EUROPEAN CENTRAL BANK

EUROSYSTEM

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Member of the Executive Board
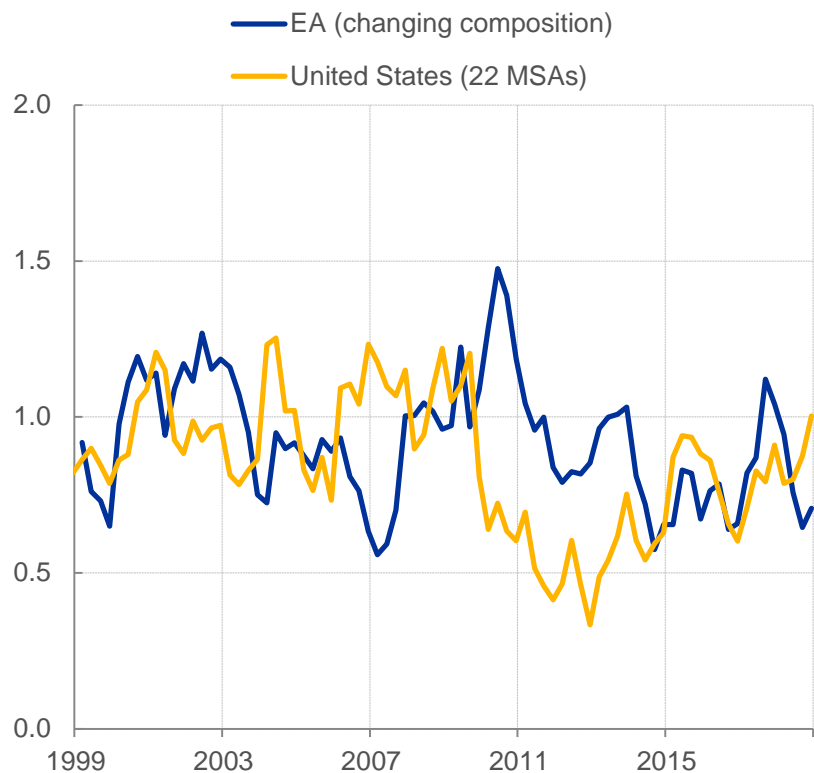
Heterogeneity and the ECB's monetary policy

Paris,
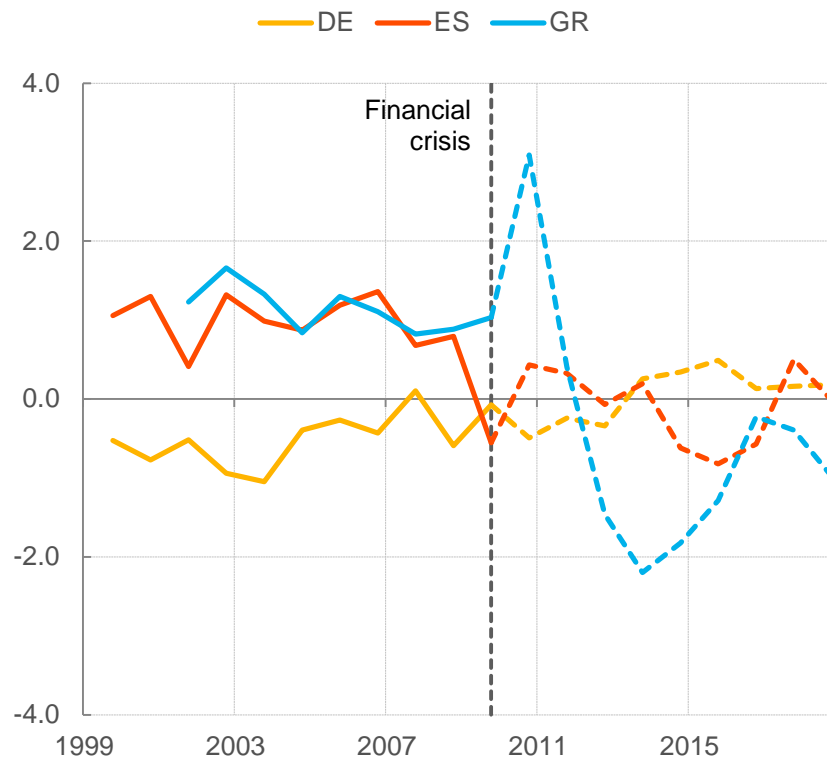
29 March 2019

Inflation dispersion in the euro area and the US
(unweighted standard deviation)

EA (changing composition)
United States (22 MSAs)

Euro area HICP inflation gaps
(percentage points)

DE ES GR

Financial crisis

Sources: ECB, Bureau of Labor Statistics and ECB calculations.
Last observation: 2018Q4.

Sources: ECB and ECB calculations.
Notes: The inflation gap is computed as the difference between the euro area average and the respective country's HICP inflation.
Last observation: 2018Q4.

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Financial integration came to a halt with the crisis

## Quantity-based indicator of euro area financial integration
(index)
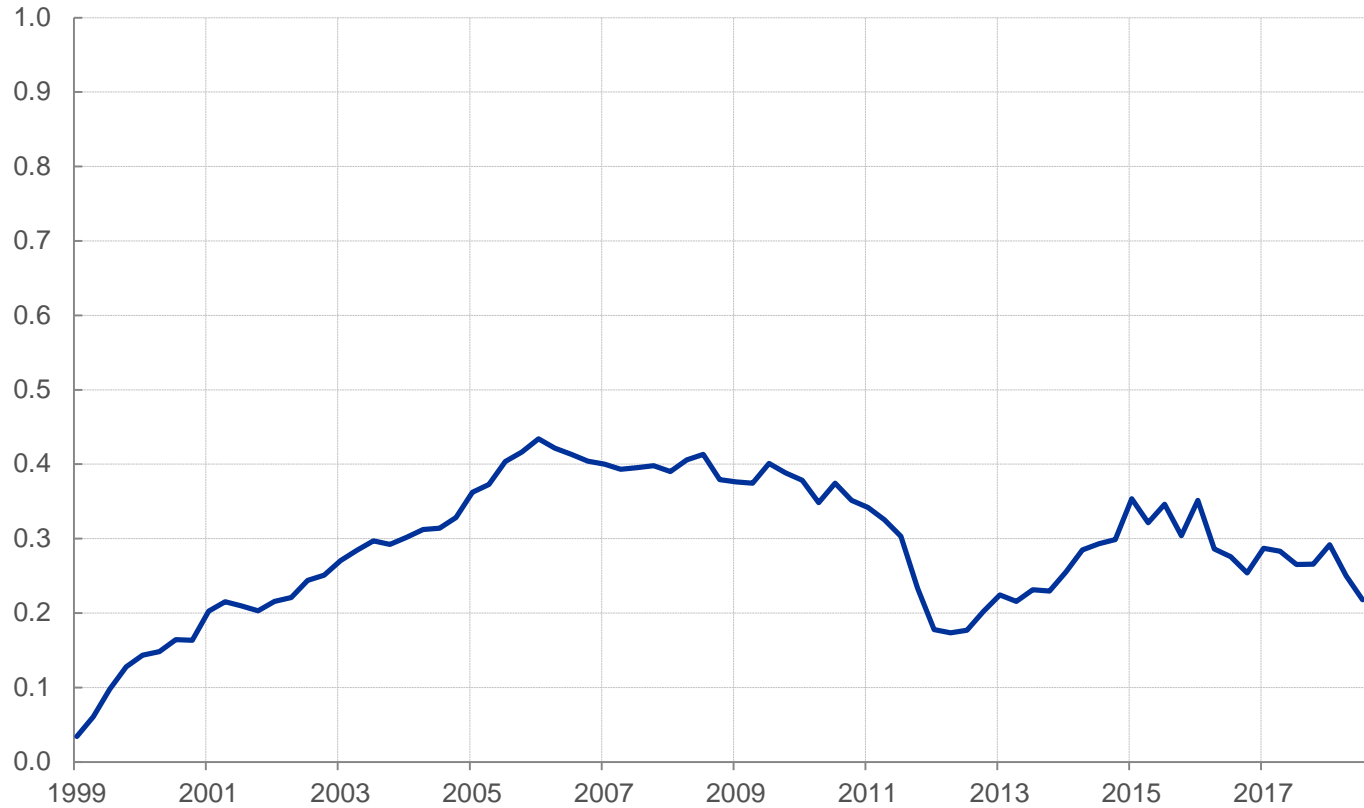
Sources: ECB and ECB calculations.
Notes: The quantity-based composite indicator aggregates five indicators available from the first quarter of 1999. The indicator is bounded between zero (full fragmentation) and one (full integration). Increases in the indicator signal greater financial integration. For a detailed description and input data, see the ECB Financial Integration Report.
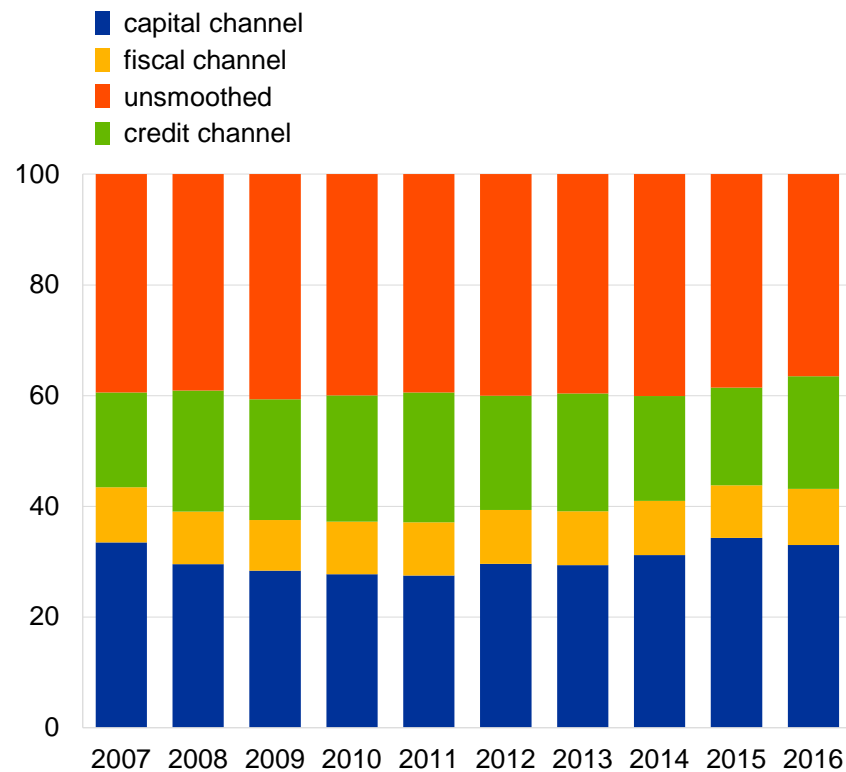Last observation: 2018Q3.

Cross-border risk-sharing lower in the euro area than in the US

Consumption risk sharing in the euro area
(percentages)

- ■ capital channel
- ■ fiscal channel
- ■ unsmoothed
- ■ credit channel
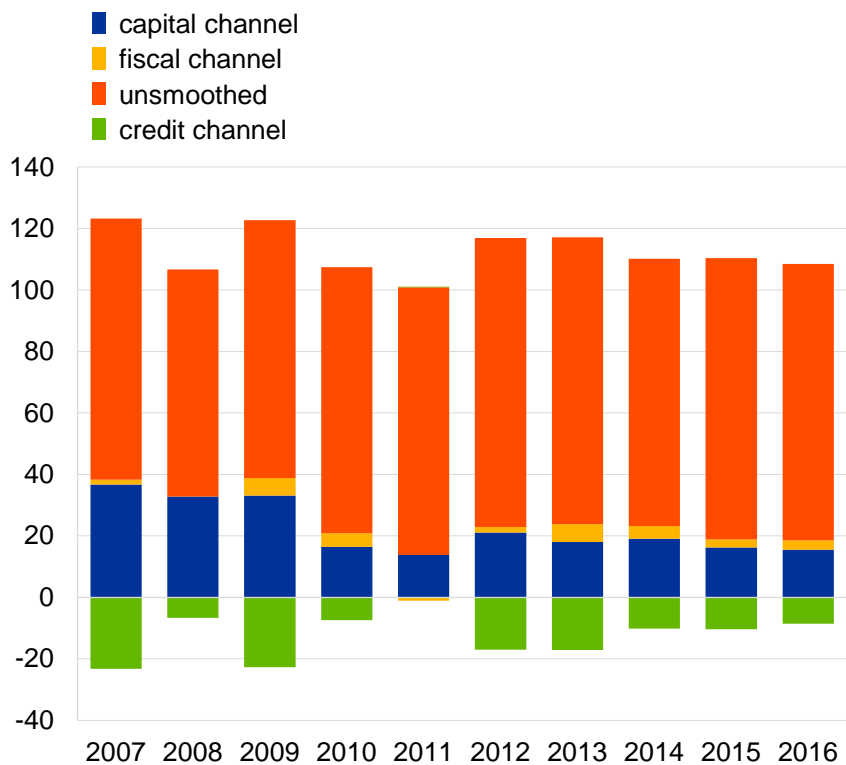
Consumption risk sharing in the United States
(percentages)

- ■ capital channel
- ■ fiscal channel
- ■ unsmoothed
- ■ credit channel

Sources: ECB calculations.
Notes: The contributions of the channels are calculated using a vector-autoregression (VAR) model whose parameters are estimated over a ten-year rolling window of annual data. Bars display the proportion of a one-standard-deviation shock to domestic GDP growth that is absorbed by each risk sharing channel. The shares are computed on the basis of the cumulative impact of the shock on the variables capturing each risk sharing channel over a ten-year horizon. Year-to-year variation in the shares reflects changes in the re-estimated model parameters. The remaining portion represents the share of the shock to country-specific real GDP growth that remains unsmoothed and is fully reflected in country-specific consumption growth. The individual bars can go below 0% and above 100% if one or more of the channels involved has a dis-smoothing effect on country-specific consumption growth. The shares in each bar total 100%.
For further details see Cimadomo et al. (2018), "Risk sharing in the euro area", ECB Economic Bulletin, 3/2018.
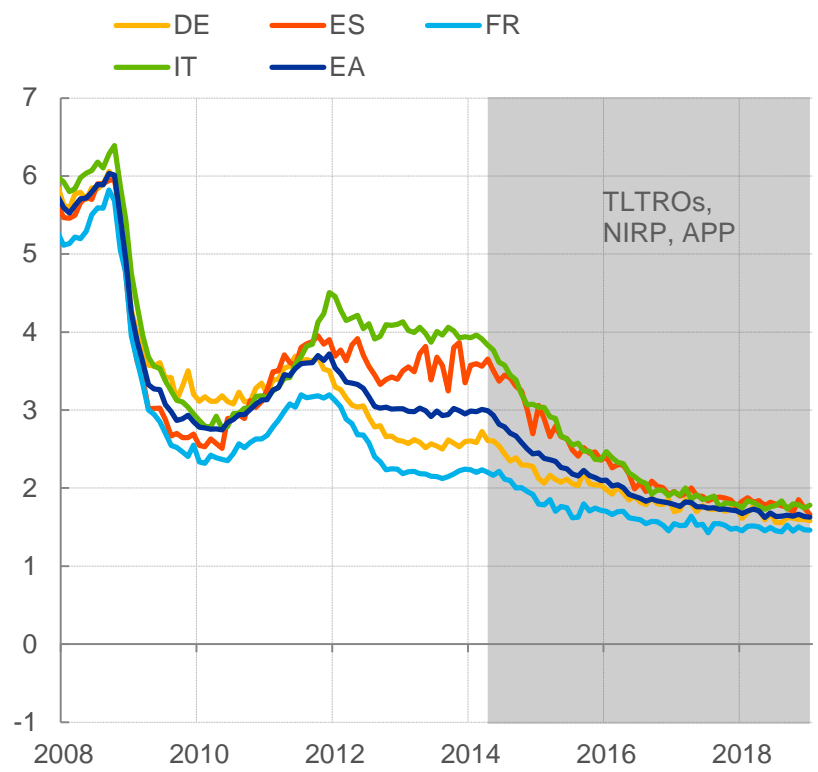
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Dispersion of real private consumption in the euro area and the US
(unweighted standard deviation)

— Euro area 11   — United States
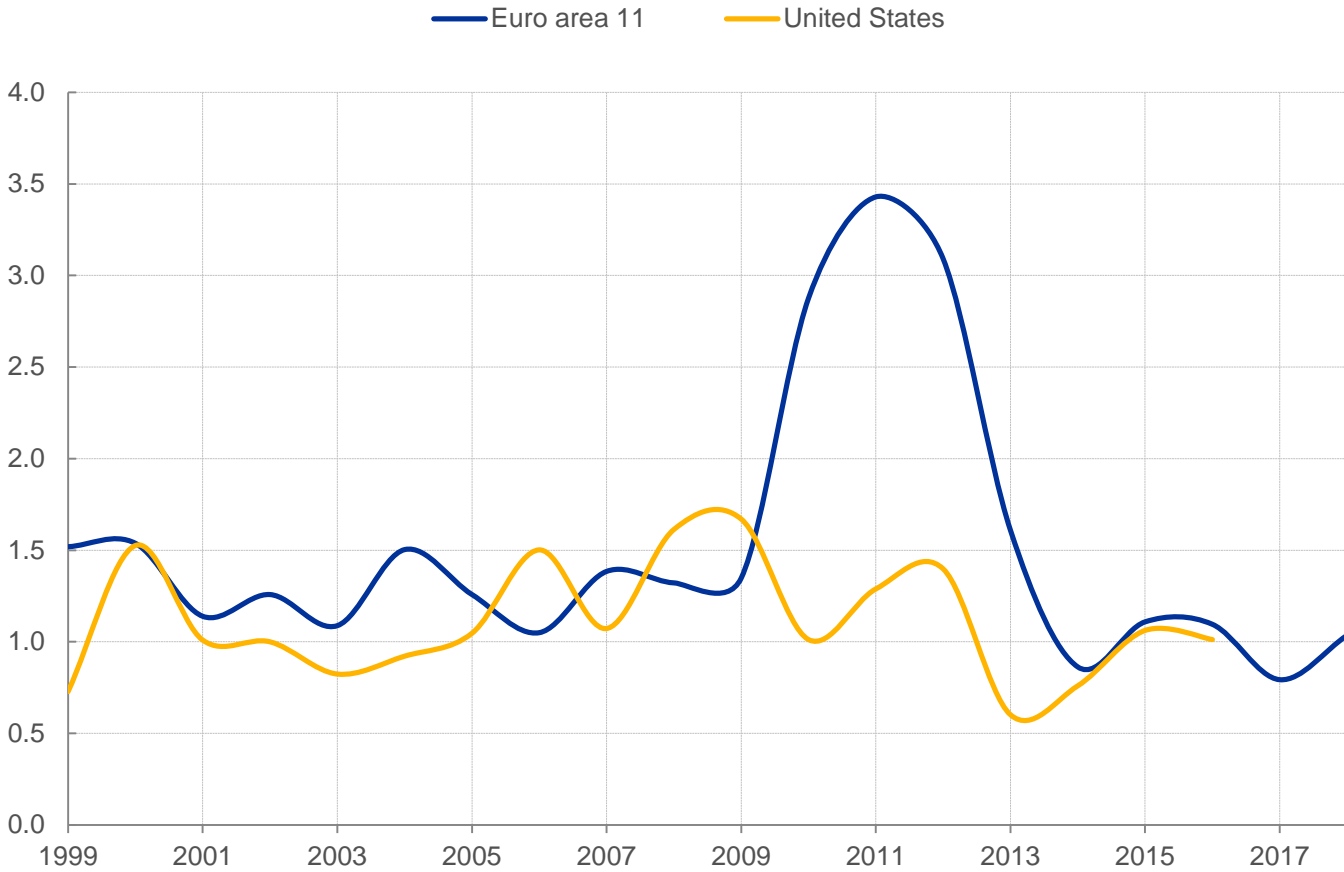
Sources: ECB and ECB calculations.
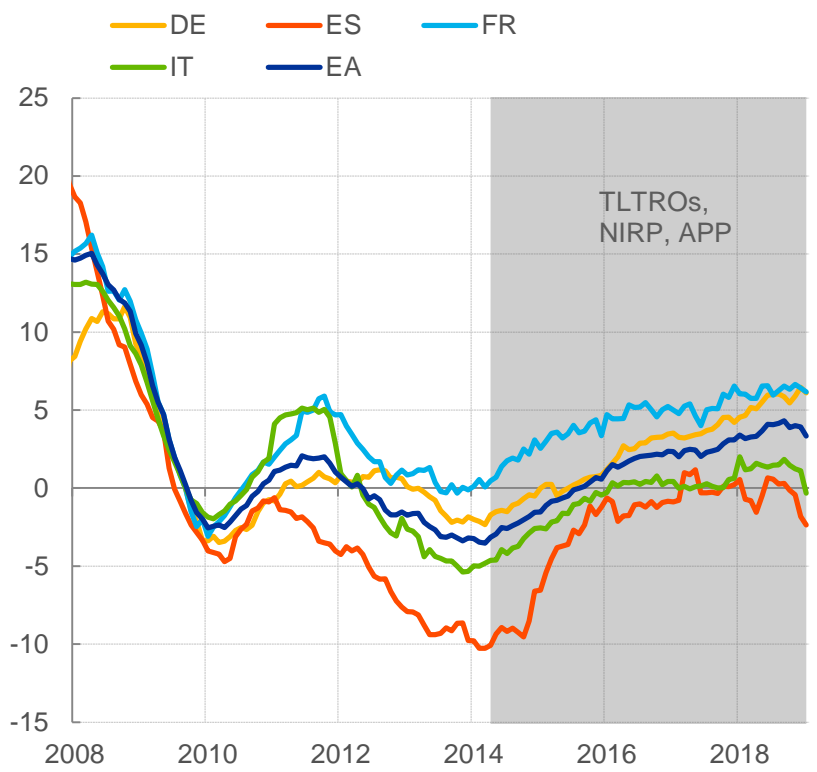Last observation: 2018 for EA, 2016 for US.

Monetary policy reduced perilous fragmentation

Composite indicator of the cost of borrowing for NFCs
(percentages per annum)

Legend: DE ES FR IT EA

TLTROs, NIRP, APP

Y-axis: -1, 0, 1, 2, 3, 4, 5, 6, 7
X-axis: 2008, 2010, 2012, 2014, 2016, 2018

Source: ECB.
Notes: The indicator for the total cost of bank borrowing is calculated by aggregating short- and long- term rates using 24-months moving average of new business volumes.
Latest observation: January 2019.

Loans to NFCs in selected euro area countries
(annual percentage changes)

Legend: DE ES FR IT EA

TLTROs, NIRP, APP

Y-axis: -15, -10, -5, 0, 5, 10, 15, 20, 25
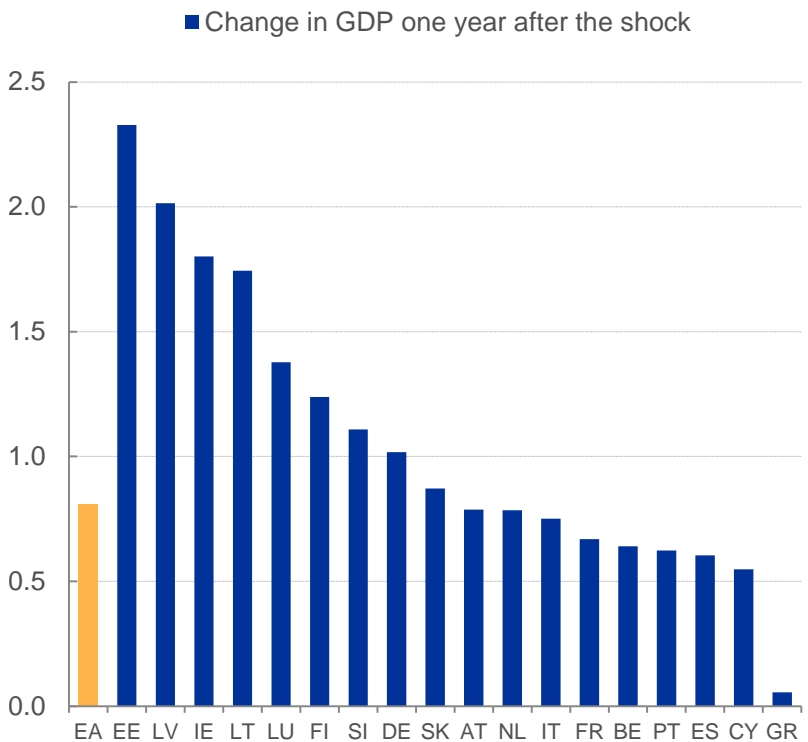X-axis: 2008, 2010, 2012, 2014, 2016, 2018

Source: ECB.
Notes: Loans are adjusted for sales, securitisation and cash pooling activities.
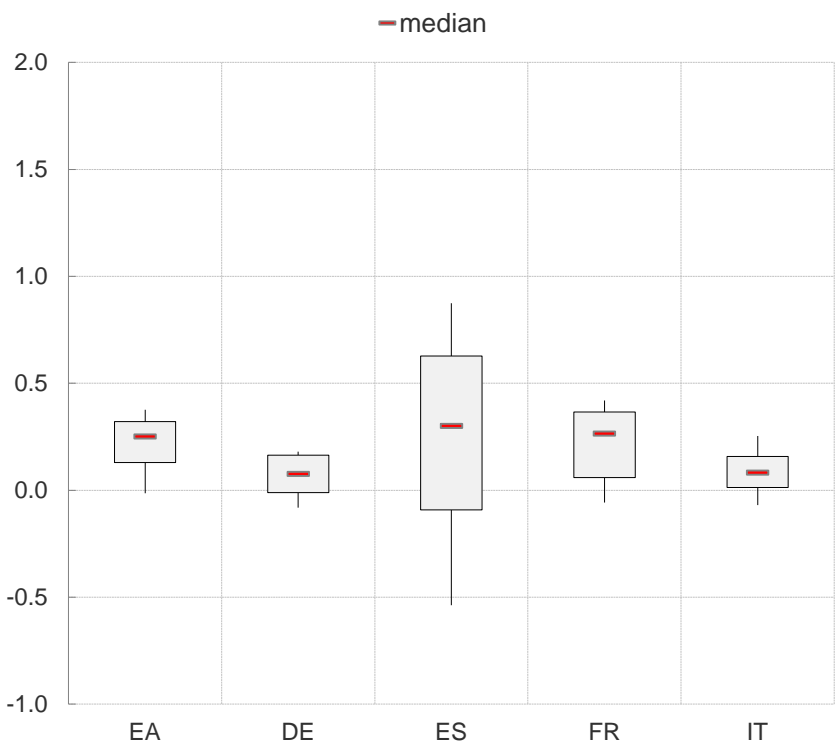*Latest observation: January 2019.*

Response to common shocks uneven in the euro area

Effect of a common euro area business cycle shock
(cumulative change in percentages)

■ Change in GDP one year after the shock

Phillips curve slope across selected euro area member states


━ median

Sources: ECB calculations.
Notes: Bars on the left-hand side chart represent the cumulative change in the growth rate of GDP in response to a euro area business cycle shock, one year after the occurrence of the shock. To derive the responses to the shock, first a VAR (in log-levels, sample 1996Q1 to 2017Q4) is estimated with Bayesian methods and, then, the euro area business cycle shock is constructed as the linear combination of shocks that explain the bulk of the business cycle variation of GDP in the euro area. For technical details, see Giannone, Lenza and Reichlin (2019), "Money, credit, monetary policy and the business cycle in the euro area: what changed with the crisis?", IJCB (forthcoming). The right-hand side chart shows the distribution of the slack parameter in different Phillips curve specifications using HICP excluding energy and food. Slack measures are standardized for comparability; assumption: constant parameters over the full sample. The box plot is constructed using the 90 and the 10 percentiles.
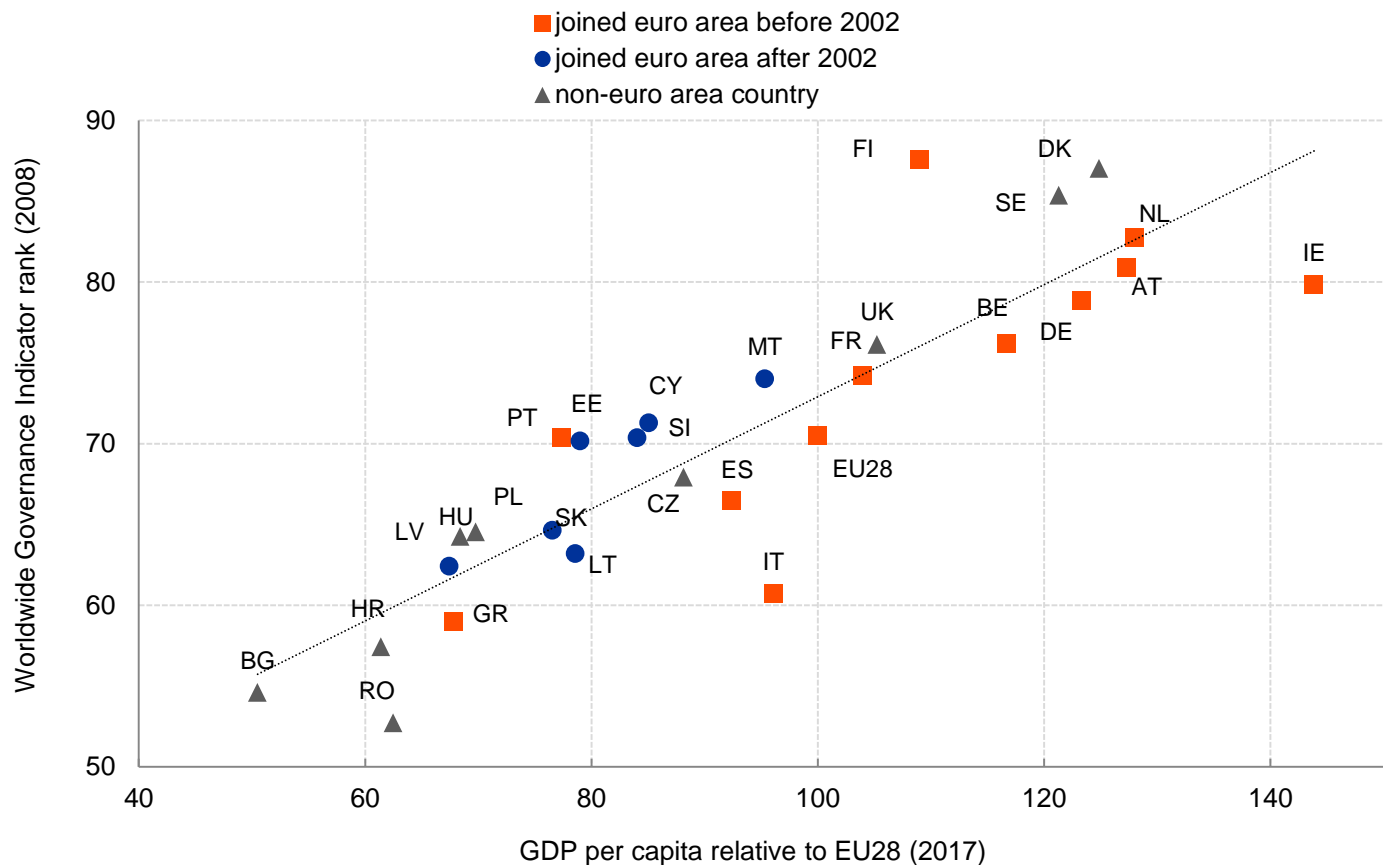
Real GDP per capita
(index, 1995Q1 = 100)
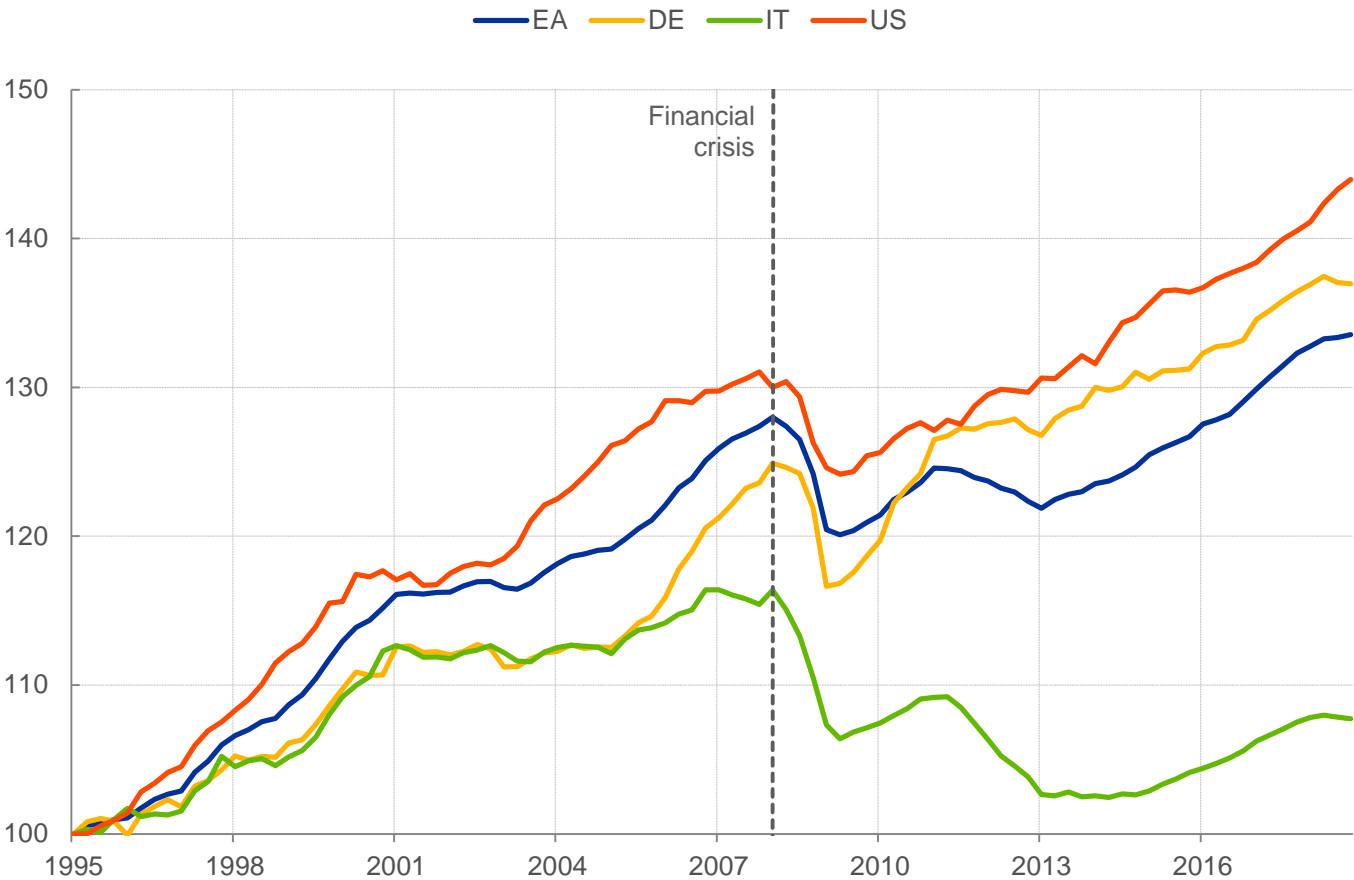
Sources: National accounts and ECB calculations.
Last observation: 2018Q4.

Quality of institutions underpin growth and living standards

GDP per capita relative to EU28 in 2017 and Worldwide Governance Indicator rank in 2008
(index EU28=100; ranking)

Legend:
- ■ joined euro area before 2002
- ● joined euro area after 2002
- ▲ non-euro area country

Sources: Eurostat and World Bank.
Notes: The Worldwide Governance Indicator is the composite rank of average positions in six broad institutional dimensions. Luxembourg is excluded because GDP per capita computations are distorted by e.g. the high number of cross-border workers.

Dependence of long-term SPF inflation expectations on current HICP inflation
(percentage points; median and 16/84 percentiles)

Euro area inflation and inflation expectations
(percentages per annum)
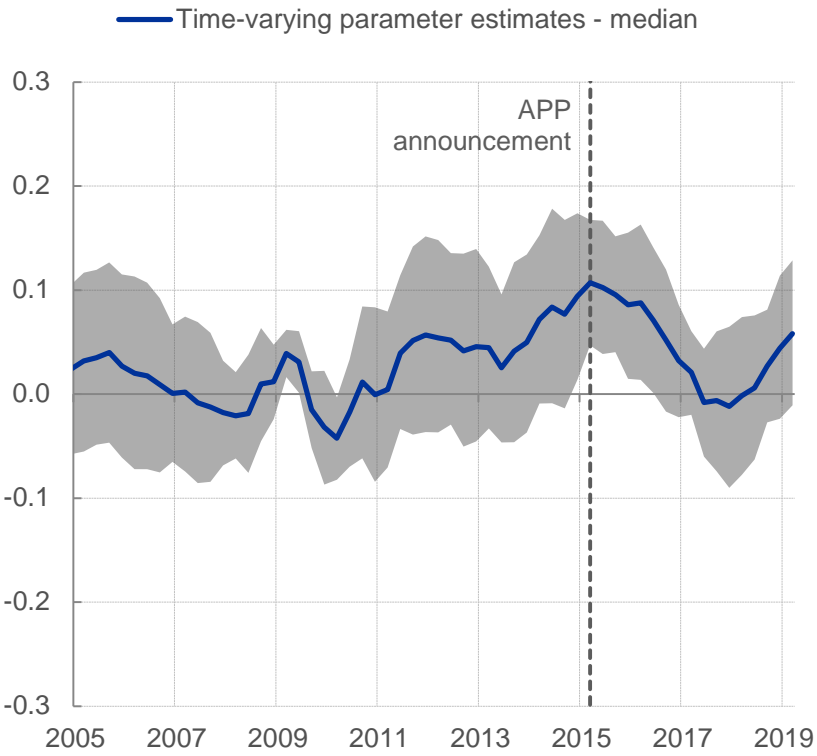
Source: ECB calculations.
Notes: Time-varying estimates of the pass-through from changes in current inflation over the previous two quarters to changes in long-term inflation expectations over the previous two quarters. The model is estimated with Bayesian techniques and allows for stochastic volatility.
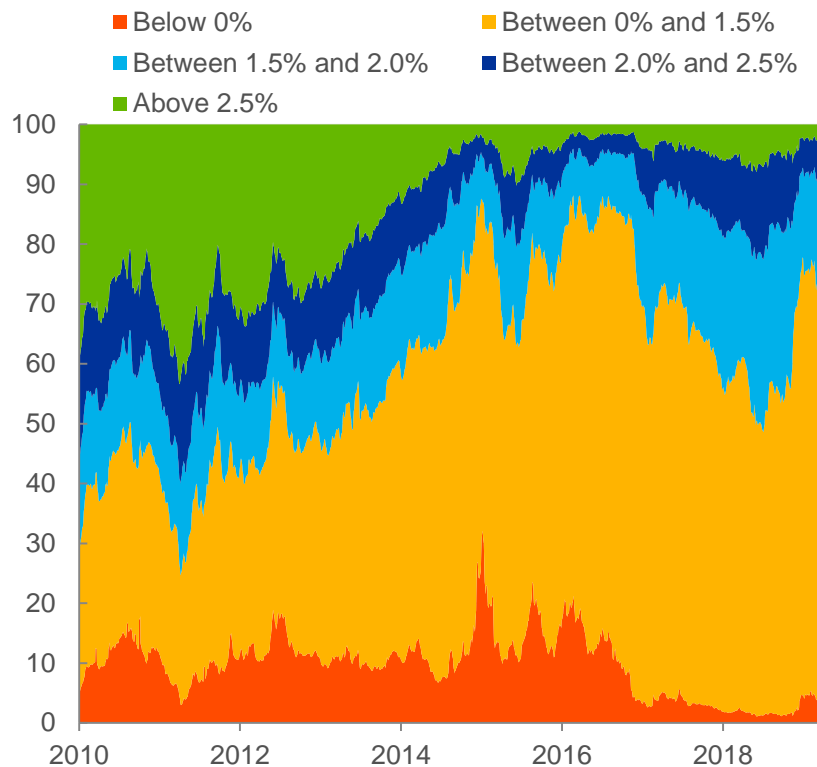*Latest observation: 2019Q1.*
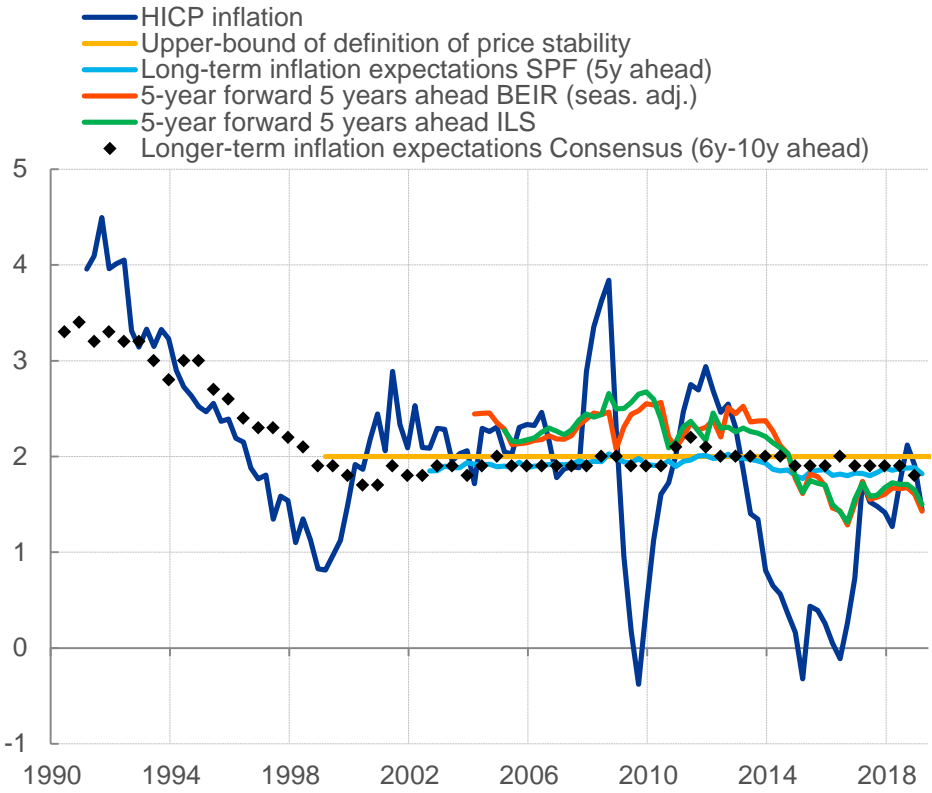
Sources: ECB, Thomson Reuters, Consensus Economics and ECB calculations.
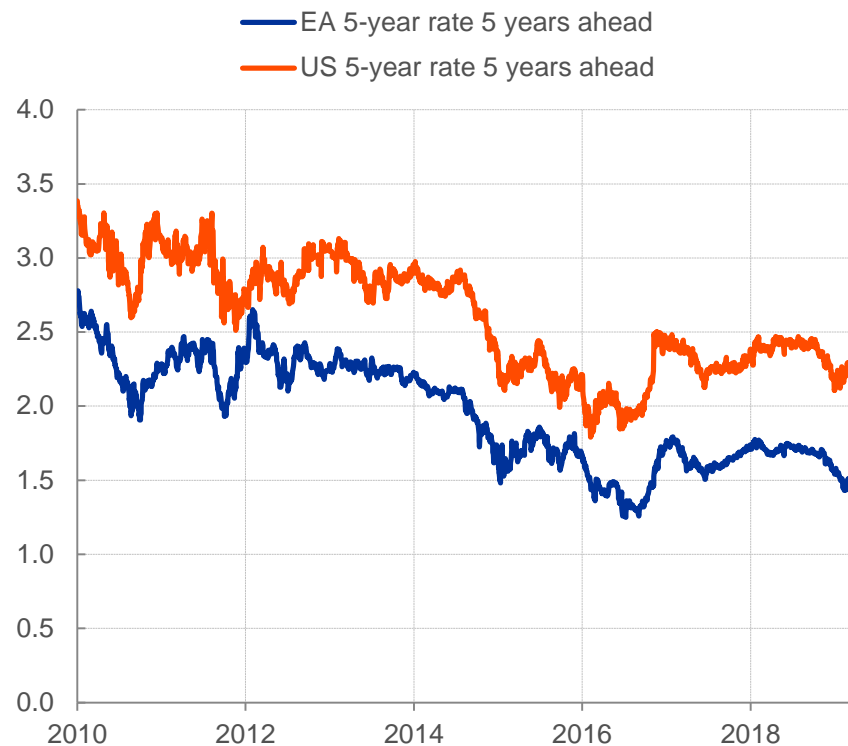*Latest observation: 2019Q1.*

Market-based measures of inflation expectations more volatile

Option implied risk-neutral distribution of average inflation over the next 5 years
(percentages)

Legend:
- Below 0%
- Between 0% and 1.5%
- Between 1.5% and 2.0%
- Between 2.0% and 2.5%
- Above 2.5%

Inflation-linked swap forward rates in the US and euro area
(percentages per annum)

Legend:
- EA 5-year rate 5 years ahead
- US 5-year rate 5 years ahead

Sources: Bloomberg, Thomson Reuters and ECB calculations.
Notes: Probabilities implied by five-year zero-coupon inflation options, smoothed over five business days. Risk-neutral probabilities may differ significantly from physical, or true, probabilities.
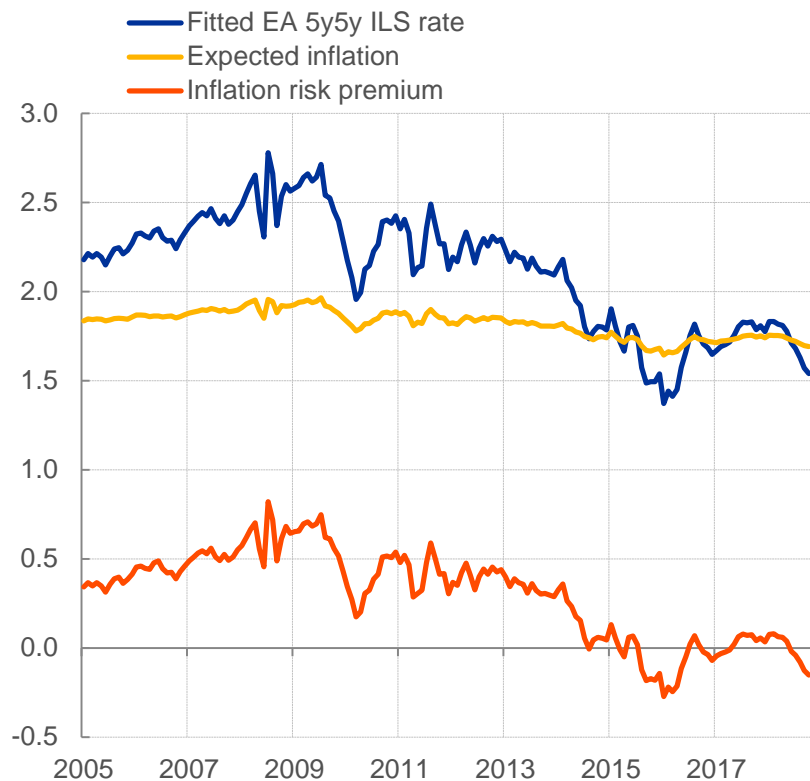*Latest observation: 19 March 2019.*

Sources: Thomson Reuters, ECB calculations.
Latest observation: 27 March 2019.

Monetary policy dominant driver of current expansion

Decomposition of euro area 5y5y ILS rate into inflation expectation and risk premia
(percentages per annum)

Legend:
- Fitted EA 5y5y ILS rate
- Expected inflation
- Inflation risk premium

Contributors to different euro area economic recovery episodes
(percentage points)

Legend:
- Monetary policy
- External demand
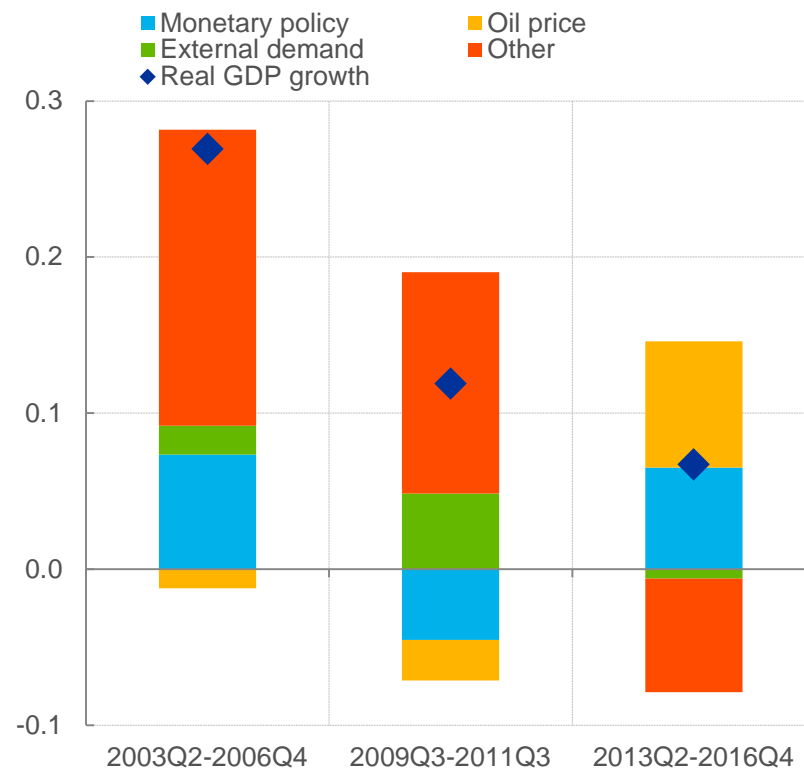- Real GDP growth
- Oil price
- Other

Sources: Thomson Reuters and ECB calculations.
Notes: The decomposition of the 5y5y ILS rate is derived on the basis of an affine term structure model fitted to the euro area zero-coupon inflation linked swap curve.
Latest observation: 25 March 2019.

Source: ECB calculations.
Notes: Real GDP growth refers to average quarter-on-quarter growth rates over respective recovery episodes and across models, in deviation from sample mean. Estimates are based on NiGEM, CMR and BVAR, except external demand for which BVAR estimates are not available.

Thank you