



EUROPEAN CENTRAL BANK

EUROSYSTEM

The last mile

Isabel Schnabel

*Member of the Executive Board
of the European Central Bank*

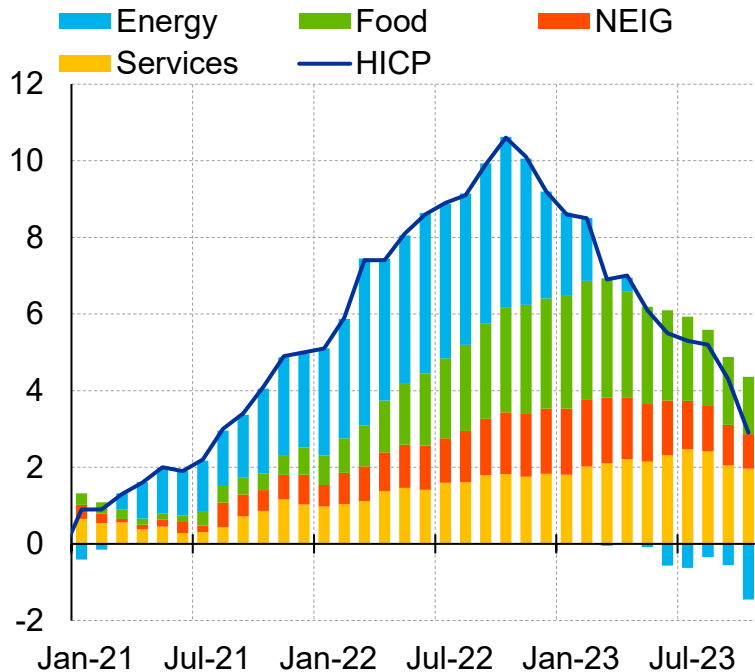


Homer Jones Memorial Lecture
Federal Reserve Bank of St. Louis, 2 November 2023

Inflation declined on the back of large base effects related to energy and food

HICP inflation and contributions

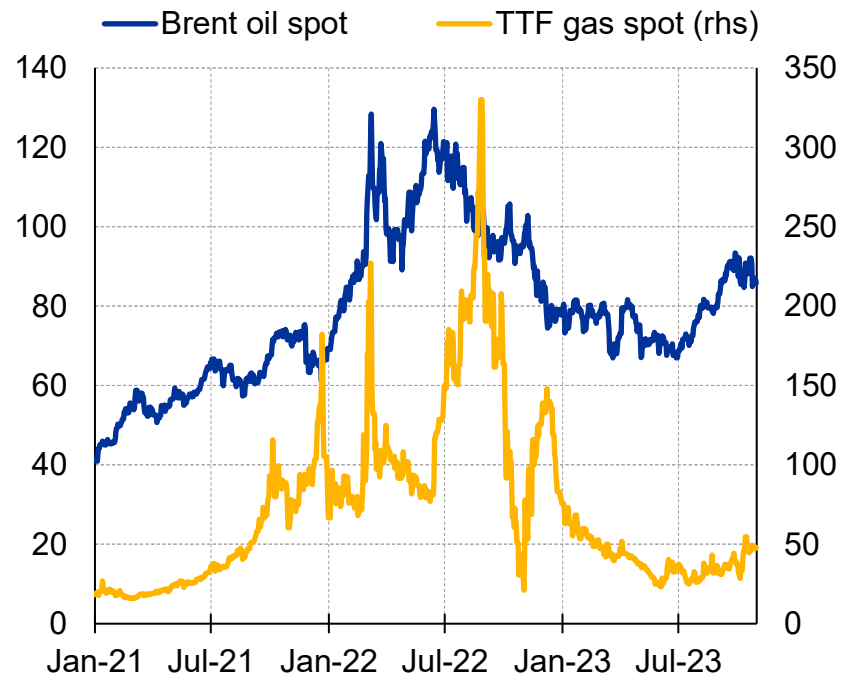
(annual percentage changes and percentage point contribution)



Sources: Eurostat and ECB calculations.
Latest observation: October 2023 (flash).

Crude oil and natural gas prices

(oil: EUR/barrel, gas: EUR/MWh)

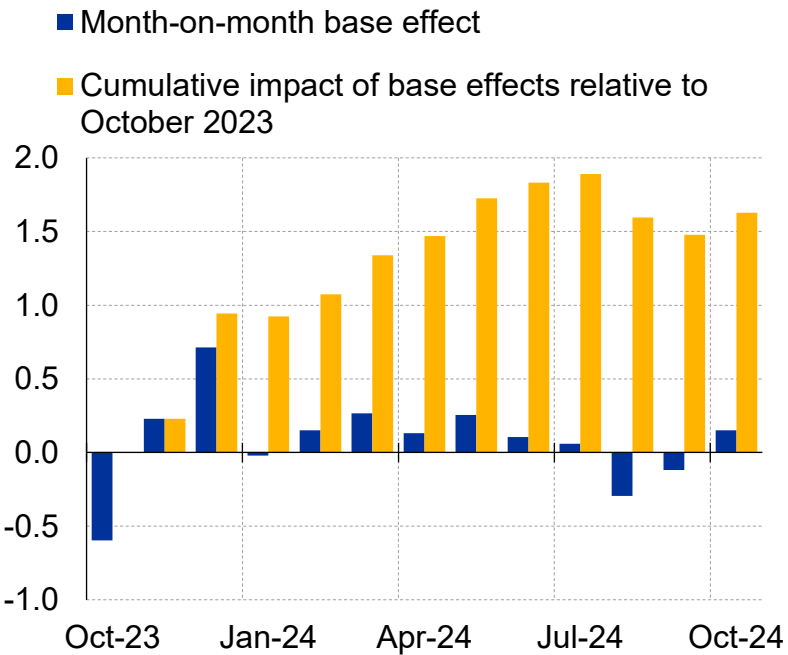


Sources: Bloomberg and ECB calculations.
Latest observation: 30 October 2023.

Base effects from energy are expected to reverse, putting upward pressure on inflation

Impact of base effects from energy component on headline HICP inflation

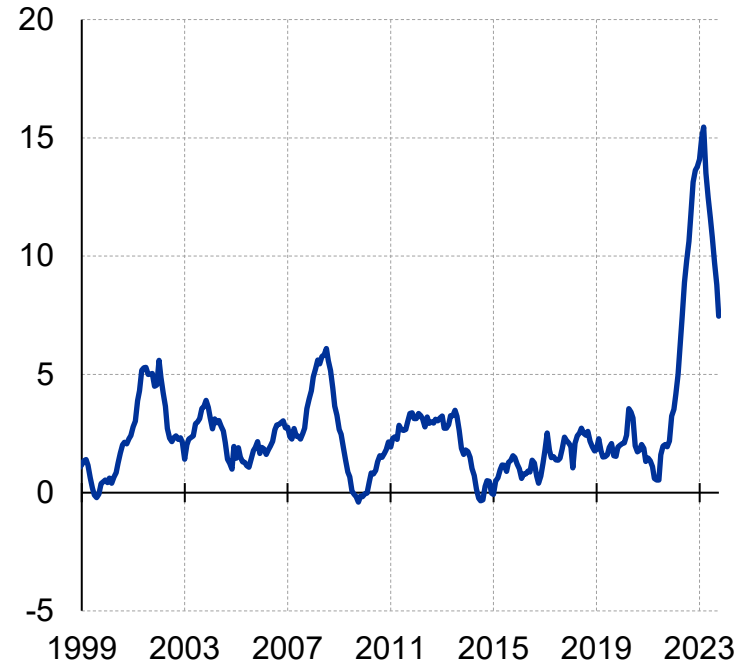
(percentage points)



Sources: Eurostat and ECB calculations.
Latest observation: October 2023 (flash).
Latest data point: October 2024.

HICP food inflation

(annual percentage changes)

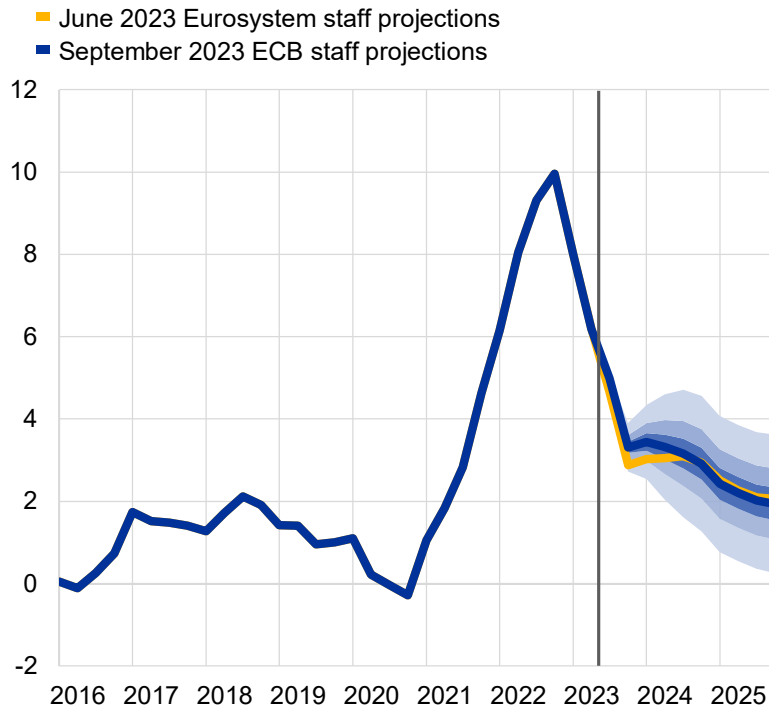


Sources: Eurostat.
Latest observations: October 2023 (flash).

Disinflation process is projected to slow with inflation moving towards 2% by end-2025

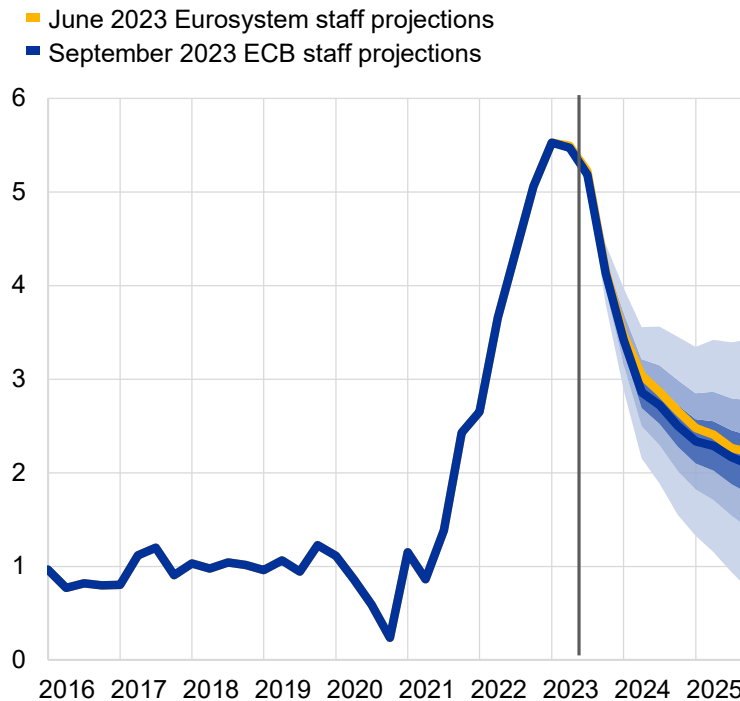
HICP inflation projections

(annual percentage changes)



HICP excluding energy and food inflation projections

(annual percentage changes)



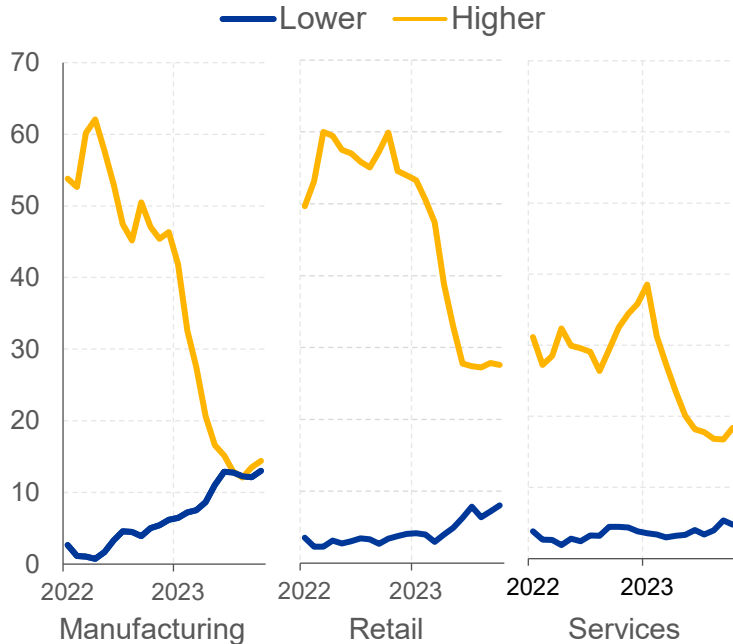
Source: September 2023 ECB staff projections.

Notes: The ranges shown around the central projections are based on past projection errors, after adjustment for outliers. The bands, from darkest to lightest, depict the 30%, 60% and 90% probabilities that the outcome will fall within the respective intervals. For more information, see Box 6 of the March 2023 ECB staff macroeconomic projections for the euro area.

Firms revised their prices more frequently to protect their margins as input costs rose

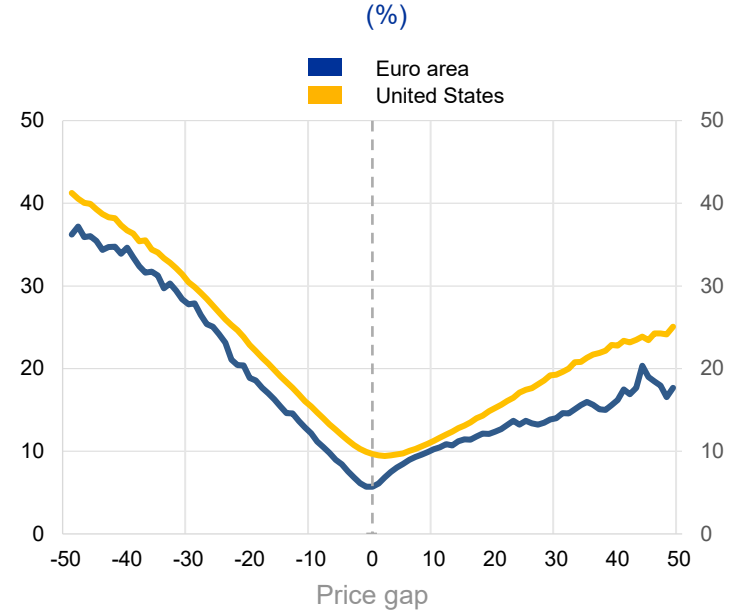
Selling price expectations

(share of firms expecting lower/higher selling prices)



Source: European Commission (including Eurostat) and ECB calculations.
 Notes: Data are non-seasonally adjusted.
 Latest observation: October 2023.

Evidence of state dependence: repricing probability as function of price gap (%)



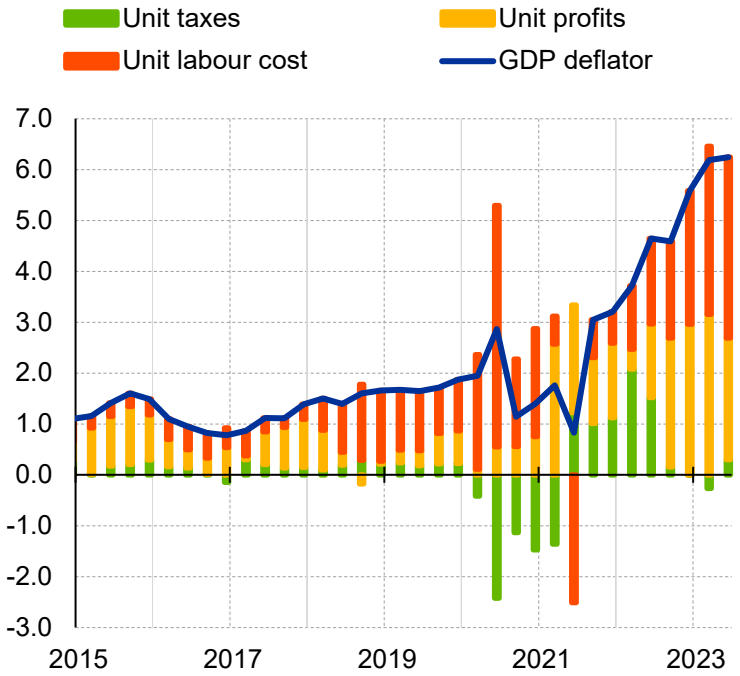
Source: Karadi, P., J. Amann, J.S. Bachiller, P. Seiler and J. Wursten (forthcoming), "Price setting on the two sides of the Atlantic - Evidence from supermarket scanner data", *Journal of Monetary Economics*.

Notes: The figure shows the probability of a price change as a function of mispricing in the euro area and the United States. The V-shape of the curve is consistent with state-dependent price setting: the probability of adjustment steadily increases with the extent of mispricing. The extent of mispricing is proxied as a distance from the average price of the same product among those competitors that reset their prices in the same month. The measure also controls for the persistent heterogeneity among products and stores by eliminating the impact of product-store fixed effects. Additional details on the methodology are available in the paper.

Firms often raised their prices above their cost increases as demand remained resilient

Contributions to GDP deflator

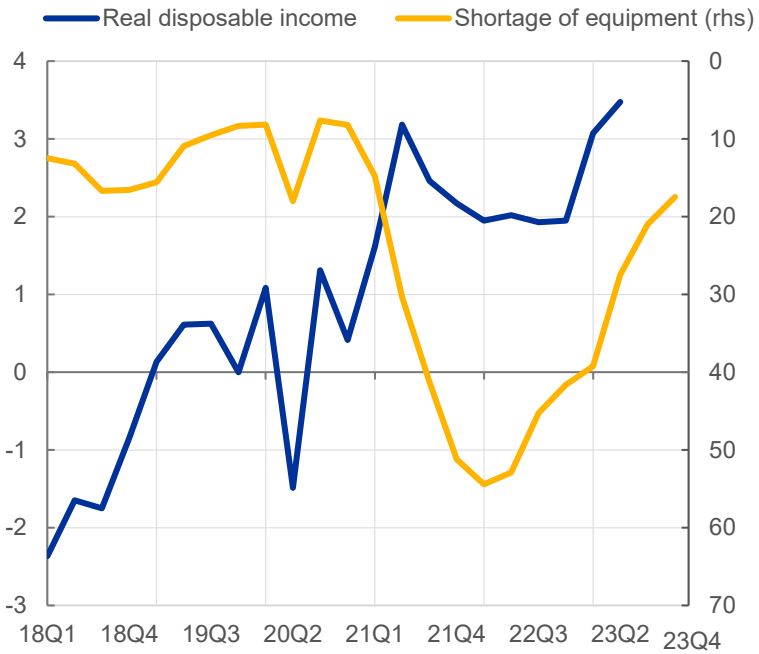
(annual percentage changes and percentage change contributions)



Sources: Eurostat, ECB calculations.
Latest observation: 2023 Q2.

Real disposable income and shortage of equipment as a factor limiting production

(lhs: index: 2019Q4 = 100; rhs: percentage balances, deviations from long-term mean)



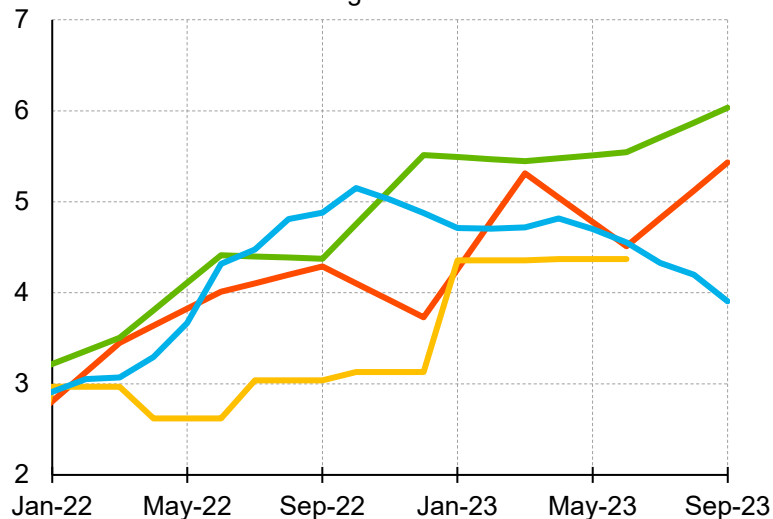
Sources: Eurostat, DG-ECFIN and ECB calculations.
Note: The series for shortage of equipment is inverted, and refers to the manufacturing sector.
Latest observation: 2023 Q2 for real disposable income, 2023 Q4 for shortage of equipment.

Unit labour costs are rising as wage growth remains high and productivity growth low

Wage trackers

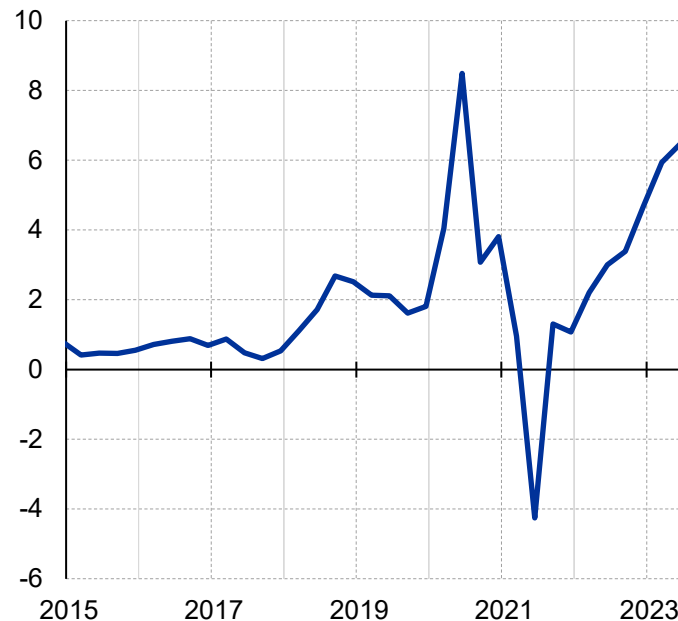
(annual percentage change)

- Latest agreements
- Latest agreements including one-offs
- ECB negotiated wages
- Indeed wage tracker



Unit labour costs

(annual percentage changes)



Sources: Calculated based on micro data on wage agreements provided by Deutsche Bundesbank, Banco de España, the Dutch employer association (AWVN), Oesterreichische Nationalbank, Bank of Greece, Banca d'Italia and Banque de France.

Notes: Indicator of latest wage agreements shows the wage growth implied by agreements reached in a quarter for 12 months ahead. Indeed tracker measures wage growth in online job ads, computed by the Central Bank of Ireland.

Latest observations: September 2023 for Indeed Wage Tracker; Q3 2023 for indicators of latest agreements, Q2 2023 for ECB negotiated wages.

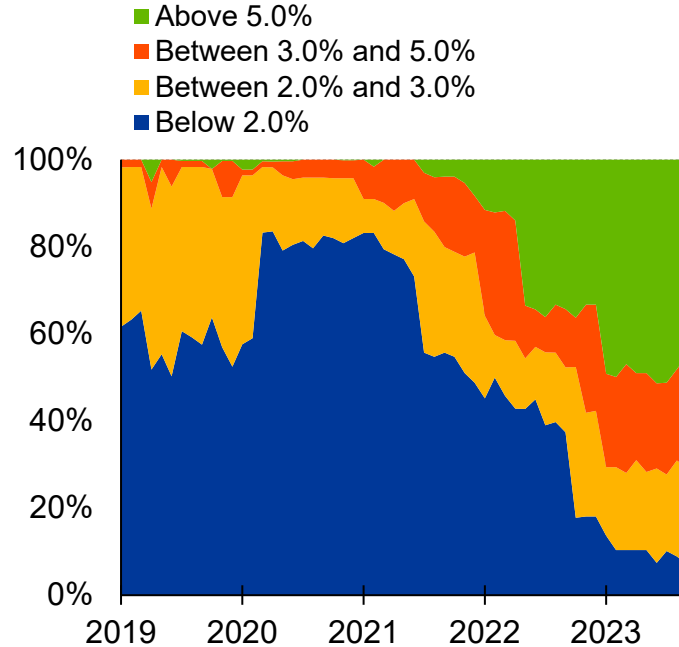
Sources: Eurostat, ECB calculations.

Latest observation: 2023 Q2.

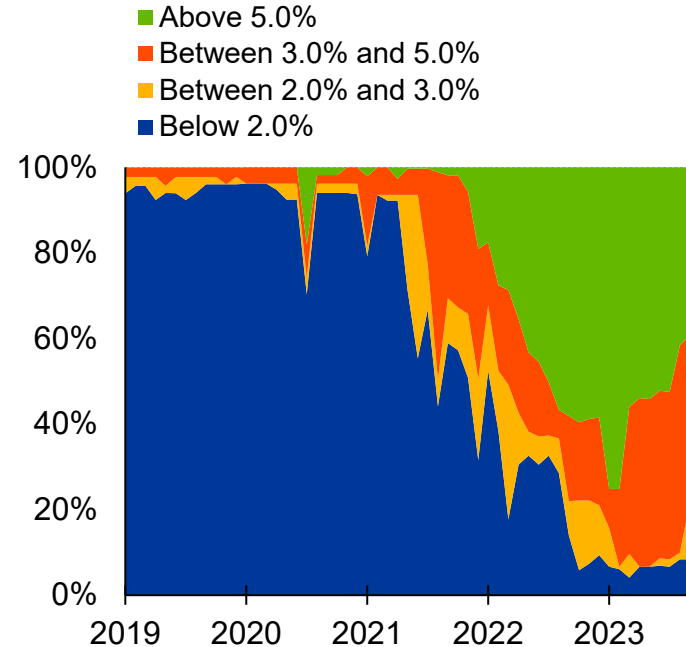
Share of goods and services with very high inflation rates remains large

Weighted distribution of price changes (%)

Services



Non-energy industrial goods



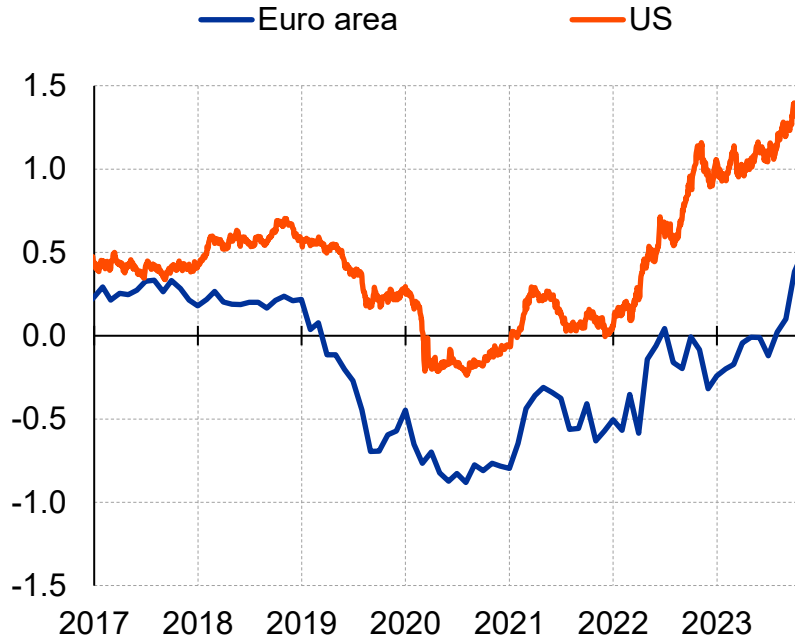
Source: Eurostat, ECB calculations.

Notes: The weight of items sums up the weight of items in the HICP basket in the different categories.

Latest observation: September 2023.

Large uncertainty about the calibration and transmission of monetary policy

Market estimates of natural rate r^* (percent p.a.)

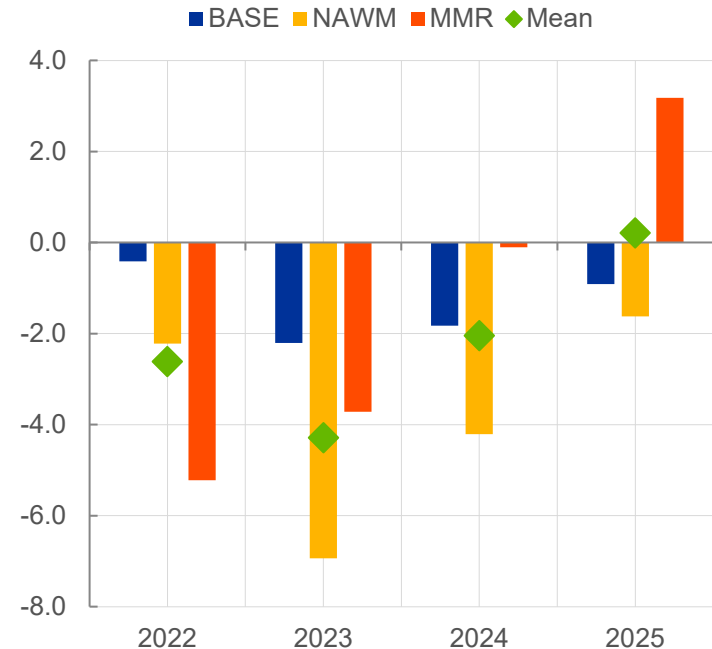


Sources: Bloomberg and ECB staff calculations.

Notes: 'Euro area' refers to the 1y9y real rate adjusted by removing the term premium and 'US' shows the DKW 5y5y real rate.

Latest observation: 16 October 2023.

Impact of monetary policy tightening on real GDP growth (p.p., annual rates)

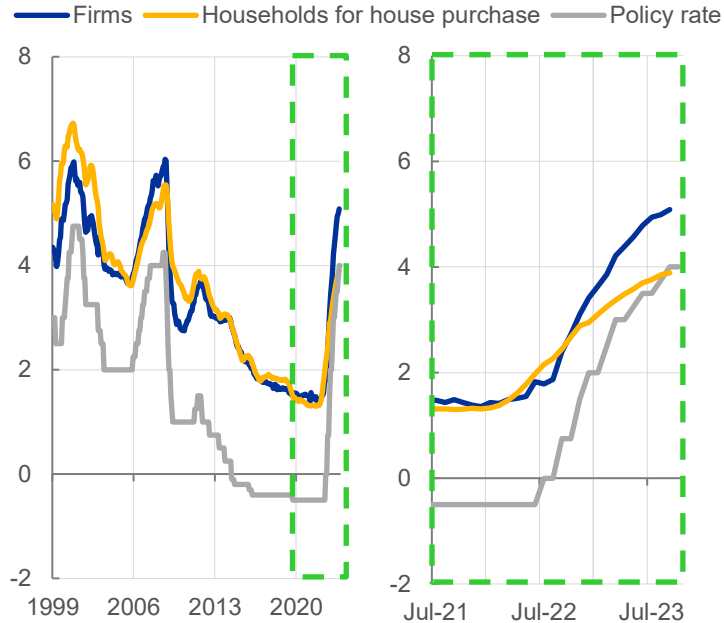


Sources: ECB calculations based on the NAWM II, the MMR model and the ECB-BASE model

Notes: This chart reports the results of a simulation involving changes to short-term rate expectations between December 2021 and October 2023, and changes to expectations regarding the ECB's balance sheet between October 2021 and September 2023.

Strong transmission of monetary policy to funding costs and bank lending

Composite cost of borrowing (percentages per annum)



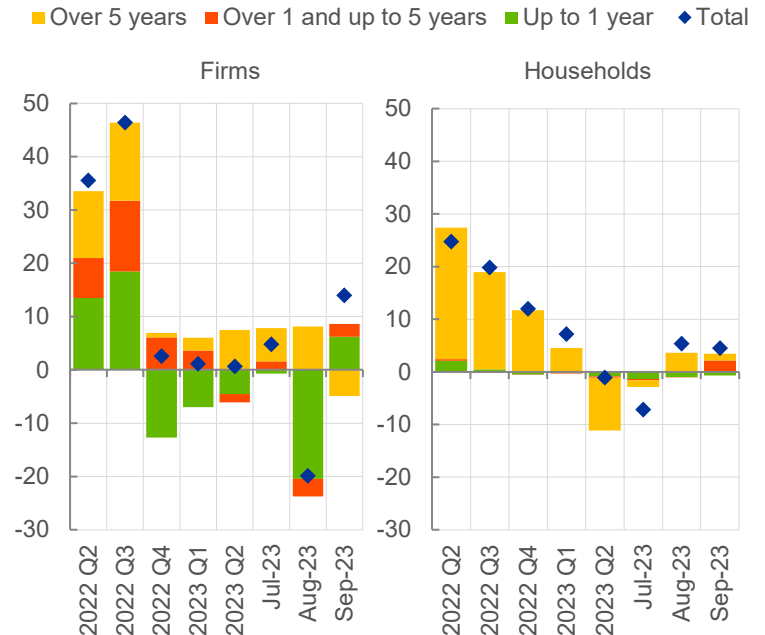
Sources: ECB (MIR) and ECB calculations.

Notes: The indicator for the total cost of bank borrowing for firms is calculated by aggregating short-term and long-term rates using a 24-month moving average of new business volumes. The ECB relevant policy rate is the MRO from January 1999 to May 2014 and the DFR thereafter.

Latest observation: September 2023 for composite cost of borrowing indicators and October 2023 for policy rate.

Bank loans to firms and households by maturity

(average monthly flows in EUR bn)



Sources: ECB (BSI) and ECB calculations.

Notes: All series are adjusted for write-offs/write-downs, reclassifications, exchange rate variations and seasonality. Total loans for both firms and households are also adjusted for sales and securitisation (total loans to firms are also adjusted for cash pooling). The maturity breakdowns are not adjusted for sales and securitisation (the seasonal adjustment of the breakdowns for households is internal). Latest observation: September 2023.

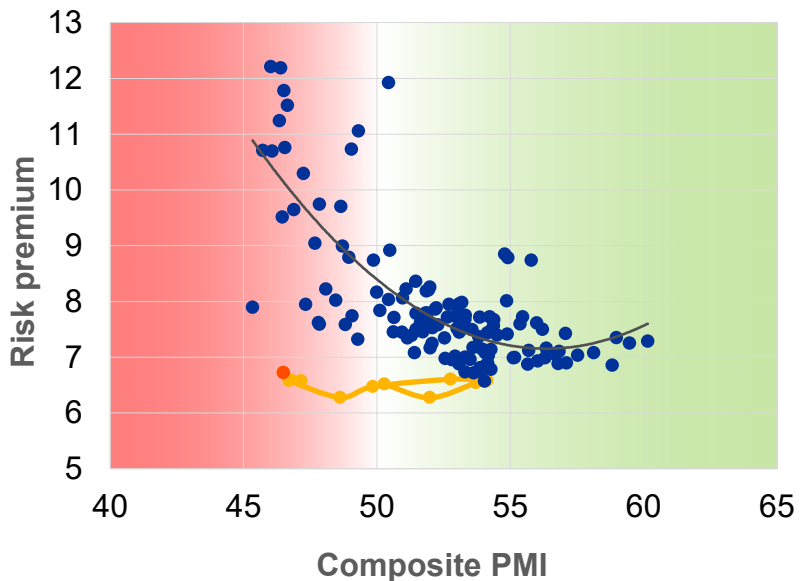
Risk premia in equities and corporate bonds remain resilient as sentiment deteriorates

Euro area risk premium and composite PMI

(Jan. 2012 to Oct. 2023; x-axis: balance statistics, y-axis: percent and basis points)

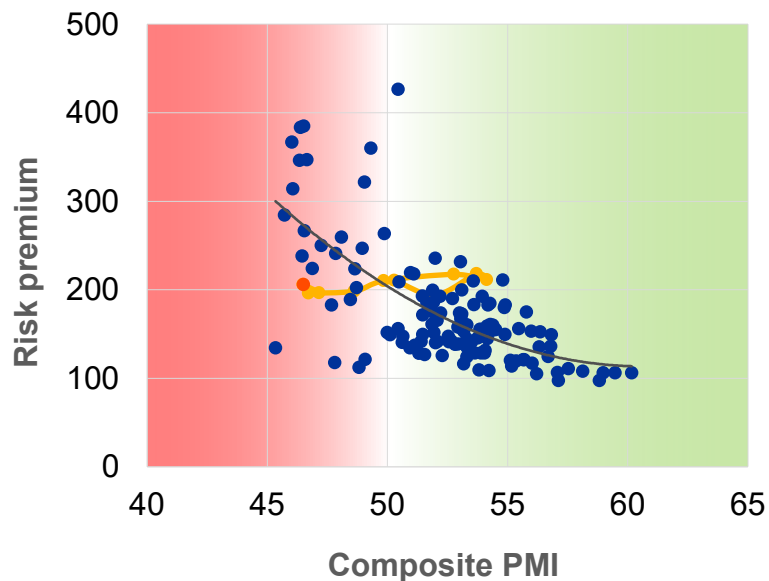
Equity market

—●— 2023 year to date ● 2012-22 ● October 2023



Corporate bond market

—●— 2023 year to date ● 2012-22 ● October 2023



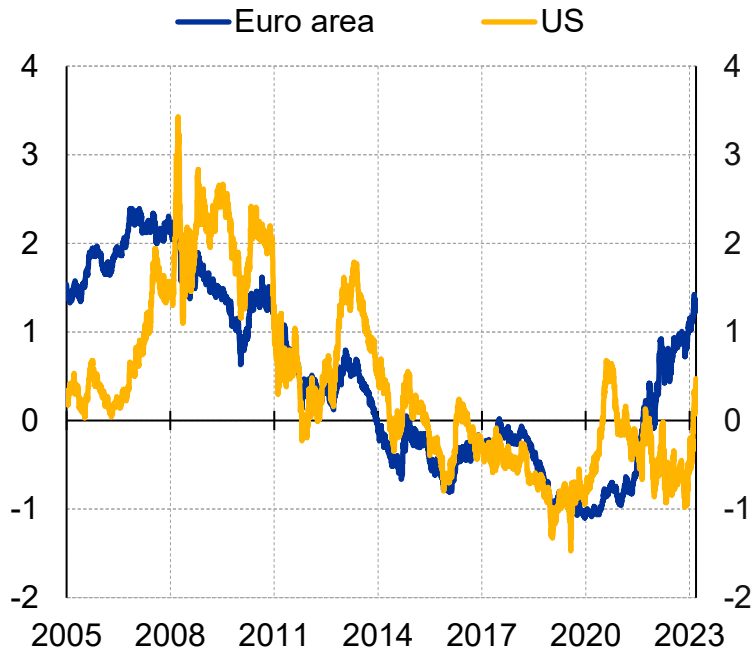
Sources: Bloomberg, S&P Global Market Intelligence and ECB calculations.
Notes: The fitted lines are quadratic functions and exclude the first three months of coronavirus-related lockdown (Mar. 2020-May 2020) as outliers. Equity risk premia are calculated as the five-year CAPE yield for the EURO STOXX less 5Y real (inflation swap adjusted) German government bond yield.

Sources: Bloomberg, S&P Global Market Intelligence and ECB calculations.
Notes: The fitted lines are quadratic functions and exclude the first three months of coronavirus-related lockdown (Mar. 2020-May 2020) as outliers. Credit risk premia are calculated as the option-adjusted spread for BBB-rated corporate bonds with a residual maturity of five to seven years.

Term premia increased significantly, also related to run-off of asset portfolios

10-year euro area OIS and US Treasury term premium

(percentages per annum; basis points)

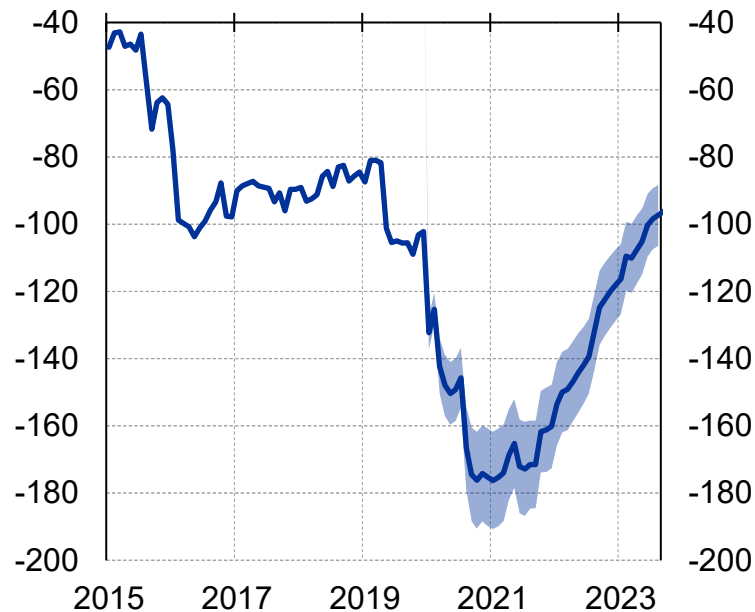


Sources: Thomson Reuters, ECB calculations, Haver Analytics and Federal Reserve Bank of New York.

Note: The 10-year OIS term premium is based on an affine term structure model fitted to the euro area OIS curve. The estimation method follows Joslin, Singleton and Zhu (2011). The 10-year UST term premium is based on a five-factor, no-arbitrage term structure model proposed by Adrian, Crump and Moench (2013). Latest observation: 23 October 2023 for the euro area OIS and 19 October 2023 for the UST.

APP and PEPP portfolios: impact of sovereign bonds on risk premia

(basis points)

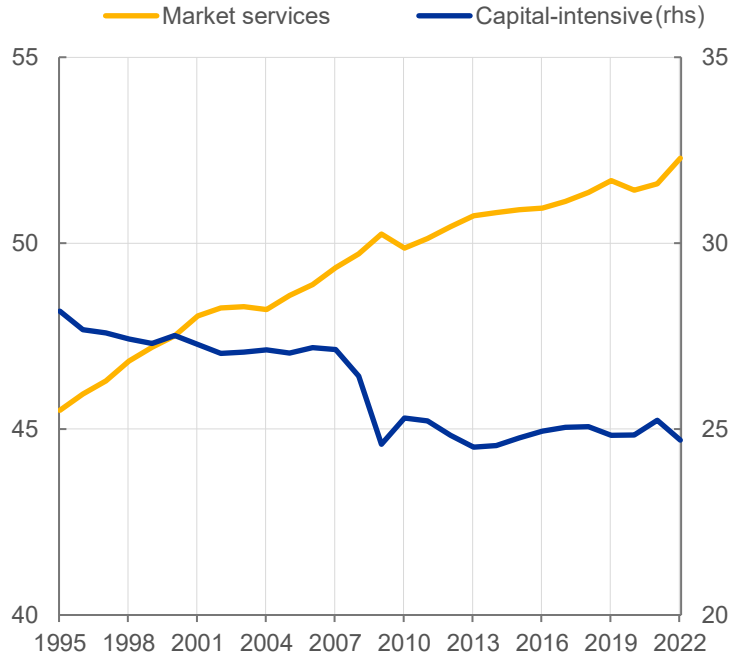


Source: ECB calculations.

Notes: The upper range of estimates of the impact of APP and PEPP on sovereign bond term premia and other risk premia are derived using an arbitrage-free affine model of the term structure with a quantity factor (see Eser et al., 2023). The lower range is derived using an alternative version of the model recalibrated so that the model-implied yield reactions to the March PEPP announcement match the two-day yield changes observed after 18 March. The model results are derived using GDP-weighted averages of the zero-coupon yields of the big-four sovereign issuers (DE, FR, IT, ES). The blue line is based on projections of the Eurosystem's holdings of big-four sovereign bonds as informed by the ECB's September 2023 survey of monetary analysts. Latest observation: October 2023 (monthly data).

Greater relevance of services may weaken monetary policy transmission

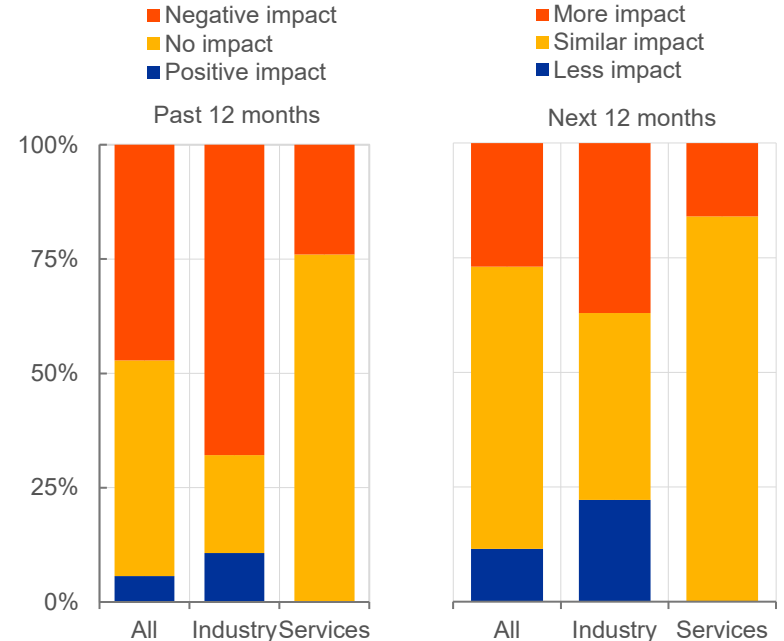
Sectoral shares in euro area gross value added (percentages)



Sources: Eurostat and ECB calculations.

Note: The market services sector includes, among others, wholesale and retail trade, transportation, accommodation and food services, information and communication, and financial and real estate services. The capital-intensive sector includes, among others, mining, manufacturing, energy and water supply, and construction.

Survey: Impact of changes in financing conditions on firms' activity (percentage of firms)



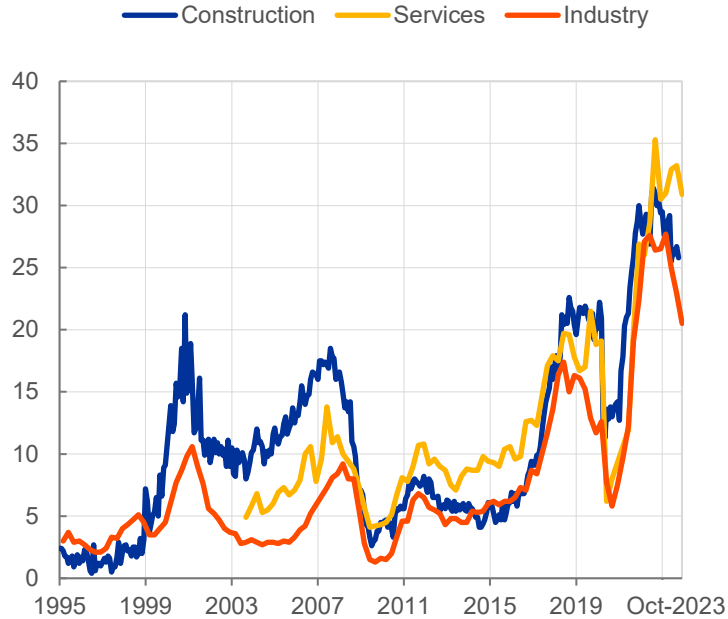
Sources: Corporate Telephone Survey.

Notes: How do financing conditions (cost and availability of funding) since mid-2022 affect business activity over past 12 months and in the next 12 months?

Latest observations: October 2023.

Labour as a factor limiting production

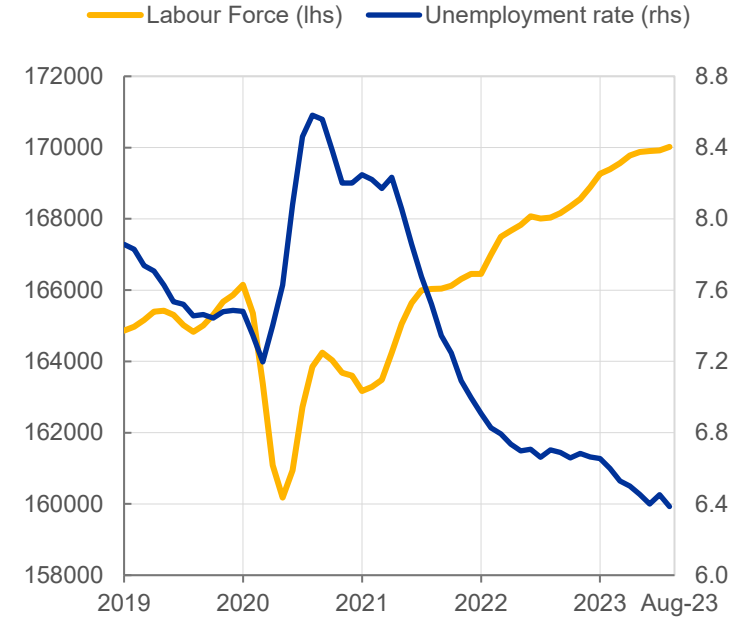
(percentage of firms)



Source: European Commission
Latest observation: October 2023

Unemployment rate and labour force

(lhs: thousands of persons; rhs: percentage of the labour force)

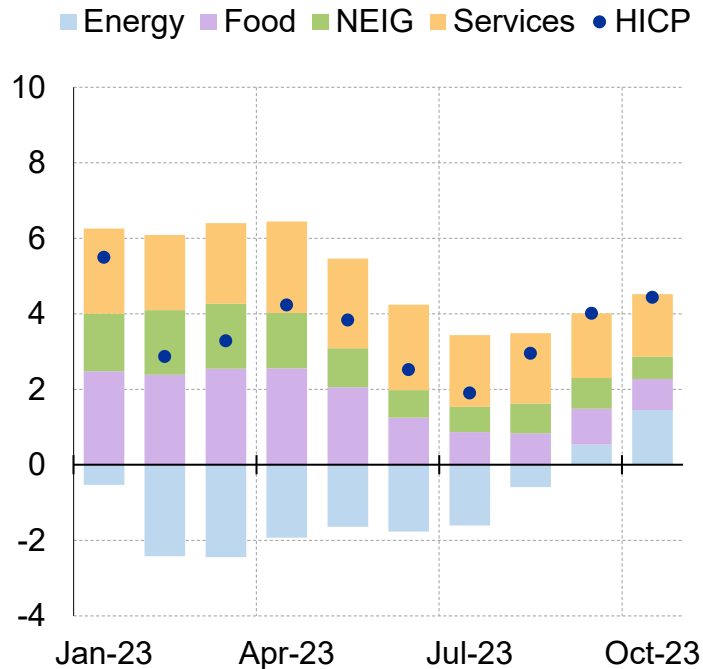


Source: ECB calculations based on Eurostat data.
Latest observation: August 2023

Energy contributes to higher inflation momentum, with El Niño effects still to come

Momentum of HICP and main components

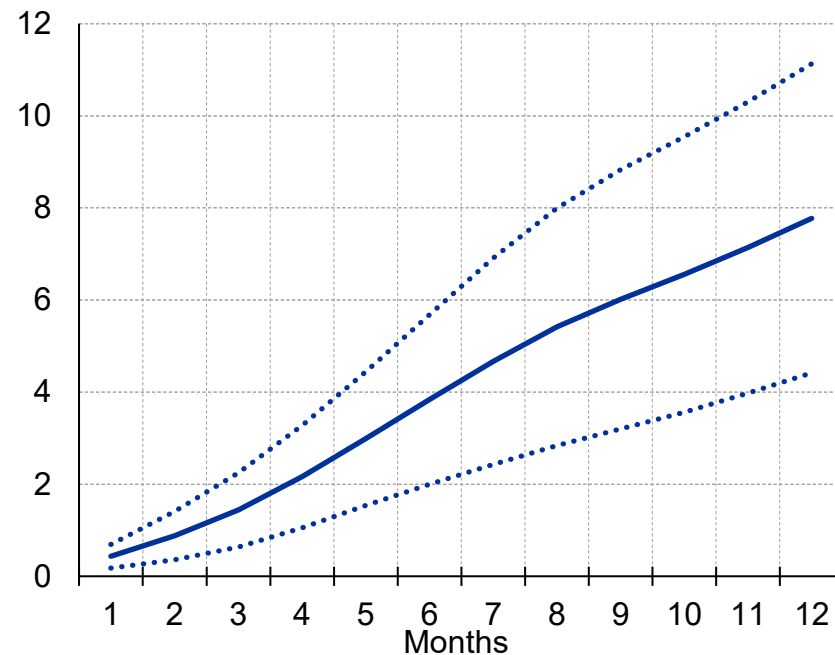
(annualized 3m-on-3m percentage changes, percentage points)



Sources: Eurostat, ECB calculations.
Latest observation: October 2023 (flash).

Global food price effects of a one-degree temperature rise during El Niño

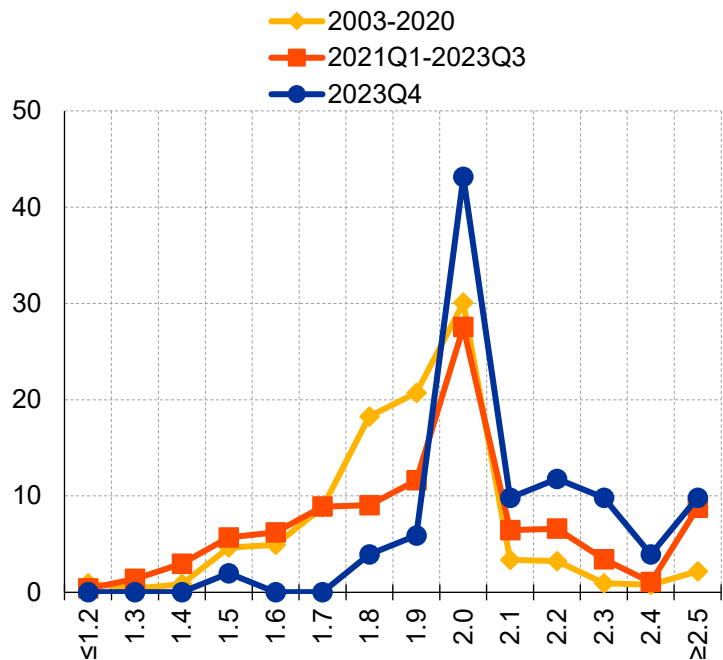
(percent)



Sources: Haver, NOAA, Bloomberg and ECB calculations.
Notes: Price reaction shows impact of a 1°C increase in temperature during El Niño controlling for fertilizer and oil prices and global industrial activity with 68% confidence intervals
Latest observation: May 2023 (monthly sample starting in January 1960).

SPF: Cross-sectional distribution of longer-term inflation point forecasts

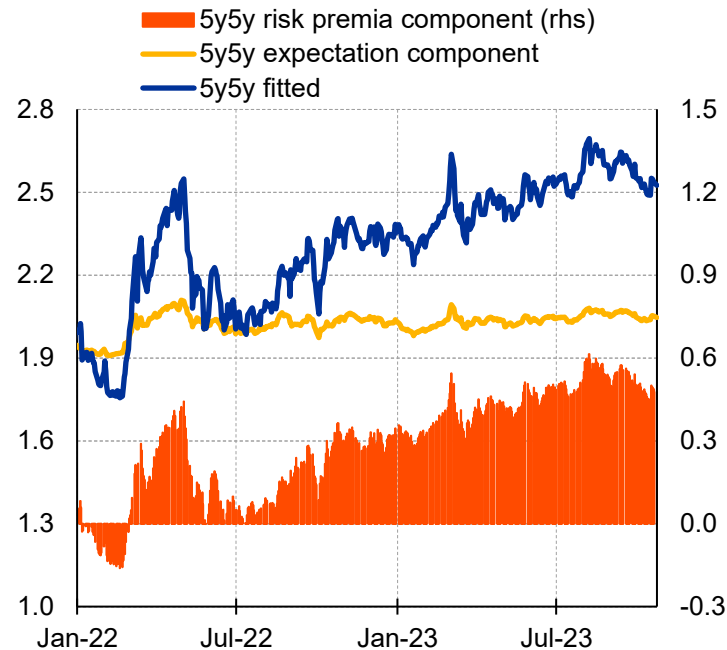
(percent)



Sources: SPF
Latest observation: 2023Q4.

Model-based decomposition of euro area inflation-linked swap rates

(percentages)



Sources: Refinitiv and ECB calculations.

Notes: Premia-adjusted forward ILS rates are average estimates from two affine term structure models as in Joslin, Singleton and Zhu (2011) applied to ILS rates non-adjusted for the indexation lag; see Burban et al. (2022), ECB Economic Bulletin Issue 8, 2021, Box 4. Inflation compensation rates refer to a linear interpolation between fixings and 1-year forward. Latest observation: 23 October 2023.

Thank you very much for your attention!