



EUROPEAN CENTRAL BANK

EUROSYSTEM

Inflation and monetary policy

Lecture - Master in Economics and
Finance (MEF) 2024

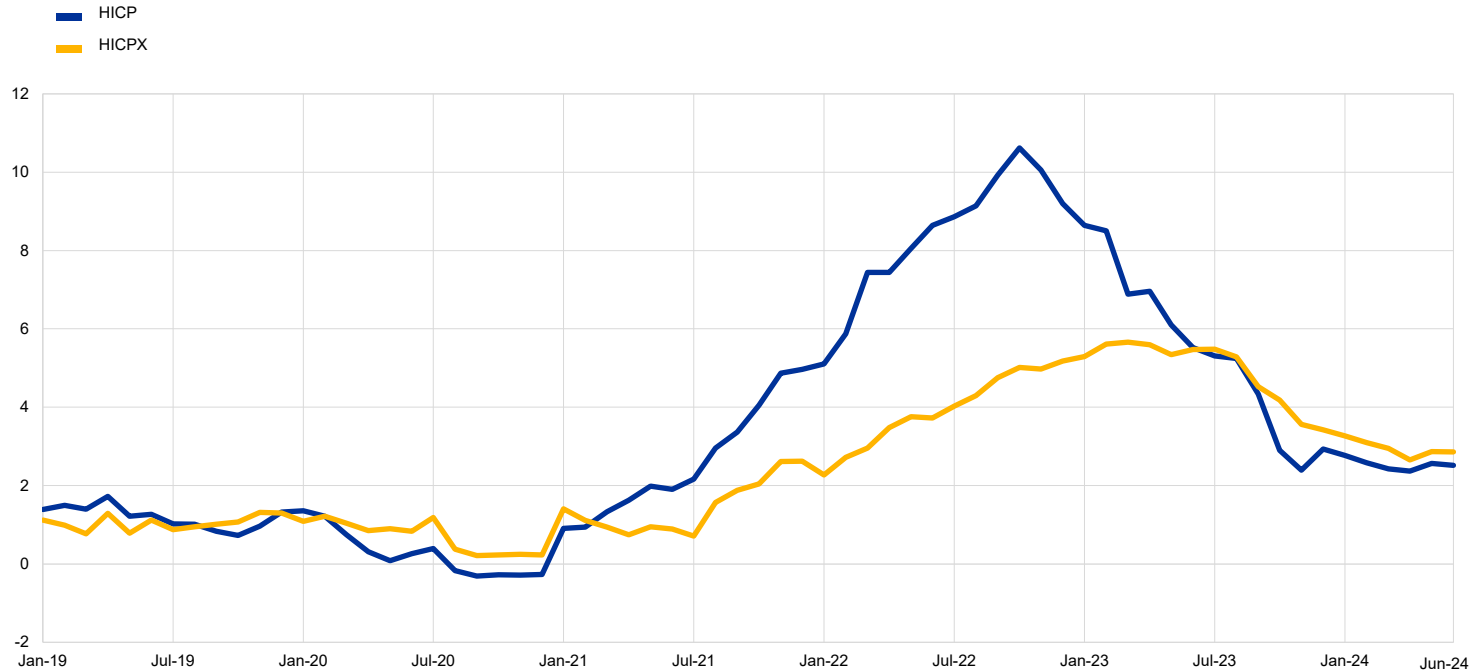
University of Naples Federico II

4 July 2024



Philip R. Lane
Member of the Executive Board

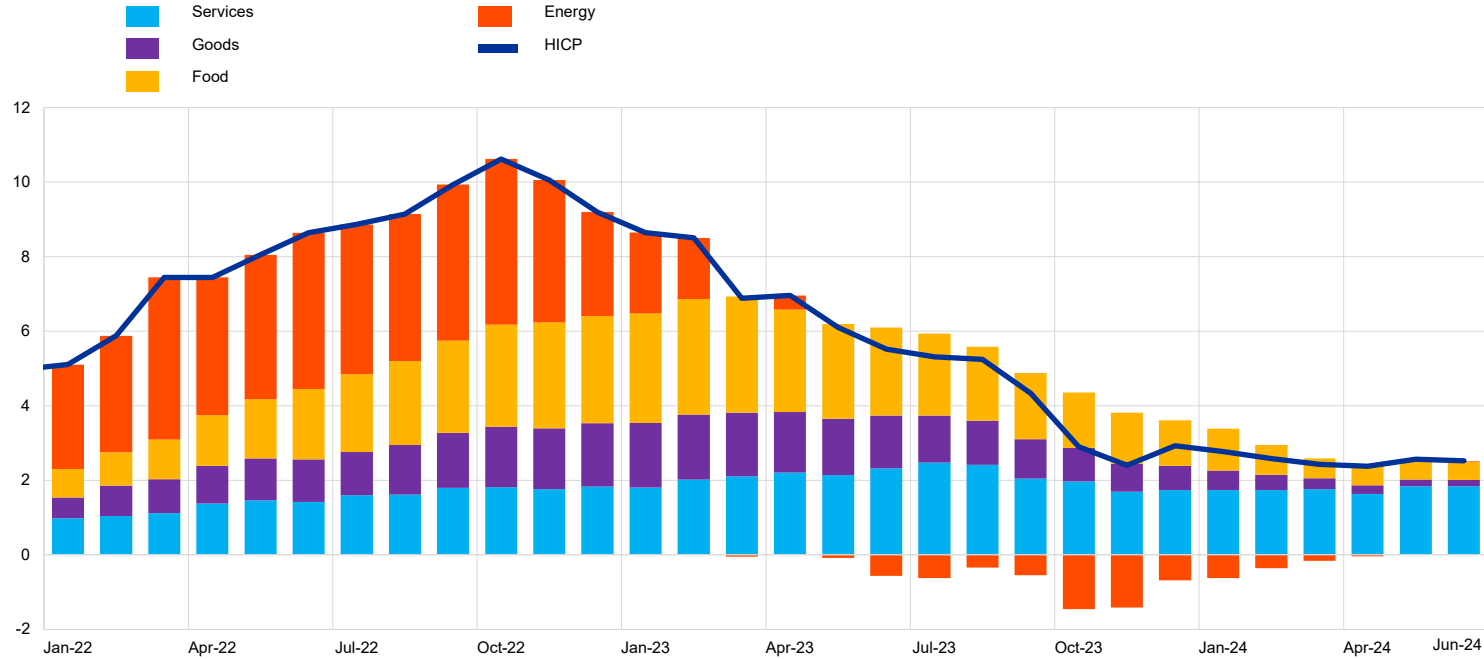
Headline inflation and core inflation (annual percentage changes)



Source: Eurostat.

Notes: HICP refers to headline inflation and HICPX to HICP excluding food and energy. The latest observations are for June 2024 (flash estimate).

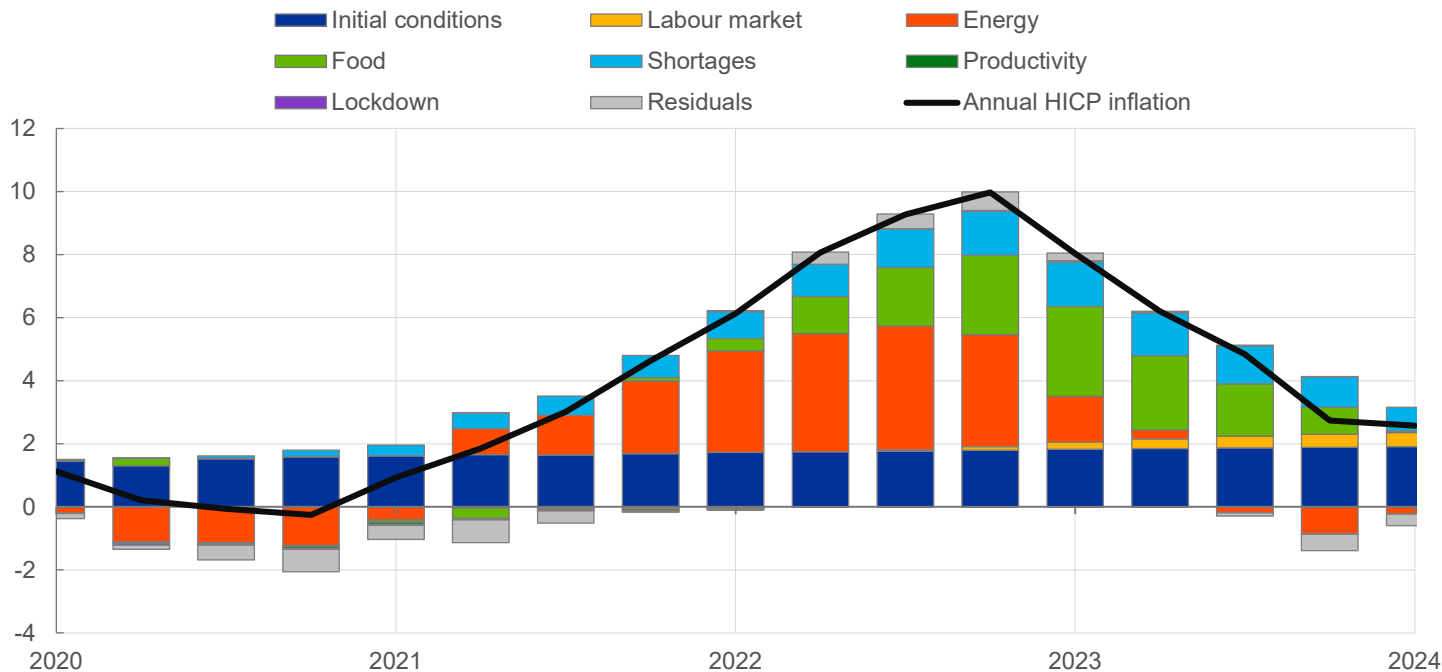
HICP decomposition (annual percentage changes and percentage point contributions)



Sources: Eurostat and ECB staff calculations.

Notes: Goods refers to non-energy industrial goods. The latest observations are for June 2024 (flash estimate).

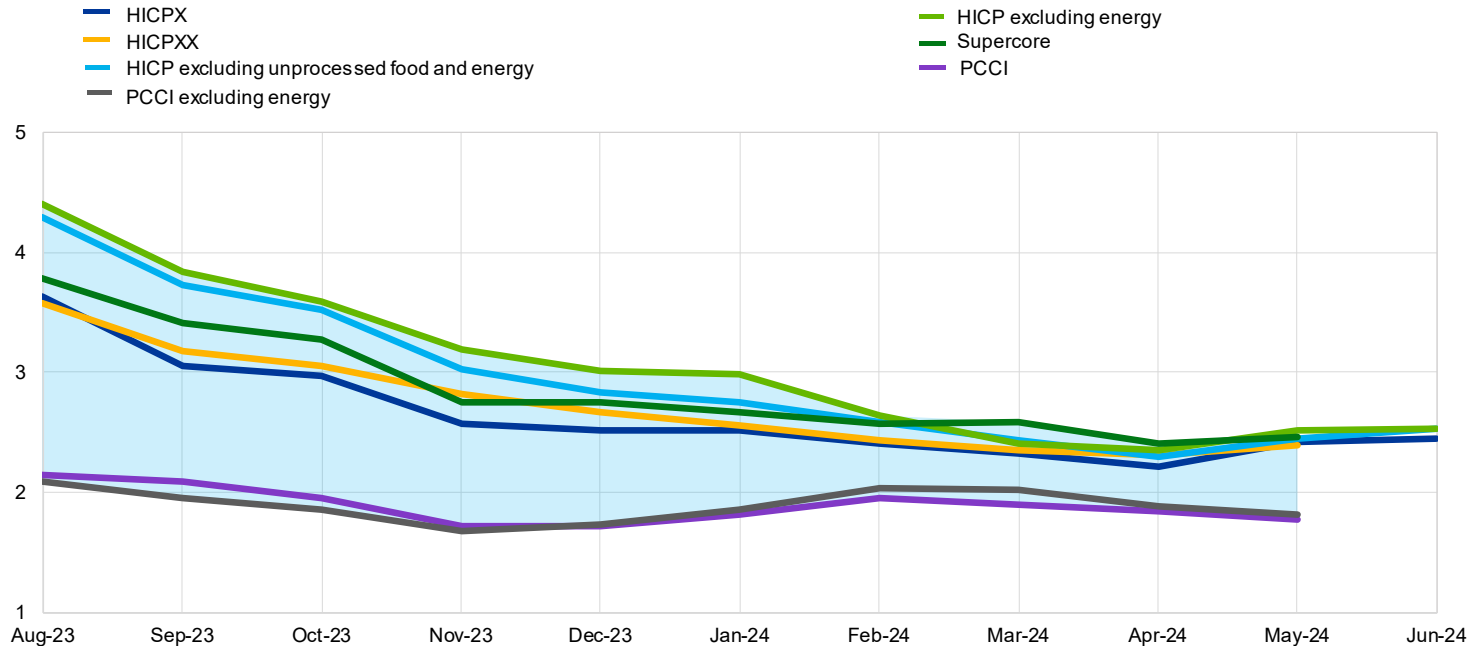
Sources of annual price inflation in the euro area (annual percentage changes and percentage point contributions)



Source: ECB calculations, based on Arce, Ó., Ciccarelli, M., Kornprobst, A., & Montes-Galdón, C. (2024). *What caused the euro area post-pandemic inflation?* ECB Occasional Paper, 343.

Notes: The figure shows a decomposition of the sources of annual HICP inflation between Q1 2020 and Q1 2024 based on the solution of the full model and the implied impulse response functions. The continuous line shows actual inflation, and the total net heights of the bars are the model's forecast of inflation in each period, given initial conditions up to the fourth quarter of 2019. The contributions of the residuals are computed as the difference between actual and simulated data. The dark blue portion of each bar shows the contribution of pre-2020 data. The coloured segments of each bar show the general equilibrium, fully dynamic contribution of each exogenous variable to inflation in that period, as implied by the estimated model. Shocks to the rate of change of the relative price of energy and food are constructed as deviations in the values of those variables from zero. Shocks to the shortages variable are constructed as deviations in the values from the sample mean. Shocks to the vacancy-to-unemployment ratio (labour market variable) are constructed as the actual value minus the value in the fourth quarter of 2019.

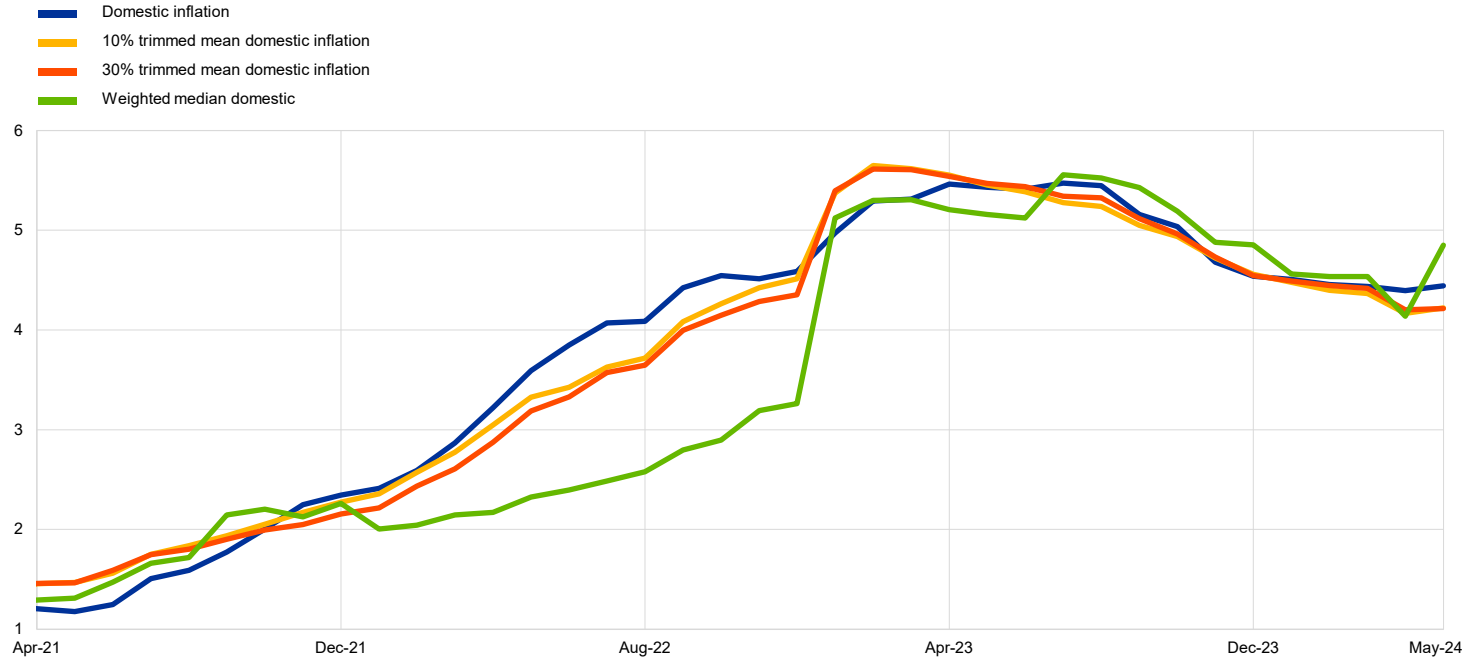
Adjusted measures of underlying inflation (annual percentage changes)



Sources: Eurostat and ECB staff calculations.

Notes: HICP refers to headline inflation, HICPX to HICP excluding food and energy, HICPXX to HICP excluding food, energy, travel-related items and clothing, and PCCI to the Persistent and Common Component of Inflation. The “adjusted” measures abstract from energy and global supply bottleneck shocks using a large structural vector autoregression (SVAR) model as explained in Bańbura, M., Bobeica, E. and Martínez Hernández, C. (2023), “What drives core inflation? The role of supply shocks”, Working Paper Series, No 2875, ECB. The latest observations are for June 2024 (flash estimate) for HICPX, HICP excluding energy and HICP excluding unprocessed food and energy, May 2024 for the rest.

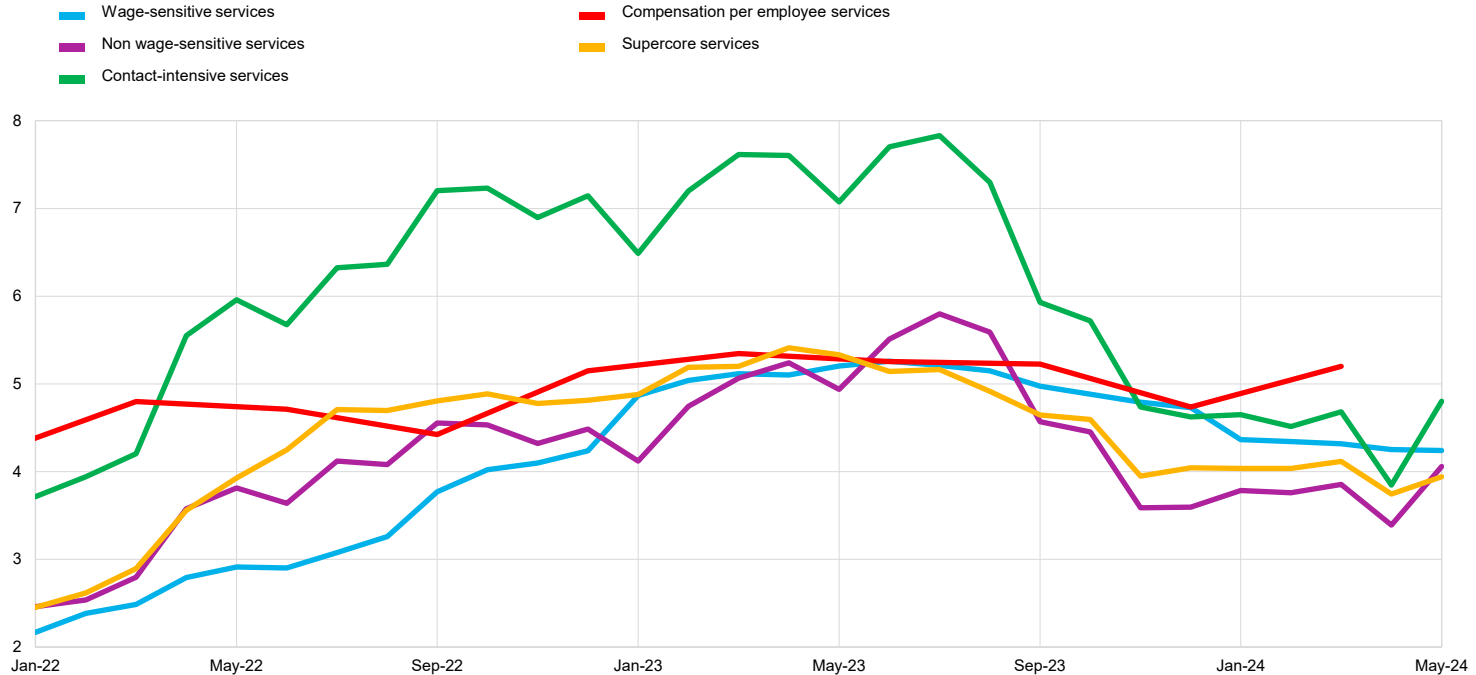
Domestic Inflation (annual percentage changes)



Sources: Eurostat and ECB staff calculations.

Notes: Domestic inflation is an aggregate of HICP items with a relatively low import intensity, as explained in Fröhling, A., O'Brien, D. and Schaefer, S. (2022), "[A new indicator of domestic inflation for the euro area](#)", *Economic Bulletin*, Issue 4, ECB. The latest observations are for May 2024.

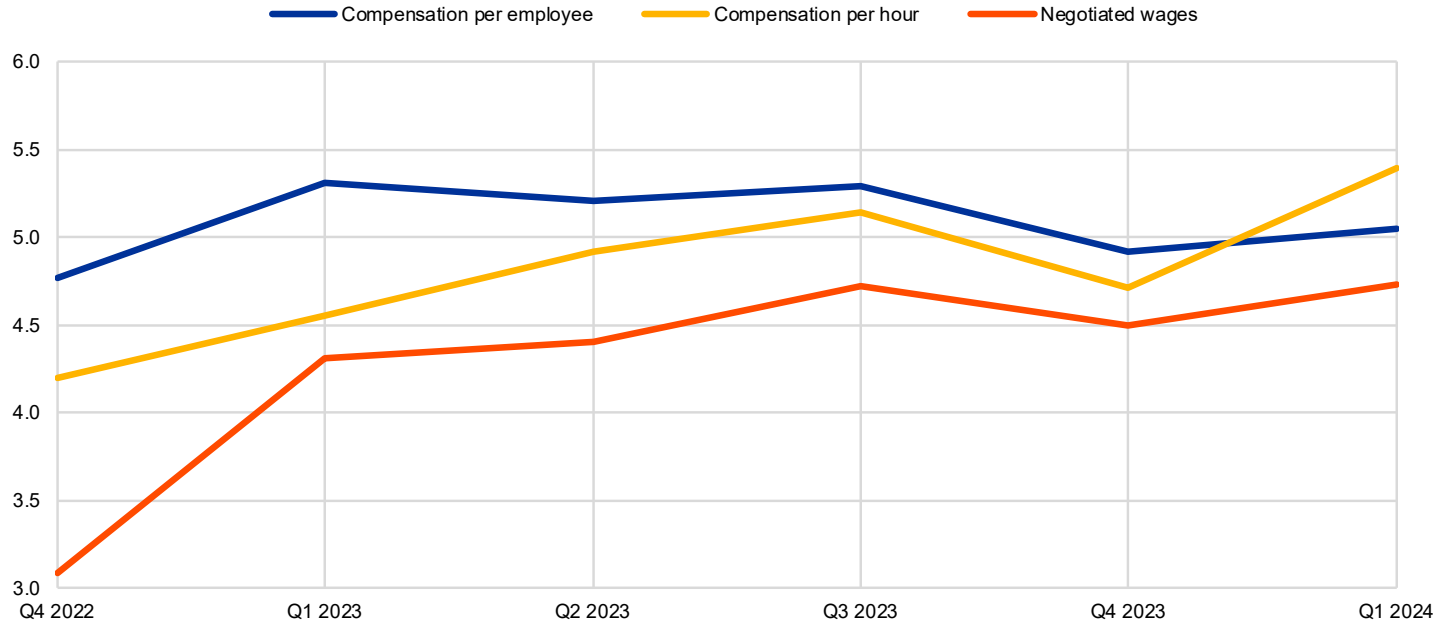
Service inflation developments (annual percentage changes)



Sources: Eurostat and ECB calculations.

Note: Latest observations are for the first quarter of 2024 for compensation per employee, and May 2024 the rest.

Labour cost indicators (annual percentage changes)

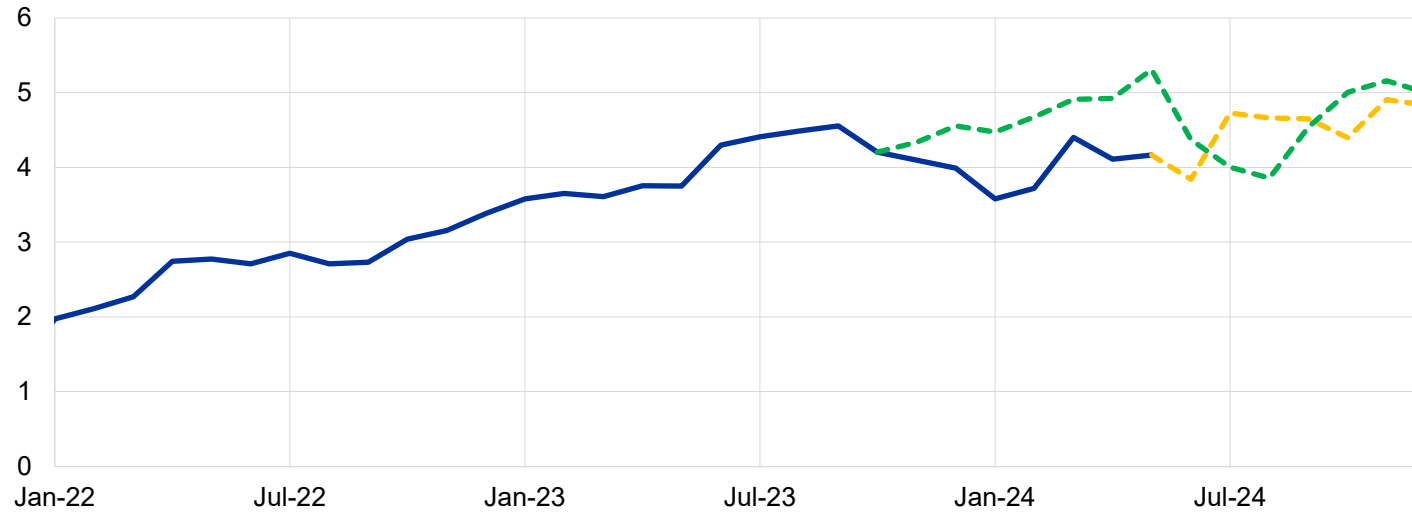


Sources: Eurostat and ECB calculations.

Notes: Compensation per employee and per hour are calculated from calendar and seasonally adjusted data. The latest observations are for the first quarter of 2024.

ECB Wage Tracker (annual percentage changes)

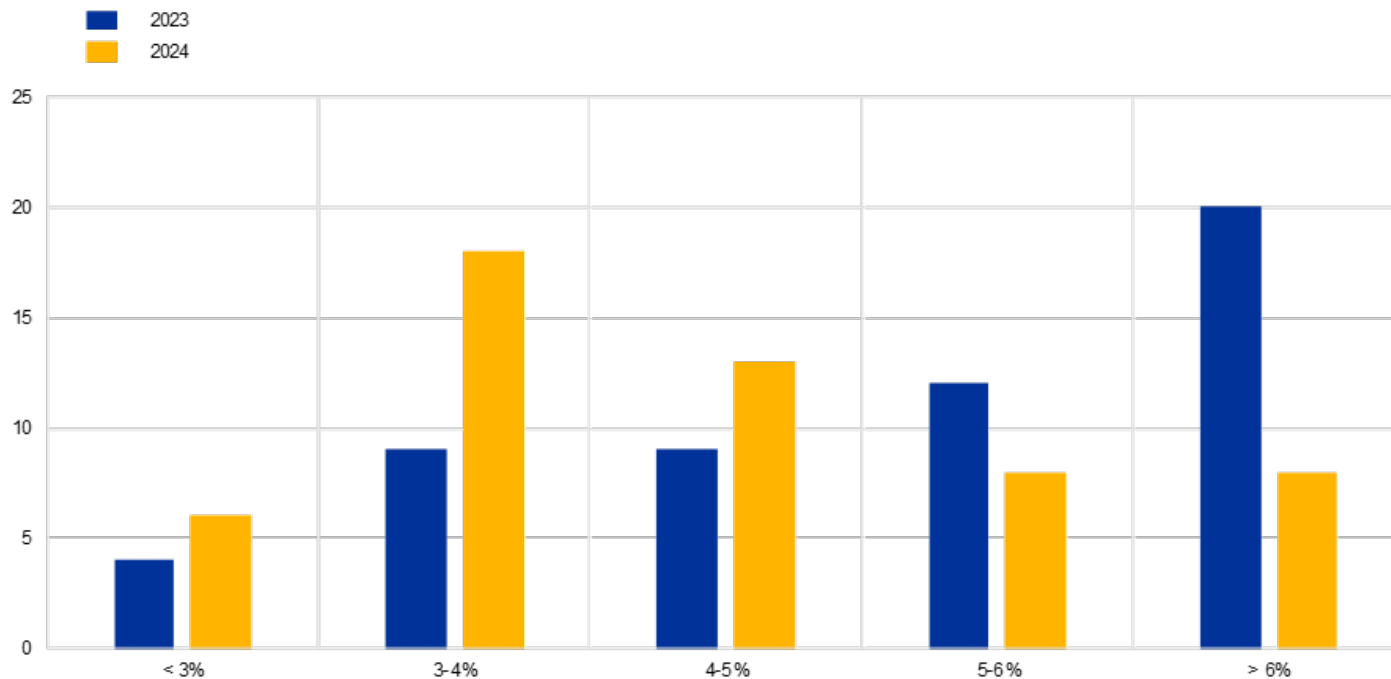
- ECB Wage tracker including one-offs
- Forward Looking Wage tracker incl. One-offs (June GovC)
- Forward Looking Wage tracker incl. One-offs (Dec. GovC)



Sources: ECB, NCBs and AWWN.

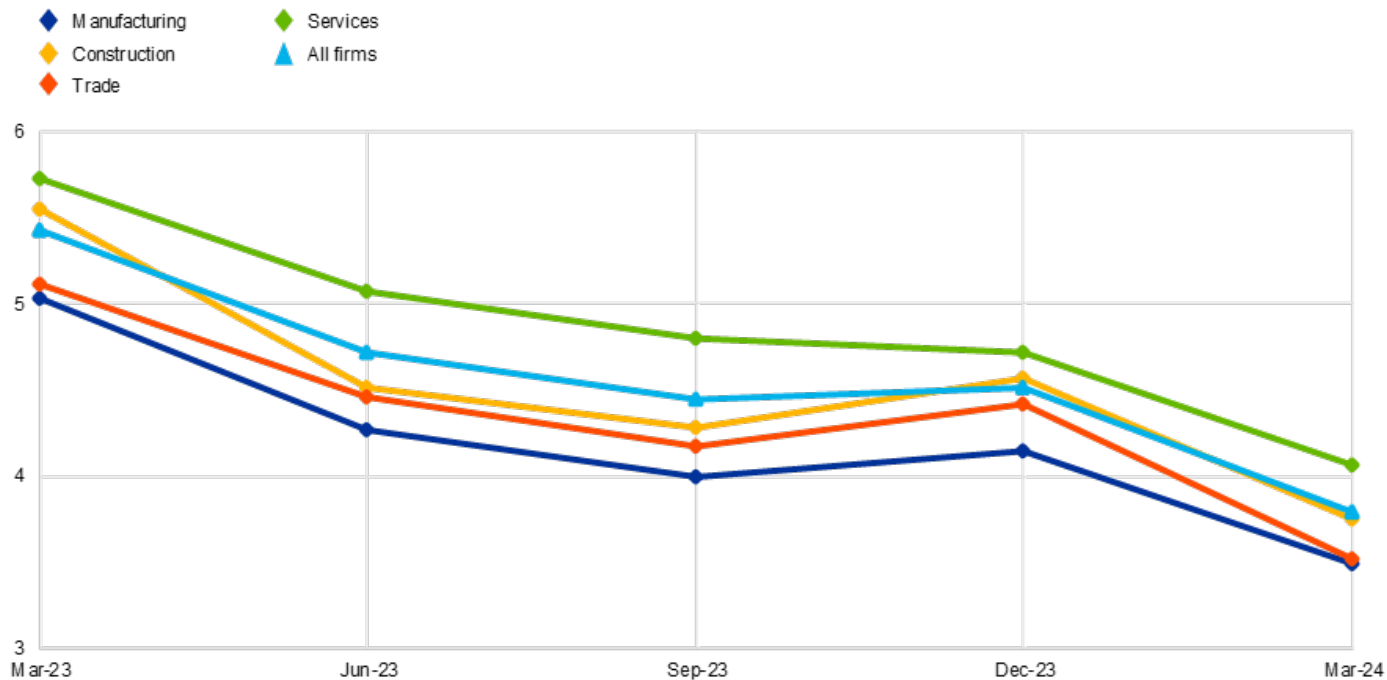
Notes: The blue line indicate the ECB Wage tracker as of June 2024. The yellow dashed lines indicates the forward-looking wage tracker as of June 2024, while the green dashed lines indicates the forward-looking wage tracker. Revisions to past data come due to retroactively signed contracts. Latest observations: June 2024

CTS wage expectations (number of responses)



Sources: April 2024 Corporate Telephone Survey (CTS) and ECB calculations.
Note: 54 responses for 2023 and 53 responses for 2024.

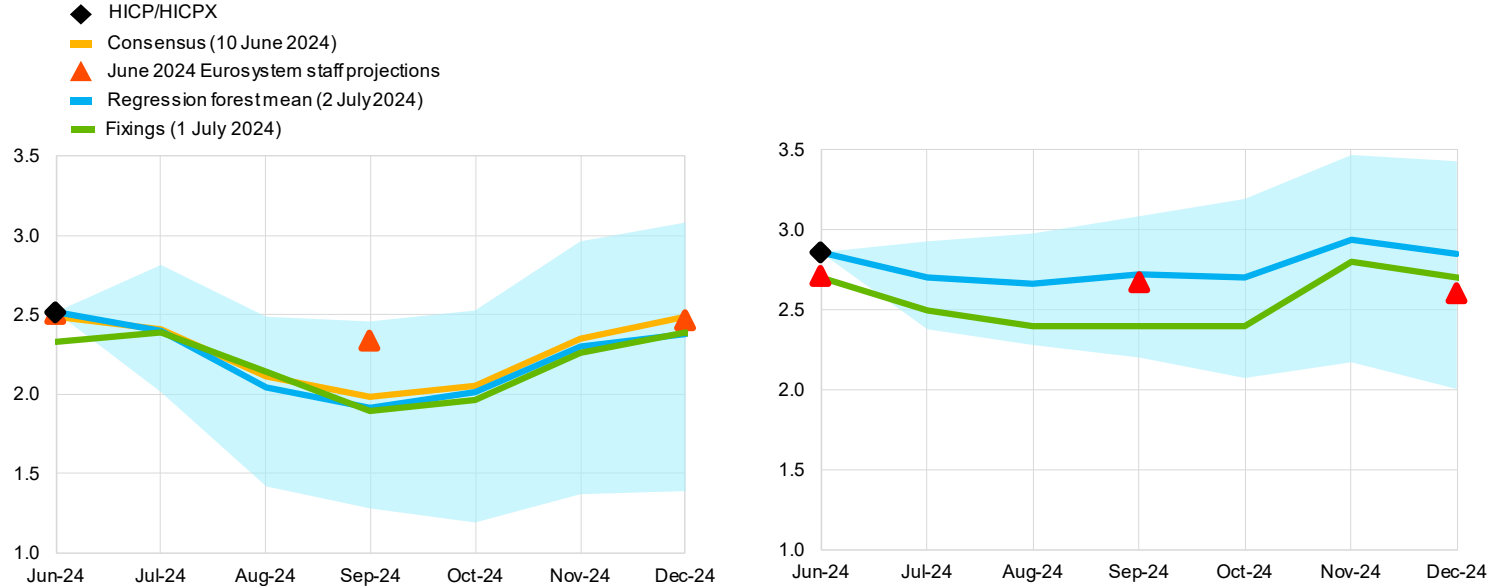
SAFE wage expectations one year ahead (annual percentage changes)



Sources: Survey on the access to finance of enterprises (SAFE) and ECB calculations.

Notes: Survey-weighted mean euro area firm expectations of changes in wages of current employees. Computed after trimming at the wave-country-specific 1st and 99th percentiles – all enterprises. The latest observations are for March 2024.

Short-term forecast for HICP and HICPX (annual percentage changes)

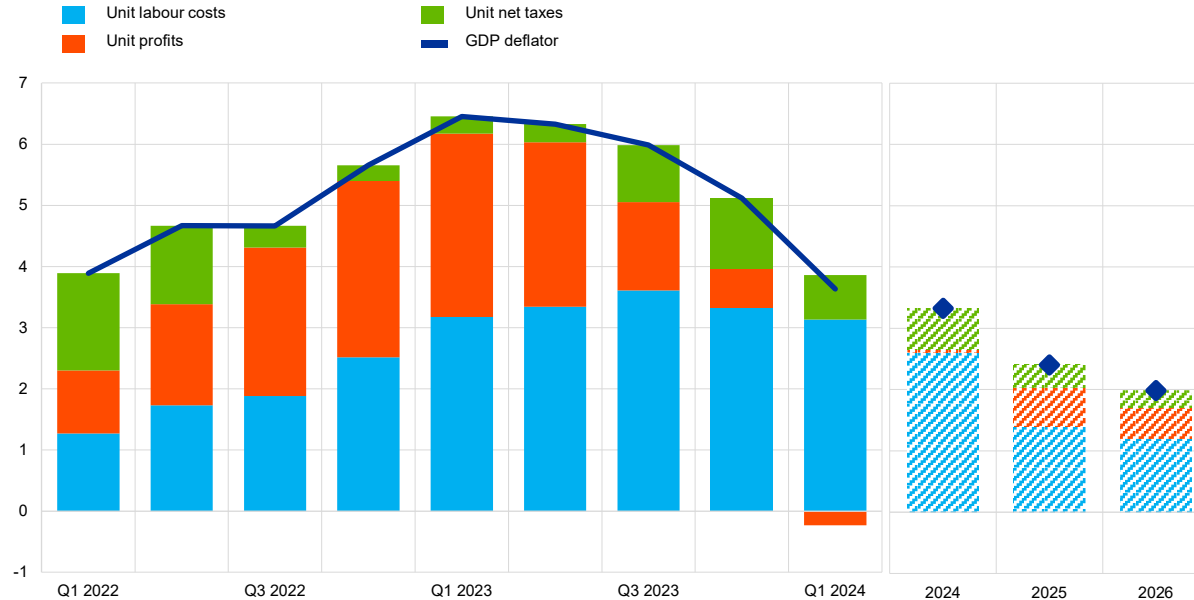


Sources: Eurostat, June 2024 Eurosystem staff macroeconomic projections for the euro area, Consensus Economics, Bloomberg and ECB calculations.

Notes: The quantile regression forest estimates are from Lenza, M., Moutachaker, I. and Paredes, J. (2023), "Density forecasts of inflation: a quantile regression forest approach", Working Paper Series, No 2830, ECB. The HICP fixings are observed market prices. The HICPX fixings are estimated on the basis of the model in Grönlund, A.M., Jørgensen, K. and Schupp, F. (2024), "Measuring market-based core inflation expectations", Working Paper Series, No 2908, ECB. June 2024 (flash estimate) observation for HICP/HICPX is actual data.

GDP deflator

(annual percentage changes and percentage point contributions)

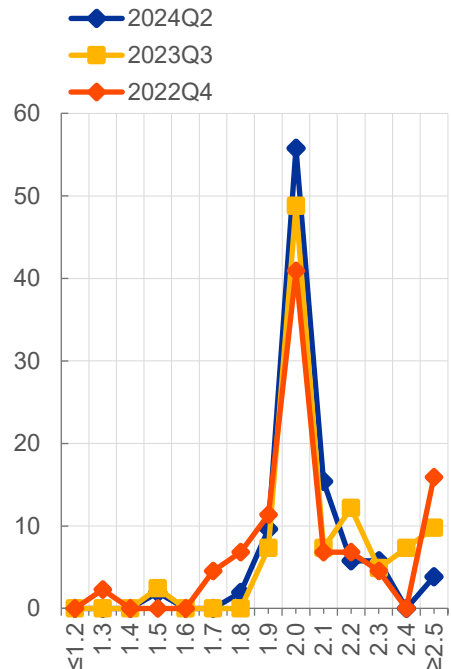


Sources: Eurostat, ECB calculations and June 2024 Eurosystem staff projections.

Notes: Unit taxes reflect taxes minus subsidies. When the contribution of subsidies on products is larger than the contribution of indirect taxes, the unit tax contribution turns negative. The latest observations are for the first quarter of 2024.

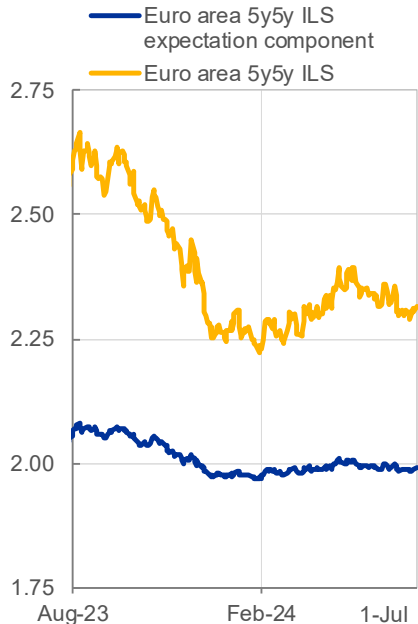
Charts 13 to 16

SPF: distribution of longer-term inflation expectations (percent of respondents)



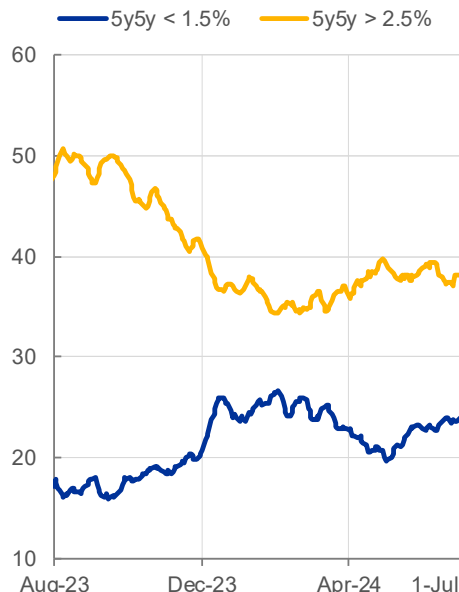
Sources: SPF and ECB calculations.
 Note: vertical axis shows percent of respondents; horizontal axis shows the HICP inflation rate. Longer-term expectations refer to 4-5 years ahead.
 Latest observation: Q2 2024 SPF.

Decomposition of 5-year-in-5-year inflation-linked swap (ILS) rate (annual percentage changes)



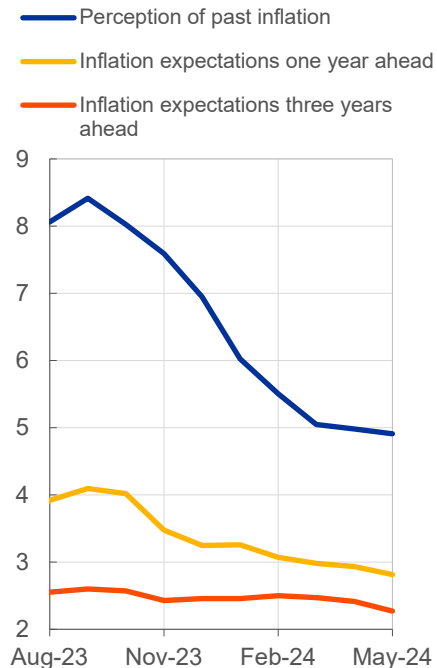
Sources: Bloomberg and ECB calculations. Notes: Premia-adjusted forward ILS rates are average estimates from two affine term structure models as in Joslin, Singleton and Zhu (2011) applied to ILS rates non-adjusted for the indexing lag; see Burban et al. (2022), ECB Economic Bulletin Issue 8, 2021, Box 4. Latest observation: 1 July 2024.

Option-implied probabilities of inflation outcomes (percentages)



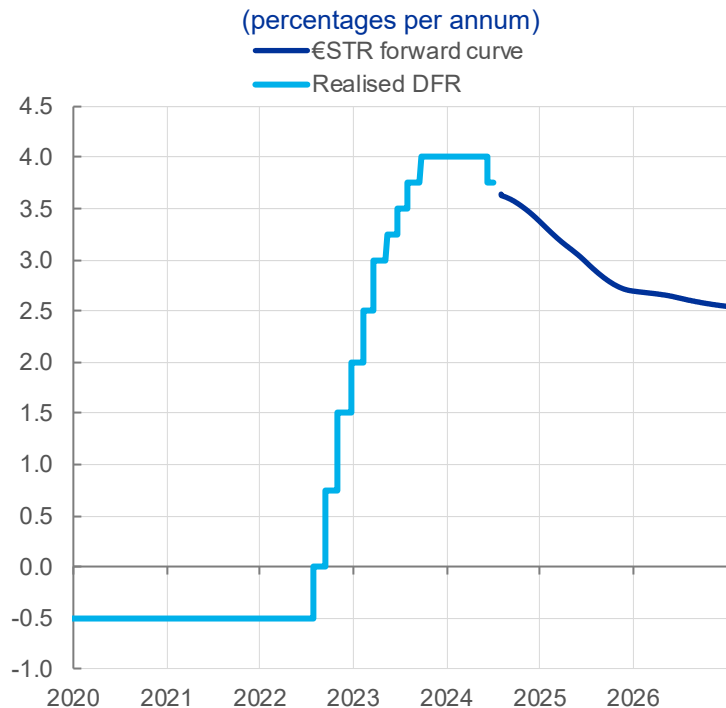
Sources: LSEG, Bloomberg and ECB calculations. Notes: 5-days moving average risk-neutral probabilities of inflation implied by five-year and ten-year zero-coupon inflation options. The depicted probabilities are risk-neutral probabilities affected by risk premia and should therefore not be interpreted as "real world" (or physical) probabilities. Latest observation: 1 July 2024.

ECB consumer expectations survey (annual percentage changes)



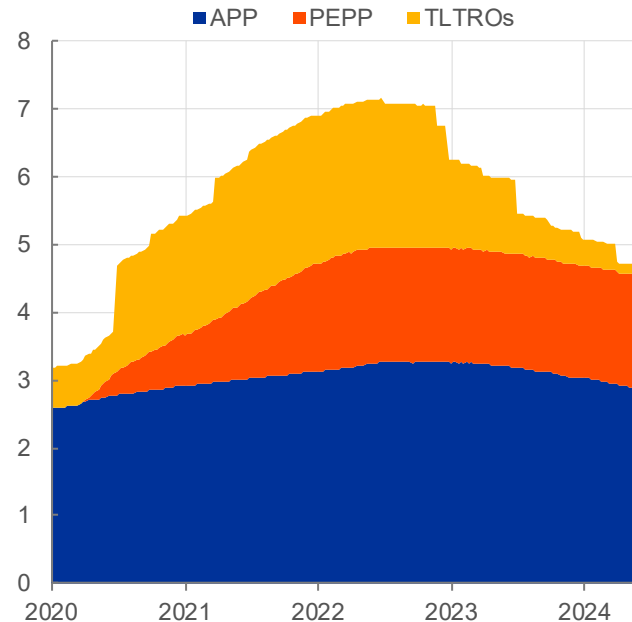
Source: ECB Consumers Expectation Survey (CES).
 Note: The series refer to the median value.
 Latest observation: May 2024.

€STR forward curve and deposit facility rate (DFR)



Sources: Bloomberg, ECB, and ECB calculations.
Latest observation: 1 July 2024

APP, PEPP and TLTROs (trillion euros)



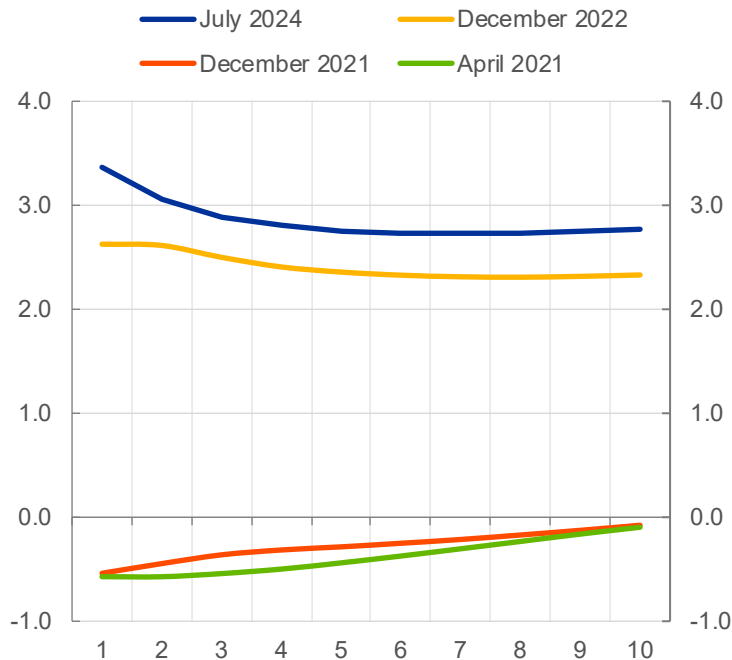
Sources: ECB.

Notes: Purchase programmes are based on book value at amortised cost.

Latest observation: 28 June 2024.

Euro area Overnight Index Swap (OIS) yield curve

(annual percentages)

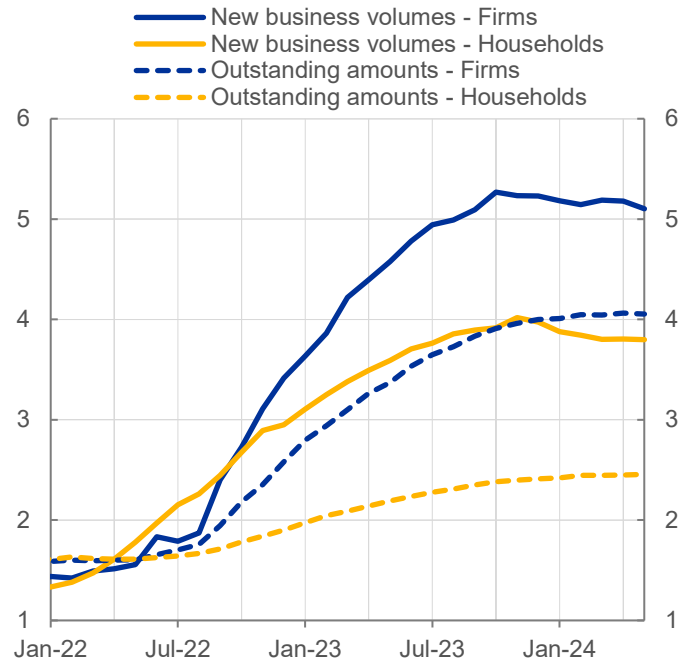


Sources: Bloomberg and ECB calculations.

Notes: The curves refer to 21 April 2021, 15 December 2021, 14 December 2022 and 1 July 2024, respectively. The latest observations are for 1 July 2024.

Bank lending rates for firms and households for house purchase

(percentages per annum)

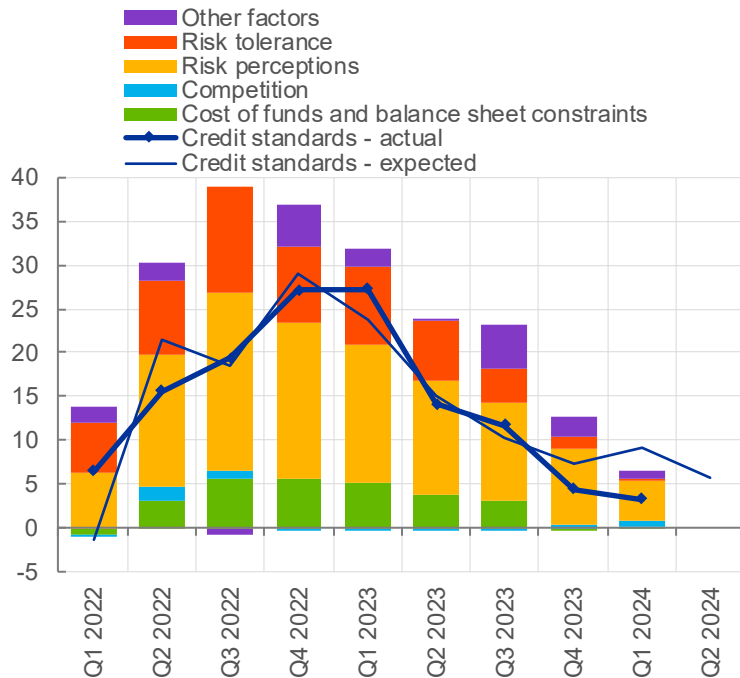


Source: ECB (MIR).

Notes: Interest rates on new business volumes refer to the indicator for the total cost of bank borrowing for firms and households for house purchase, which is calculated by aggregating short-term and long-term rates on new business using a 24-month moving average of new business volumes. The latest observations are for May 2024. **MIR data under embargo until 4 July 10:00 CET**

Changes in credit standards for loans to firms, and contributing factors

(net percentage of banks)



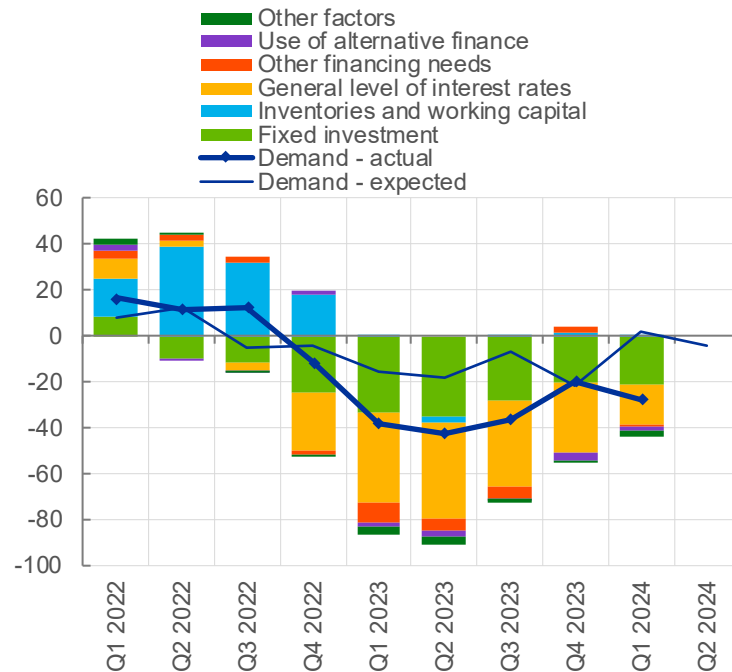
Source: ECB (BLS).

Note: "Other factors" refer to further factors which were mentioned by banks as having contributed to changes in credit standards.

Latest observation: 2024 Q1.

Change in demand for loans to firms, and contributing factors

(net percentage of banks)



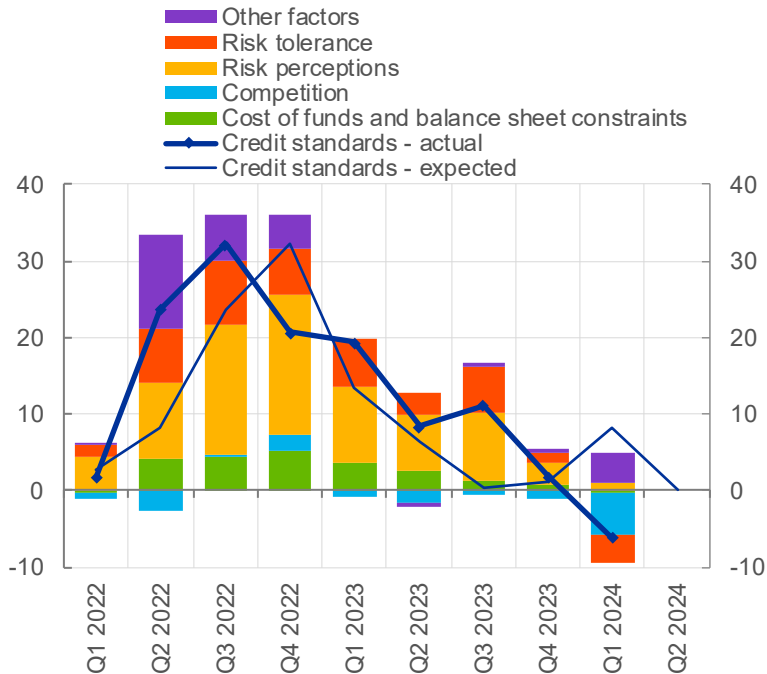
Source: ECB (BLS).

Notes: "Other financing needs" as unweighted average of "M&A and corporate restructuring" and "debt refinancing/restructuring and renegotiation"; "Use of alternative finance" as unweighted average of "internal financing", "loans from other banks", "loans from non-banks", "issuance/redemption of debt securities" and "issuance/redemption of equity".

Latest observation: 2024 Q1.

Changes in credit standards for loans to households, and contributing factors

(net percentage of banks)



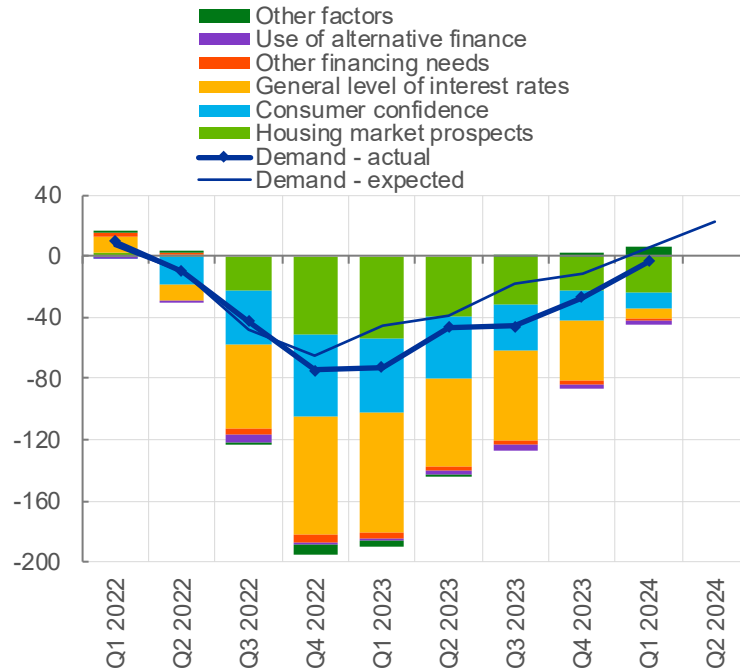
Source: ECB (BLS).

Note: "Other factors" refer to further factors which were mentioned by banks as having contributed to changes in credit standards.

Latest observation: 2024 Q1.

Change in demand for loans to households, and contributing factors

(net percentage of banks)



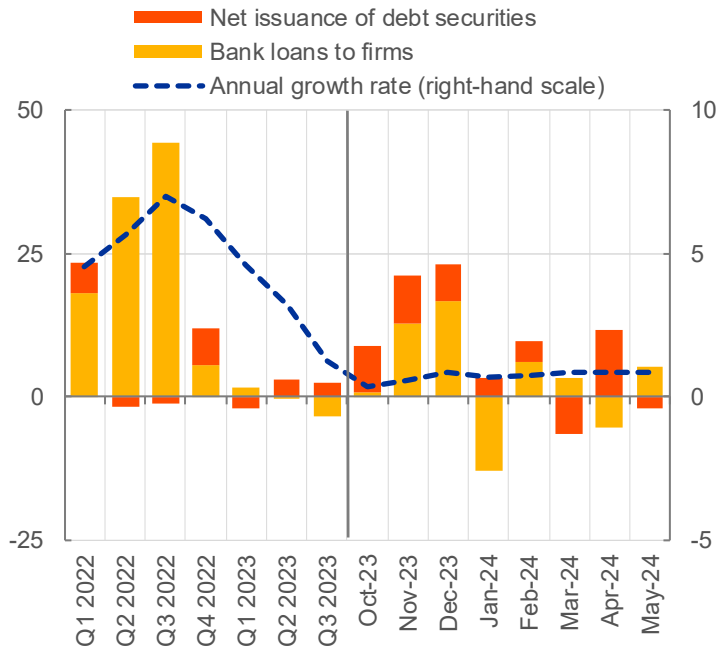
Source: ECB (BLS).

Notes: "Other financing needs" as unweighted average of "M&A and corporate restructuring" and "debt refinancing/restructuring and renegotiation"; "Use of alternative finance" as unweighted average of "internal financing", "loans from other banks", "loans from non-banks", "issuance/redemption of debt securities" and "issuance/redemption of equity".

Latest observation: 2024 Q1.

Net debt financing of euro area firms

(left scale: average monthly flows, in EUR billions; right scale: annual percentage changes)

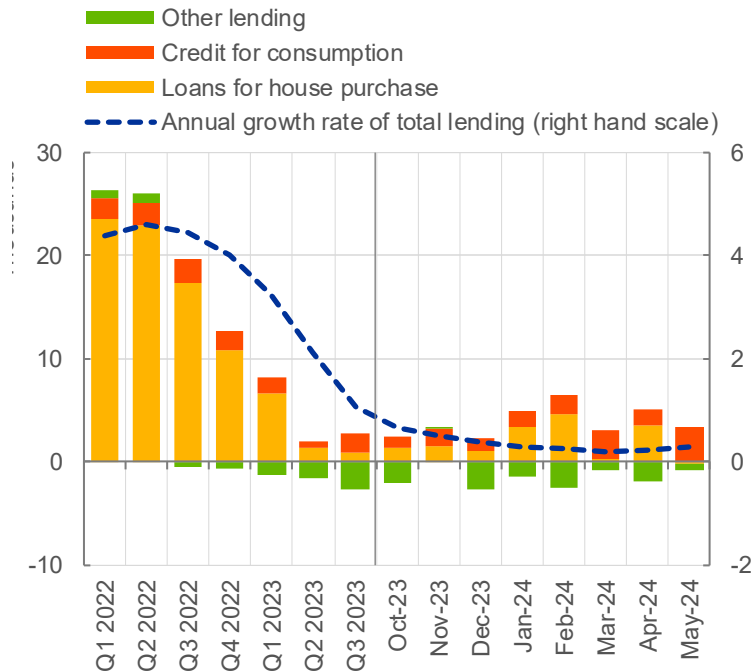


Sources: ECB (BSI, CSEC) and ECB calculations.

Notes: The net issuance of debt securities is seasonally adjusted internally. Bank loans to firms are adjusted for sales, securitisation and cash pooling. The latest observations are for May 2024.

Bank loans to households

(left scale: average monthly flows, in EUR billions; right scale: annual percentage changes)



Sources: ECB (BSI) and ECB calculations.

Notes: Bank loans to households are adjusted for sales and securitisation. The latest observations are for May 2024.