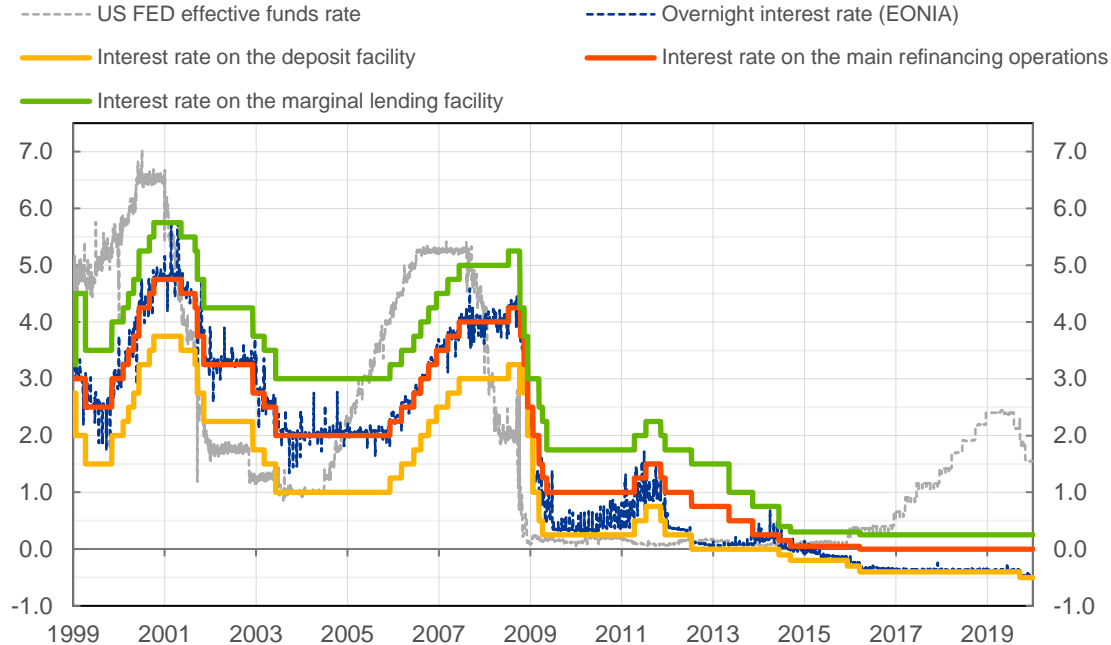
Notes: Monthly data. "NFCs" stands for non-financial corporations and "HHs" stands for households.  
Latest observation: December 2019.

## HICP inflation and inflation expectations (percent)



Source: ECB.  
Latest observation: 2019Q4.

## Key interest rates (percent per annum)



Source: ECB and Federal Reserve Bank of New York.  
Latest observation: December 2019.

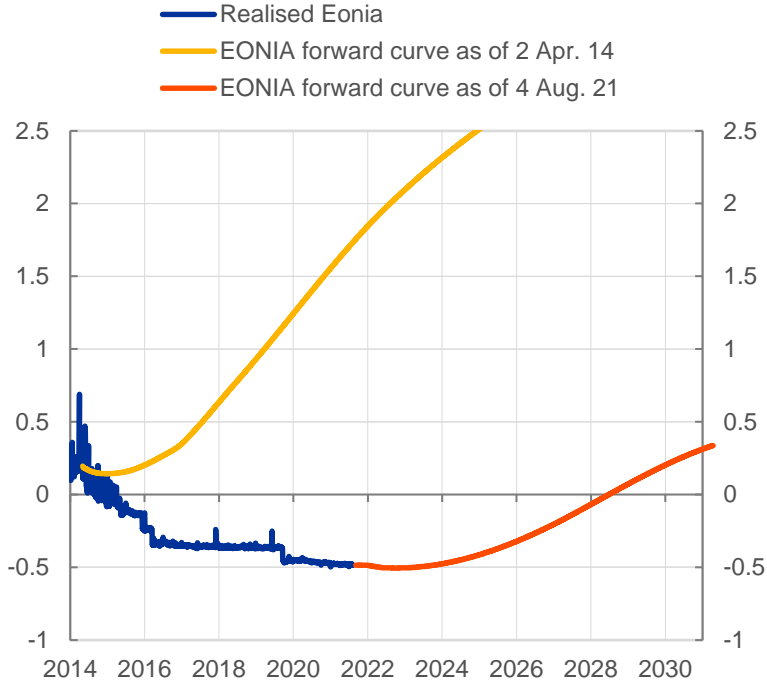
## ... recourse to other monetary policy instruments instead

- 1 Negative interest rates (on deposit facility)
- 2 Forward guidance
- 3 Asset Purchase Programme (APP)
- 4 Targeted Longer-Term Refinancing Operations (TLTRO)



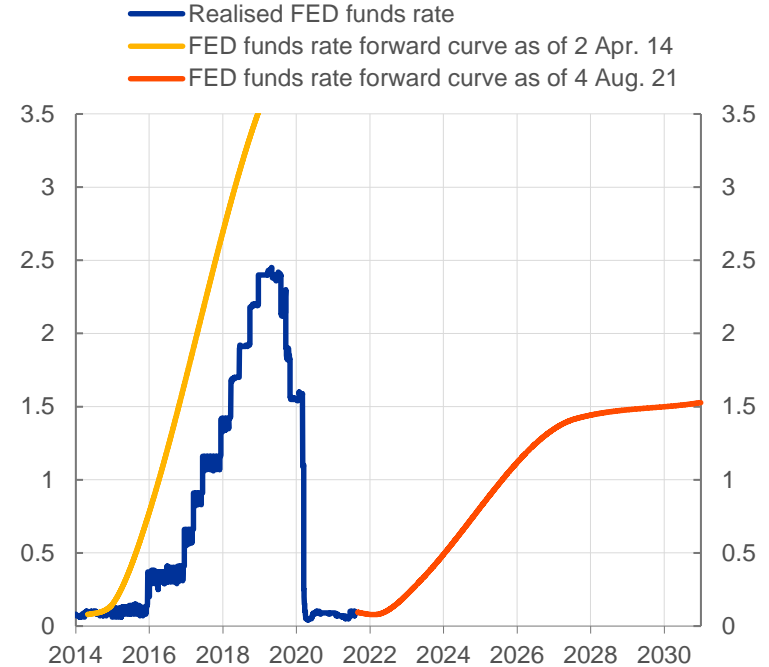
# Negative interest rates and effective forward guidance

**EONIA forward curve**  
(percentages per annum)



Source: Refinitiv and ECB calculations  
Latest observation: 4 August 2021.

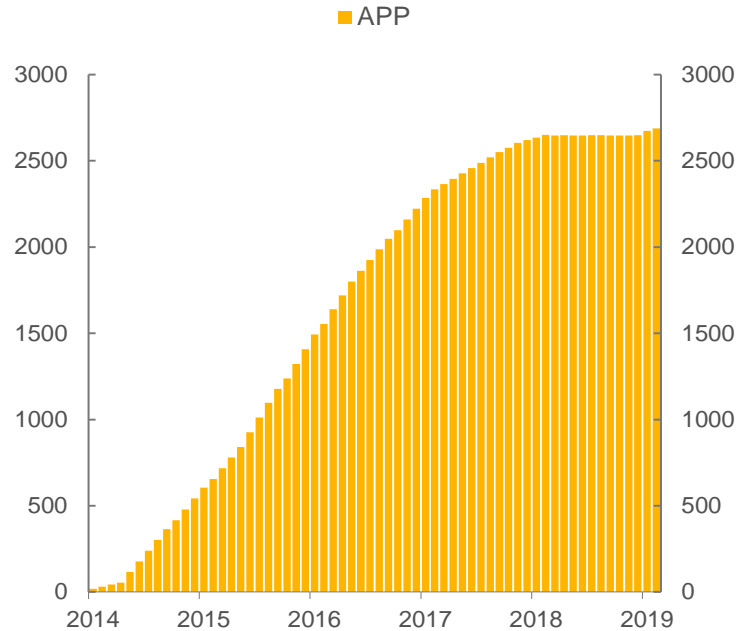
**Fed funds rate forward curve**  
(percentages per annum)



Source: Bloomberg and ECB calculations  
Latest observation: 4 August 2021.

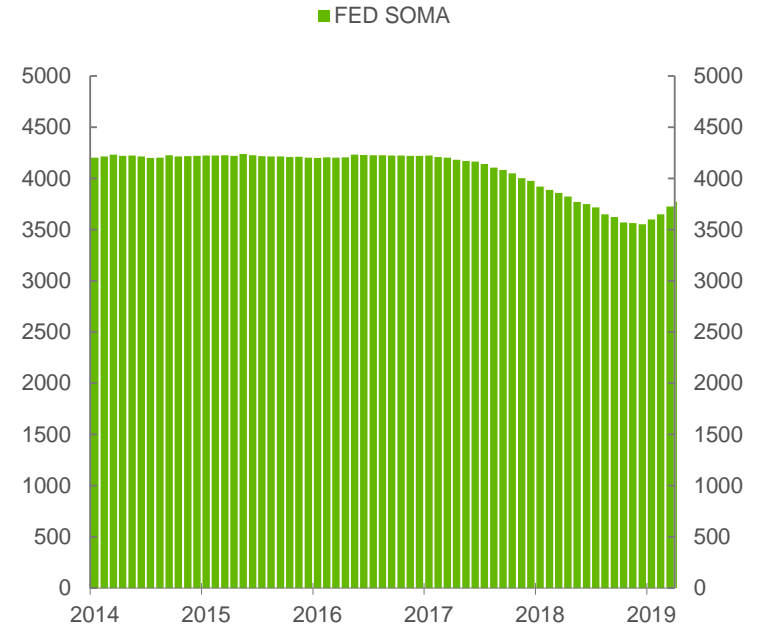
# Asset purchase programme (APP)

**Cumulative net purchases under the APP**  
(EUR billion, book value)



Source: ECB.  
Latest observation: December 2019.

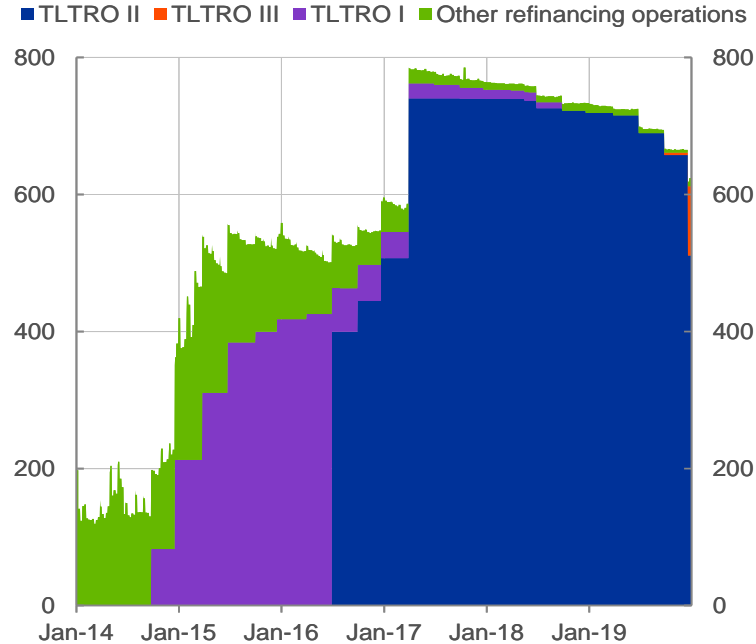
**Federal Reserve System Open Market Account holdings**  
(USD billion, book value)



Source: Federal Reserve Bank of New York.  
Latest observation: December 2019.

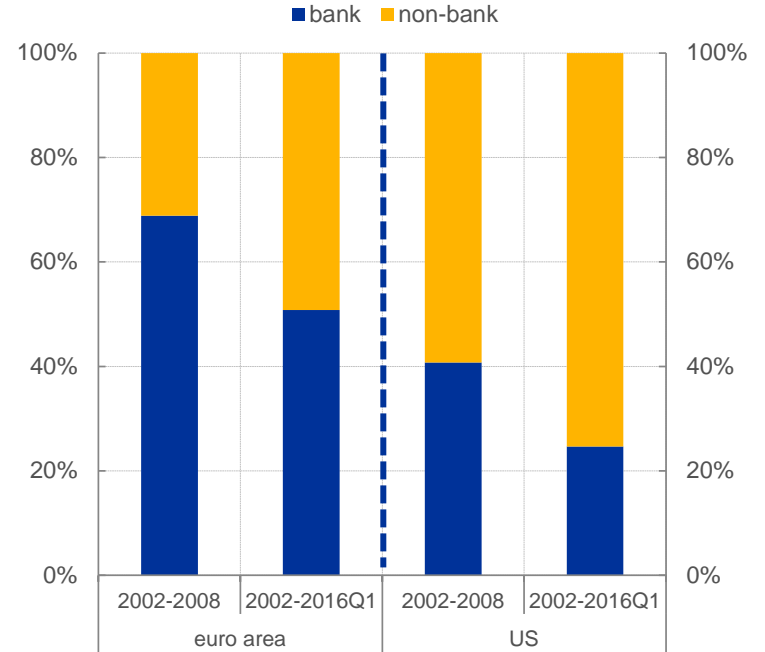
# Targeted long-term refinancing operations (TLTRO)

**Outstanding credit operations**  
(EUR bn)



Source: ECB and ECB calculations.  
Latest observation: 31 Dec 2014.

**Share of bank and non-bank financing in total non-financial corporation financing**  
(cumulated transactions, percentages)

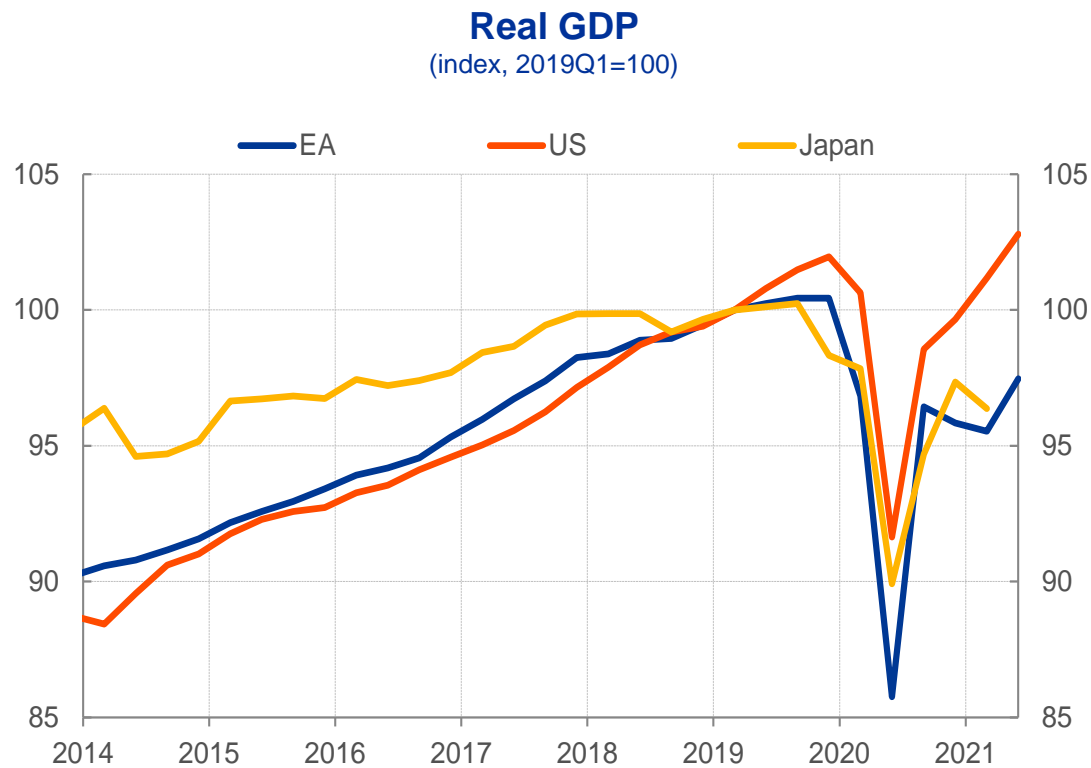


Source: ECB, Federal Reserve System.  
Notes: Calculations are based on cumulated transactions since 2002.  
Latest observation: Q12016.

# The ECB's monetary policy response to the pandemic crisis

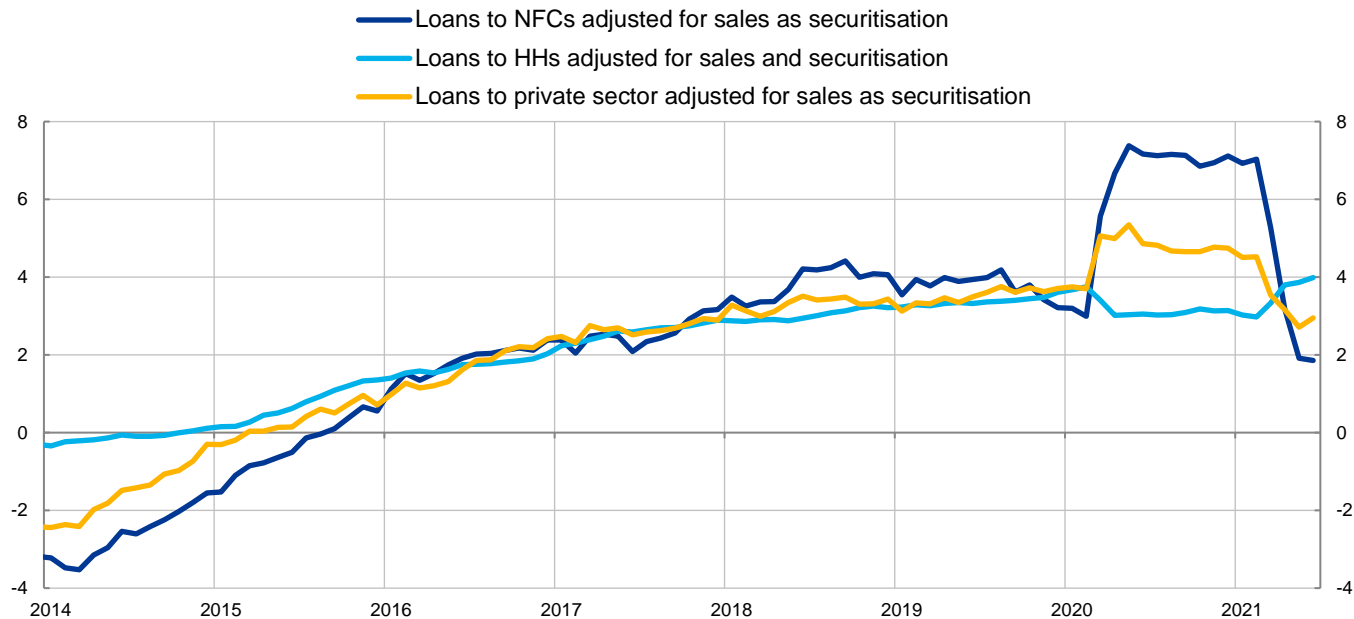


# Unprecedented decline in economic activity...



Sources: Eurostat, BEA, Cabinet Office, ECB calculations.  
Latest observation: 2021Q2 for the euro area and the US, 2021Q1 for Japan.

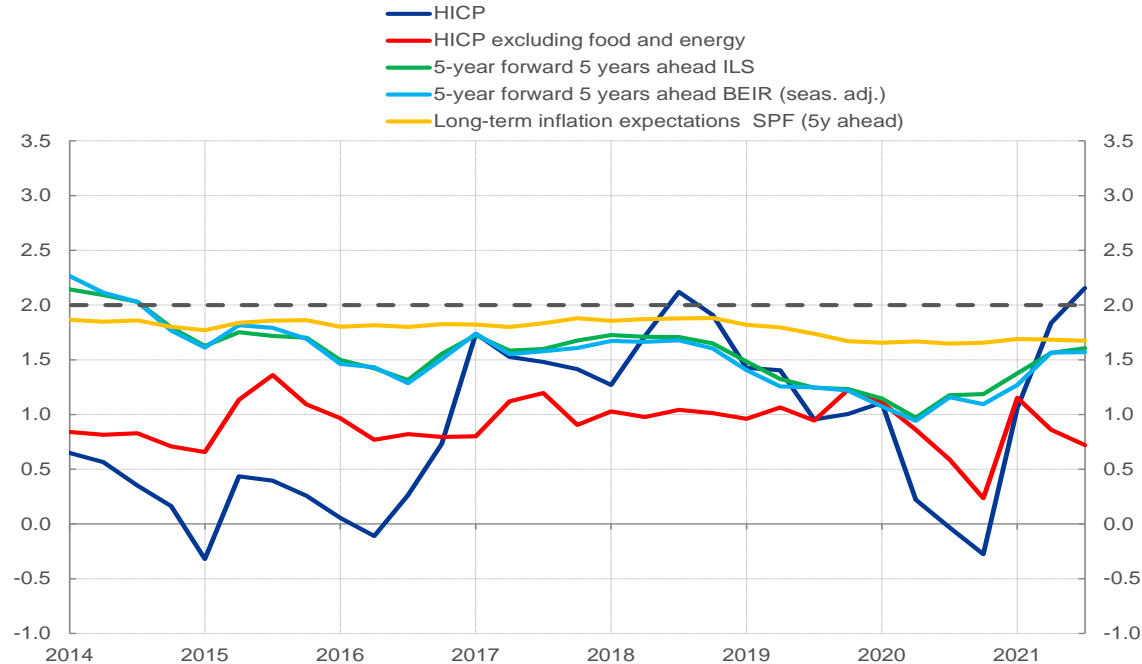
## MFI loans to the private sector (annual growth rates)



Source: ECB.

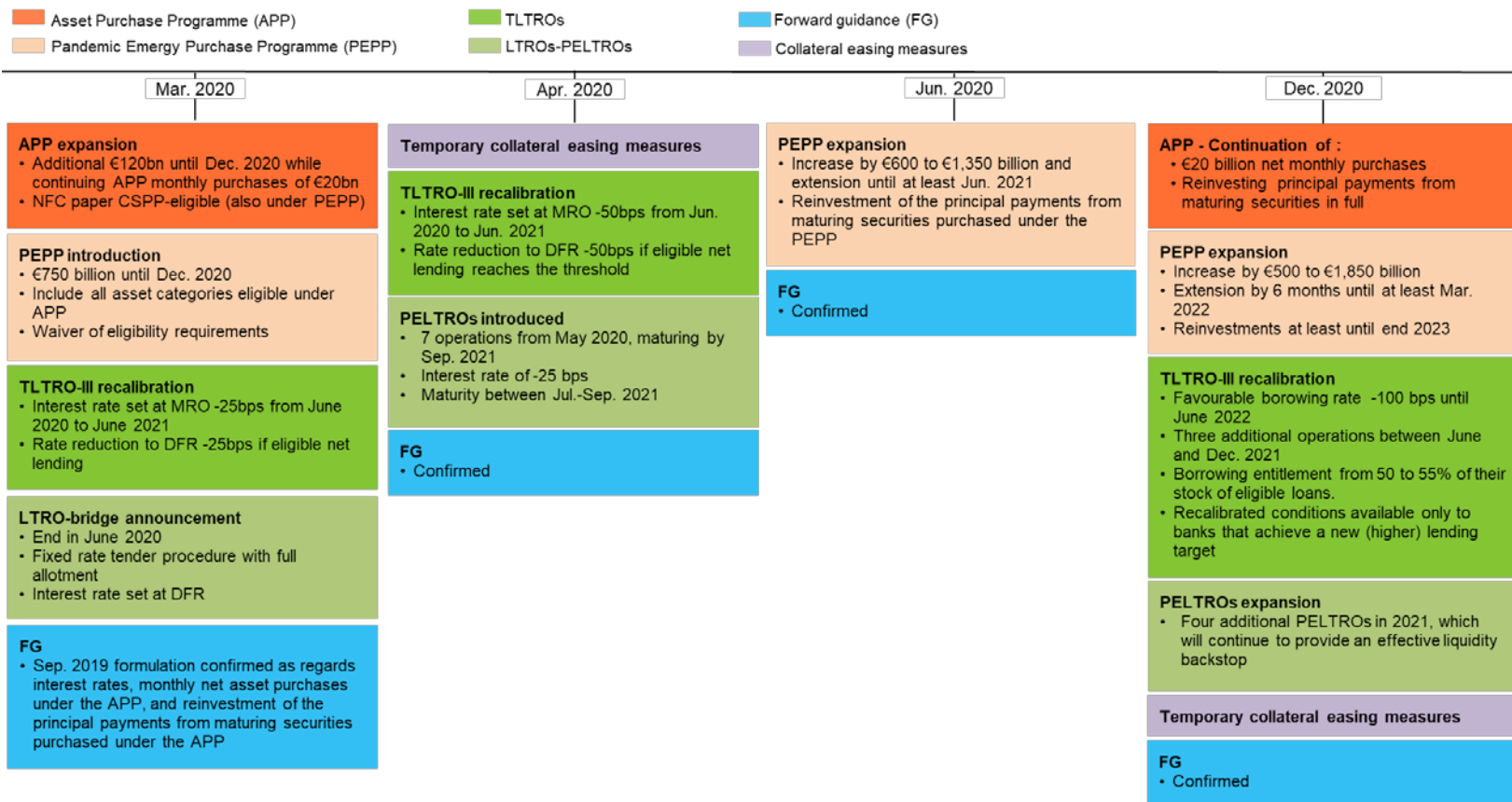
Notes: Monthly data. "NFCs" stands for non-financial corporations and "HHs" stands for households.  
Latest observation: June 2021.

## HICP inflation and inflation expectations (percent)



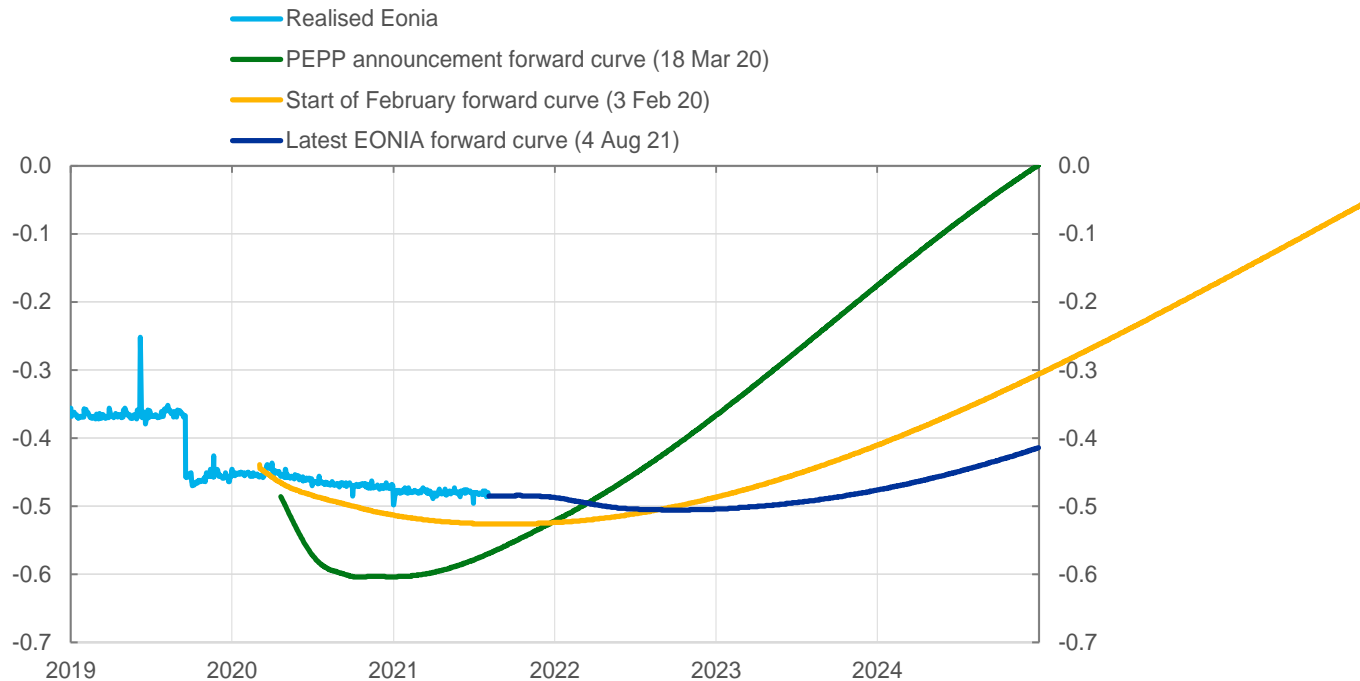
Source: ECB.  
Latest observation: 2021Q3.

# The ECB's measures in response to the pandemic





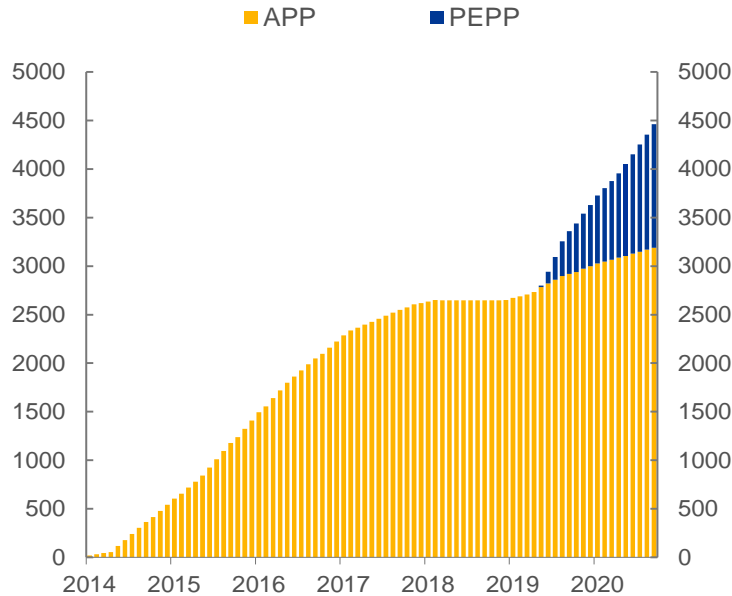
## EONIA forward curve (percentages per annum)



Source: Refinitiv and ECB calculations  
Latest observation: 4 August 2021.

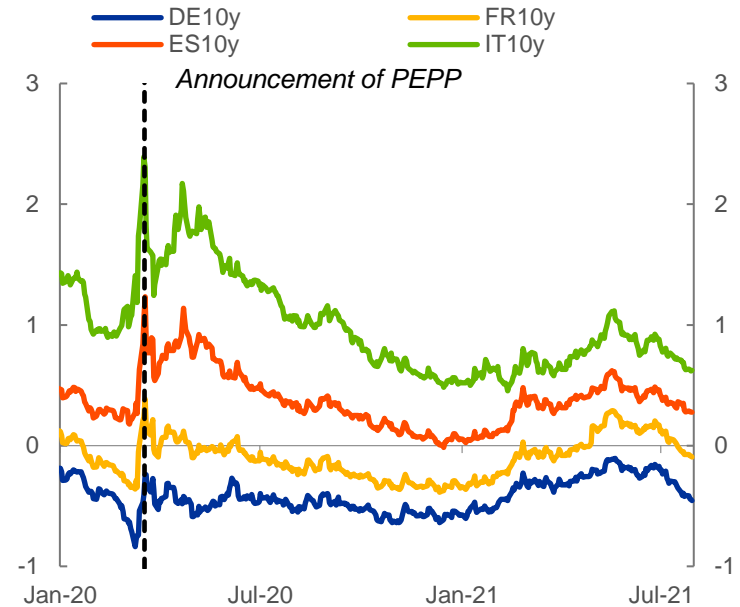
# Pandemic emergency purchase programme offsets transmission risks and eases

Cumulative net purchases under the APP and PEPP  
(EUR billion, book value)



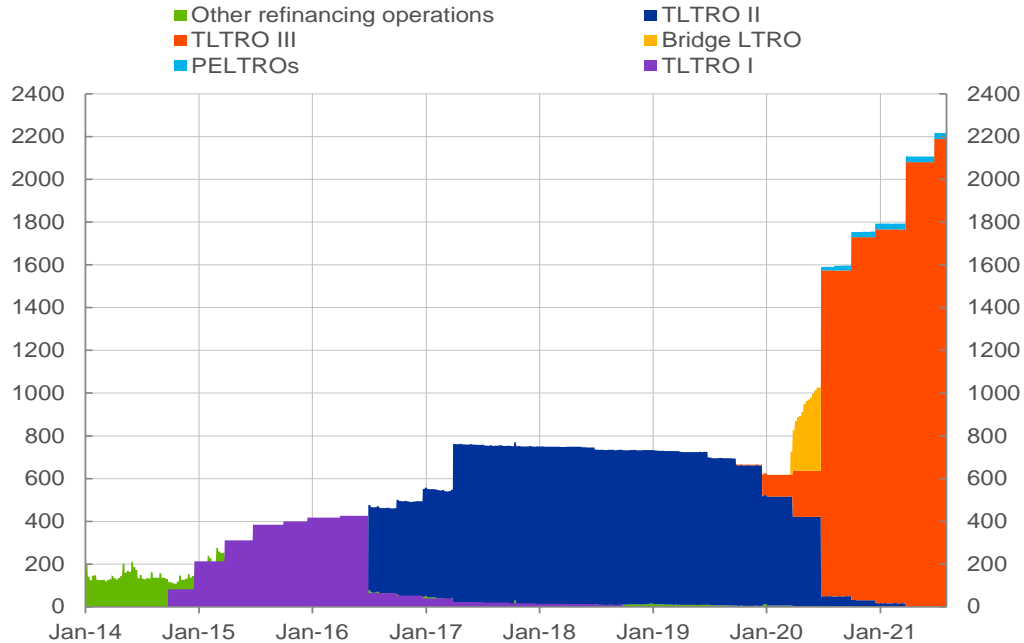
Source: ECB.  
Latest observation: July 2021.

10-year sovereign bond yields  
(percent)



Source: Refinitiv.  
Latest observation: 30 July 2021.

## Outstanding credit operations (EUR bn)



Source: ECB and ECB calculations.  
Latest observation: 02 Aug 2021.

# The situation today



Christine Lagarde



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# Financing conditions very favourable

## 10-year GDP-weighted sovereign yield and 10-year nominal OIS in the euro area

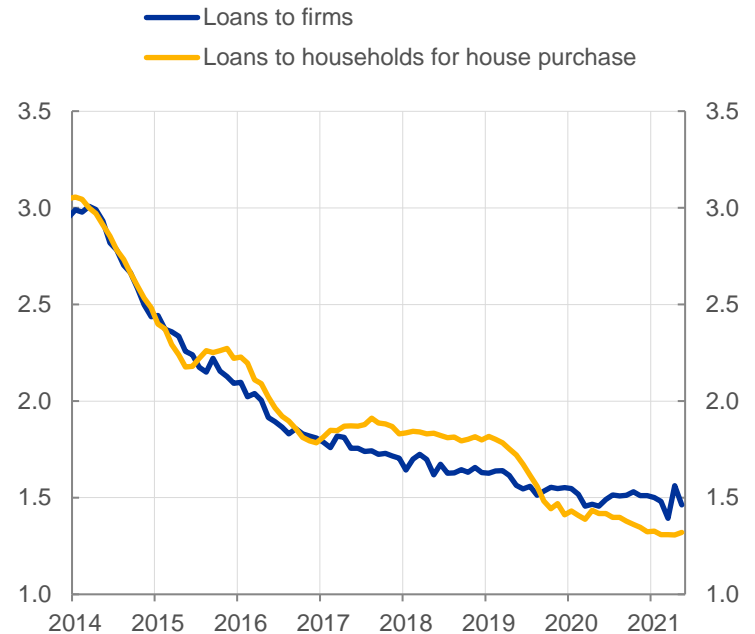
(percentages per annum)



Sources: Refinitiv and ECB calculations.  
Latest observation: 20 July 2021.

## Lending rates to firms and households in the euro area

(percentages per annum)

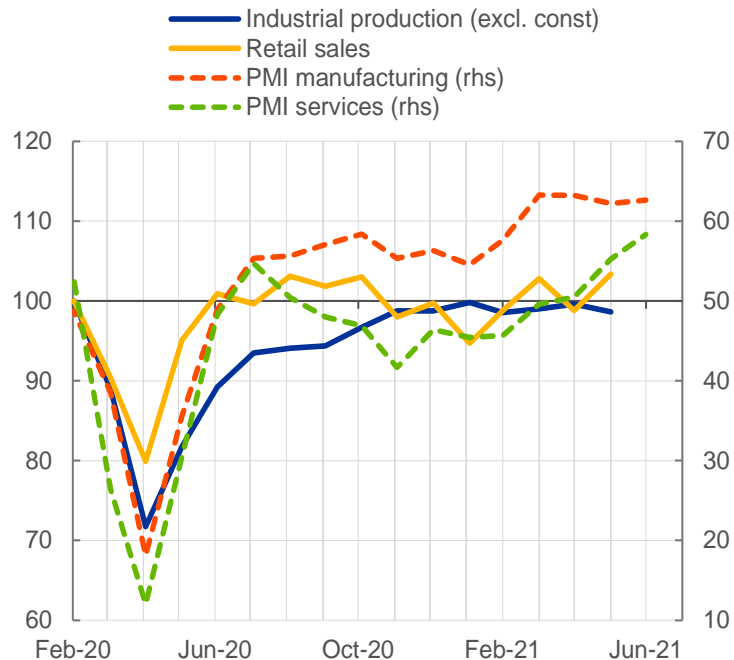


Source: ECB.  
Notes: The indicator for the total cost of borrowing is calculated by aggregating short- and long-term rates using a 24-month moving average of new business volumes.  
Latest observation: May 2021.

# Ongoing recovery, but supply bottlenecks are emerging

## Hard and soft indicators

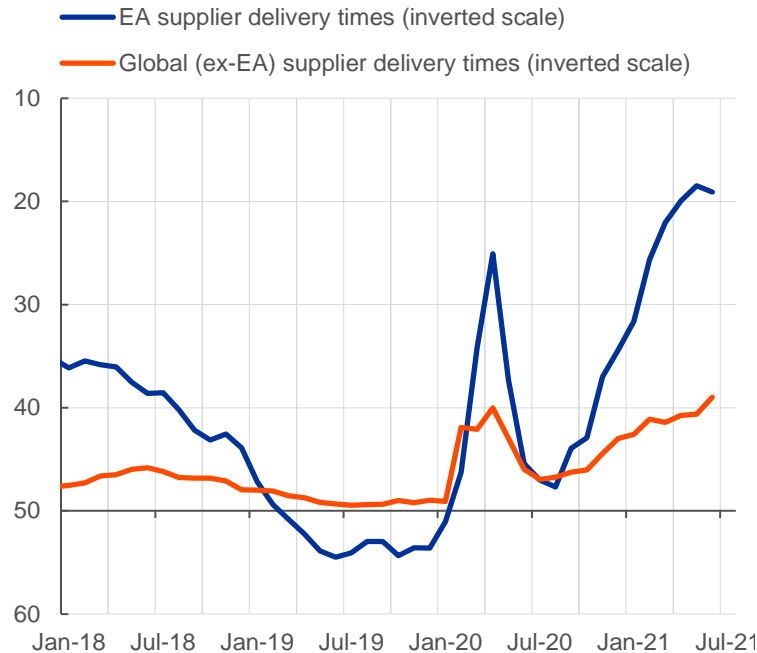
(lhs: index Feb-20=100; rhs: diffusion index)



Sources: Eurostat, Markit and ECB staff calculations.  
 Latest observations: June 2021 for PMIs; May 2021 for retail sales and industrial production.

## PMI indicators for supply bottlenecks in manufacturing

(diffusion index (inverted))

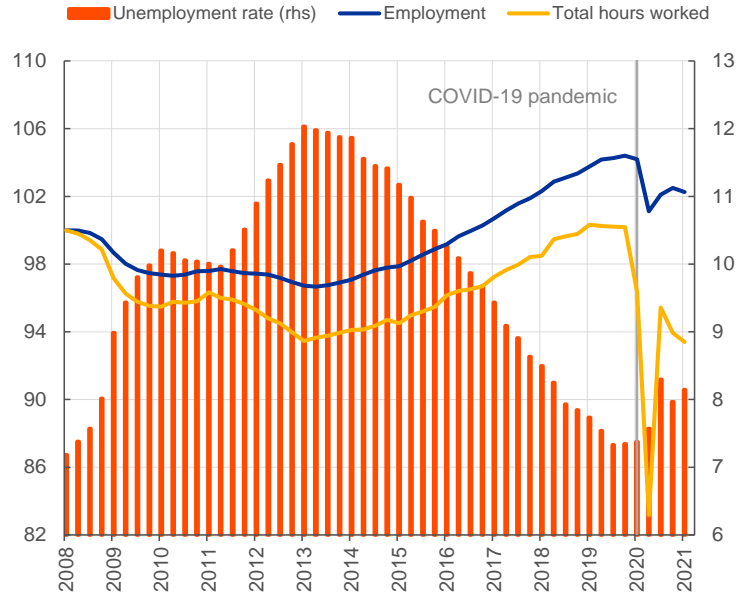


Sources: Markit and ECB staff calculations.  
 Latest observations: June 2021.

# Labour market not yet back to pre-pandemic levels

## Unemployment, employment and total number of hours worked

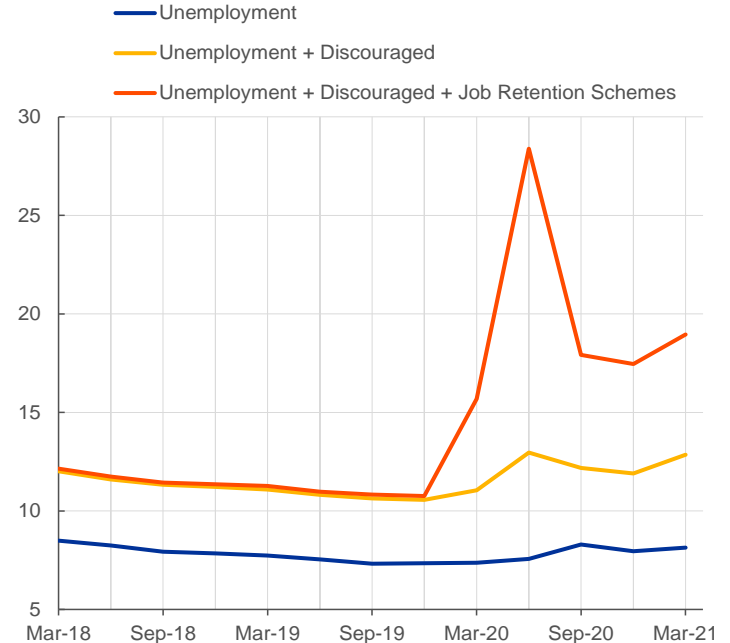
(percent)



Sources: Eurostat and Labour force survey.  
Latest observation: 2021Q1

- Unemployed, discouraged workers and workers in job retention schemes

(percent)

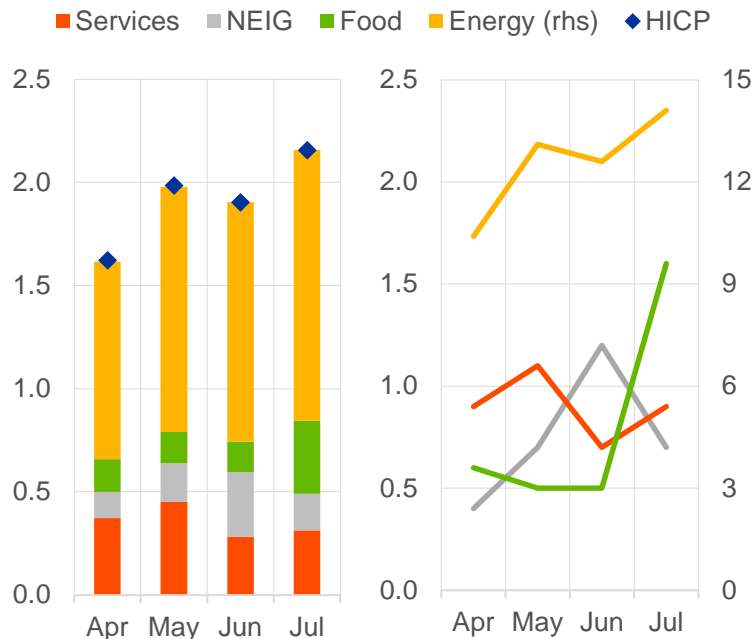


Sources: Eurostat, Labour force survey and national sources.  
Latest observation: 2021Q1

# This is holding back underlying inflation, despite transitory headline inflation

## Headline inflation and components

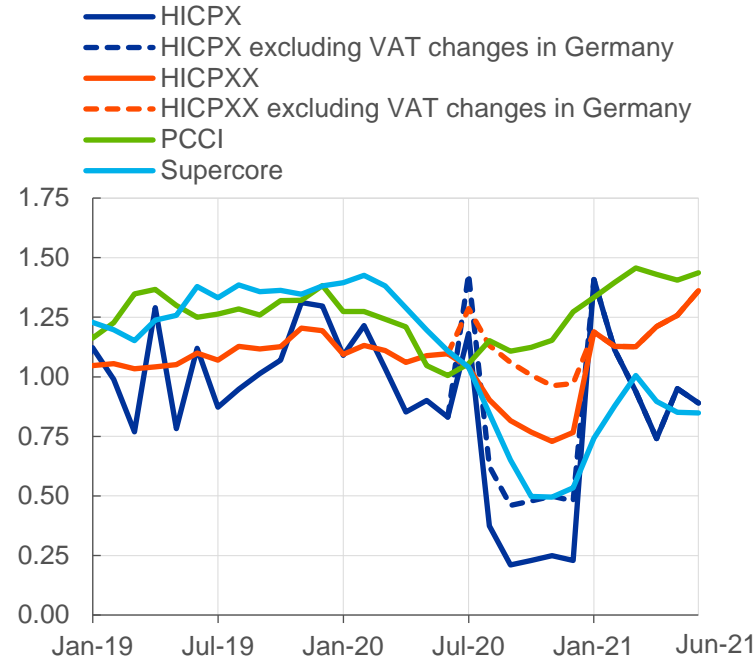
(annual percentage change and pp contributions)



Sources: Eurostat and ECB calculations.  
Latest observation: June 2021.

## Measures of underlying inflation

(annual percentage change)



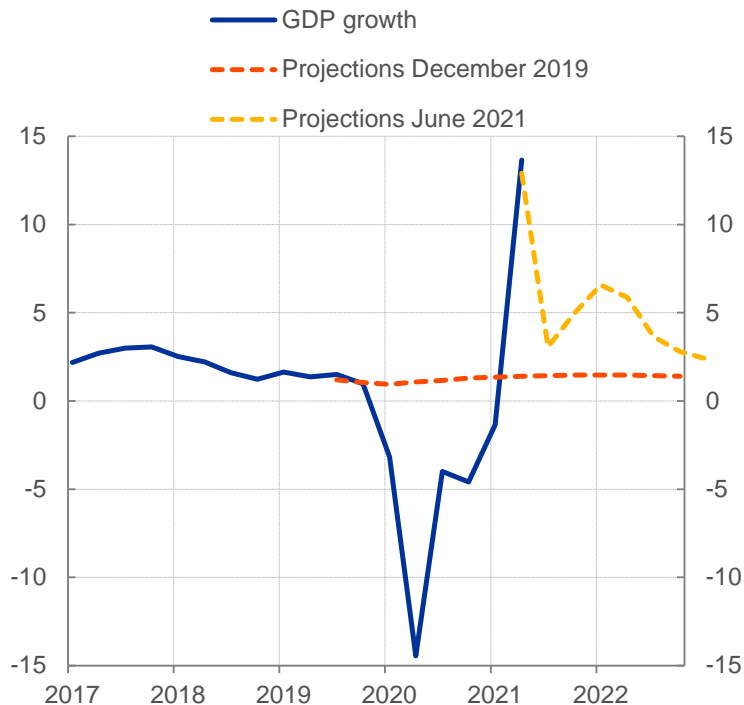
Sources: Eurostat and ECB staff calculations.  
Note: HICPXX refers to HICP excluding energy, food, travel-related services, clothing and footwear.  
Latest observation: June 2021.



# Medium-term inflation projection still below pre-pandemic level

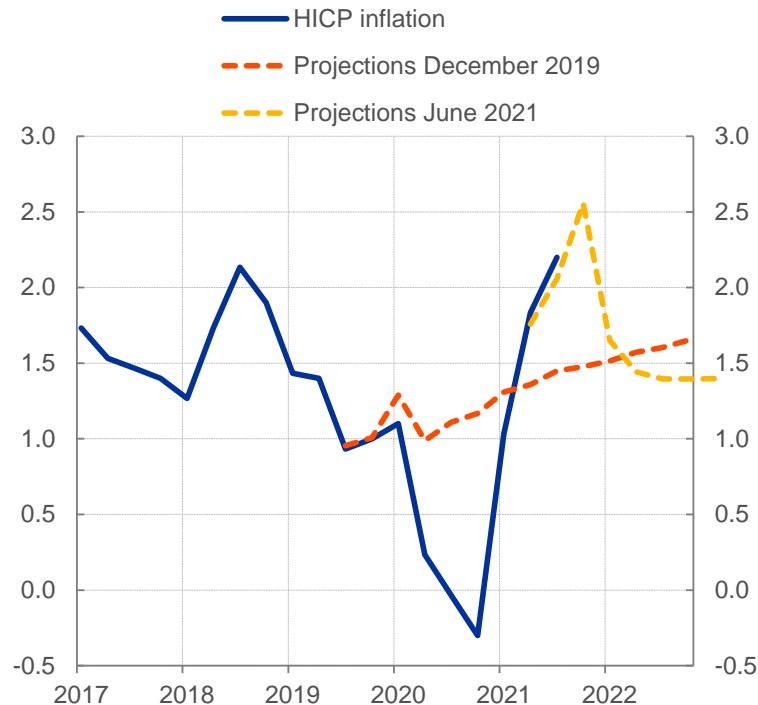
## Real GDP growth: September 2019 projection vs. December 2018 projection

(quarterly change in percent)



## HICP inflation: September 2019 projection vs. December 2018 projection

(year on year percentage change)



Source: ECB computations.

Notes: HICP inflation and real GDP growth projections are based on the December 2019 BMPE and June 2020 BMPE.

Latest observation: 2021Q2.



# 3.

## Monetary Policy strategy review

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# The ECB's strategy review

- **Launched in January 2020, first results announced in July 2021.**
- **Why a review of the strategy now?**
  - **Economy has changed fundamentally since 2003 review.**
    - *“Smartphones were not around!”*
    - Declining trend growth and lower natural rate of interest.
    - Climate change, digitalisation, (de)-globalisation, and other transformations impacting inflation dynamics & functioning of the economy.
  - **Reduced scope for conventional MP instruments.**
  - **Changing financial structures.**
    - Affecting the way monetary policy is transmitted through economy
  - **Enhance public trust in the ECB.**
    - Reaching out to a wide set of stakeholders.
    - Reviewing the ECB monetary policy communication.
  - **Identify directions for future research.**

# Scope of the strategy review

<p><b>Climate change</b></p> <p>Examined the risks posed by climate change and how these risks feed into the monetary policy framework.</p>	<p><b>Digitalisation</b></p> <p>Studied the implications of digitalisation for the functioning of the economy and for the conduct of monetary policy.</p>	<p><b>Eurosystem modelling</b></p> <p>Assesses knowledge gaps in the main models used for monetary policy decision-making.</p>
<p><b>Fiscal &amp; monetary policy in a MU</b></p> <p>Takes stock of the fiscal policy landscape in the euro area and assesses implications for monetary policy.</p>	<p><b>Globalisation</b></p> <p>Assesses the impact of globalisation on the transmission of monetary policy decisions to the economy and to inflation.</p>	<p><b>Inflation expectations</b></p> <p>Analyses how inflation expectations are formed and deepens the understanding of their main drivers.</p>
<p><b>Inflation measurement</b></p> <p>Analyses the most accurate method of measuring inflation, and assesses potential measurement issues.</p>	<p><b>Macropru, monpol &amp; finstab</b></p> <p>Contributes to the assessment of the interaction between macroprudential policies, financial stability and monetary policy.</p>	<p><b>Monetary policy communication</b></p> <p>Assesses the ECB's communication strategy in relation to monetary policy decisions and to the general public's understanding of the ECB.</p>
<p><b>Non-bank fin. intermediation</b></p> <p>Examines how the changing structure of the financial sector, in particular the growing role of non-banks, affects the conduct of monetary policy.</p>	<p><b>Price stability objective</b></p> <p>Provides analysis on the ECB's numerical formulation of price stability and alternative approaches to achieving price stability.</p>	<p><b>Productivity, innov &amp; techn. progr.</b></p> <p>Assesses developments in productivity and technology, and analyses the implications of these developments for monetary policy.</p>

- The 2% inflation target provides a **clear anchor for inflation expectations**.
- **Harmonised Index of Consumer Prices (HICP)** remains the appropriate price measure for assessing price stability.
- However, GC recognises that **costs related to owner-occupied housing** would capture the inflation rate that is relevant for households (a multi-year project with Eurostat).
- An **inflation buffer above 0%** provides policy with space for interest rate cuts in the event of adverse developments and a safety margin against the risk of deflation.
- We have seen a trend decline in equilibrium real interest rates that reduces room of manoeuvre.
- In a **low inflation environment**, this implies that the **effective lower bound (ELB)** on nominal interest rates will more frequently constrain monetary policy.

## ECB's price stability objective has evolved

### Governing Council in October 1998:

- “Price stability shall be defined as a year-on-year increase in the **Harmonised Index of Consumer Prices (HICP)** for the **euro area** of below 2%. Price stability is to be maintained over the **medium term**.”

### Clarification in 2003

- The Governing Council (GC) aims to maintain inflation rates at levels **below, but close to, 2%** over the **medium term**.

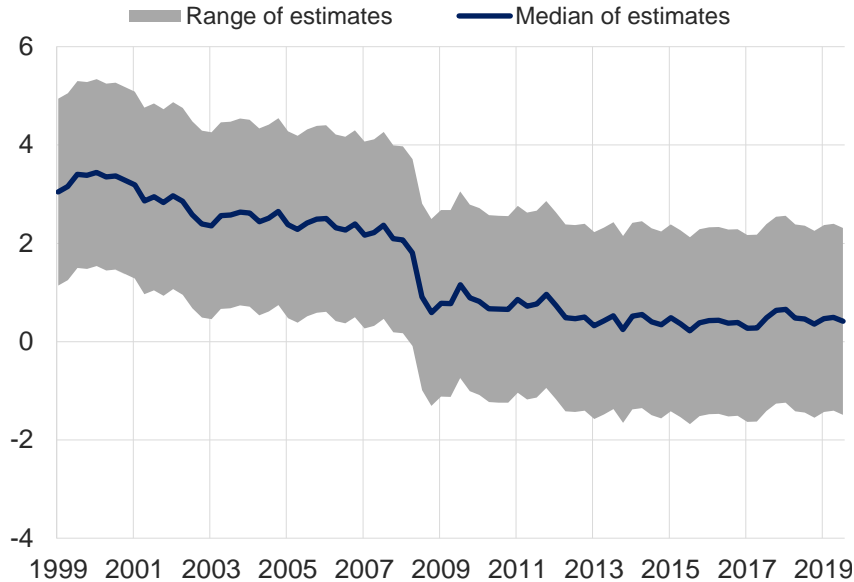
### Strategy Review in 2020-21

- The GC aims to maintain inflation rates at **2% over the medium term**.
- This target is symmetric: both negative and positive **deviations are equally undesirable**.
- See press release at:  
<https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210708~dc78cc4b0d.en.html>

# Structural forces putting downward pressure on real equilibrium interest rates

## Estimates of US equilibrium rate

(percentage per annum)



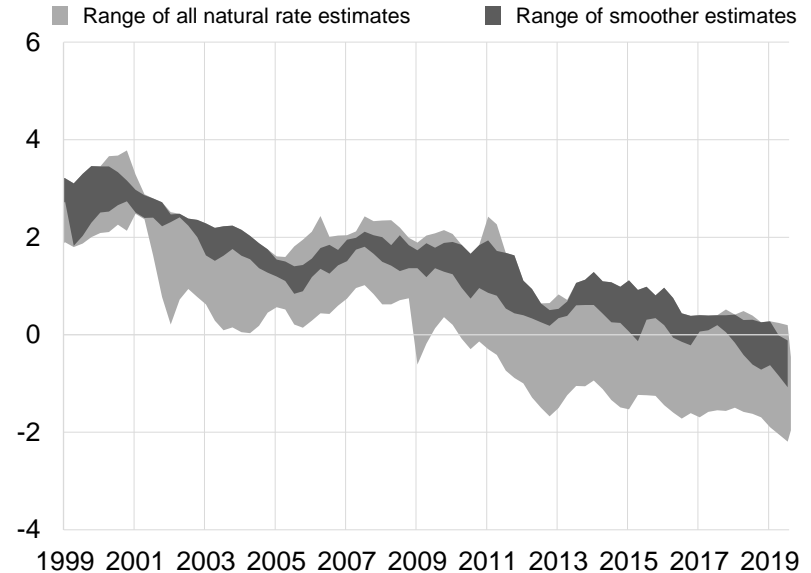
Sources: Holston, Laubach, Williams (2017); Fiorentini, Galesi, Pérez-Quirós, Sentana (2018).

Notes: Ranges span point estimates to reflect filter and parameter uncertainty.

Latest observation: 2019Q4.

## Estimates of euro area equilibrium rate

(percentages per annum)



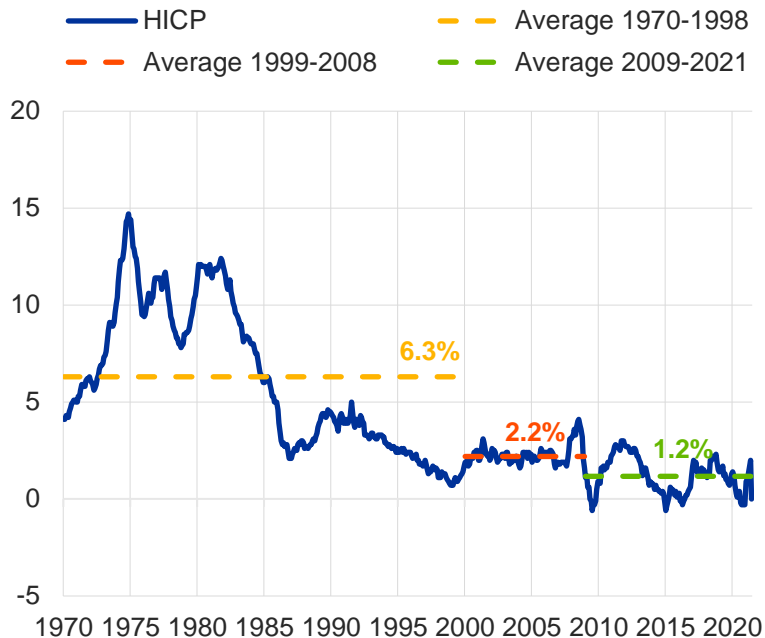
Sources: WGEM Report "The natural rate of interest: estimates, drivers, and challenges to monetary policy", OP, No 217; Ajevskis (2018); Brand, Goy, Lemke (2020); Brand, Mazelis (2019); Fiorentini, Galesi, Pérez-Quirós, Sentana (2018); Geiger and Schupp (2018); Holston, Laubach, Williams (2017); Jarocinski (2017); Johannsen and Mertens (forthcoming).

Notes: Ranges span point estimates across models to reflect model uncertainty and no other source of  $r^*$  uncertainty. The dark shaded area highlights smoother  $r^*$  estimates that are statistically less affected by cyclical movements in the real rate of interest. Latest observation: 2019Q4.

# Secular decline in euro area inflation

## Headline HICP

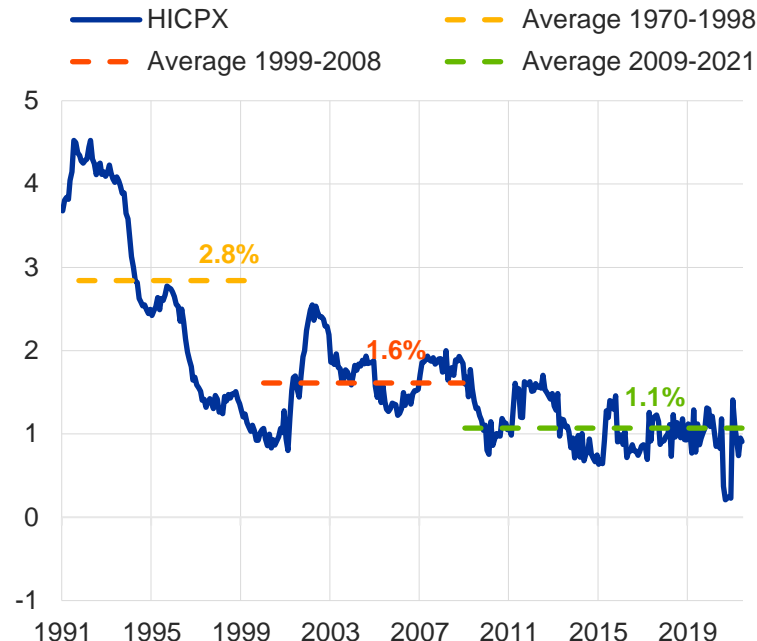
(annual percentage changes)



Sources: Eurostat and ECB calculations.  
Latest observation: June 2021 (flash).

## HICP excluding energy and food

(annual percentage changes)



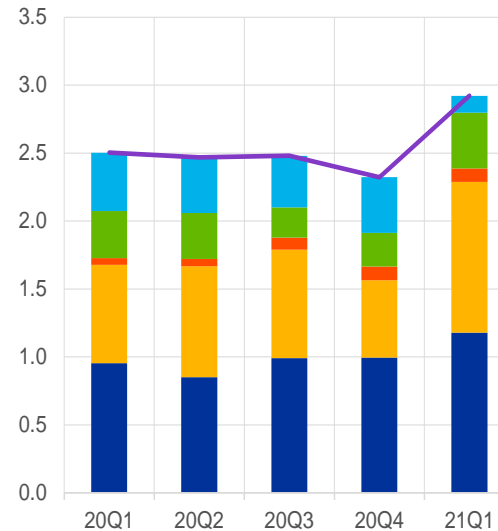
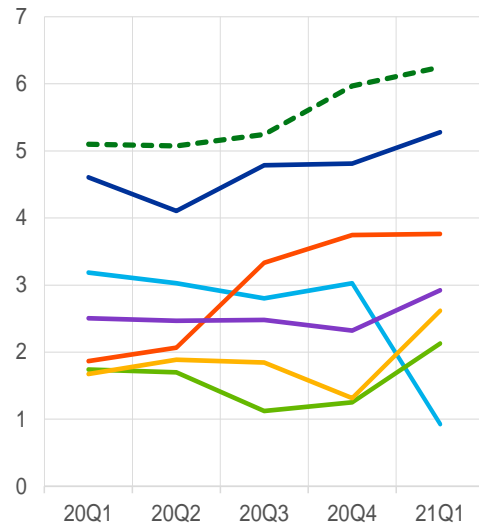
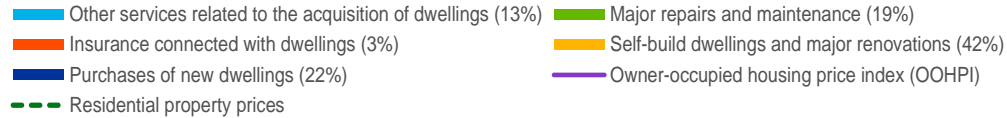
Sources: Eurostat and ECB calculations.  
Note: HICPX refers to HICP excluding energy and food.  
Latest observation: June 2021 (flash).



# Residential property prices and owner-occupied price index

## Residential property prices and components of owner-occupied housing price index (OOHPI)

(annual percentage change and pp contributions)



- Sources: Eurostat and ECB staff calculations.
- Note: As no official OOHPI weights are available a proxy based on the share of imputed rentals for housing is used. This proxy is likely to be more stable than weights that also include acquisitions and are likely to co-move more with the construction cycle.
- Latest observations: 2021 Q1.

## Strategy review outcome (2)

- **Forceful monetary policy measures** are needed when economy is **close to ELB** to avoid low inflation expectations becoming entrenched.
- GC will employ forward guidance, asset purchases and longer-term refinancing operations, as appropriate, plus the standard MP measures.
- Monetary policy decisions are based on an **integrated assessment** by means of:
  - **economic analysis** focussing on real and nominal economic developments; and
  - **monetary and financial analysis**, focussing on the monetary transmission mechanism and possible risks to medium-term price stability from financial imbalances and monetary factors.
- **As climate change has also implications for price stability**, the GC has also committed to an ambitious climate-related action plan. See press release at:  
[https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210708\\_1~f104919225.en.html](https://www.ecb.europa.eu/press/pr/date/2021/html/ecb.pr210708_1~f104919225.en.html)
- **Monetary policy decisions will be communicated through Monetary Policy Statement, at Press Conference, the Economic Bulletin and the monetary policy accounts.**

**Thank you**

# Main decision-making body is the ECB's Governing Council

## Governing Council

- Six members of the Executive Board, plus the governors of the national central banks of the 19 euro area countries
- main decision-making body of the ECB

## Executive Board



**Christine Lagarde**  
President



**Luis de Guindos  
Jurado**  
Vice-President



**Frank Elderson**



**Philip Lane**



**Fabio Panetta**



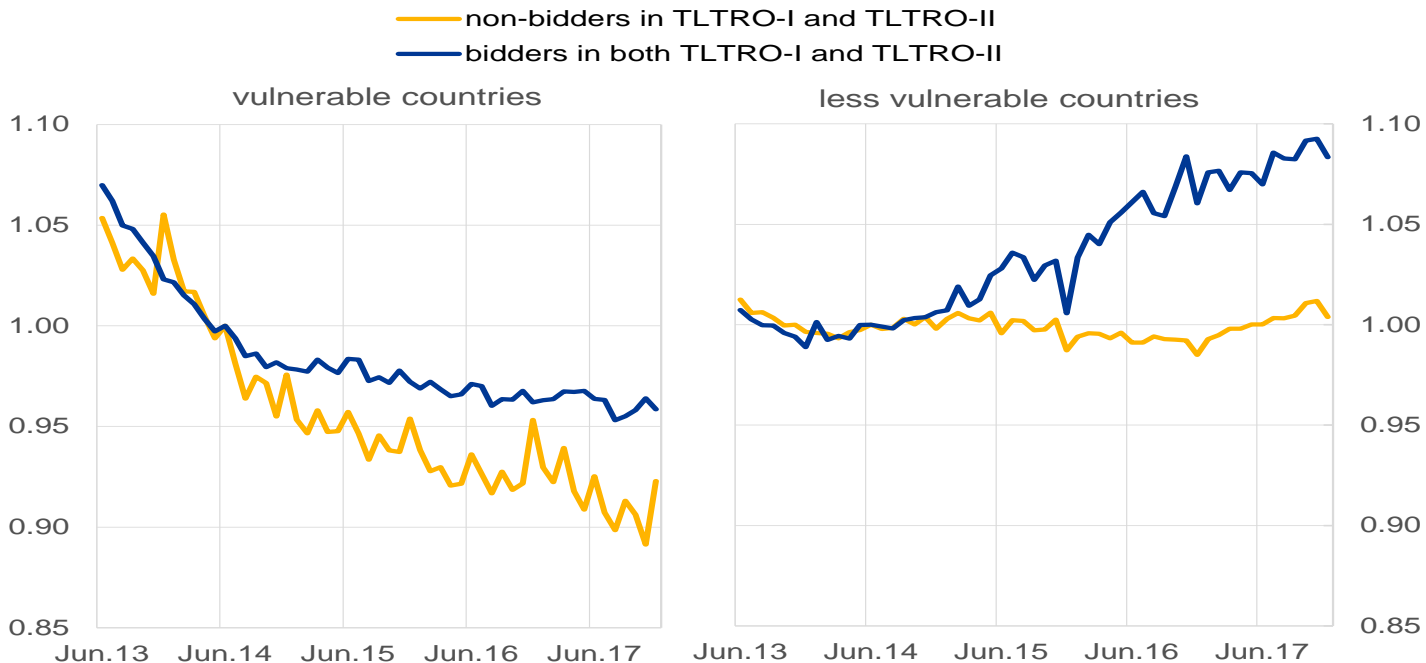
**Isabel Schnabel**



# TLTROs reinforce incentives for banks to lend on borrowed funds

## Lending to NFCs by TLTRO-bidders and non-bidders

(index=1 in June 2014)



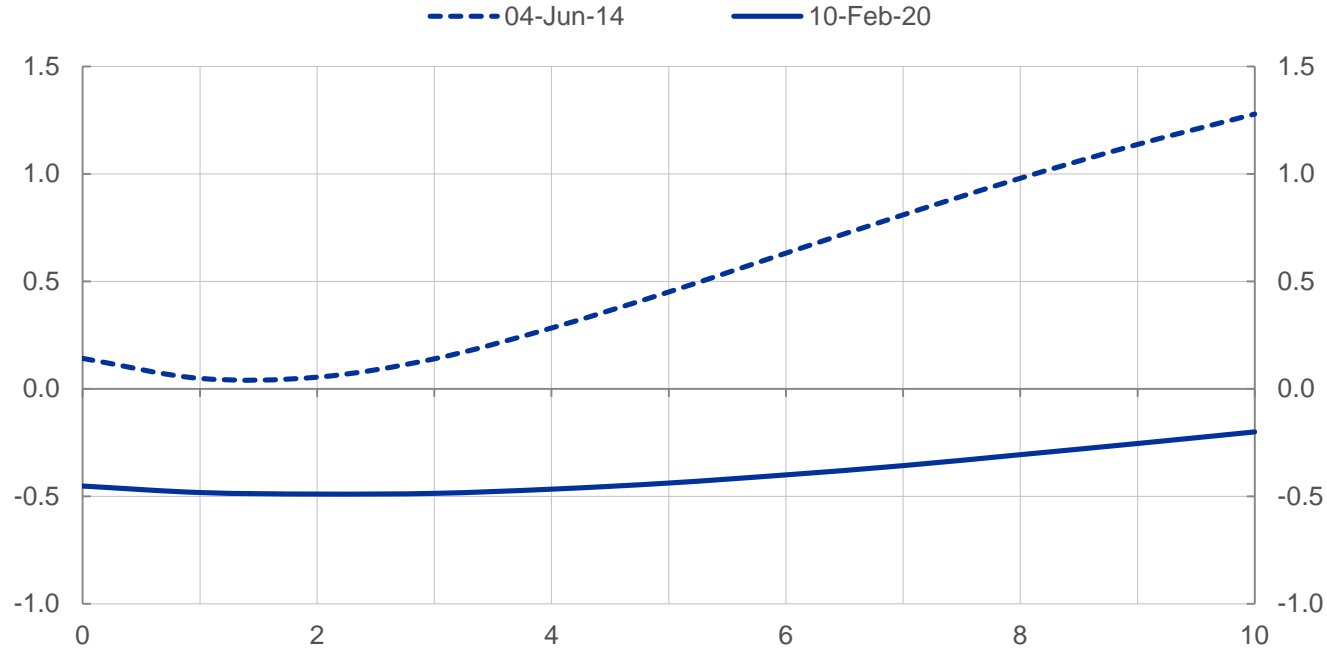
Source: ECB.

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.

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

## OIS term structure (percentages per annum)

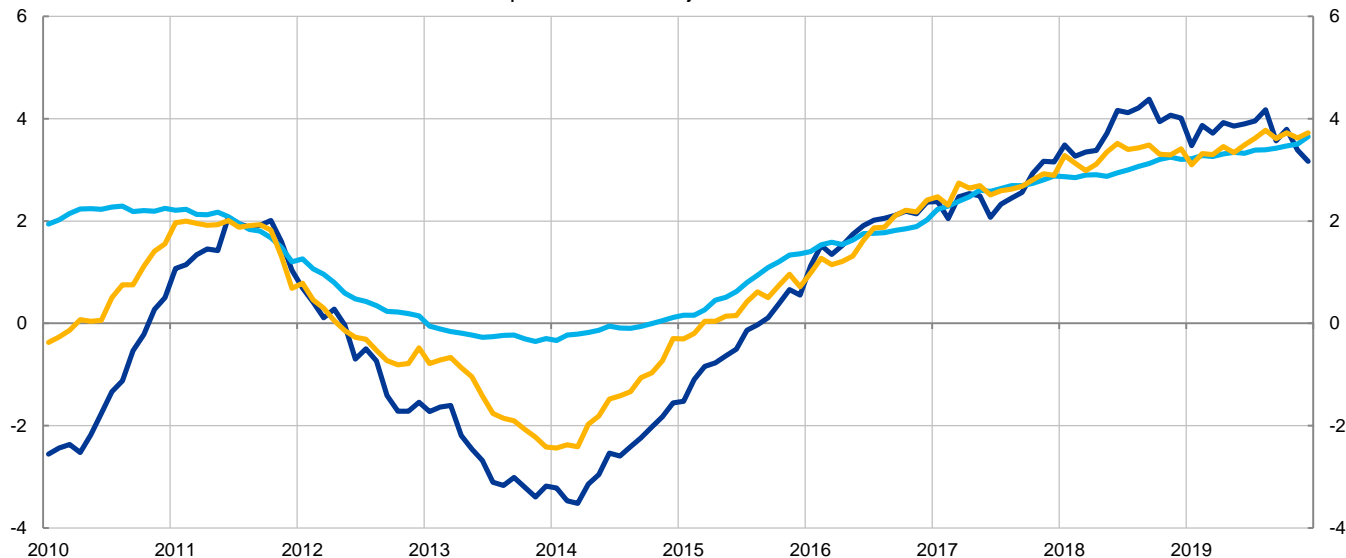


Sources: Reuters, ECB.  
Last observation: 10 Feb 2020.

## MFI loans to the private sector

(annual growth rates)

- Loans to NFCs adjusted for sales as securitisation
- Loans to HHs adjusted for sales and securitisation
- Loans to private sector adjusted for sales as securitisation



Source: ECB.

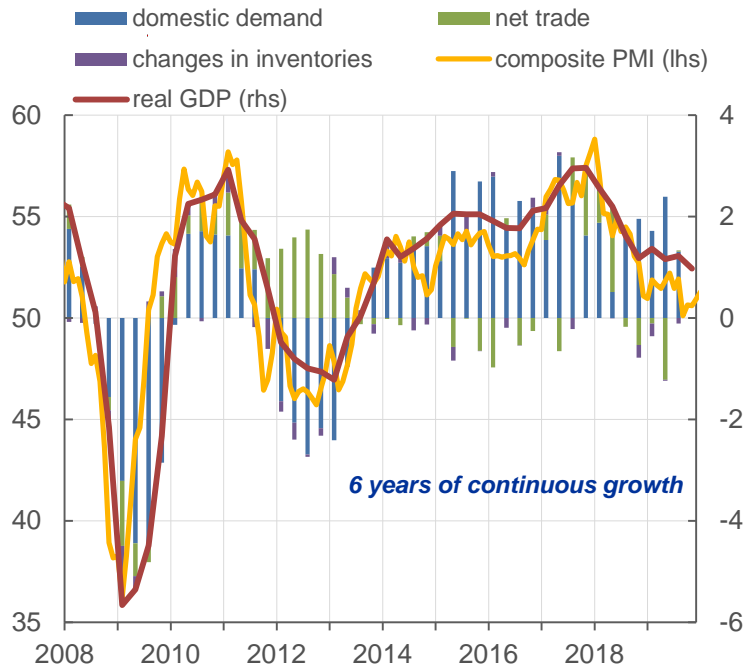
Notes: Monthly data. "NFCs" stands for non-financial corporations and "HHs" stands for households.

Latest observation: December 2019.

# Significant economic improvements

## Real GDP growth, main components and PMI

(lhs: balances; rhs: y-on-y growth and pp contributions)

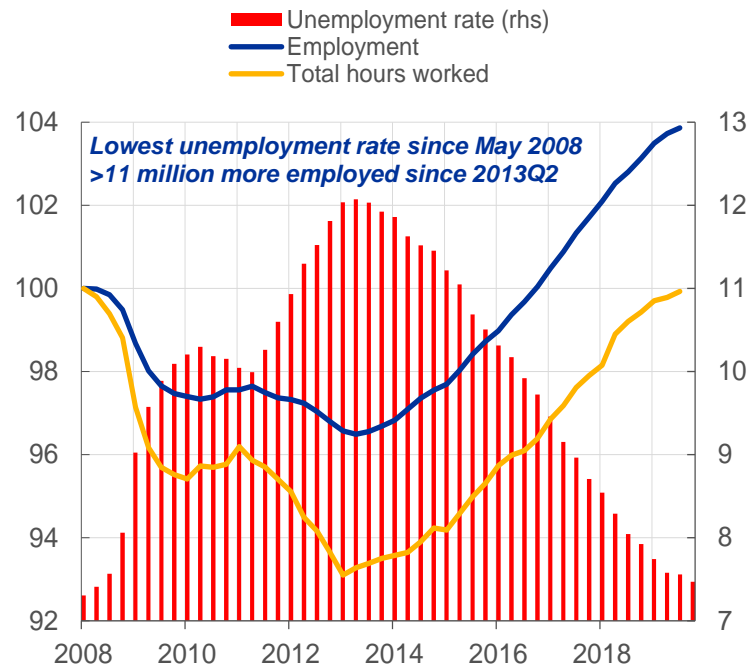


Sources: Eurostat, Markit, and ECB calculations.

Latest observations: 2019Q4 for real GDP, 2019Q3 for GDP components and Jan 2020 for PMI.

## Labour market indicators

(Unemployment: percent; employment and total hours worked: index, 2008Q1=100)



Source: Eurostat, National accounts.

Latest observations: 2019Q3 for total hours worked and employment, 2019Q4 for unemployment rate.

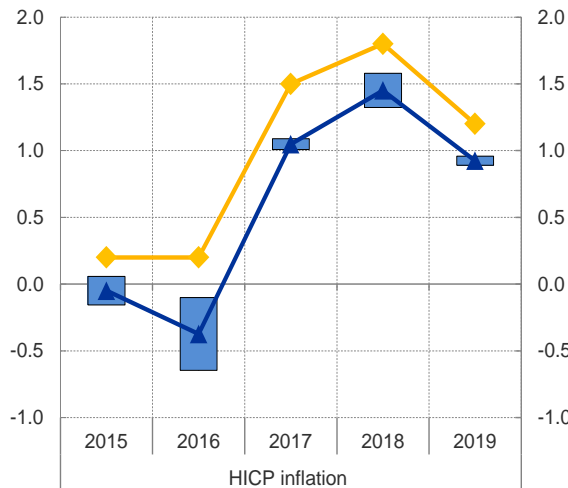


# Effects of policy measures have been substantial

## HICP inflation

(year on year percentage change)

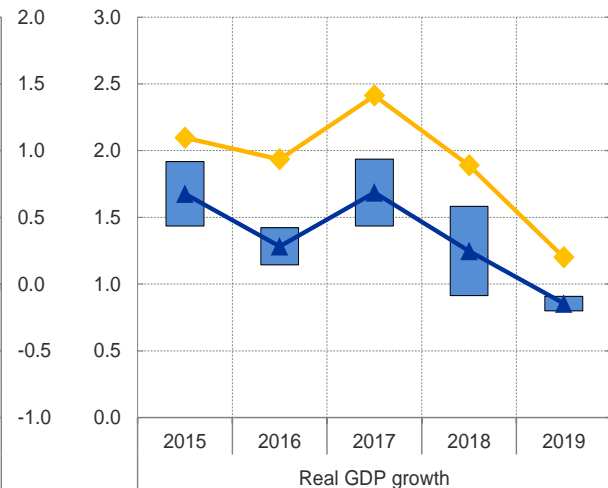
Observable — In absence of non-standard measures



## Real GDP growth

(year on year percentage change)

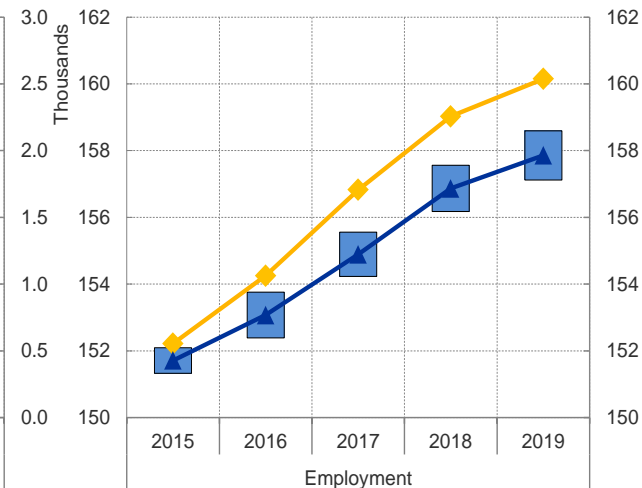
Observable — In absence of non-standard measures



## Employment

(Millions)

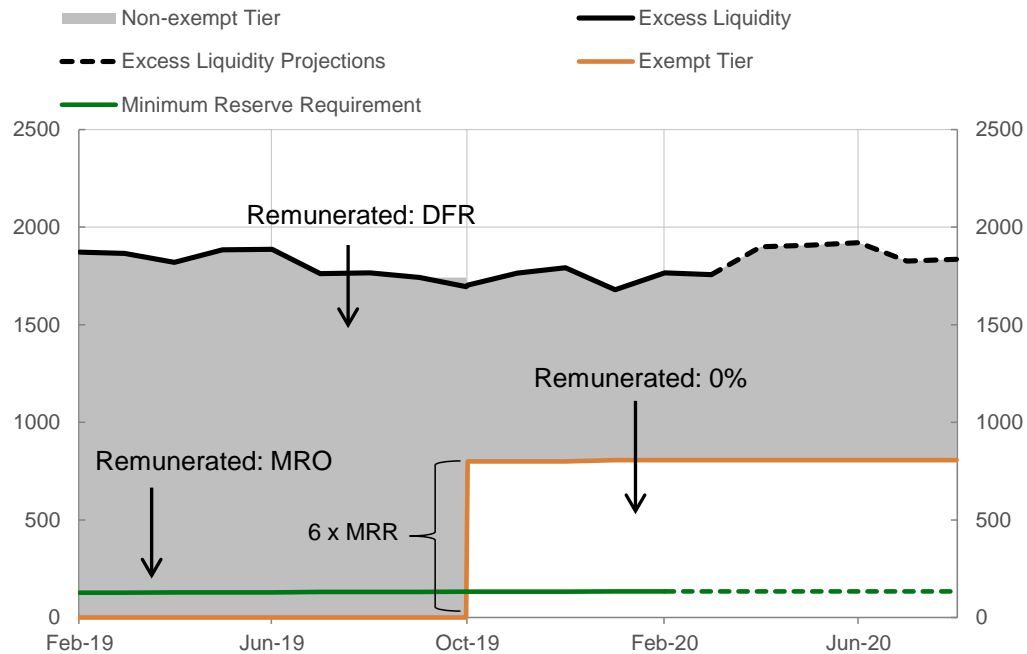
Observable — In absence of non-standard measures



Sources ECB calculations.

Notes: The boxplot refers to a range of assessments, comprising the Eurosystem staff assessment included in the (B)MPE projection baseline and the assessment documented in Rostagno et al. (2019). The Eurosystem staff assessment has been carrying out on the basis of various modelling frameworks, comprising the suite of SAPI models and the Eurosystem projection-based tools. SAPI models span from fully structural models to time-series models.

## Excess liquidity and the two-tier system for reserve remuneration (EUR billion)



Sources: ECB.

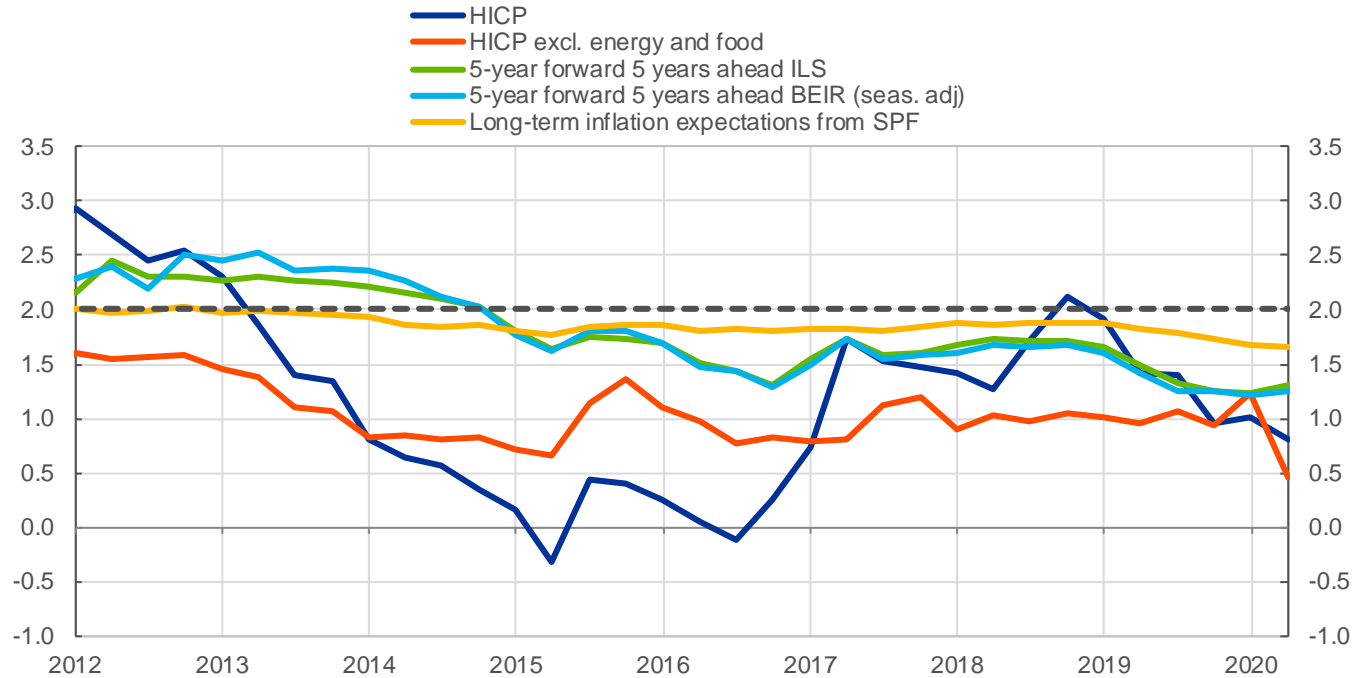
Notes: MRR assumed to stay constant after January 2020. The size of the exempt tier is  $MRR \times 6$ .

Latest observations: 31 January 2020.

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

# Risk of deflation averted, but inflation rates still low

## HICP inflation and inflation expectations (percent)

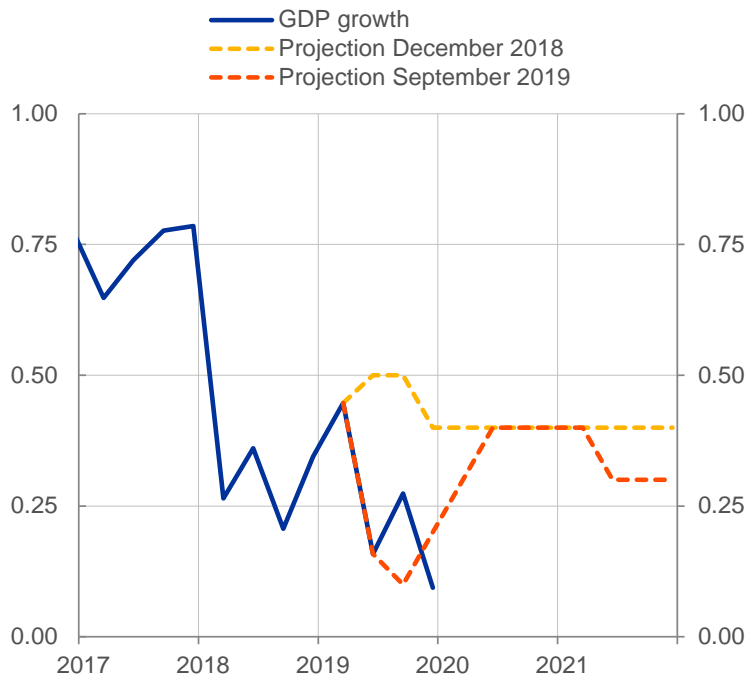


Source: ECB.  
Latest observation: 2020Q1.

# Downward revision in projections

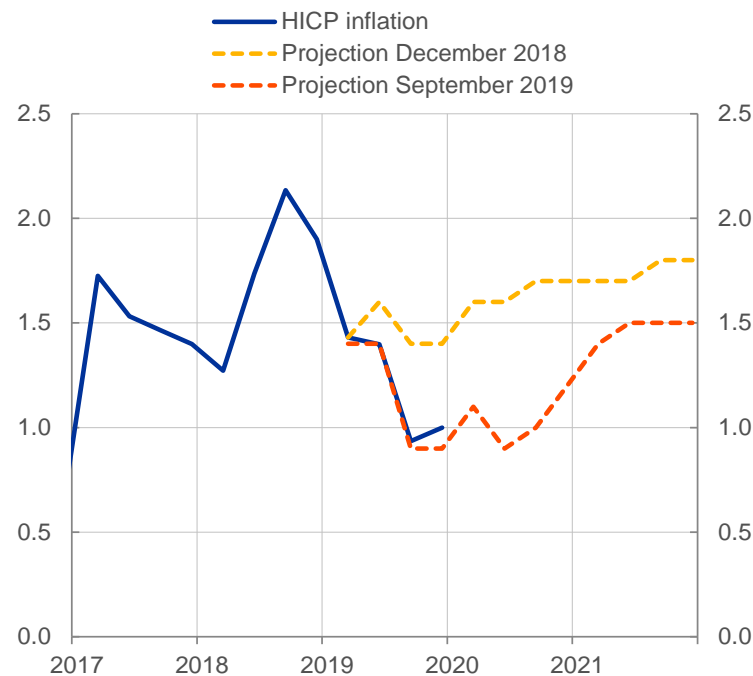
## Real GDP growth: September 2019 projection vs. December 2018 projection

(quarterly change in percent)



## HICP inflation: September 2019 projection vs. December 2018 projection

(year on year percentage change)



Source: ECB computations.

Notes: HICP inflation and real GDP growth projections are based on the December 2018 BMPE and September 2019 MPE.

Latest observation: 2019Q4.

# The ECB's response in September 2019

## 1. Negative interest rates and two-tier system

Lowering deposit facility rate (DFR) to -0.50%

Partial exemption of excess liquidity holdings from DFR

## 2. Forward Guidance

*“[The Governing Council] now expect[s] the key ECB interest rates to remain at their present or lower levels until we have seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2% within our projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics”*

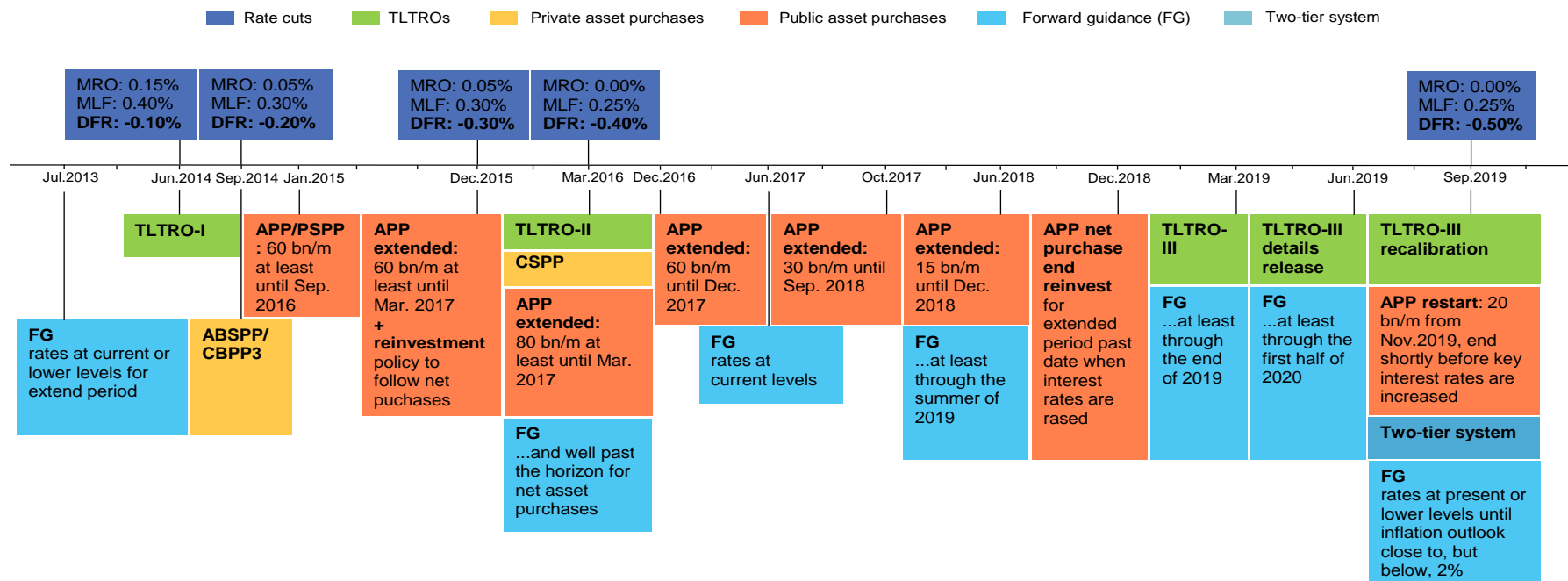
## 3. TLTROs

Modalities of TLTRO-III eased: entry and minimum interest rate at MRO and DFR; maturity extended to three years

## 4. Asset Purchase Programme

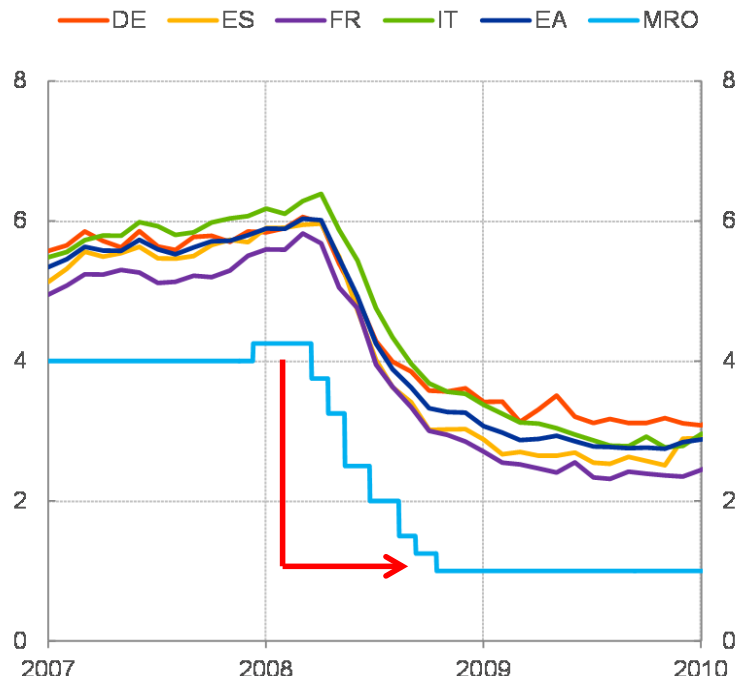
Restart of net asset purchases, €20 billion / month as of November

# The ECB's measures since June 2014



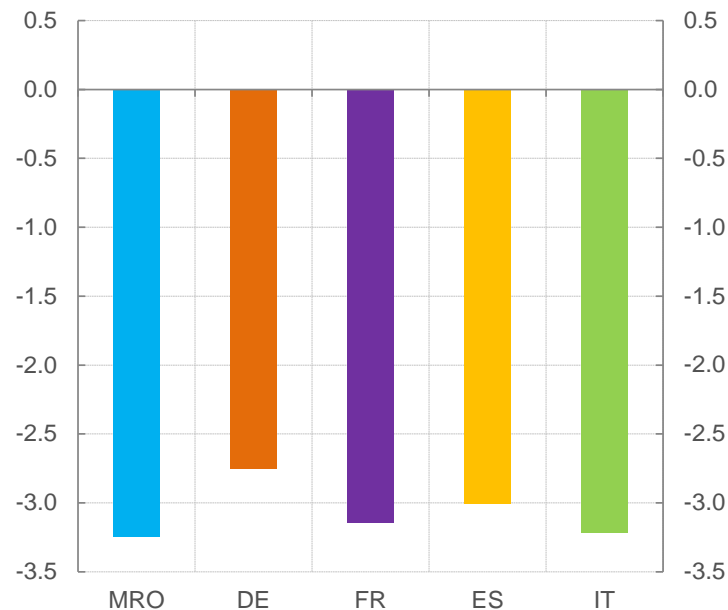
# ... through an effective transmission of monetary impulses ...

## Bank lending rates for loans to non-financial corporates (NFCs) (percent)



## Change in MRO rate and bank lending rates to NFCs (percent)

Δ MRO and Δ Bank lending rates for NFC



Sources: ECB, ECB calculations.

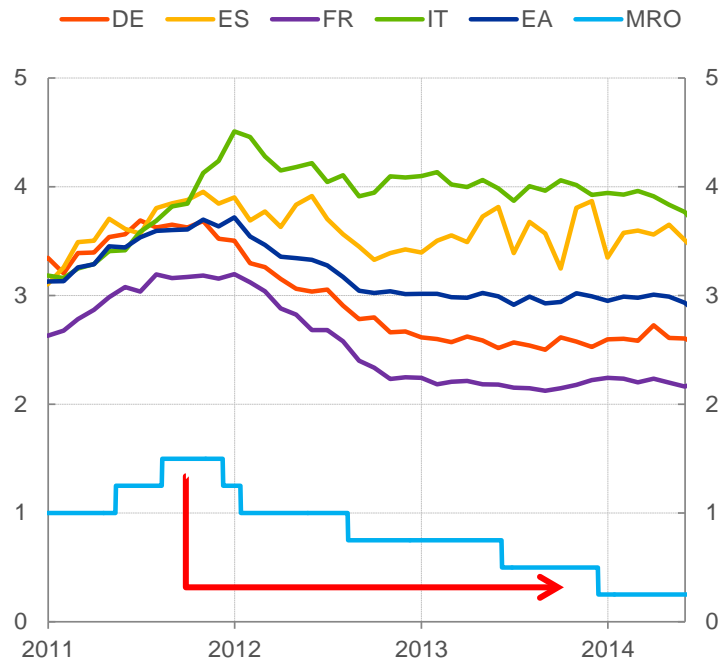
Notes: Lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes.

Latest observation: May 2014.



# Interest rate impulses no longer fully transmitted...

## Bank lending rates for loans to non-financial corporates (NFCs) (percent)

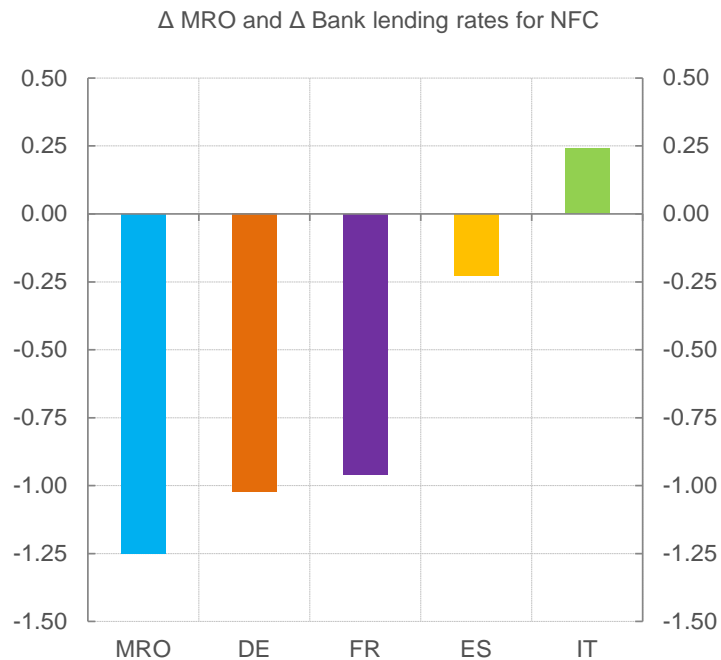


Sources: ECB, ECB calculations.

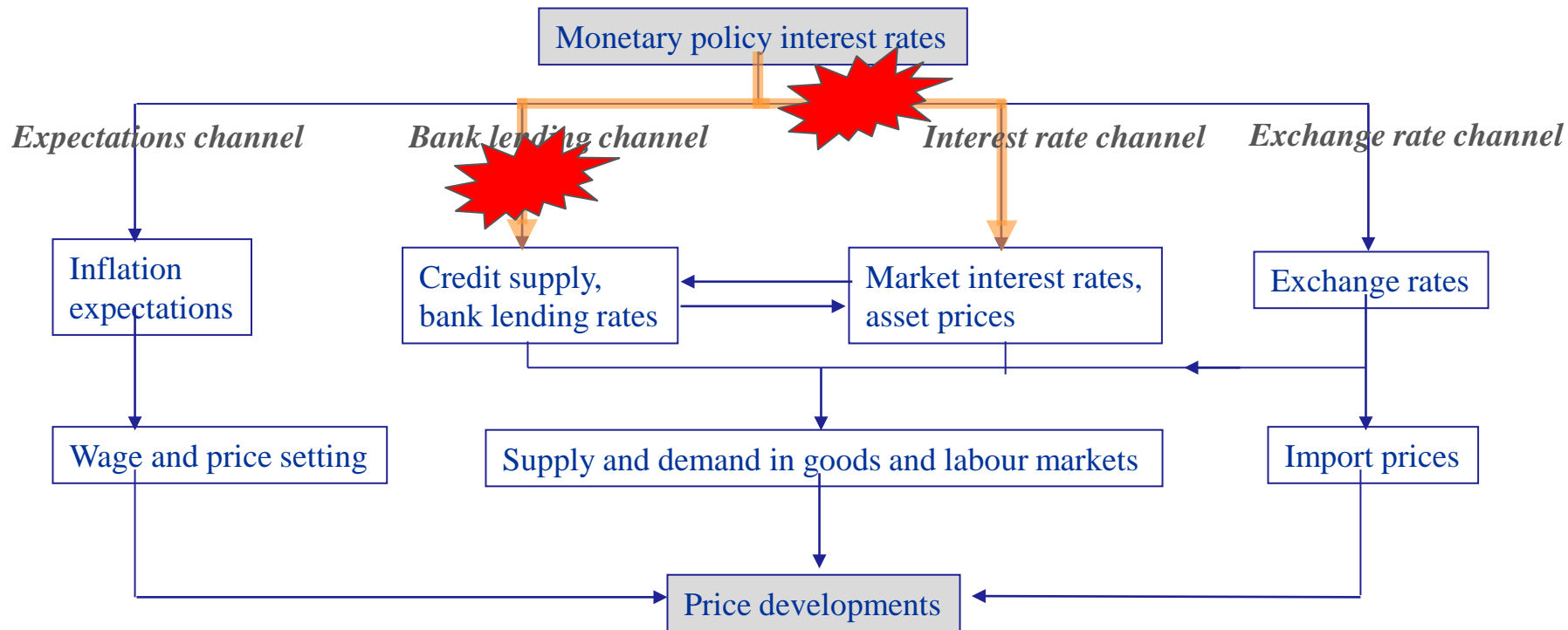
Notes: Lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes.

Latest observation: May 2014.

## Change in MRO rate and bank lending rates to NFCs (percent)

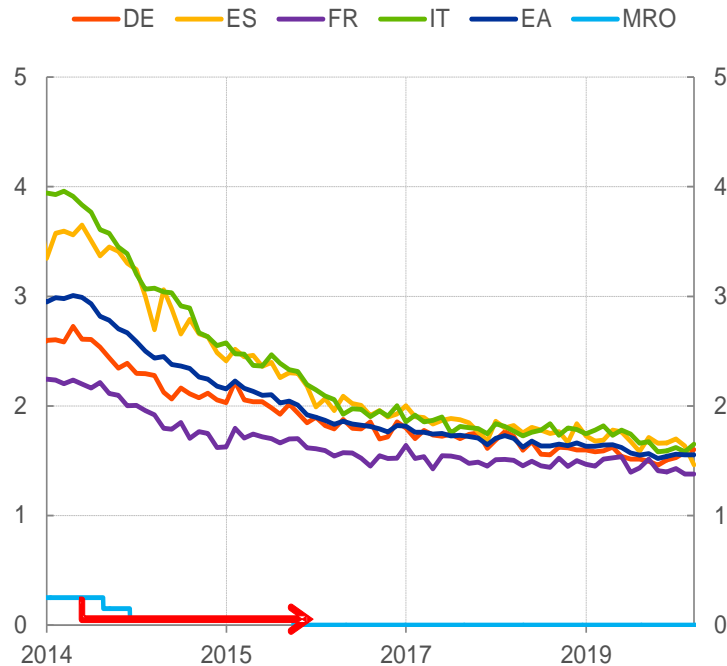


# Standard transmission channels blocked



# Together, measures unclogged bank-based transmission...

## Bank lending rates for loans to non-financial corporates (NFCs) (percent)



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.

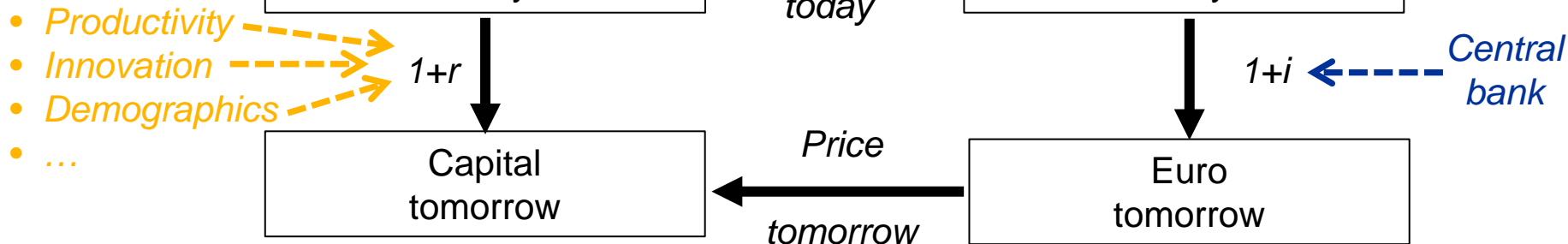
Latest observation: December 2019.

## Change in MRO rate and bank lending rates to NFCs (percent)

$\Delta$  MRO and  $\Delta$  Bank lending rates for NFC



# Real vs. nominal interest rates



$$1 + r = P_1(1 + i) \frac{1}{E(P_2)}$$

$$1 + r = \frac{P_1}{E(P_2)} (1 + i)$$

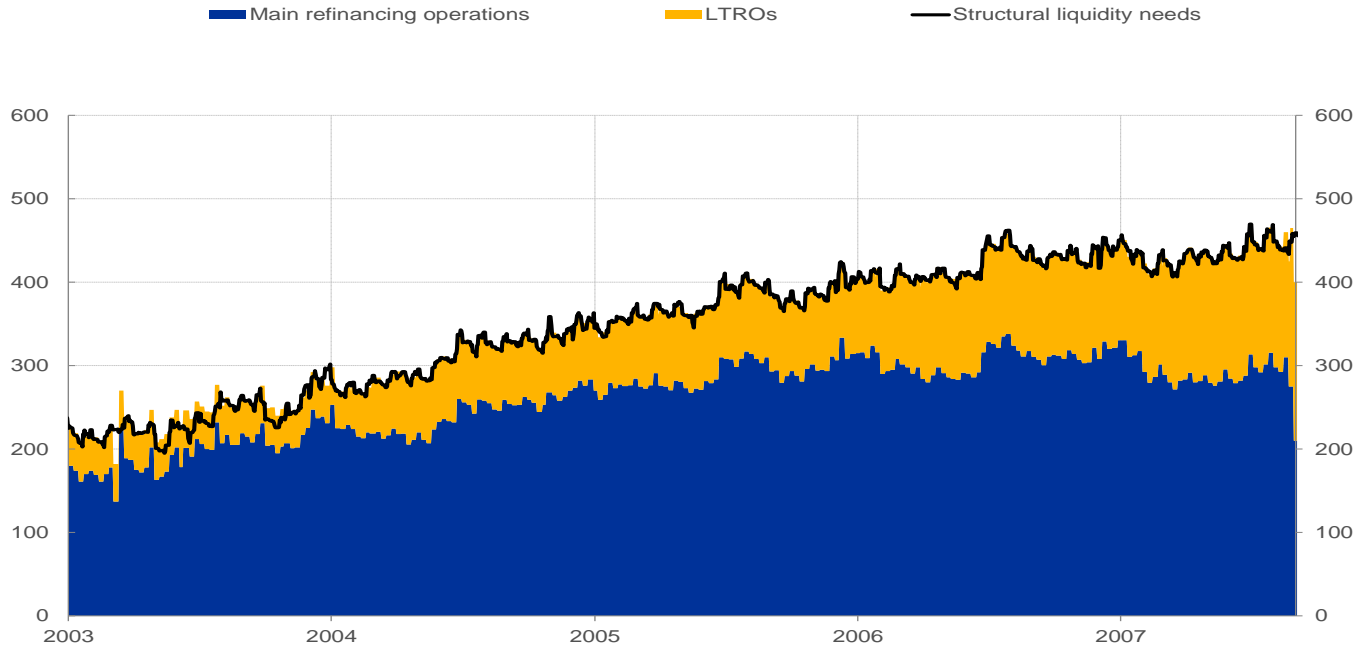
$$1 + i = (1 + E(\pi))(1 + r)$$

$$i \approx r + \pi$$

- The **real interest rate** is determined by structural factors outside the control of central banks
- Central banks influence **nominal interest rates** in order to steer inflation rates

## Eurosystem balance sheet – selected items

(EUR billions, January 2003 – August 2007)



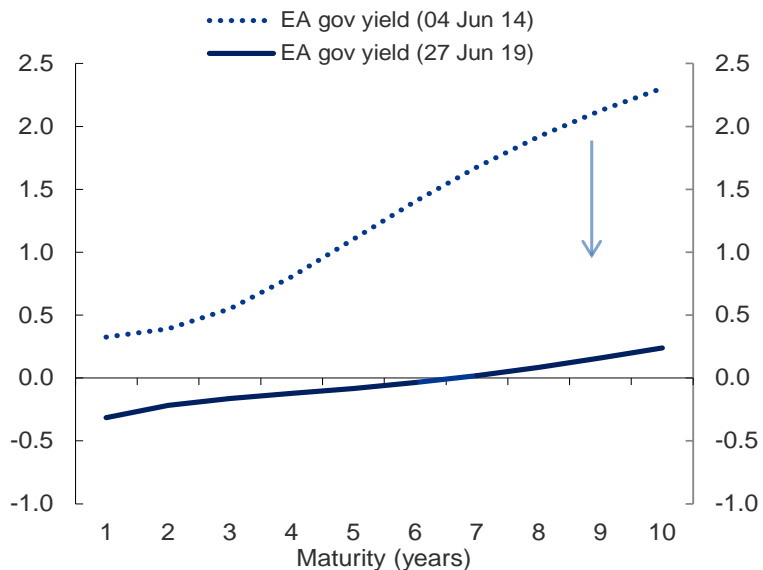
Source: ECB.

Notes: Daily 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.

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

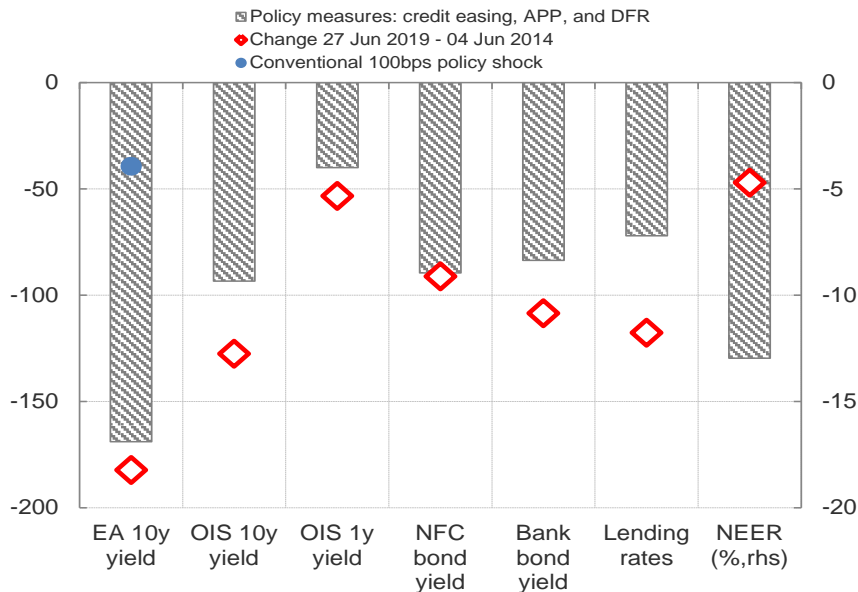
## Synthetic euro area sovereign term structure

(percentages per annum)



## Changes in key financial indicators and policy contribution since June 2014

(basis points; NEER in percent)



Sources: Bloomberg, ECB, ECB calculations.

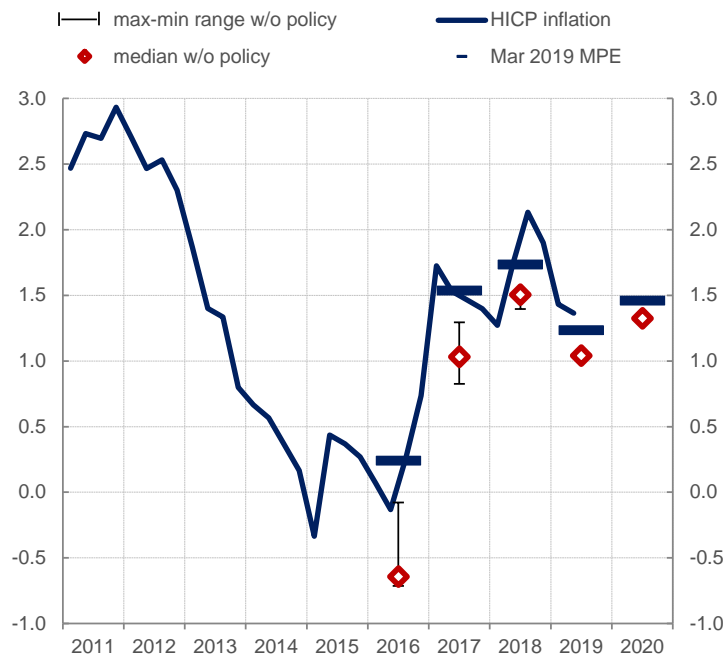
Notes: The impact of credit easing is estimated on the basis of an event-study methodology which focuses on the announcement effects of the June-September 2014 package; see the ECB Economic Bulletin Issue 7 / 2015. The impact of the deposit facility rate (DFR) cut rests on the announcement effects of 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: 26 June 2019 for bank bond yields, 27 June 2019 for everything else.

# Non-standard measures have been instrumental

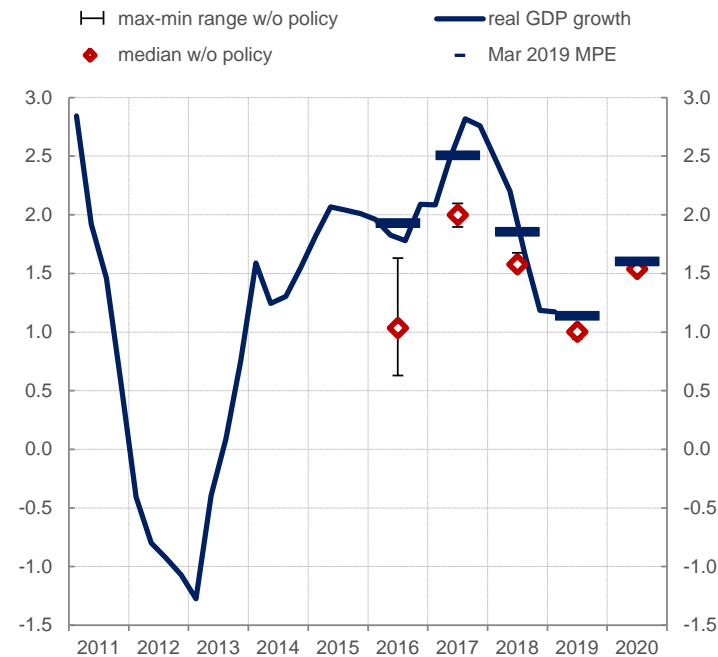
## HICP inflation: actual, baseline projection and counterfactual without policy contribution

(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.

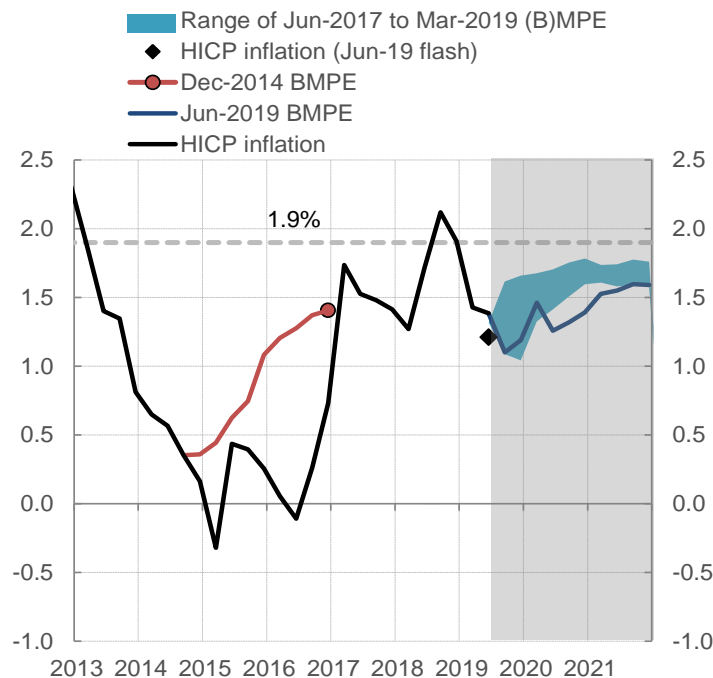
Notes: HICP inflation and real GDP growth are based on the June 2019 BMPE; the median and range reflect estimates of HICP inflation and real GDP growth over the projection horizon in the absence of monetary policy support ; these estimates are obtained from three different exercises: BMEs, the SAPI Task Force and the Expert Group.

Latest observation: 2019Q1 for real GDP and 2019Q2 for HICP.

# Convergence expected within meaningful medium-term horizon

## June 2018 BMPE: Actual and projected HICP inflation from previous (B)MPE vintages

(year-on-year percentage change)



Source: Eurosystem and ECB staff projections.  
Latest observation: June 2019 BMPE and HICP June 2019 (flash).

## 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*

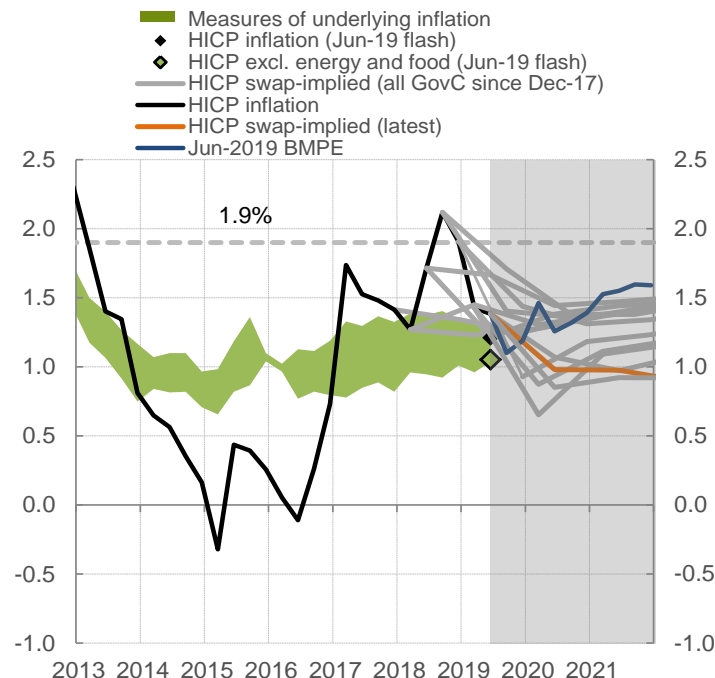


# Confidence from increased underlying inflation measures

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

(year-on-year percentage change)

## Sustained Adjustment



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 2019Q2. 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 (27 June 2019).

Latest observation: June 2019 BMPE and HICP and HICP excl. energy and food June 2019 (flash).

[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** [...]

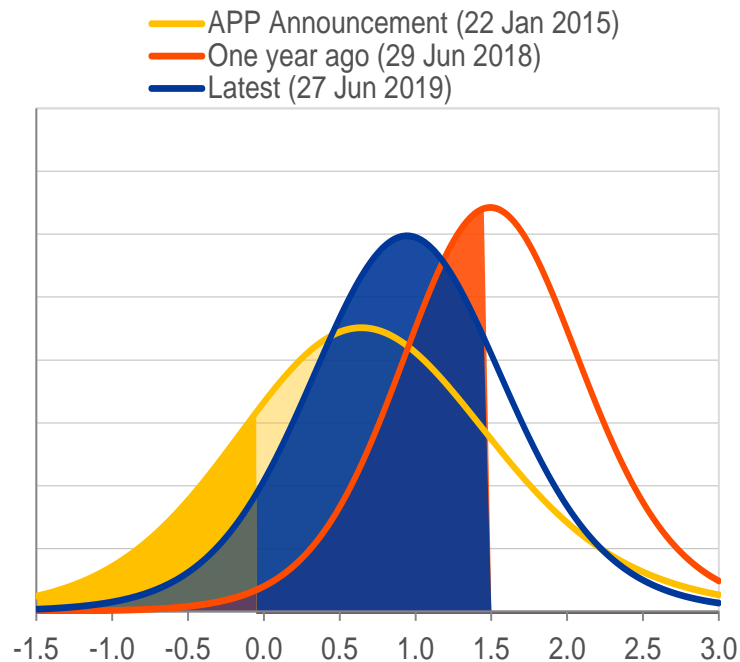
This assessment is also broadly reflected in the June 2018 **Eurosystem staff macroeconomic projections** for the euro area, which foresee annual HICP inflation at 1.7% in 2018, 2019 and 2020.

*Introductory Statement 14 June 2018*

# Confidence: lower inflation uncertainty in markets

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

(percent of respondents)



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

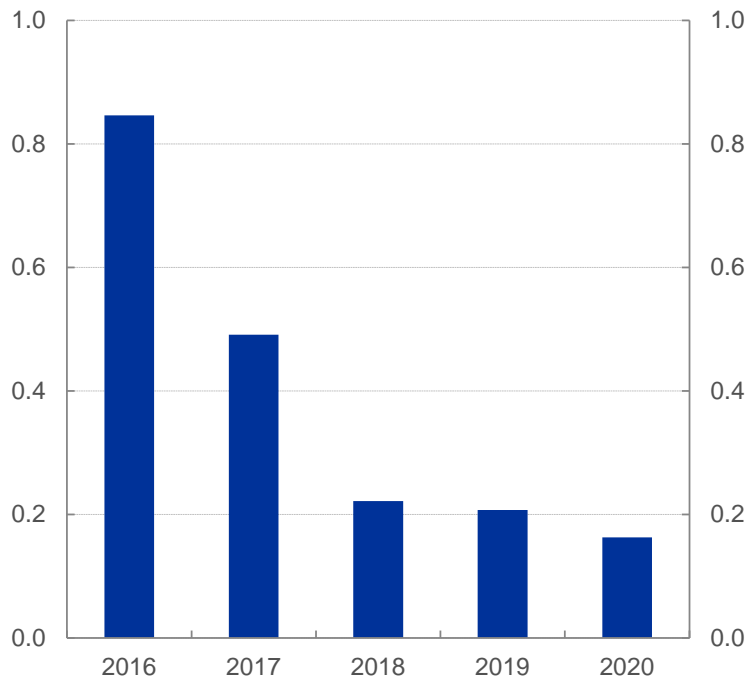
With **longer-term inflation expectations well anchored**, the underlying strength of the euro area economy and the continuing ample degree of monetary accommodation provide grounds to be confident that the sustained convergence of inflation towards our aim will continue in the period ahead.

*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**.

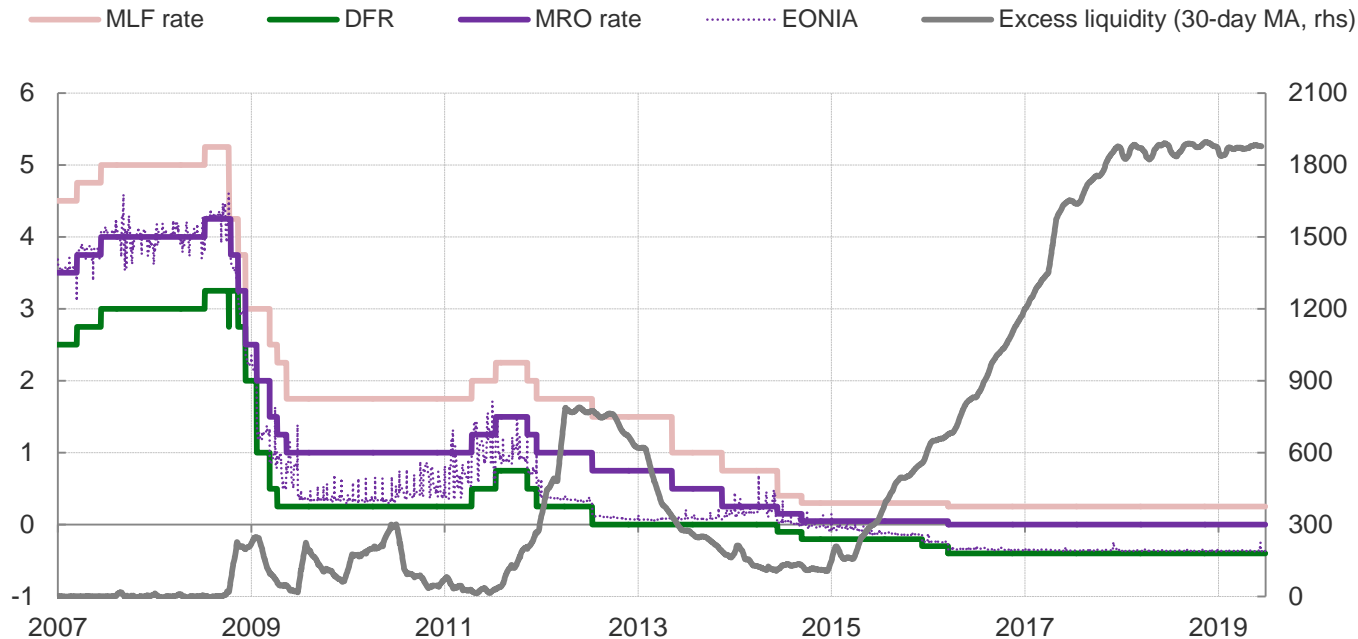
Today's monetary policy decisions **maintain the current ample degree of monetary accommodation** that will ensure the continued sustained convergence of inflation towards levels that are below, but close to, 2% over the medium term. [...] This support will continue to be provided by the **net asset 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*

# Negative interest rates and excess liquidity

## Expectations of future short-term rate throughout periods of non-standard measures

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



Source: ECB.

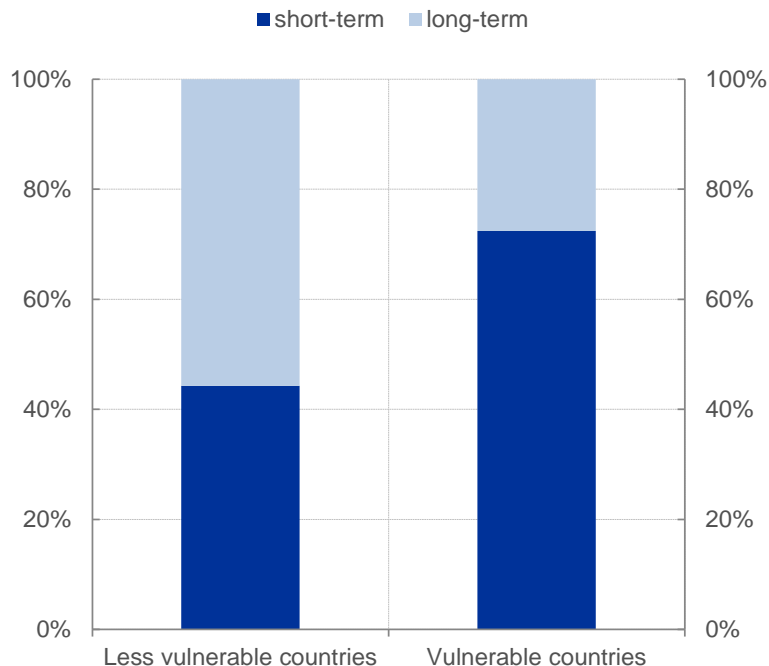
Notes: Daily data. "MLF" stands for marginal lending facility, "MRO" stands for main refinancing operations, "DFR" is the rate on the deposit facility and "EONIA" is the euro overnight unsecured interbank rate.

Latest observation: 27 June 2019.

# Vulnerable countries rely more on short-term loans

## Loans to non-financial corporations by original maturity or time to interest rate reset

(percent)

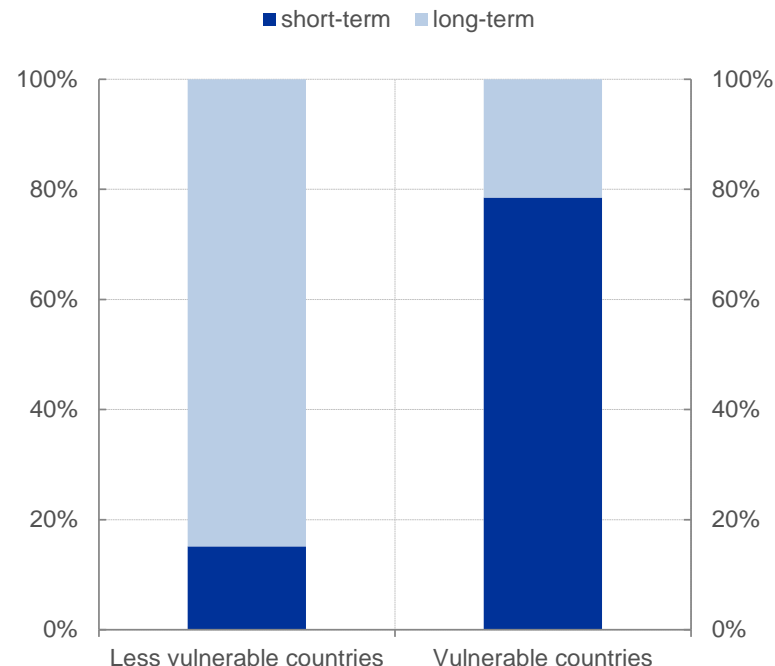


Source: ECB

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)

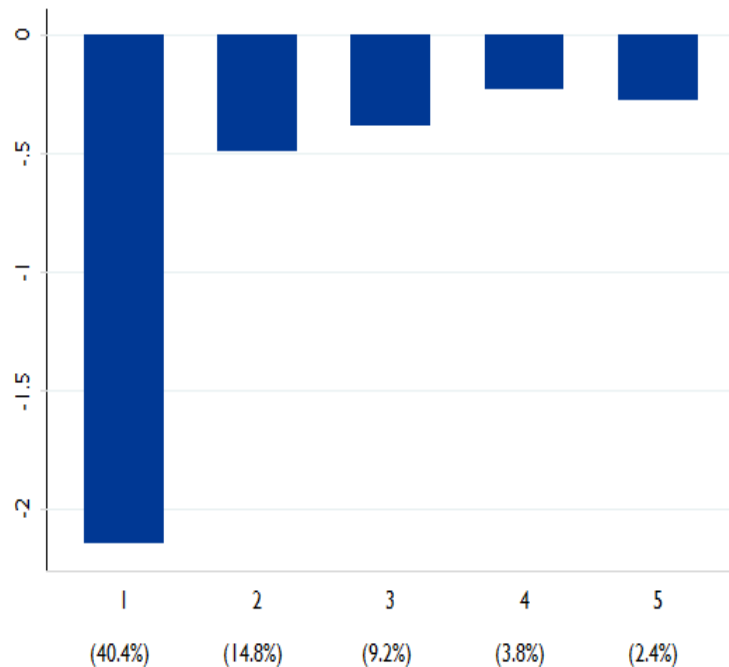


Source: ECB.

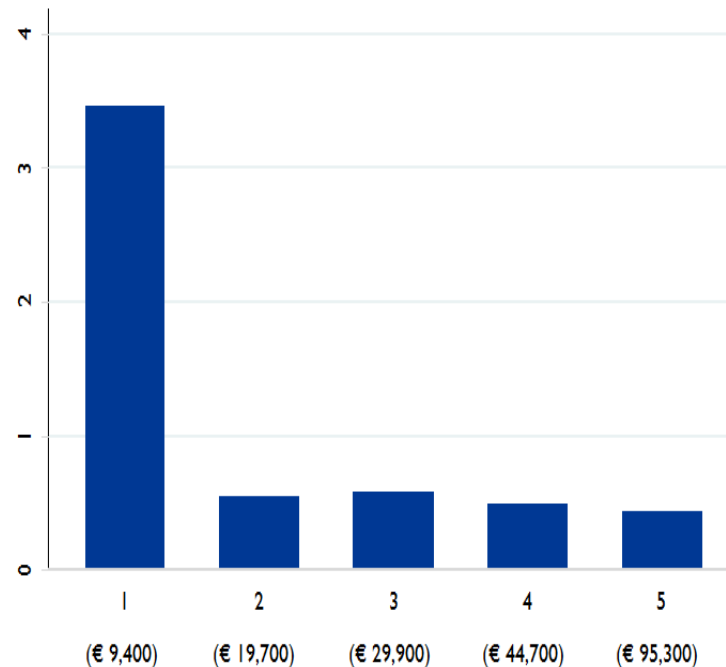
Notes: Breakdown as of December 2017. Based on outstanding amounts of loans. Short-term refers to loans with original maturity up to 1 year and overdrafts plus loans with a remaining maturity over 1 year and interest rate reset within the next 12 months.

# 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)



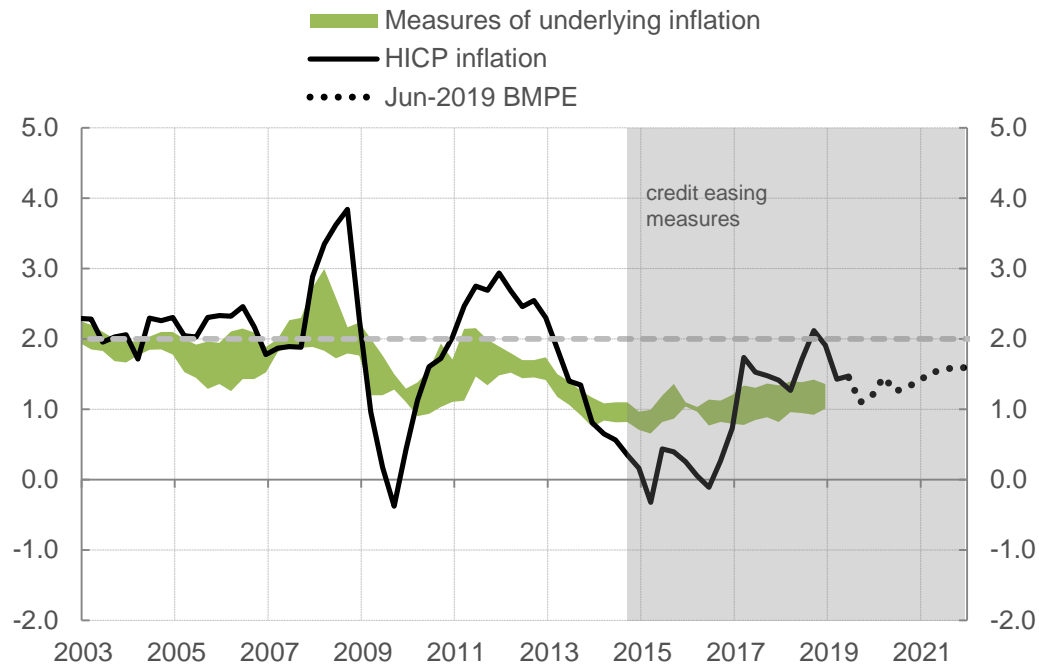
Sources: Lenza and Slacalek (2018).

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.

# Sustained disinflation and bleak inflation outlook...

## Actual and projected HICP inflation, and measures of underlying inflation

(year-on-year percentage change)



Sources: ECB staff macroeconomic projections and ECB calculations.

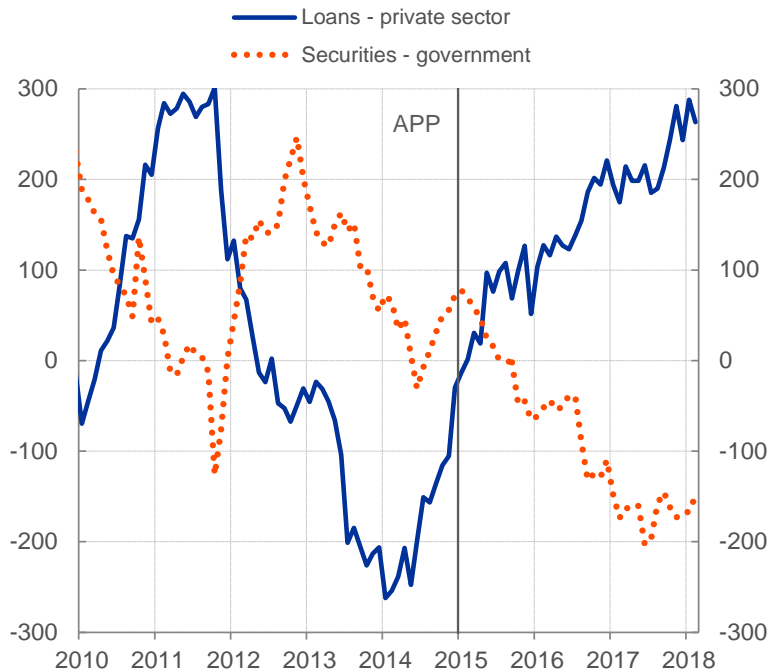
Notes: The measures of underlying inflation (green range) include HICP inflation excluding food and energy, PCCI and Super-core.

Latest observation: June 2019.

# APP increases the relative attractiveness of bank loans...

## Bond and loan portfolios of European banks

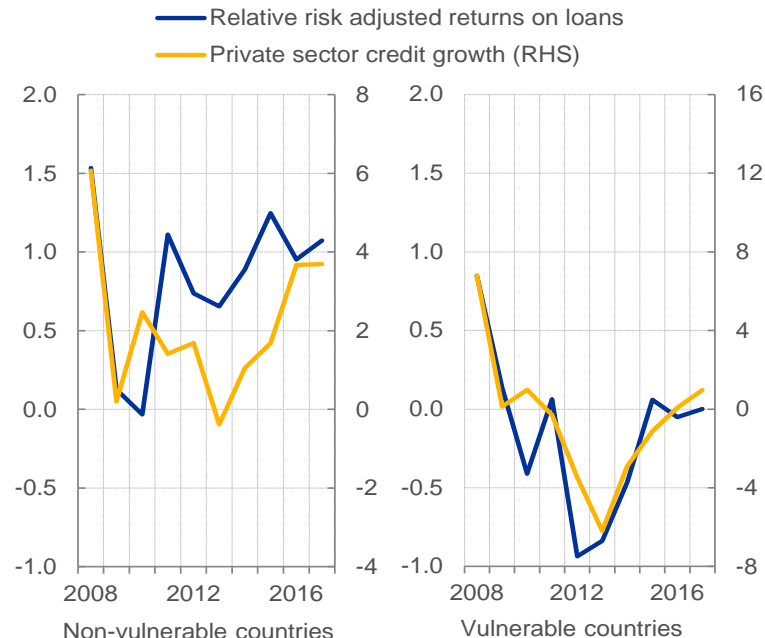
(annual change in billion EUR)



Sources: ECB (BSI).  
 Latest observation: February 2018.

## Risk-adjusted return on loans relative to bonds and credit growth

(percent / percentage change)



Sources: Bankscope (2006-2014), ECB (2015-2017) and ECB calculations.

Notes: Risk-adjusted return on loans (interest received from loans net of impairment and capital charges, divided by amount of net loans) relative to the corresponding figure for securities. "Private sector credit" excludes loans granted to MFIs and General Governments. "Non-vulnerable countries" are Germany, France and the Netherlands. "Vulnerable countries" Italy and Spain. Excluding banks involved in restructuring operations. Yearly data, figures for 2017 proxied by annualized data for the first 3 quarters of the year.

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# Central banks and climate change

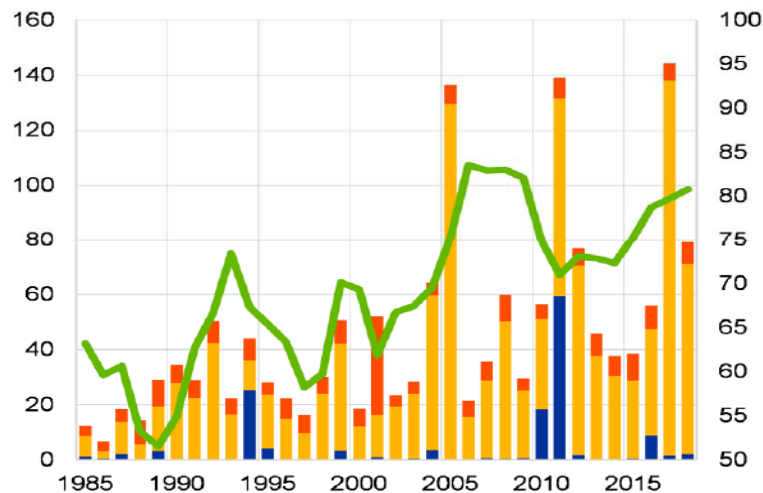
## First challenge: Climate Change matters – But is it relevant for a Central Bank?

- **Greenhouse gas emissions are continuing to rise** and without a change in direction, global warming could exceed 4° C by 2100 (IPCC). But many countries are taking actions to curb emissions (or plan to do so) as reflected in the Paris Agreement to combat climate change.
- **This may lead to economic and financial disruptions.** Climate change creates economic and financial risks (sometimes called physical risks). Yet the steps taken to reduce these risks by cutting emissions may also carry risks (sometimes called transition risks) - and opportunities - through disruptive technical change.
- **This leads to many potential areas of interest in climate change for a central bank** relating to aspects such as financial stability, banking supervision, economic analysis and monetary policy.
- **And the impact of policy and technological responses to climate change** may come via the real economy (growth, potential output) and financial conditions, which need to be assessed with a view to arriving at an informed assessment of the medium-term inflation outlook and financial stability risks.

## Global insured catastrophe losses 1985-2018

(left scale: USD billions; right scale: percentages)

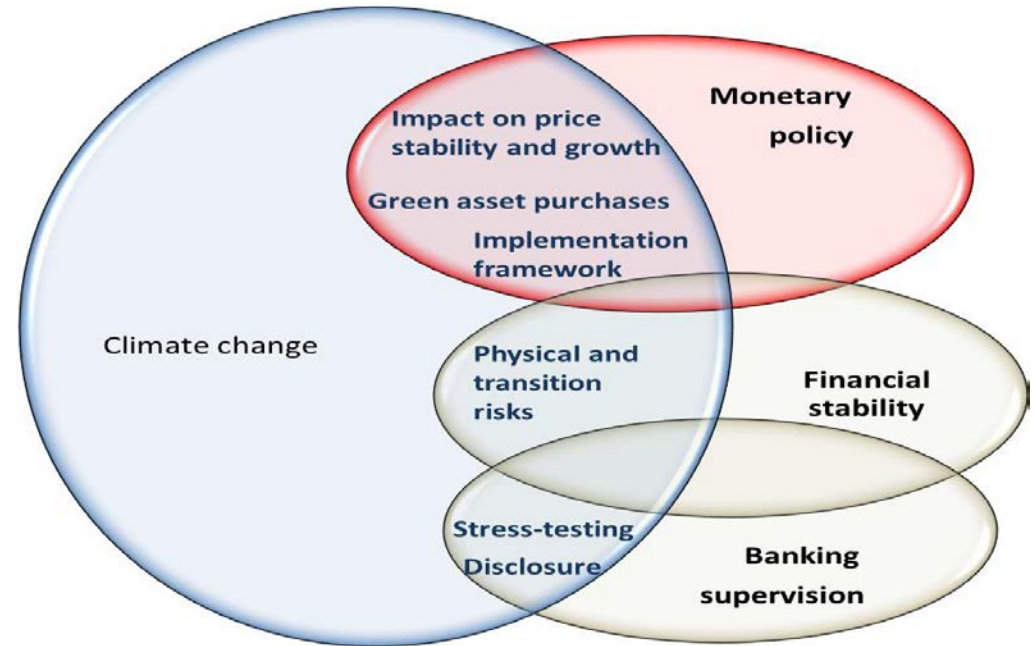
- Earthquake/tsunami
- Weather-related catastrophes
- Man-made disasters
- % of weather-related catastrophes losses - 5-year moving average (right-hand scale)



Sources: ECB Financial Stability Review May 2019, Special Feature on Climate Change and Financial Stability (underlying sources: Swiss Re Institute, Munich Re NatCatService and ECB calculations).

# Climate change will impact on the conduct of monetary policy

- Prime responsibility to address climate change lies with governments...
- ... but reflections on whether and how central banks could also play a role have intensified
- Several recent studies have discussed the role that monetary policy can play to support the transition towards a green economy



Source: ECB.

## Reacting to climate change risk

- Protecting the balance sheet against sudden repricing
- Removing carbon biases that are currently embedded in the operational frameworks

## Role to sensitise the public

- Informing and educating the public
- Waking up the financial system to the mispricing of climate risk
- Stranded assets

## Proactively supporting the transition to a low carbon economy

- Greening monetary policy operations (Schoenmaker 2019, Monnin 2018)
- Green QE (de Grauwe 2019)
- Green TLTROs

# What are central banks doing? – The NGFS

NGFS



Since then, the NGFS has grown to **34 Members** **5 Observers** representing 5 continents.



## NGFS members' jurisdictions cover:



**31%** of the global population

Source: United Nations, 2017.



**45%** of global greenhouse gas emissions

Source: Global Carbon Budget, 2017.



Supervision of **2/3** of the global systemically important banks and insurers

Source: Financial Stability Board, 2018.



**44%** of the global GDP

Source: World Bank, 2017.

# What are central banks doing? – The NGFS

## WS1: Supervision of climate and environmental risks

Exchange best practices on integrating climate risk in micro-prudential frameworks

## WS2: Analysing the macro financial impact of climate change

Develop an analytical framework for assessing climate-related risks under different climate scenarios

## WS3: Scaling up green finance

Take stock of initiatives to scale up green financing; work on green taxonomies, green bonds labeling and prevention of greenwashing.

**First comprehensive report published on 17 April 2019**

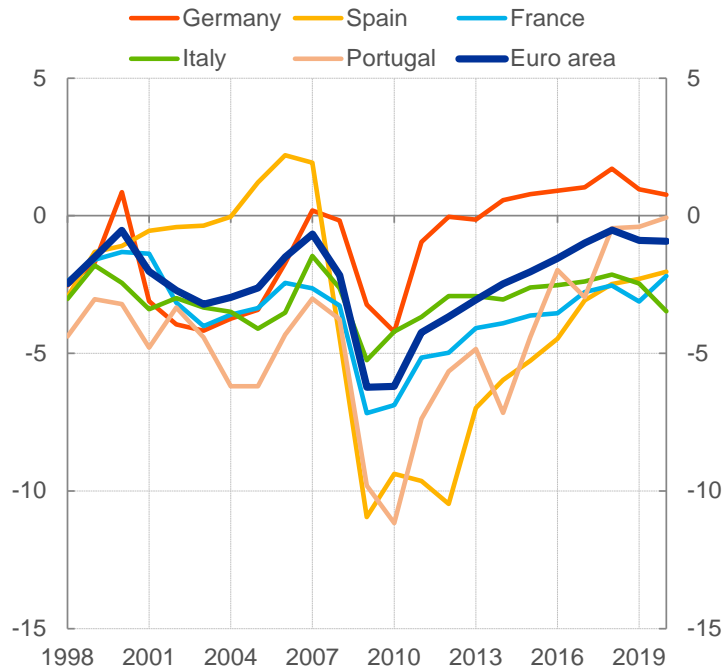
- 1. Integrating climate-related risks into financial stability monitoring and micro-supervision**
- 2. Integrating sustainability factors into own-portfolio management**
- 3. Bridging the data gaps**
- 4. Building awareness and intellectual capacity**
- 5. Achieving robust and internationally consistent climate disclosure**
- 6. Supporting the development of a taxonomy**

# Side effects of non-standard monetary policy measures



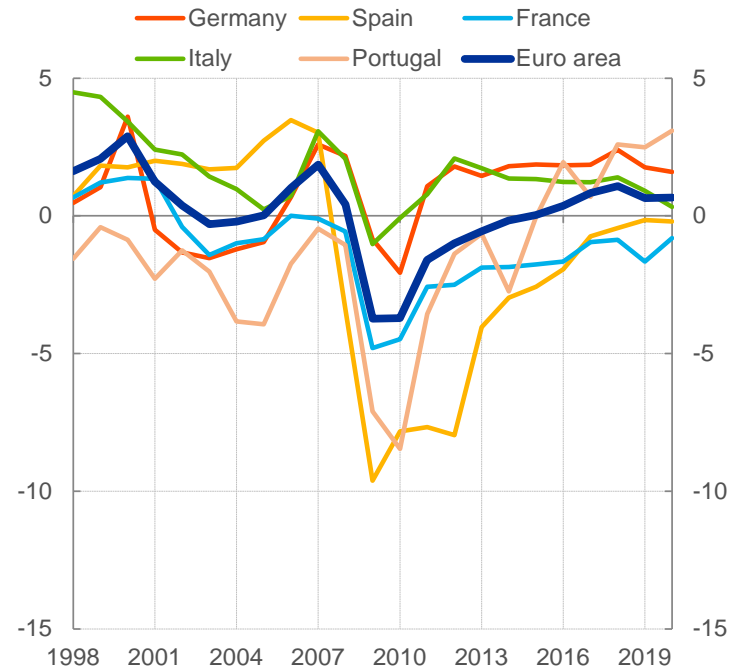
# Government deficits have declined

## Public deficit (% GDP)



Sources: EC Spring 2019 Forecast.

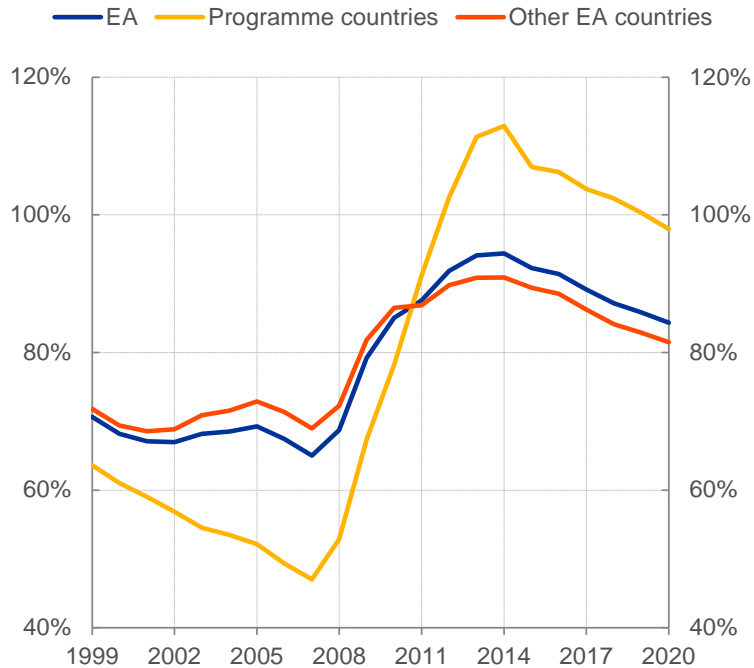
## Primary public deficit (% GDP)



Sources: IMF World Economic Outlook April 2019.

# Debt and current account deficits falling

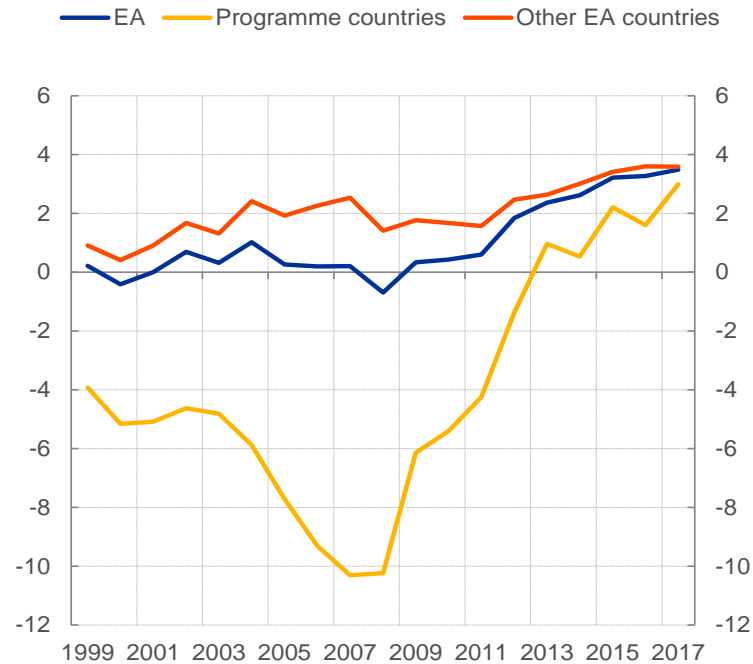
## Government debt (% GDP)



Sources: EC Spring 2019 Forecast

Notes: (Former) Programme countries include: GR, IE, CY, PT and ES.

## Current account deficit (% GDP)

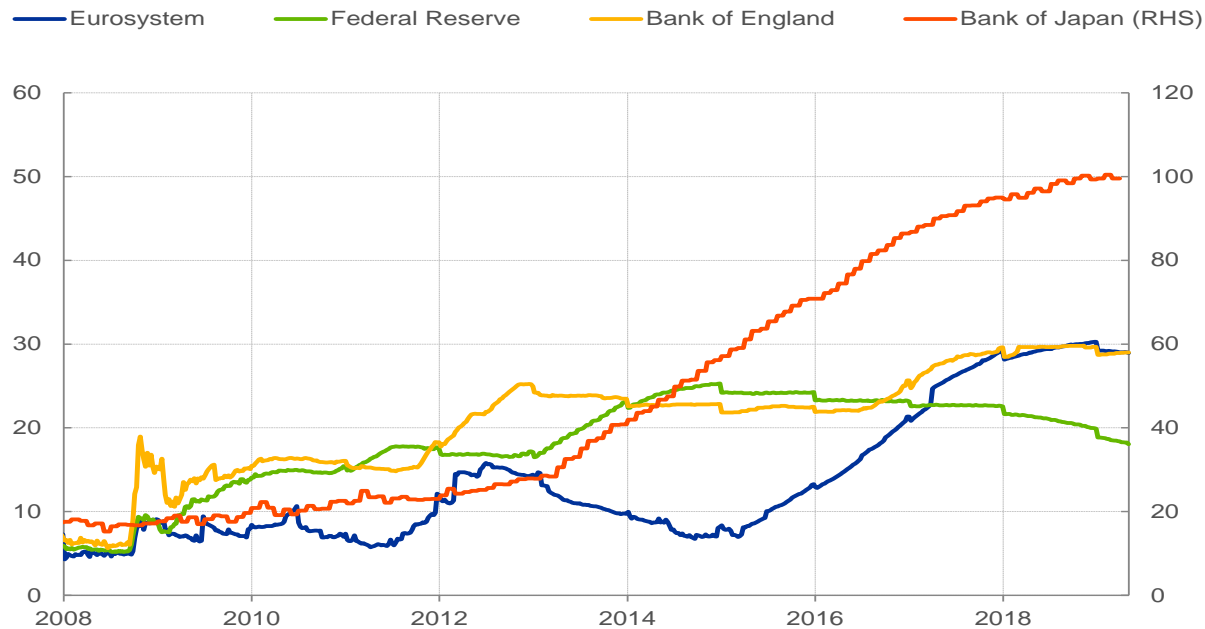


Sources: EC Spring 2018 Forecast.

Notes: (Former) Programme countries include: GR, IE, CY, PT and ES.

# Balance sheet expansion in all major jurisdictions

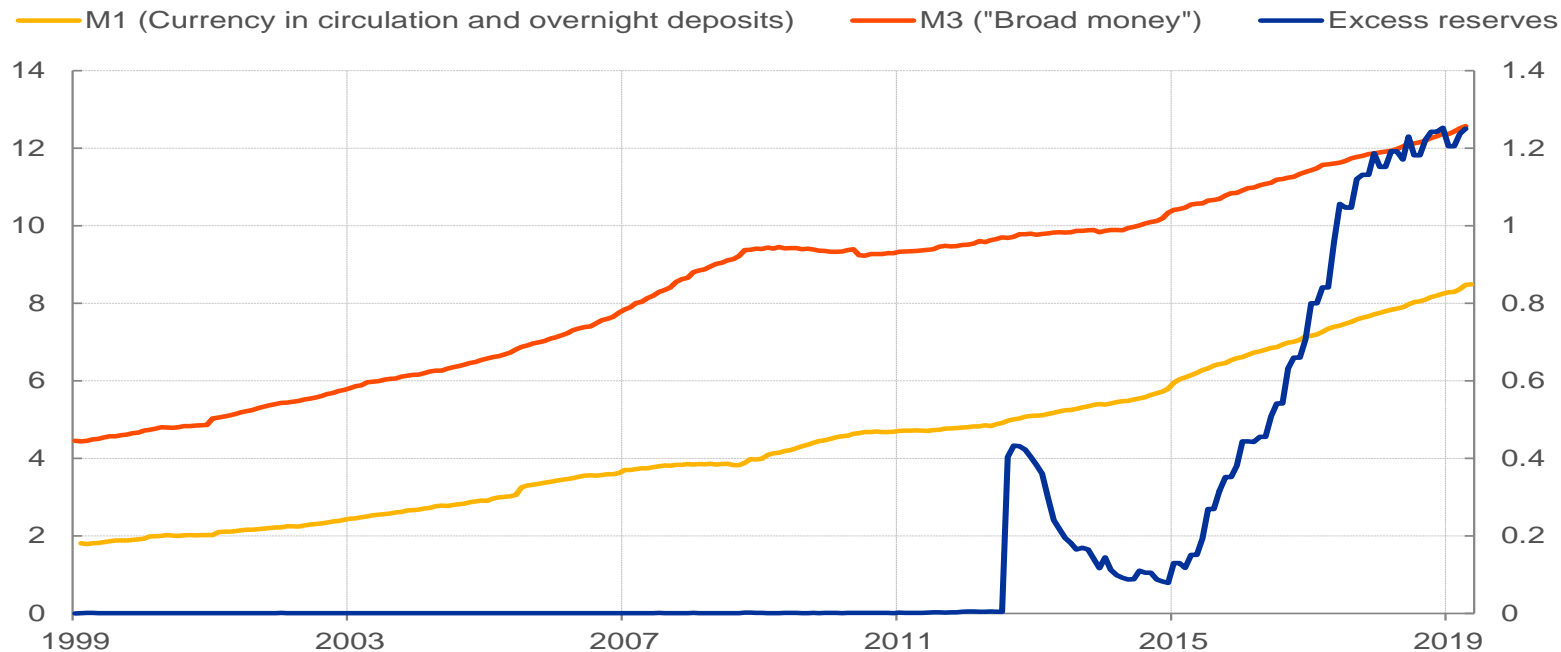
## Central bank balance sheets (%GDP)



Source: ECB, Federal Reserve, Bank of England and Bank of Japan.

Notes: The BOE balance sheet is approximated after the 24 September 2014 since the institution only discloses 90% of its consolidated balance sheet after this date.  
Latest observation: 3 May 2019 (ECB, Federal Reserve, Bank of England) and end of March 2019 (Bank of Japan).

## Central banks and aggregate money (billion EUR)

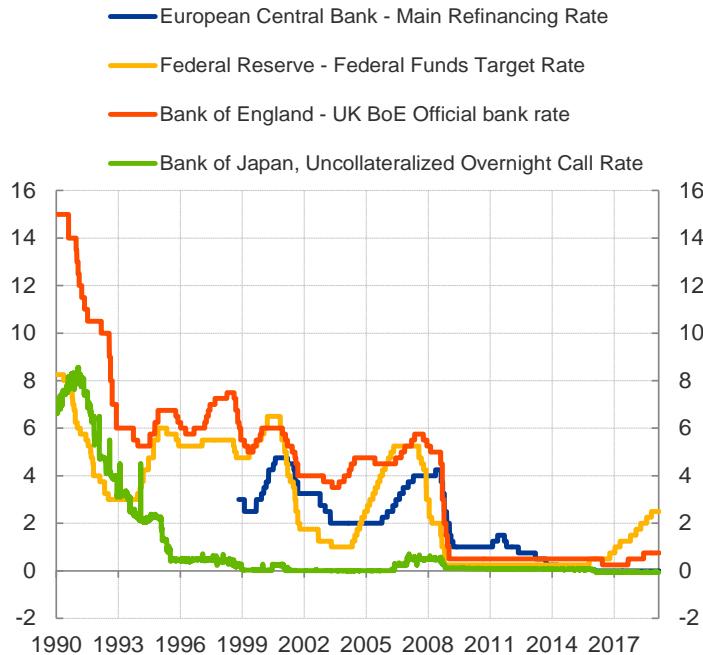


Sources: ECB.  
Latest observation: April 2019

# Key interest rates low in all major jurisdictions

## Global key interest rates

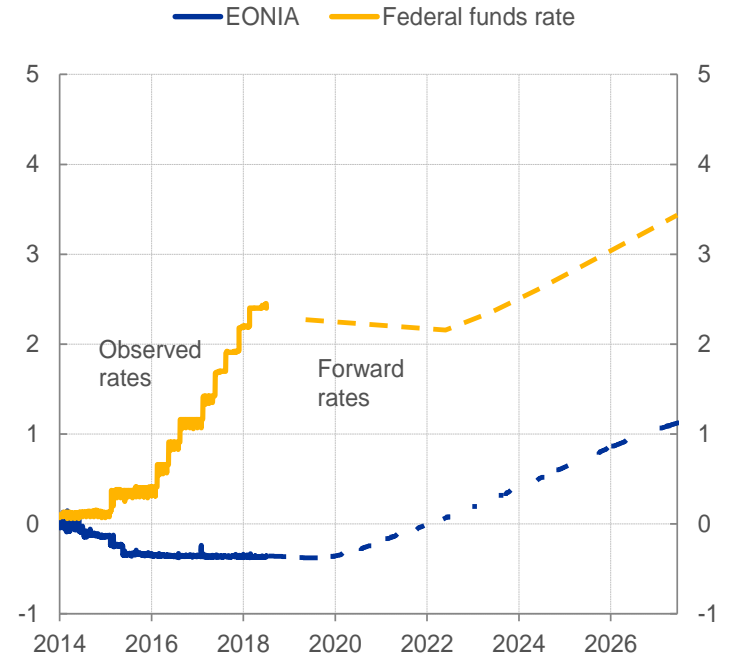
(in %)



Source: ECB, Federal Reserve, Bank of England, Bank of Japan.  
Latest observation: 25 April 2019.

## Interest rate expectations in the euro area and in the United States

(in %)



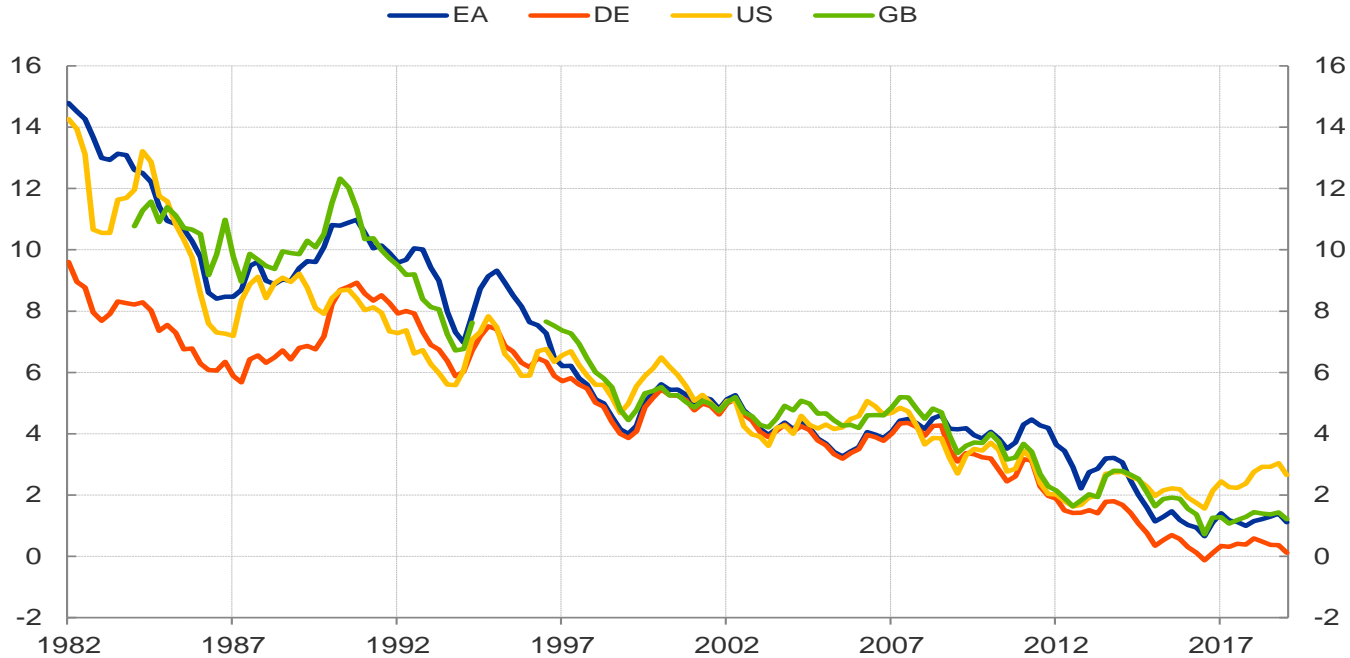
Source: Federal Reserve Bank of St. Louis, ECB, BBG, ECB calculations.

Notes: Forward rates up to 10 years out.

Latest observation: 6 May 2019 for EONIA observed and forward rate, Federal funds observed rate; 29 March 2019 for Fed funds forward rate.

# Long-term downward trend of nominal interest rates in all major jurisdictions

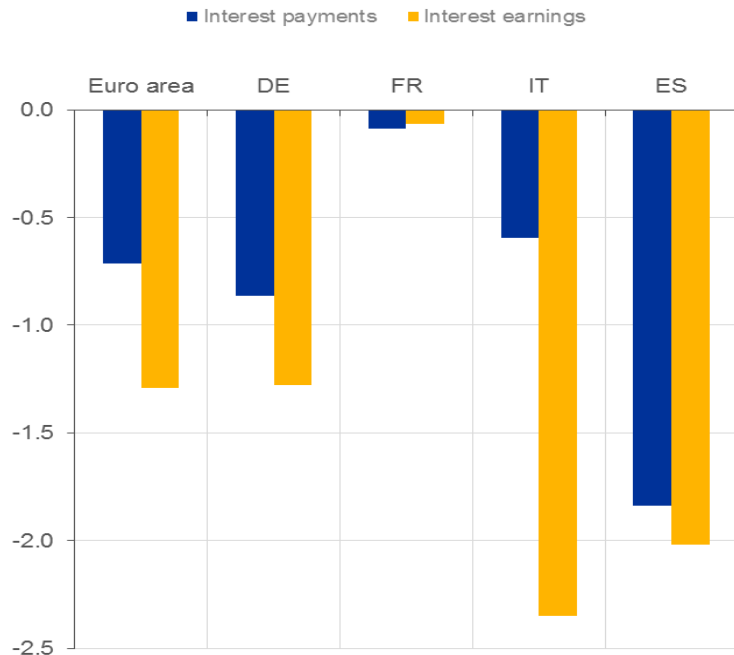
## 10-year government bond yields (annual percentages)



Source: ECB, Deutsche Bundesbank, Bank of England, Federal Reserve.  
Notes: For the euro area the long-term interest rate from the Area Wide Model is used until 1999.  
Last observation: 2019 Q1..

# Risks: “Expropriation” of savers?

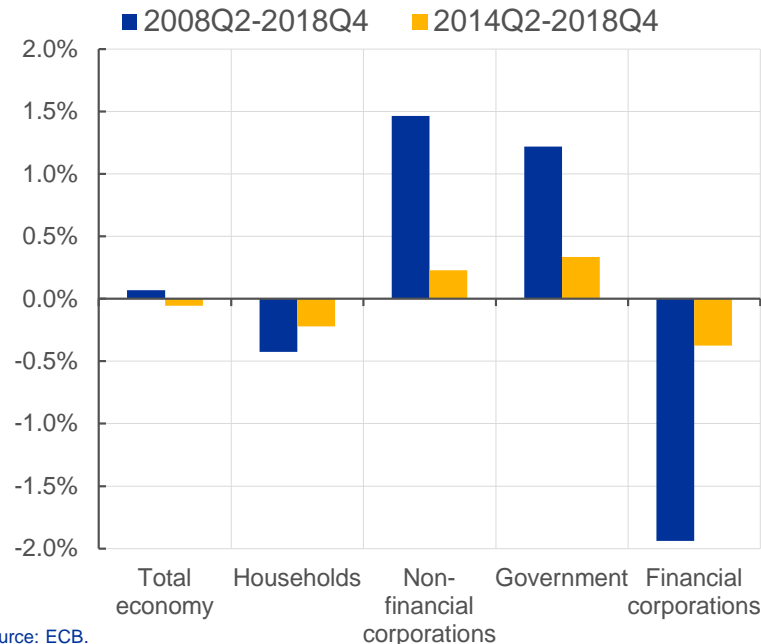
## Change in household interest payments and earnings 2014Q2 – 2018Q4 (percentage points of disposable income)



Sources: Eurostat and ECB.

Notes: Changes in household interest payments/earnings are computed as the difference between 2014Q2 and 2018Q4, relative to gross disposable income. 2014Q3 was the first quarter where Eonia became negative. Interest payments/earnings are after allocation of FISIM (financial intermediation services indirectly measured). All calculations are based on 4-quarter moving sums. Latest observation: 2018Q4.

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



Source: ECB.

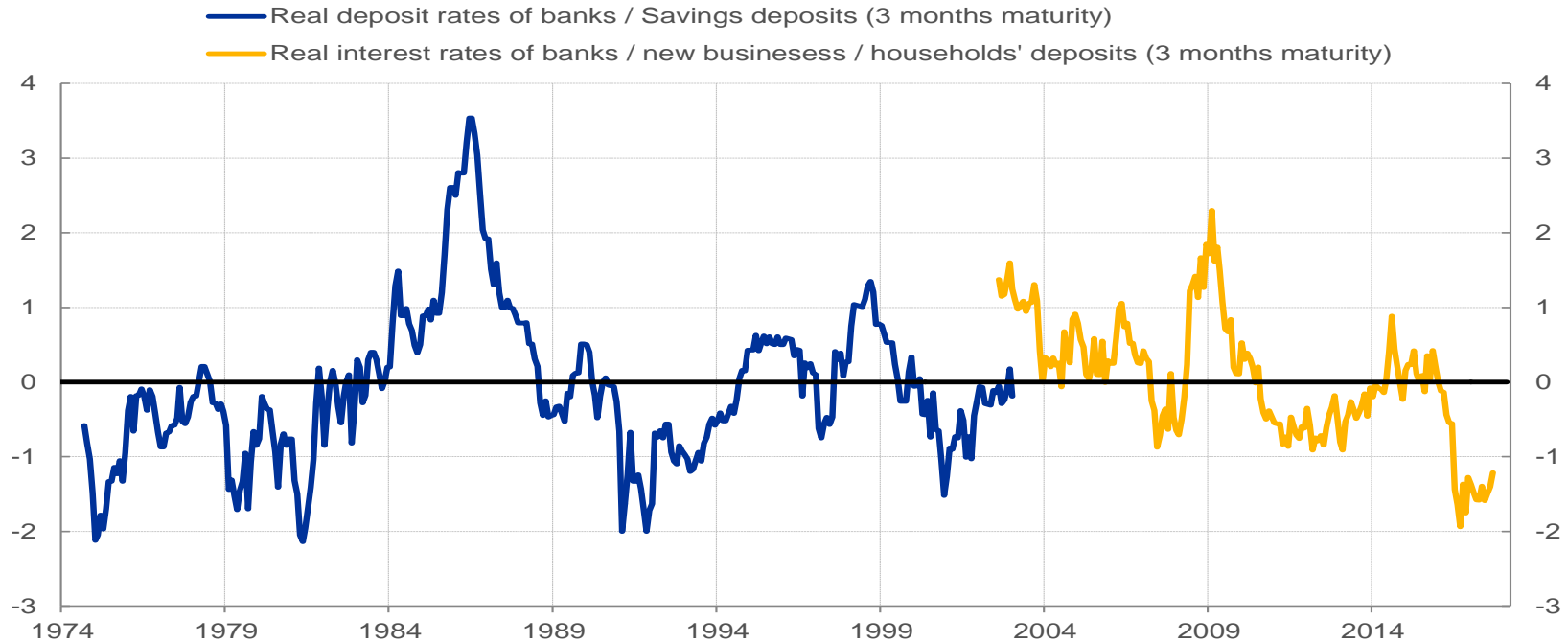
Note: The chart reflects the changes from the second quarter of 2008 to the fourth quarter of 2018, and from the second quarter of 2014 to the fourth quarter of 2018, in the four-quarter moving average of net interest income. To exclude the impact of variations in the stocks of assets/liabilities on net interest income, the changes are computed by applying the asset and liability rates of return on the notional asset and liability stocks in the first quarter of 2008 and the first quarter of 2014, respectively. Changes in net interest income are expressed as percentages of GDP, with GDP fixed at the respective starting points.

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# Risks: “Expropriation” of savers?

## Real deposit rates in Germany 1974-2017

(in %)

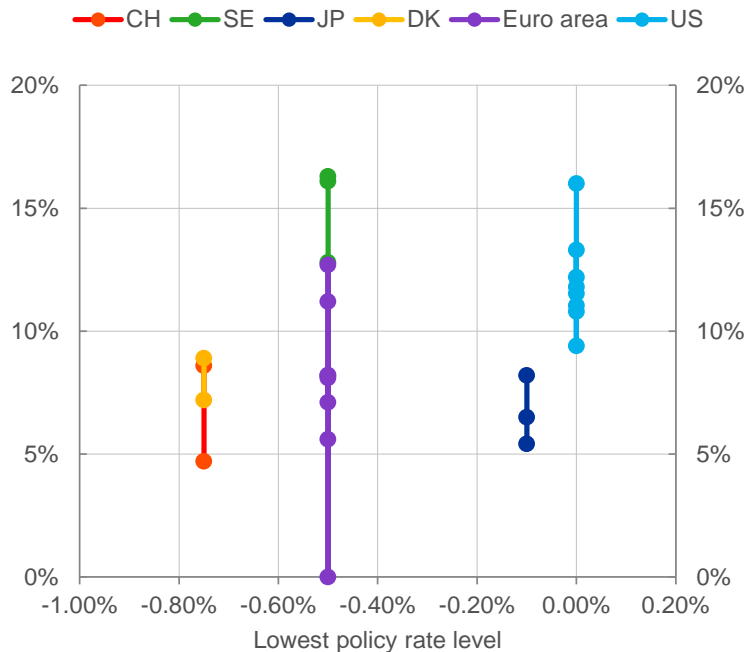


Source: Deutsche Bundesbank.  
Latest observation: December 2018.



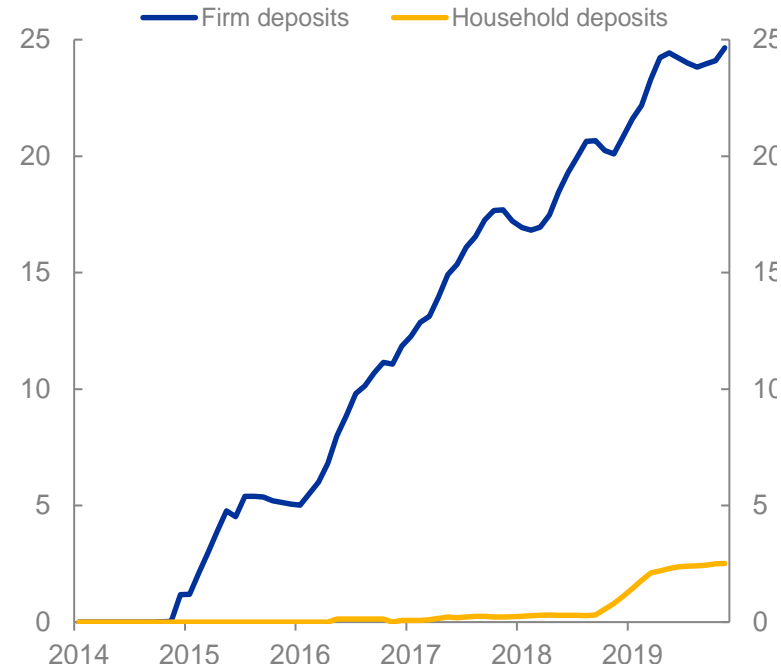
# Risks: hurting bank profitability?

## Bank profitability and negative policy rates (percentages of total assets)



Source: Annual reports of G-SIBs and other major commercial banks.  
 Notes: Vertical axis shows return on (tangible) equity. Horizontal axis shows lowest level of policy rate that was reached in each jurisdiction.  
 Latest observation: 2018 for RoE, 2020 for policy rates.

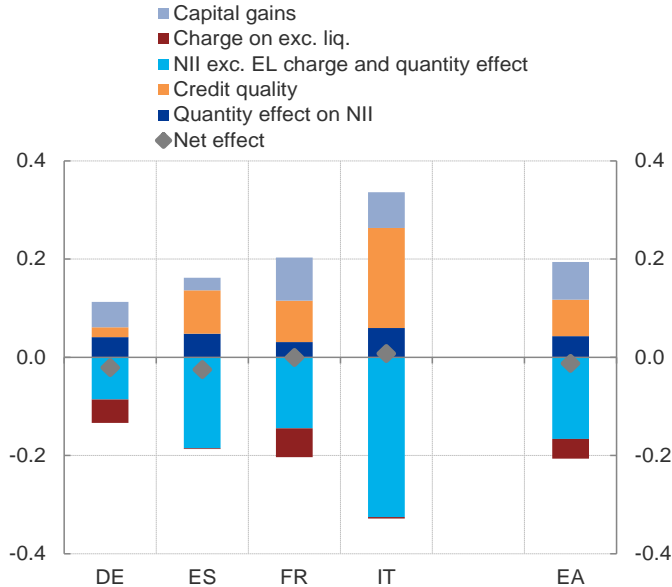
## Share of deposits carrying negative rates (percentages)



Notes: Deposit rates on outstanding amounts as reported by individual banks for each of the available product categories, weighted by outstanding amounts. Household deposits also account for deposits held by non-profit institutions serving households (NPISH).  
 Latest observation: November 2019.  
 Sources: ECB and ECB calculations.

# Risks: hurting bank profitability?

## Bank profitability 2014-17 (percentage points)



- Better credit quality reduces default risk
- Capital gains through higher asset prices



- Lower interest spread
- Direct costs from negative deposit facility rate

Source: Altavilla, C., Andreeva, D., Boucinha, M. and Holton, S., "Monetary policy, credit institutions and the bank lending channel in the euro area", ECB Occasional Paper Series, forthcoming.

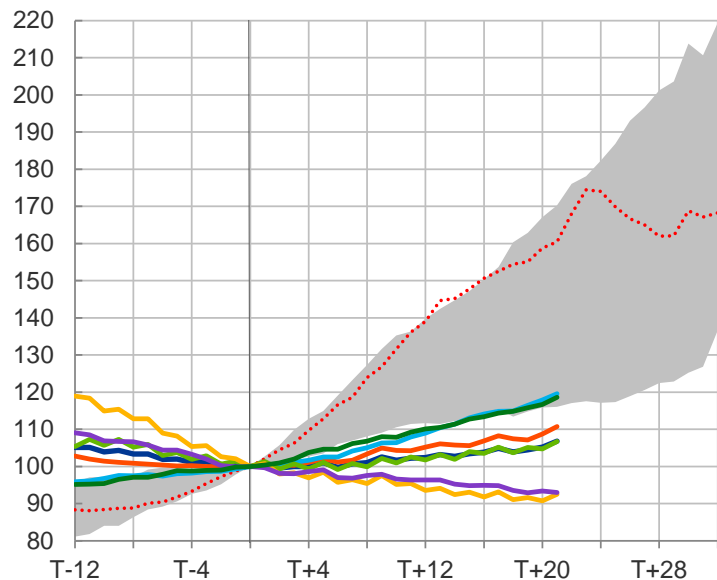
Notes: NII stands for net interest income and EL for excess liquidity. The impact of monetary policy on bond yields and the respective effect on lending rates and volumes is consistent with the Eurosystem macroeconomic projections. The impact on interest rates is reflected in new business volumes and in the outstanding amount of variable rate instruments including loans, deposits, debt securities held and issued by banks. Due to the low level of interest rates, it is assumed that banks only benefit from lower interest rates on long-term deposits. The assessment of capital gains takes into account detailed data on the maturity, counterparty country and accounting portfolio of securities held by banks, as published by the EBA."

# Risks: Property price bubble?

## Real household loans around starting period of house price booms

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

█ NORMAL    █ EA    ⋯ BOOMS  
█ DE    █ FR    █ IT  
█ ES    █ NL    █ BE



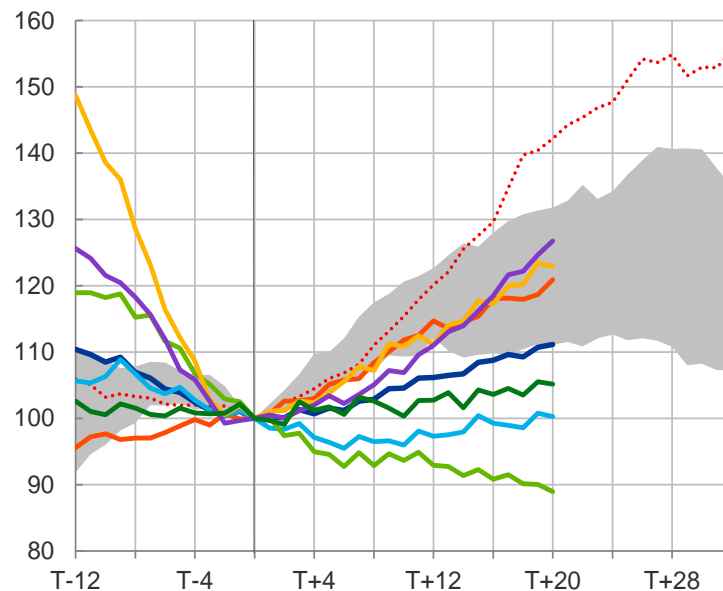
Sources: BIS, ECB, OECD and ECB calculations.

Notes: Based on data from 1975Q1 to 2019Q1 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)

█ NORMAL    ⋯ BOOMS    █ EA  
█ DE    █ FR    █ IT  
█ ES    █ NL    █ BE



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

Notes: Based on data from 1975Q1 to 2018Q4 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. [www.ecb.europa.eu](http://www.ecb.europa.eu) ©

# Risks: Bubbles in financial markets?

## Equity prices

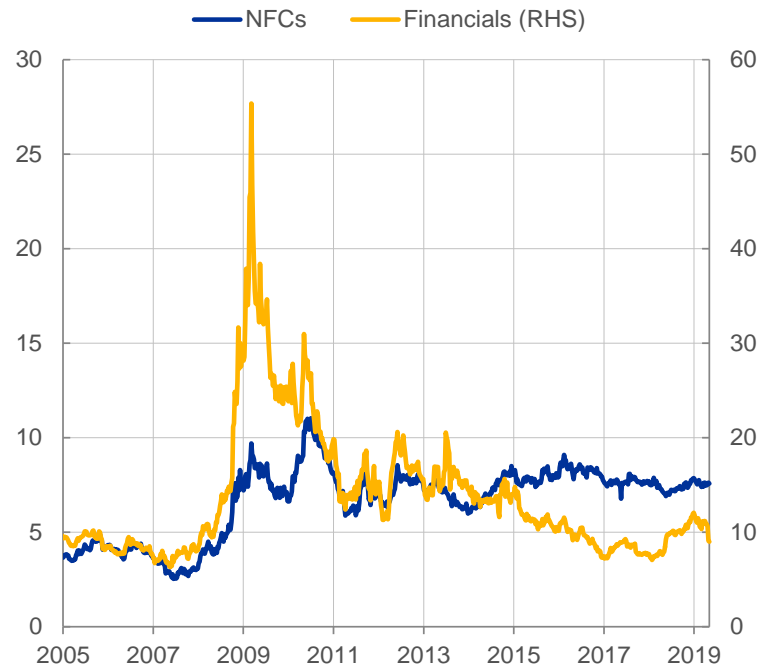
(rebased to 100 on 1 January 1999)



Source: Bloomberg.  
Last observation: 9 May 2019.

## Equity risk premium in the euro area

(percentages)



Sources: Thomson Reuters, Consensus Economics and ECB calculations.  
Note: Estimated via a dividend discount model including share-buybacks, applied on the overall market index. See ECB Economic Bulletin, Issue 4/2018, "Measuring and interpreting the cost of equity in the euro area".  
Last observation: 3 May 2019.

## Risks: Overstepping the mandate?

“A currency whose future existence is in doubt, is not a stable currency.”

(M. Draghi, 2012)



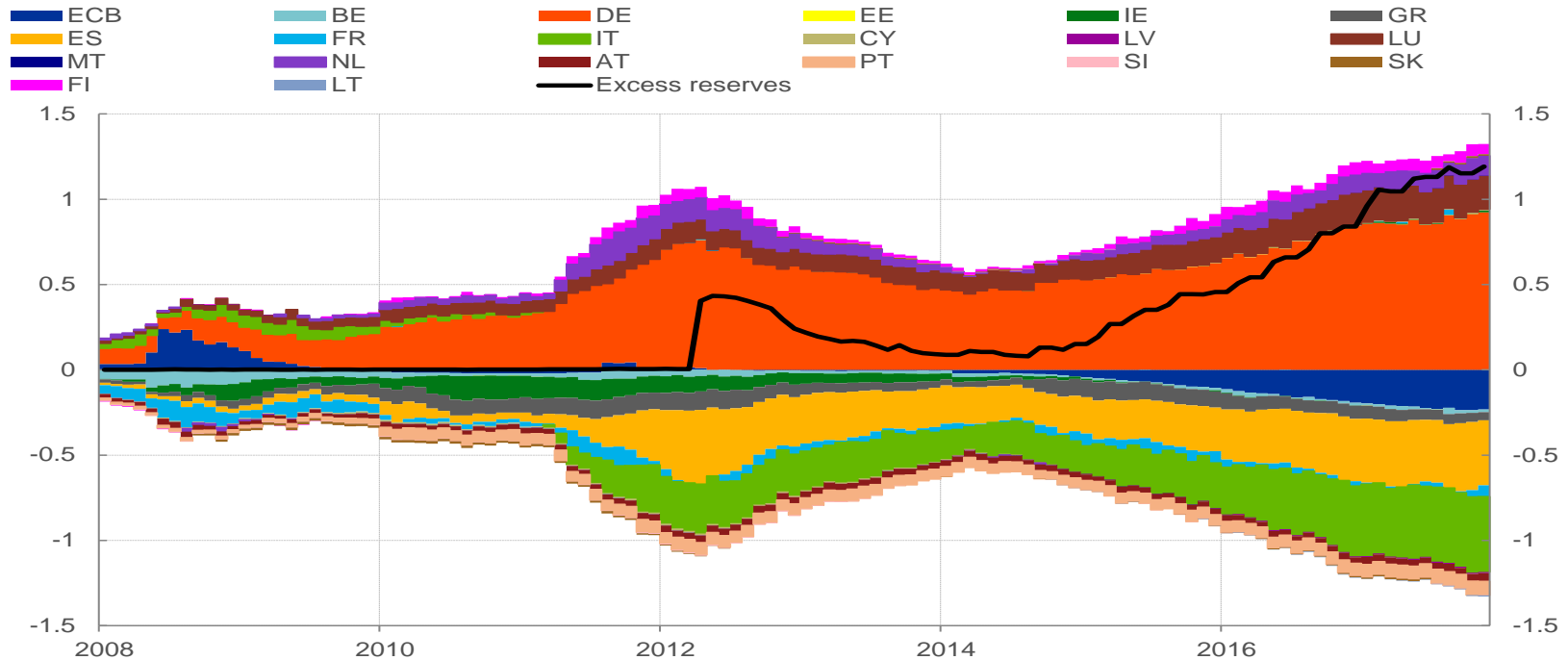
ECJ Judgement C62/14, June 2015

“[...] the OMT programme [...] falls within monetary policy and therefore within the powers of the ESCB.”

„[...] the implementation of the OMT programme will not have an effect equivalent to that of a direct purchase of government bonds.”

“[...] the features of the OMT programme also ensure that [such purchases] lessen the Member States’ impetus to follow a sound budgetary policy and thus to circumvent [...] the prohibition of monetary financing.

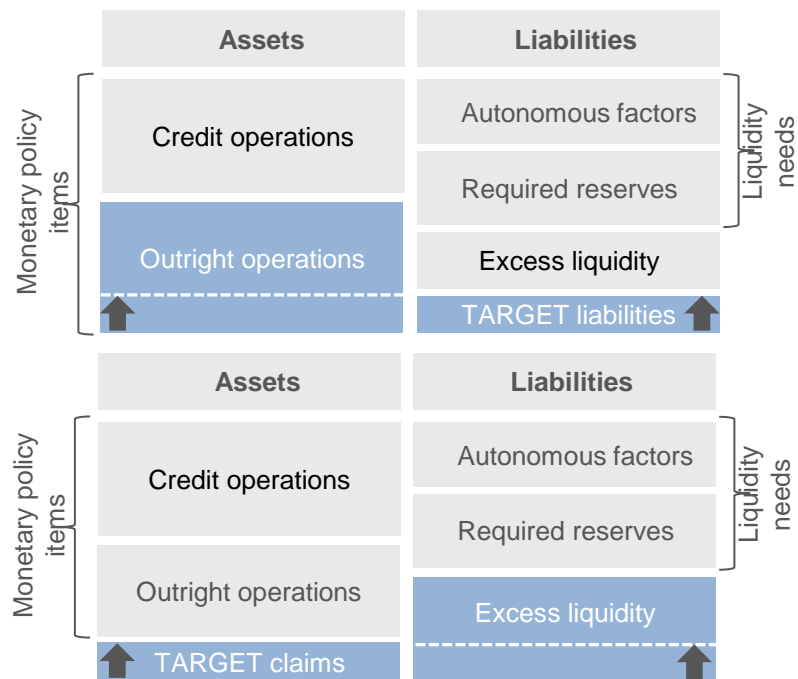
## TARGET2 balances und central bank excess reserves (billion EUR)



Sources: ECB.  
Latest observation: March 2018

# TARGET2 and asset purchases

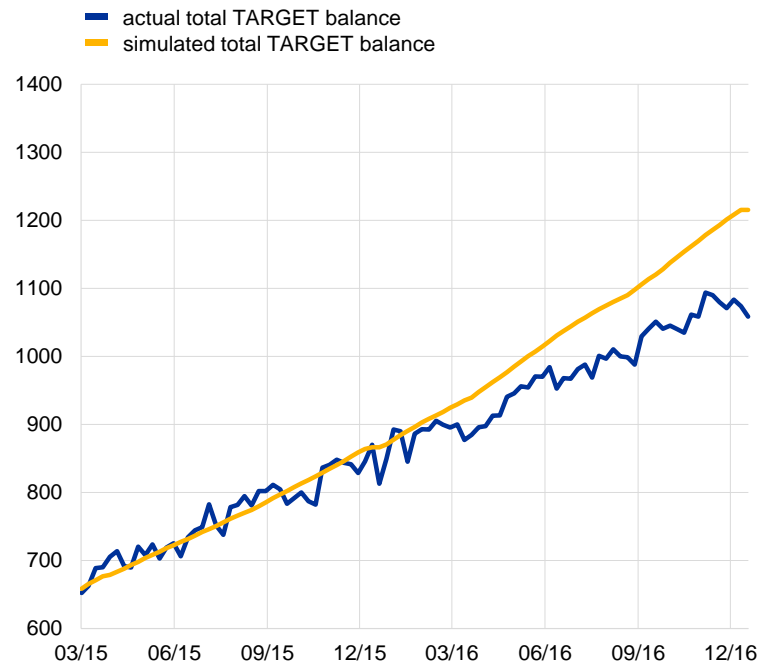
## Stylized central bank balance sheet in context of the APP



Source: ECB.

Notes: Credit operations refer to all Eurosystem refinancing operations, including non-standard variants like the TLTROs. Outright operations refer to transactions in which the central bank buys or sells assets in the market for monetary policy purposes. The relative size of the components of the stylised balance sheet is not indicative of the relative size of the balance sheet items. This example assumes that the sending NCB had a negative TARGET balance (i.e. a TARGET liability) at the time of the payment, while the receiving NCB had a positive TARGET balance (i.e. a TARGET claim) at the time of the payment.

## Realized and simulated TARGET balances since start of PSPP (billion EUR)

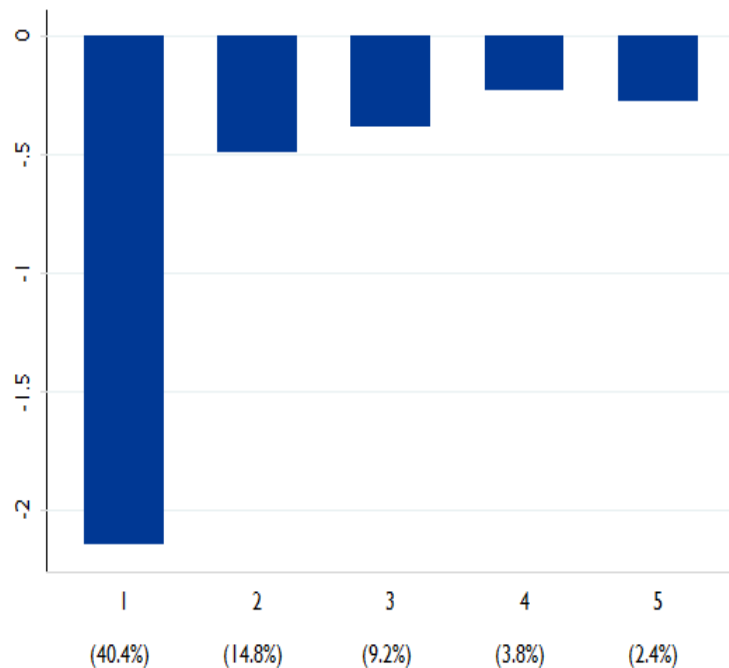


Sources: ECB, TARGET2 and ECB calculations.

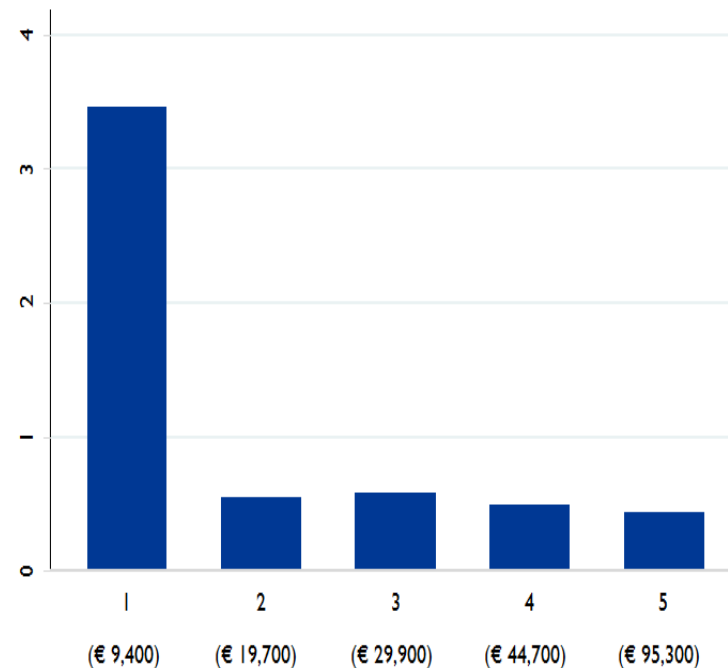
Notes: The simulated TARGET balance is calculated using APP transaction data and information on the location of APP counterparties' TARGET accounts (the ECB's balance is treated separately from balances of non-euro area countries). The simulated balance shows how the total TARGET balance would have evolved since March 2015 if the only cross-border payments in the system were the liquidity flows from central banks to counterparties' TARGET2 accounts resulting from APP purchases. [www.ecb.europa.eu](http://www.ecb.europa.eu) © Last observation: December 2016.

# 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.



# Key decisions at recent policy meetings

# Key meetings over the past years

## June 2018

- Expected end of net asset purchases announced
- Enhanced forward guidance

## December 2018

- Conclusion of net asset purchases confirmed
- Additional information on reinvestments

## March 2019

- Change in forward guidance on interest rates
- New series of TLTROs announced

## June 2019

- Change in forward guidance on interest rates
- Accommodative TLTRO-III pricing announced

# Monetary policy has been conditioned on inflation outlook...

## Forward guidance at the June 2018 press conference

Since the start of our asset purchase programme (APP) in January 2015, the Governing Council has made **net asset purchases under the APP conditional on the extent of progress towards a sustained adjustment in the path of inflation** to levels below, but close to, 2% in the medium term.

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

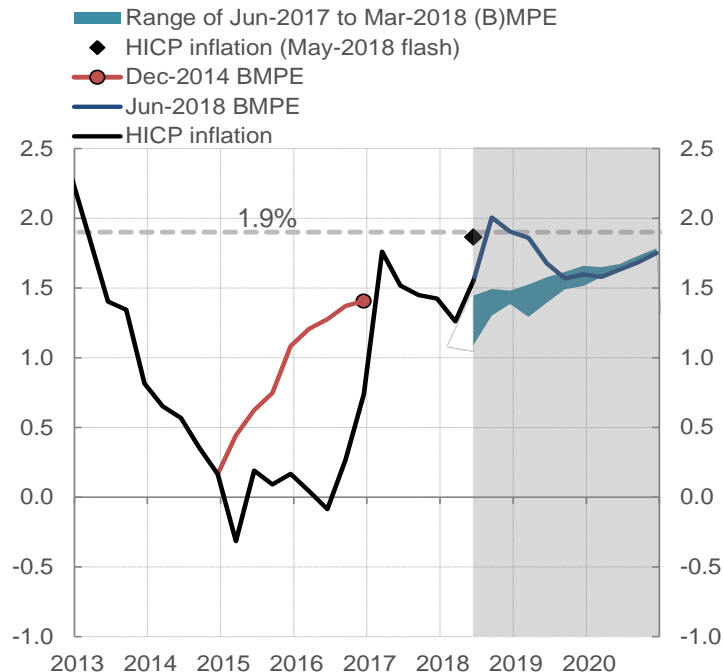
## Sustained adjustment in the path of inflation

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: Actual and projected HICP inflation (year-on-year percentage change)



Source: Eurosystem and ECB staff projections.

## Sustained Adjustment

*“Our net asset purchases...are intended to run...in any case until the Governing Council sees a **sustained adjustment in the path of inflation consistent with its inflation aim.**”*

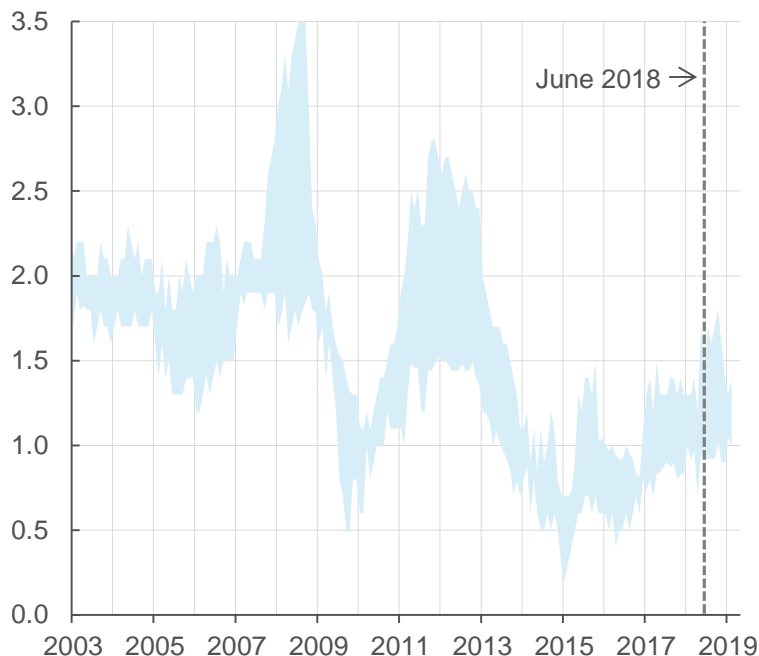
### Criteria:

- **Convergence:** Headline inflation is on course to reach levels below, but close to, 2% *by the end of a meaningful medium-term horizon*
- **Confidence:** The upward adjustment in inflation has a sufficiently *high probability of being realised on a sustainable basis*
- **Resilience:** The path will be maintained even after the end of the net asset purchases

# Confidence: underlying inflation measures have increased from lows

## Range of measures of underlying inflation

(year-on-year percentage change)



Sources: Eurostat, ECB staff calculations.

Notes: The range includes exclusion-based measures, trimmed means and a weighted median.

Latest observations: March 2019 (flash estimate) for HICPX and February 2019 for the rest.

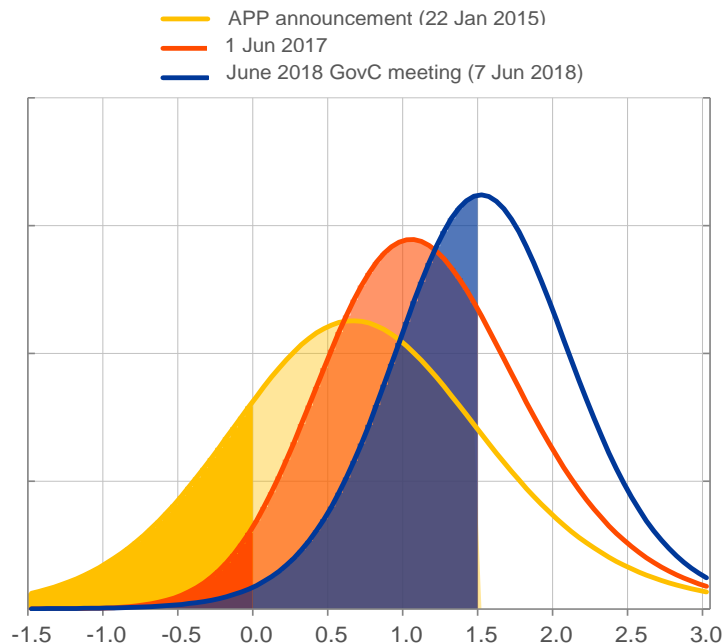
## Sustained Adjustment

*“Our net asset purchases...are intended to run...in any case until the Governing Council sees **a sustained adjustment in the path of inflation consistent with its inflation aim.**”*

### Criteria:

- **Convergence:** Headline inflation is on course to reach levels below, but close to, 2% *by the end of a meaningful medium-term horizon*
- **Confidence:** The upward adjustment in inflation has a sufficiently *high probability of being realised on a sustainable basis*
- **Resilience:** The path will be maintained even after the end of the net asset purchases

## 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

*“Our net asset purchases...are intended to run...in any case until the Governing Council sees a **sustained adjustment in the path of inflation consistent with its inflation aim.**”*

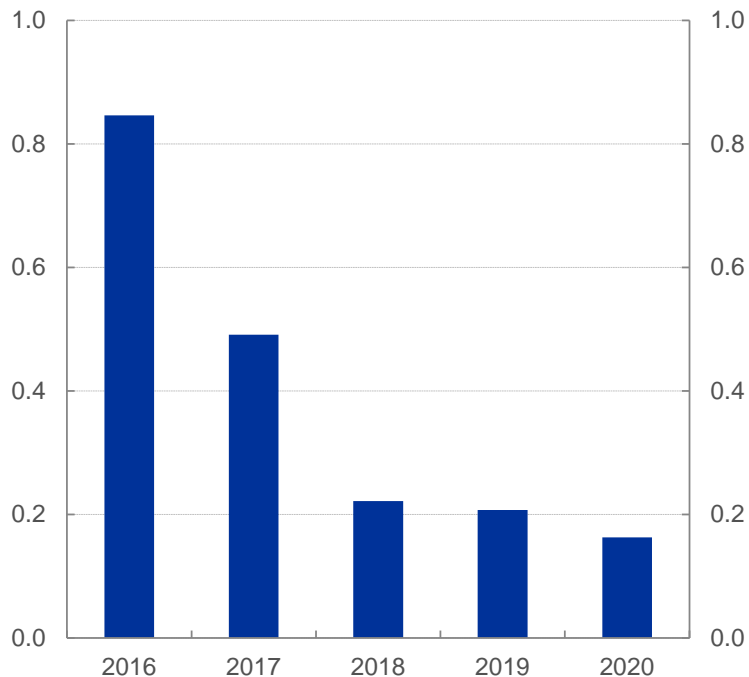
### Criteria:

- **Convergence:** Headline inflation is on course to reach levels below, but close to, 2% *by the end of a meaningful medium-term horizon*
- **Confidence:** The upward adjustment in inflation has a sufficiently *high probability of being realised on a sustainable basis*
- **Resilience:** The path will be maintained even *after the end of the net asset purchases*

# 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

*“Our net asset purchases...are intended to run...in any case until the Governing Council sees a **sustained adjustment in the path of inflation consistent with its inflation aim.**”*

### Criteria:

- **Convergence:** Headline inflation is on course to reach levels below, but close to, 2% *by the end of a meaningful medium-term horizon*
- **Confidence:** The upward adjustment in inflation has a sufficiently *high probability of being realised on a sustainable basis*
- **Resilience:** The path will be maintained even after the end of the net asset purchases

# Miscellaneous



# What are possible reasons for persistent low inflation?

## Possible reasons for persistent low inflation

### Potential temporary reasons:

- Falling commodity prices
- Strong exchange rate
- Backward-looking (inflation indexed) wage setting

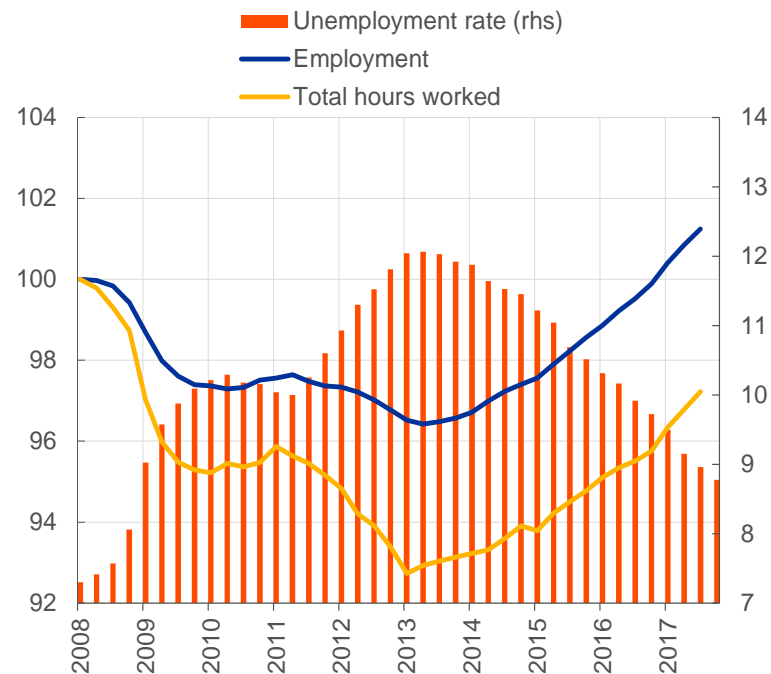
### Potential structural reasons:

- Labour market slack
- Flattened Phillips-curve?
- Demographic change?
- Technological changes?
- Globalisation?

Source: Ciccarelli and Osbat (editors): Low inflation in the euro area: Causes and consequences, ECB Occasional Paper No. 181, January 2017

## Unemployment, employment and total hours worked

(lhs: normalised to 2008, rhs: %)

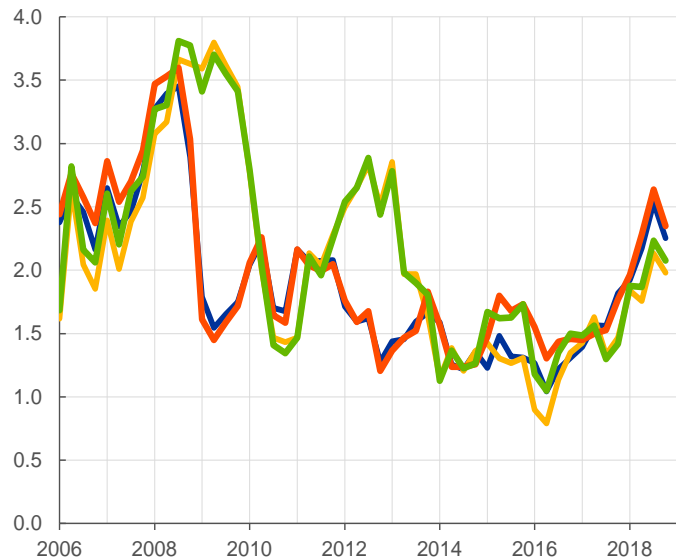


Sources: Eurostat, ECB calculations.  
Latest observations: 2017Q3 (employment, hours worked), 2017Q4 (unemployment).

## Euro area wage growth

(year-on-year percentage change)

— Compensation per employee      — Compensation per hour  
— Wage and salaries per employee      — Wage and salaries per hour

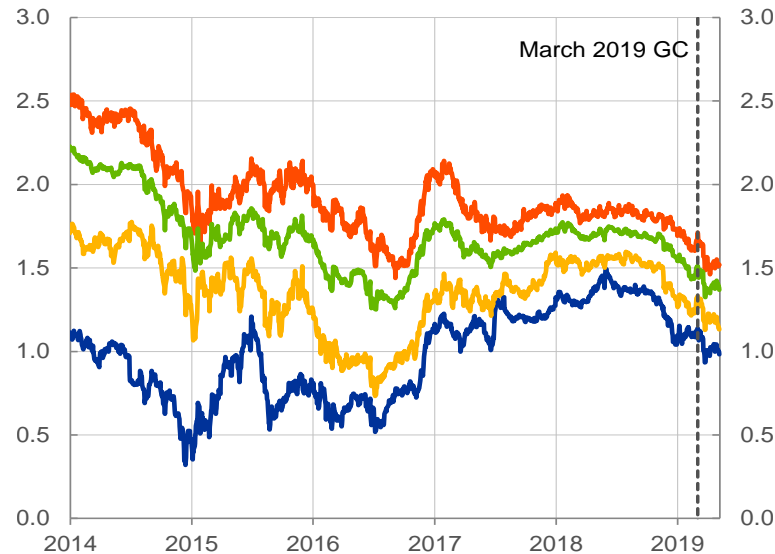


Source: ECB.  
Latest observation: 2018Q4.

## Inflation-linked forward swap rates derived from inflation-linked swaps

(percentages)

— 1-year rate 1 year ahead      — 1-year rate 4 years ahead  
— 1-year rate 9 years ahead      — 5-year rate 5 years ahead



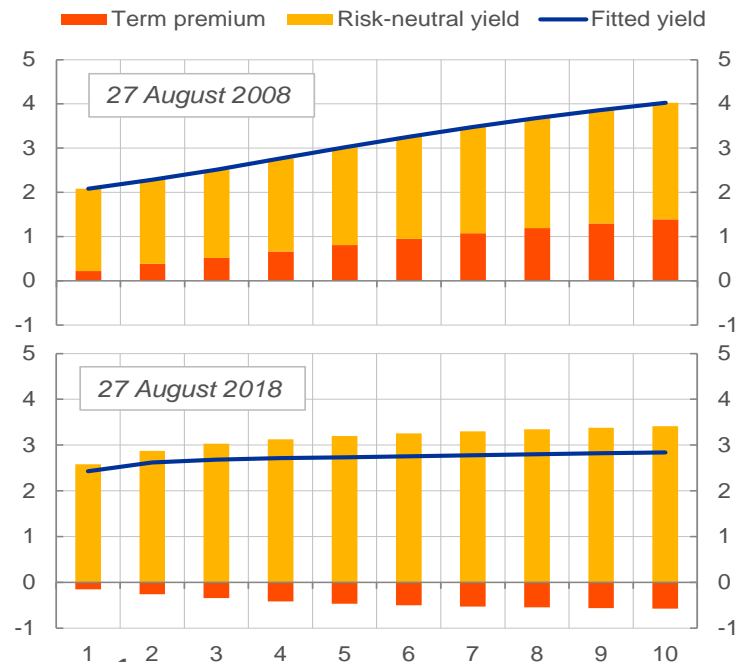
Source: Thomson Reuters, ECB calculations.  
Notes: Vertical grey line refers to the March 2019 GovC meeting.  
Latest observation: 09 May 2019.

# Transmission channels of central bank asset purchases

## Selected transmission channels of central bank asset purchases

- **Duration extraction and portfolio rebalancing:**
  - Asset purchases replace (long-term) bonds on the private sector's balance sheet with (short-term) central bank reserves
  - This reduces the duration risk borne by private investors, which reduces **term premia** in long-term rates.
  - Furthermore, it provides incentives to rebalance the portfolio towards riskier investments such as loans to firms and households.
- **Signalling:**
  - Asset purchases over a pre-announced horizon **signal** an expansionary monetary policy stance over an extended horizon.
- **Direct pass-through:**
  - Lower funding costs for banks and companies

## Illustration: Expectations and term premia in the term structure of US interest rates (%)

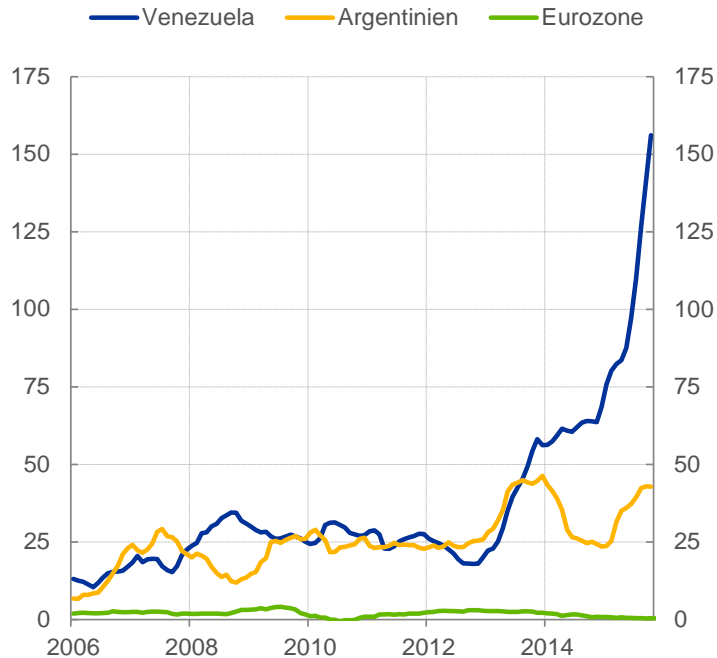


$$y_t^{(T)} = \frac{1}{T} E_t[(r_t + \dots + r_T)] + \text{Term premium}$$

Source: Federal Reserve Bank of New York.  
Notes: Estimates based on Adrian, Crump and Moench (2013).

# Why price stability?

## Inflation (in %)



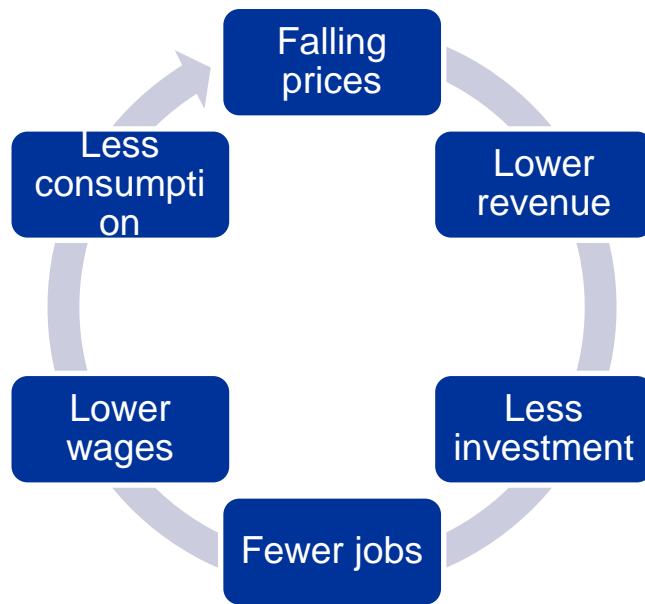
## Benefits of price stability

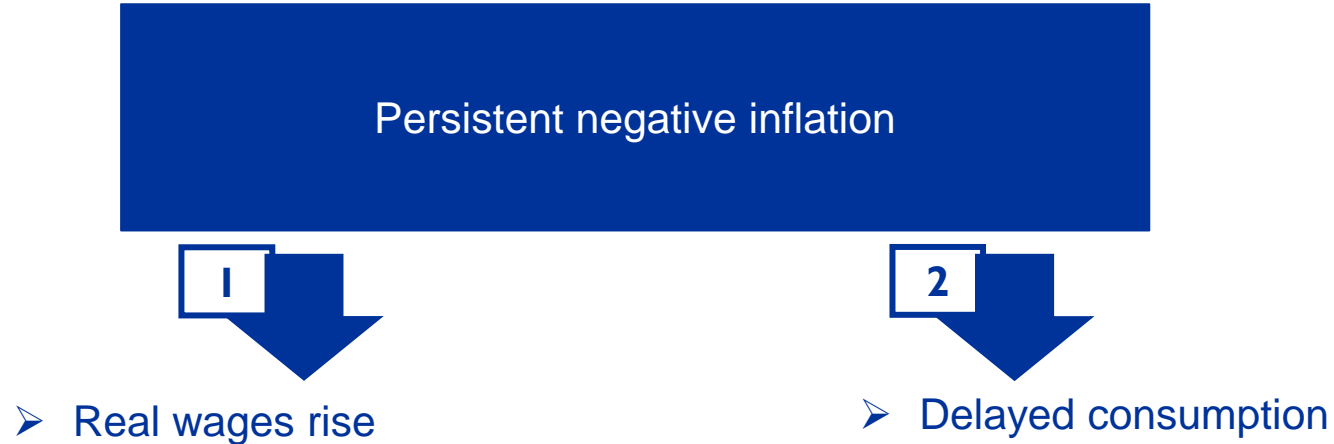
- Transparent prices
- Lower interest rates and inflation risk premia
- No need for unnecessary inflation insurance (efficient allocation of capital and resources)
- Low inflation tax
- No distortions in tax systems
- Supports financial stability

# The ECB's monetary policy: the problem of deflation

- In principle - falling prices beneficial for consumers
- But: consumers are also employees or entrepreneurs

→ **What are the implications of falling prices for companies?**





→ Negative effects on

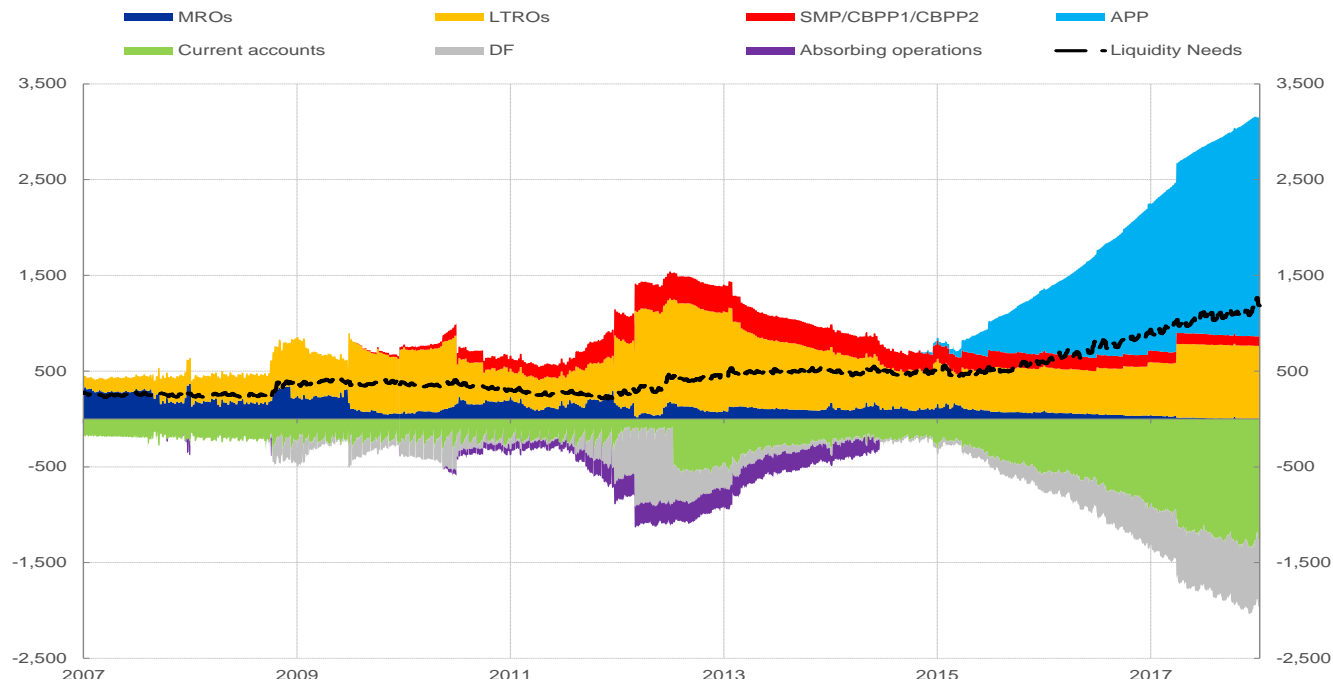
- Supply
- Corporate profits
- Growth

# Real interest rate and savings horizon

1. Savings horizon given by life cycle: save between 25 and 65, „dis-save“ between 65 and 80. Average time horizon for savers thus around **40 years**
2. Over such an extended period of time real interest becomes the relevant metric: central bank can affect real returns only in the short-term. But central bank can affect inflation:
  - Appropriate monetary policy  $\Rightarrow$  price stability
  - Permanently too low interest rates  $\Rightarrow$  inflation
  - Permanently too high interest rates  $\Rightarrow$  deflation
3. Real return on capital on average = Growth of economy
4. Factors that affect growth and thus the real interest rate: population growth, education, innovation, labour market efficiency, etc. (everything that strengthens the demand for capital)

See also: Bindseil et al, Critique of Accommodating Central Bank Policies and the 'Expropriation of the Saver', ECB Occasional Paper 161

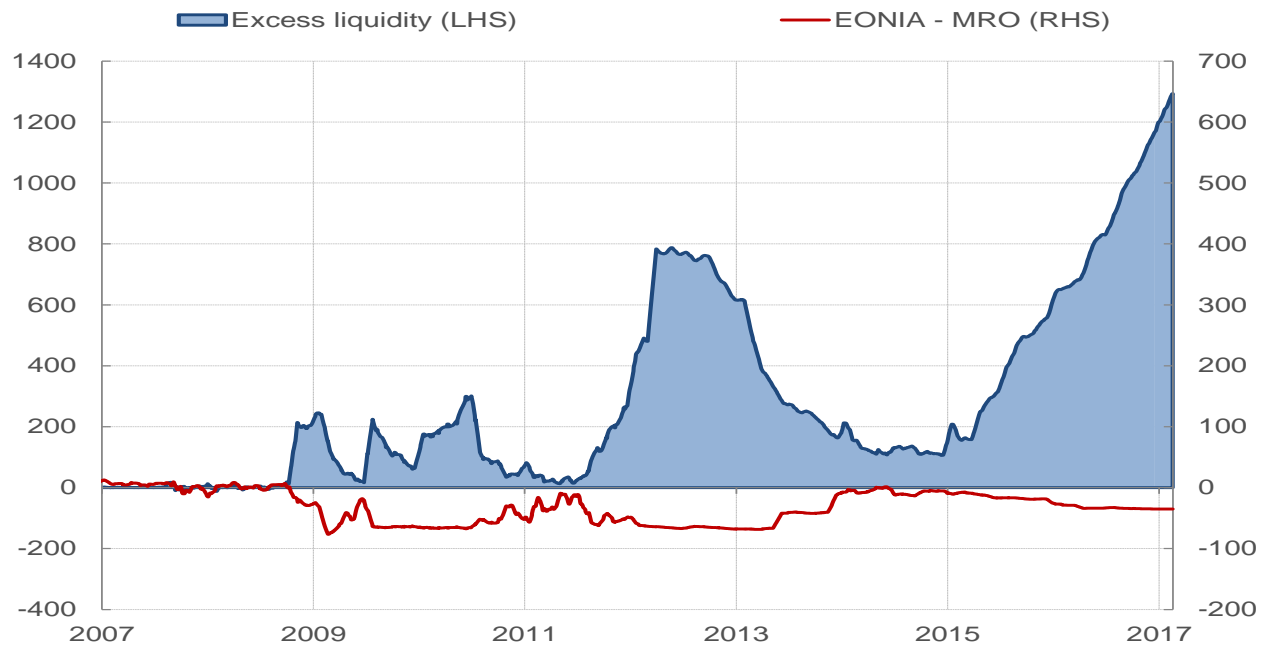
## Eurosystem Balance Sheet (billion EUR)



Source: ECB  
Latest observation: 8 January 2018.



# Lower money market rates and rising liquidity



Source: ECB.

Notes: Excess liquidity and the EONIA-MRO spread are shown as 30-day moving averages.

Latest observation: 16 February 2017.