Survey use in policy

Measure unobserved expectations and perceptions

- Perceptions/short-term inflation expectations as a driver of consumer spending/saving
- Longer-term expectations as a signal about central bank credibility
- Narratives about the economy and the transmission of macroeconomic shocks

Infer behavioural responses to macroeconomic shocks

- Behavioural responses to high inflation

Collect timely data

- Microdata behind specific aggregates to account for compositional effects: individual wage growth and rent trackers
- Proxy macroeconomic aggregates ahead of their official release: saving rate

Term structure of inflation expectations

- Which horizons matter most for economic decisions and monetary policy?

Short-term inflation and spending/saving decisions

Inflation expectations
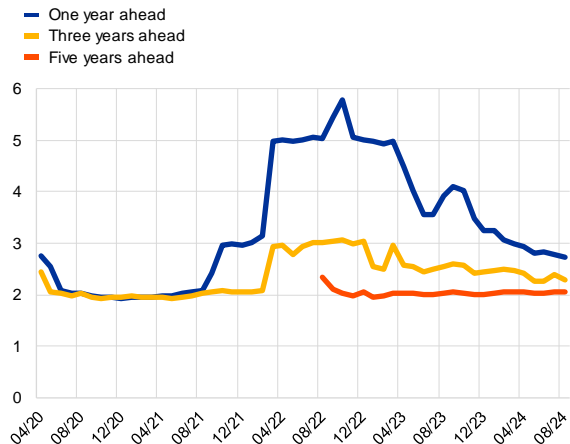### (annual percentage changes)
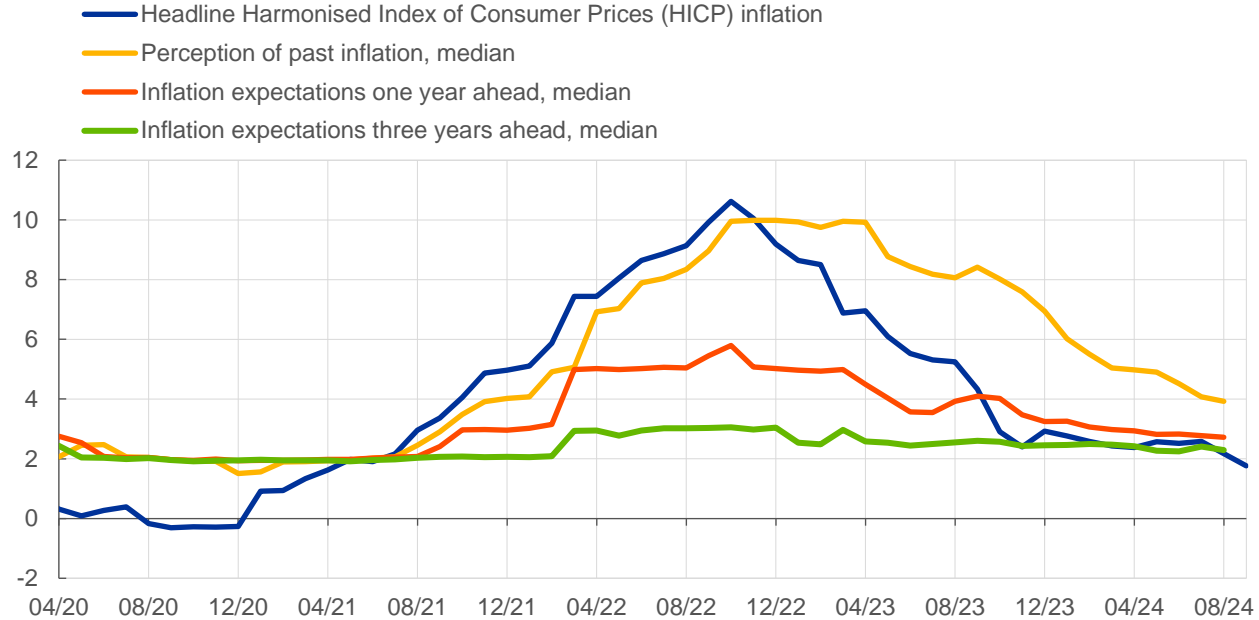
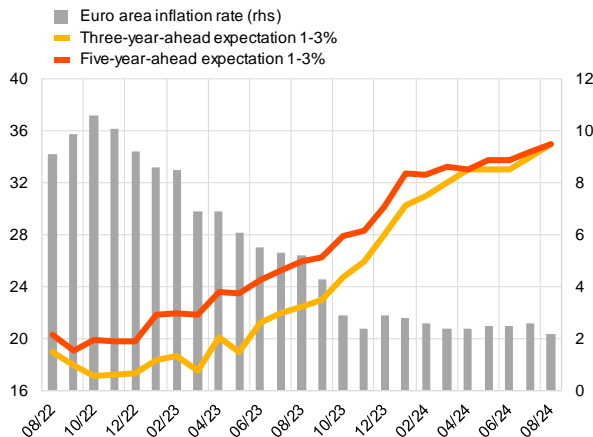Sources: ECB Consumer Expectations Survey (CES) and Eurostat.
Notes: Weighted estimates; inflation expectations are winsorised (2-98). The latest observations are for August 2024 for the CES and September 2024 (flash estimate) for the HICP.

# Longer-term inflation expectations and perceived central bank credibility

Consumer inflation expectations over time
(percentage change, median)

Legend:
- One year ahead
- Three years ahead
- Five years ahead

Expectations close to the ECB target
(percentage of respondents; percentage change)

Legend:
- Euro area inflation rate (rhs)
- Three-year-ahead expectation 1-3%
- Five-year-ahead expectation 1-3%

5-year-ahead inflation expectations and ECB credibility
(mean likelihood)

Legend:
- Perceived credibility of ECB's ability to keep prices stable

5-year-ahead inflation expectations
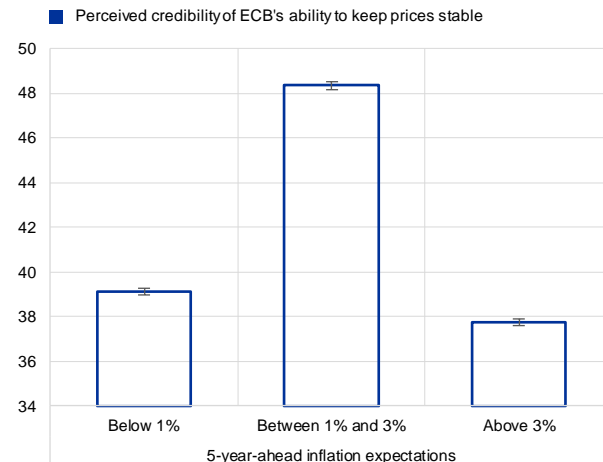
Source: ECB Consumer Expectations Survey (CES), latest data are for August 2024.
Notes: Weighted estimates of the median. Since April 2022 the CES has included five additional countries. The wording of the question is: "By about what percentage do you expect prices in general in the country you currently live in to increase (decrease) over (…)" followed by the dates of the next 12-month, 3-year or 5-year period." Expectations are winsorised at the country-wave level (2-98).

Source: CES, August 2022-August 2024.
Notes: Weighted estimates. Expectations are winsorised at country-wave level (2-98). The left-hand scale (lhs) represents the percentage of respondents whose 3/5-year-ahead inflation expectations are between 1% and 3%. The euro area inflation rate is the annual rate of change in the HICP.

Source: CES, August 2022-July 2024.
Notes: Weighted estimates. Expectations are winsorised at the country-wave level (2-98). The chart shows the mean perceived likelihood that the ECB will maintain price stability over the next 5 years by intervals of reported 5-year-ahead inflation expectations. The wording of the question is: "How likely do you think it is that the European Central Bank (ECB) will maintain price stability in the euro area economy over the next 5 years?".

Drivers of inflation – narratives and consumer beliefs

Drivers of inflation: by country
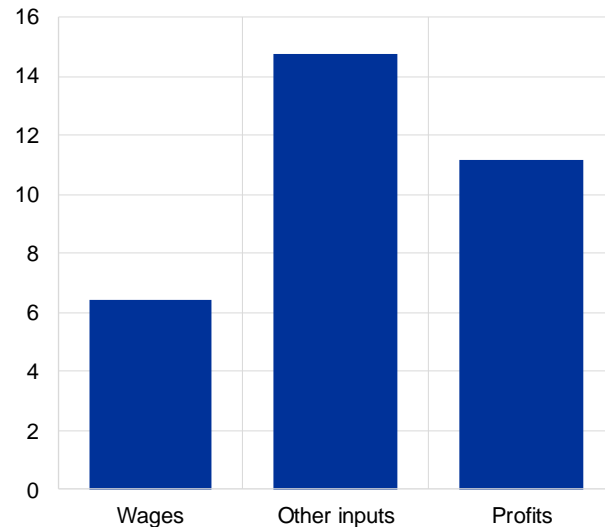(percentage of respondents)
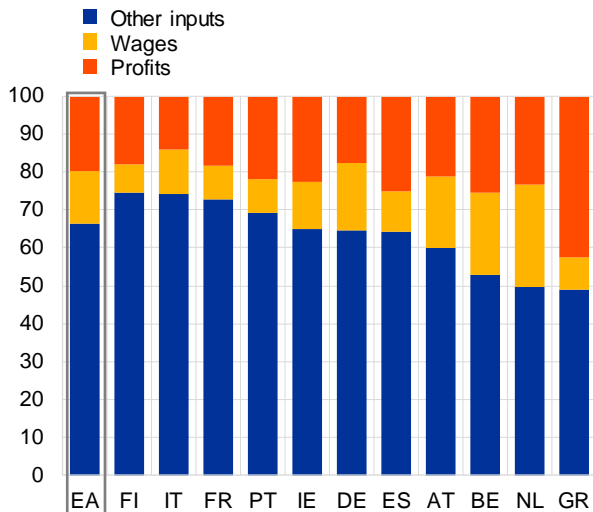
Source: CES.
Notes: Weighted estimates. Percentage of respondents picking each option per country. The question in the CES reads as follows: "According to your view, what is the main factor driving the change in the general level of prices for goods and services in your country during the past 12 months?". The options were: "1. The main driver is firms' profits. 2. The main driver is wage costs for firms. 3. The main driver is other input costs for firms (e.g. energy, raw material or other business costs)".

Change in beliefs since 2023
(percentage point change)

Source: CES.
Notes: The bars refer to weighted estimates of the change in the percentages of respondents selecting each answer option between June 2023 and March 2024.

Inflation expectations close to ECB target
(percentage point change)

Source: CES.
Notes: Weighted estimates. Change in percentage of respondents with 3-year-ahead inflation expectations within the 1% to 3% range, by perceived main driver of inflation in March 2024. Sample composed of respondents who participated in both the June 2023 and March 2024 surveys.

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- Microdata behind specific aggregates to account for compositional effects: individual wage growth and rent trackers
- Proxy macroeconomic aggregates ahead of their official release: saving rate
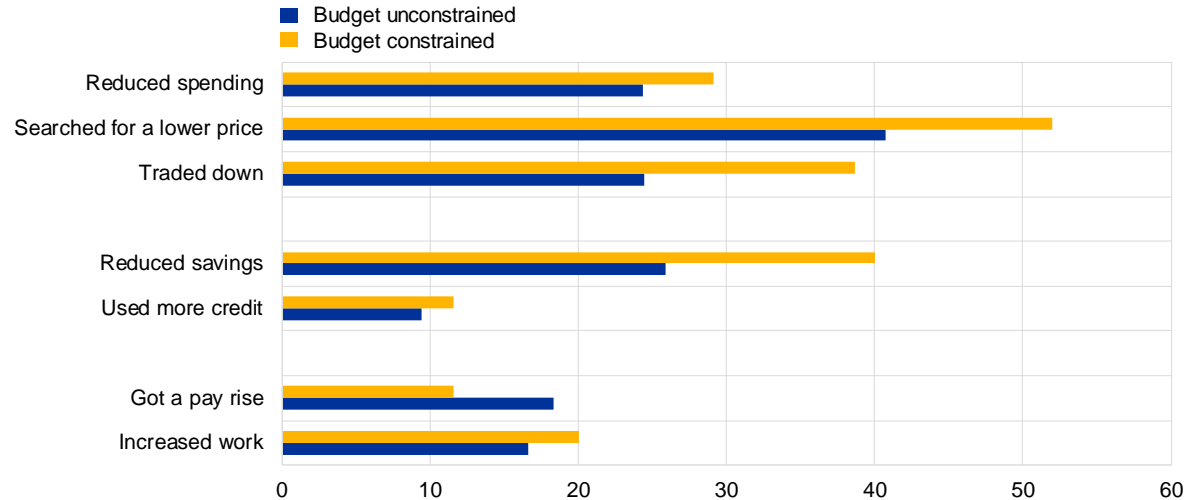
Term structure of inflation expectations

- Which horizons matter most for economic decisions and monetary policy?

Changes in consumer behaviour in response to high prices

Changes across all margins
(percentage of respondents)
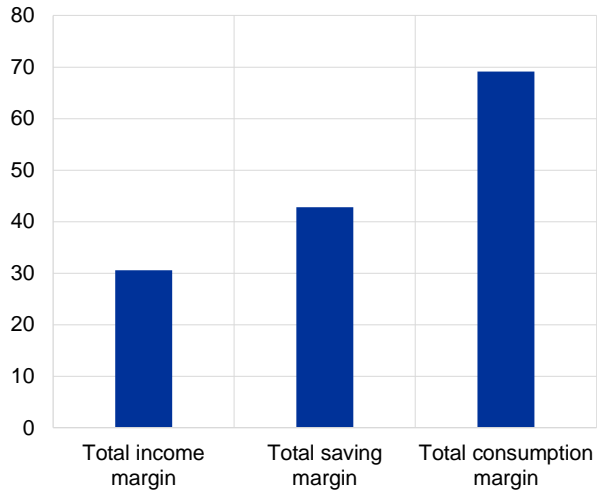
Changes within margins
(percentage of respondents)

Sources: CES and ECB calculations.
Notes: The question in the CES reads as follows: "Please think about your expectations for changes in prices in general over the past 12 months. Which of the following actions, if any, have you taken over the past 12 months because of these price changes? Please select all options that apply. 1. Brought forward major purchases of durable goods. 2. Reduced usual spending and put aside more money. 3. Shopped around more actively to find the best price for the same exact product or service. 4. Substituted goods and services with cheaper alternatives. 5. Saved less than usual or liquidated (some or all) savings to finance spending. 6 Used more credit than usual to finance spending (e.g. increased balance on credit cards or other consumer loans). 7. Got a pay rise from your current employer or found a higher paying job. 8. Increased your income in other ways (e.g. took on a second job, worked more hours with current employer). 9. None of the above."

Survey use in policy

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Interpretation of aggregates: wage and rent growth

CES wages and CPH by country
### (annual percentage change)

- ■ CES hourly wage growth (excludes one-off payments)
- ● Compensation per hour (CPH) growth Q2/24
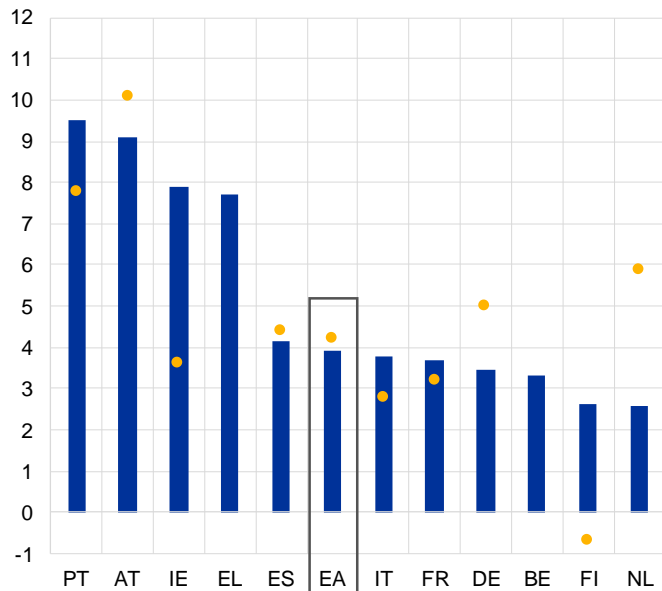
Sources: CES, Eurostat and ECB calculations.
Notes: Weighted estimates. Each quarter, respondents report their net monthly earnings from their main job during the previous month, as well as their average hours worked over the past three months. The figure shows the median of the distribution of individual 12-month hourly wage changes for each country and the euro area; CPH for the euro area refers to the EA20 aggregate. The latest observations are for July 2024 for the CES and Q2 2024 for CPH obtained from national accounts data. Data for Greece and Belgium are missing.

CES wages:
by job tenure and sector
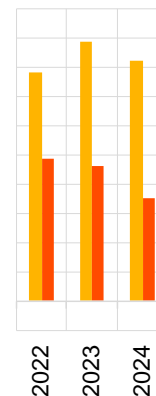### (annual percentage change)

Sector   Job tenure
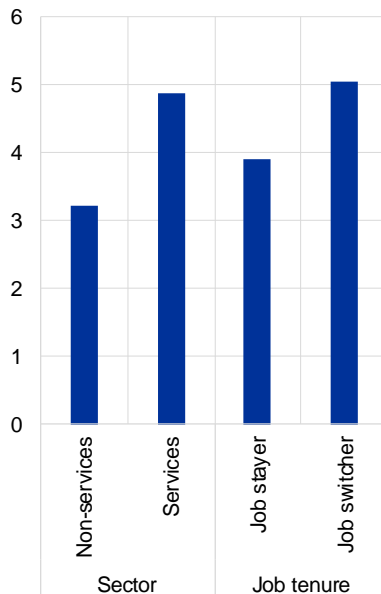
Source: CES.
Notes: Weighted estimates. "Job switchers" are defined as individuals who have been with their current employer for less than a year.
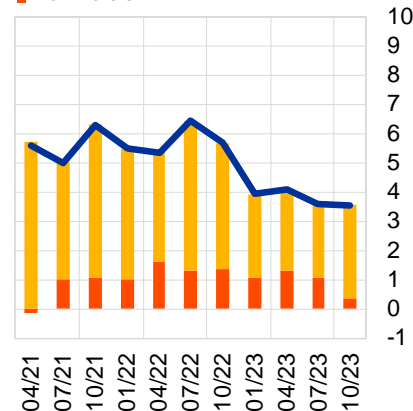
Average rent growth
(percentage contributions)

Growth rates
- ■ Average 0-1 years
- ■ Average non-movers

Growth rate decomposition
- ▬ Year-on-year growth rate
- ■ 0-1 years
- ■ Non-movers

Source: CES.
Notes: Weighted estimates. The blue line depicts the combined two-quarter moving average of the year-on-year growth rate. Rent increases of more than 100% are winsorised as well as rent decreases of more than 50%, while increases and decreases exceeding 1000% and 90% respectively are trimmed. 0-1 years refers to the contribution of respondents who have lived in their current residence up to one year.

Proxy macroeconomic aggregates: saving rate

Euro area saving rate
(percentage of income)

— CES saving rate
— Eurostat saving rate
······ Eurostat long-term average saving rate (1999-2019)
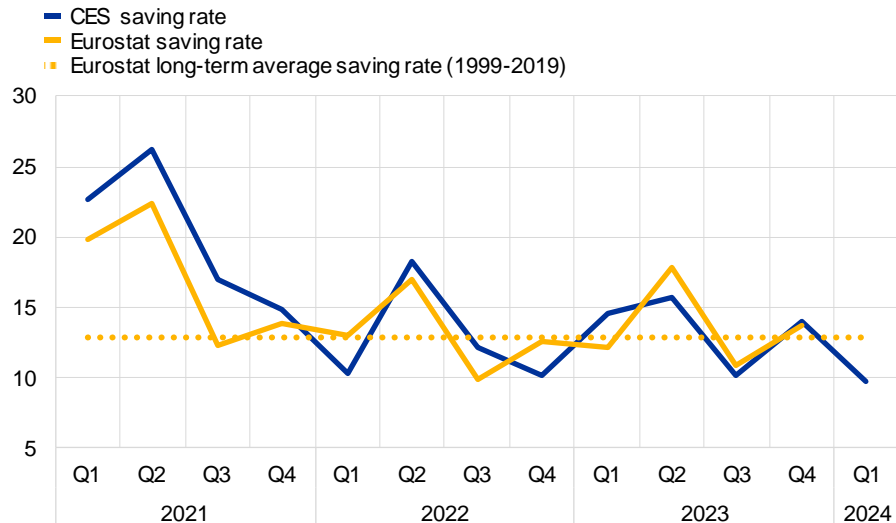
Sources: CES, Eurostat and ECB calculations.
Notes: The CES saving rate is defined as the ratio of savings to household net income; savings are computed as household net income minus consumption. The Eurostat saving rate is computed as the ratio of gross savings to households' gross disposable income. The dotted line refers to the long-term average over 1999-2019. All series are non-seasonally adjusted. For CES data, the sample comprises the EA11 countries: Belgium, Germany, Ireland, Greece, Spain, France, Italy, Netherlands, Austria, Portugal and Finland. The latest observations are for the first quarter of 2024 for the CES and for the third quarter of 2023 for the Eurostat Quarterly Sector Accounts (QSA).

Decomposition of the saving rate
(2023 vs. 2022, percentage point change)
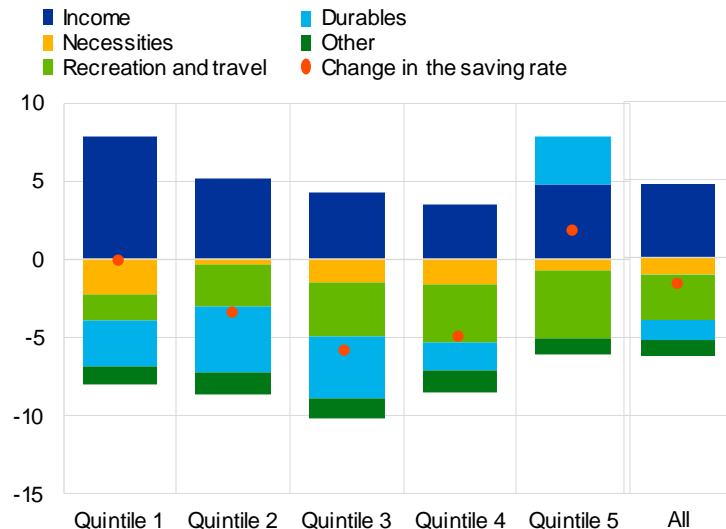
■ Income   ■ Durables
■ Necessities   ■ Other
■ Recreation and travel   ● Change in the saving rate

Sources: CES and ECB calculations.
Notes: The chart shows the decomposition of the change in the saving rate by income quintile in 2023 on the left and the decomposition of the change in the aggregate saving rate for 2023 on the right. The sample comprises the EA-11 countries: Belgium, Germany, Ireland, Spain, France, Italy, Luxembourg, Netherlands, Austria, Portugal and Finland. The latest observation is for 2023.

Survey use in policy

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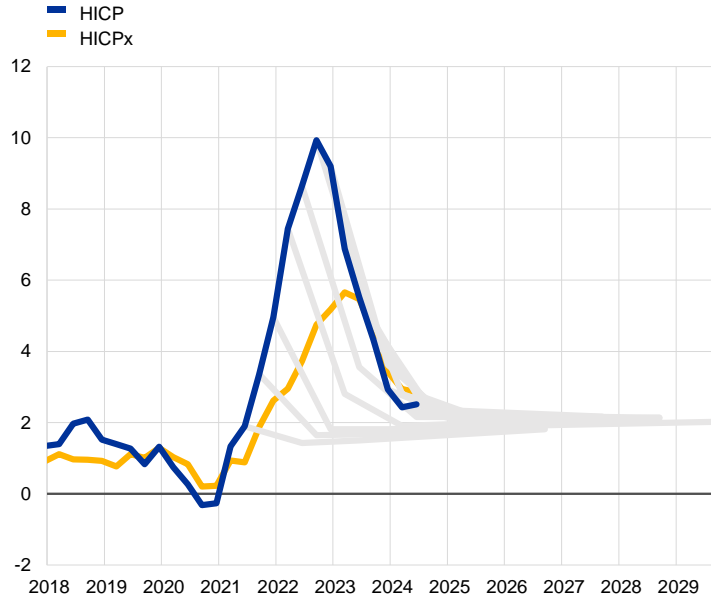- Proxy macroeconomic aggregates ahead of their official release: saving rate

Term structure of inflation expectations

- Which horizons matter most for economic decisions and monetary policy?

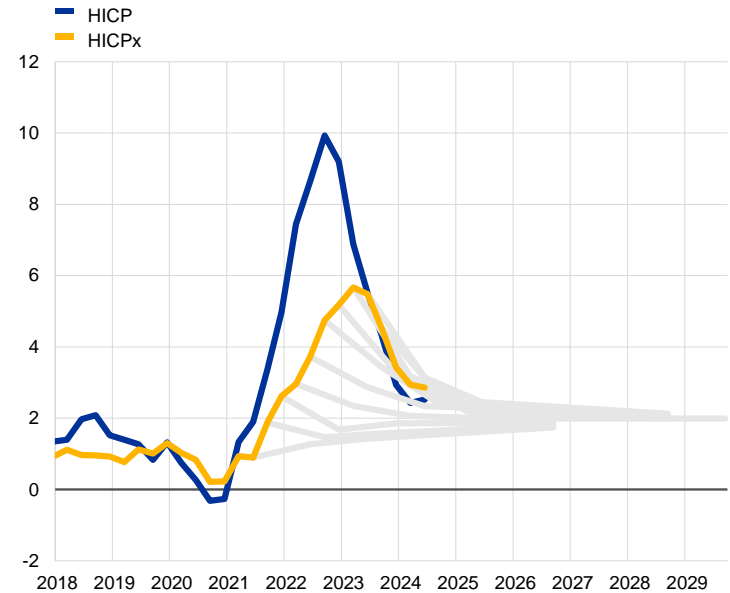# Term structure of inflation expectations remained downward sloping

SPF inflation term structure
(annual percentage change)

Source: Eurostat, ECB Survey of Professional Forecasters (SPF) and ECB staff calculations
Notes: The grey shaded lines show average SPF inflation expectations for the one-year ahead, two-years ahead and longer-term (four or five calendar years ahead) horizons from the SPF rounds over the period Q3 2021 to Q3 2024
Latest Data: Q3 2024

SPF core inflation term structure
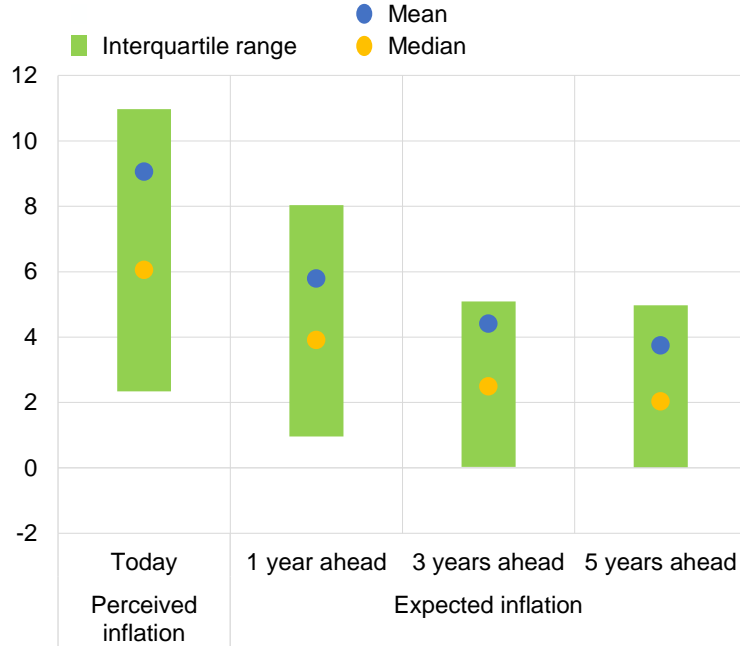(annual percentage change)

Source: Eurostat, ECB Survey of Professional Forecasters (SPF) and ECB staff calculations
Notes: The grey shaded lines show average SPF core inflation expectations for the one-year ahead, two-years ahead and longer-term (four or five calendar years ahead) horizons from the SPF rounds over the period Q3 2021 to Q3 2024
Latest Data: Q3 2024

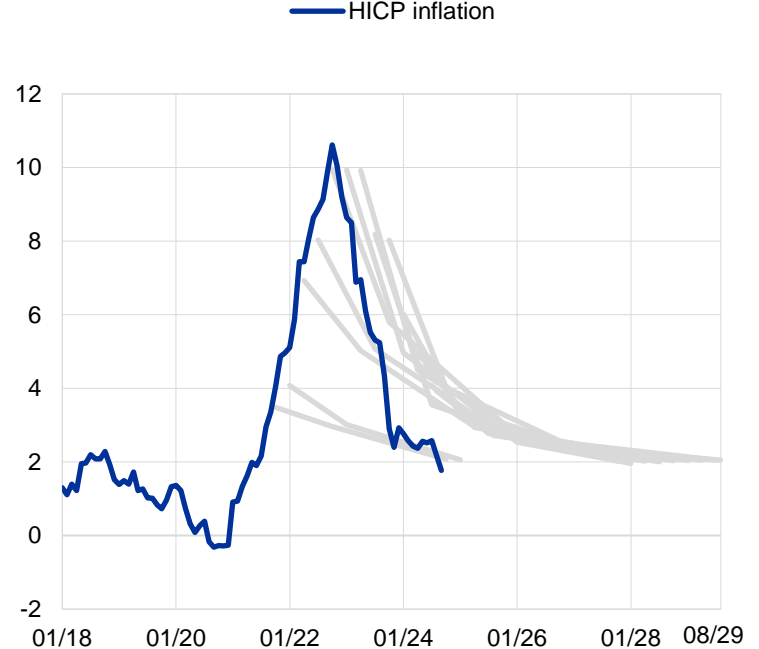# Term structure of consumer inflation expectations also downward sloping

Term structure of consumer inflation expectations
(annual percentage change)

Sources: ECB Consumer Expectations Survey (CES) and ECB staff calculations
Note: Pooled data for July 2021 to August 2024.

Consumer inflation expectations through the peak
### (annual percentage change)

Sources: Eurostat, CES and ECB staff calculations
Notes: The grey shaded lines show median consumer inflation perceptions of current inflation and inflation expectations for the one, three and five-year-ahead horizons over the period October 2021 to August 2024. The latest HICP data are for September 2024 (flash estimate).

Firm inflation expectations in Survey on the Access to Finance of Enterprises

Firm inflation expectations by size classes
(annual percentages)
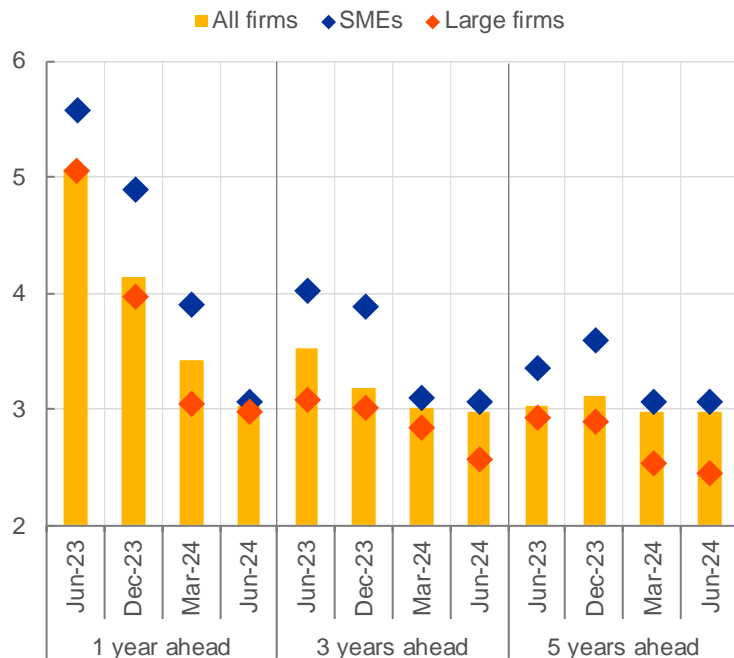
Sources: ECB SAFE and ECB calculations.
Notes: Survey-weighted median of firms' expectations for euro area inflation in one year, three years and five years. Quantiles are computed by linear interpolation of the mid-distribution function. The statistics are computed after trimming the data at the country-specific 1st and 99th percentiles. The latest observation is for June 2024.

Risks perceived by firms about euro area inflation five years ahead
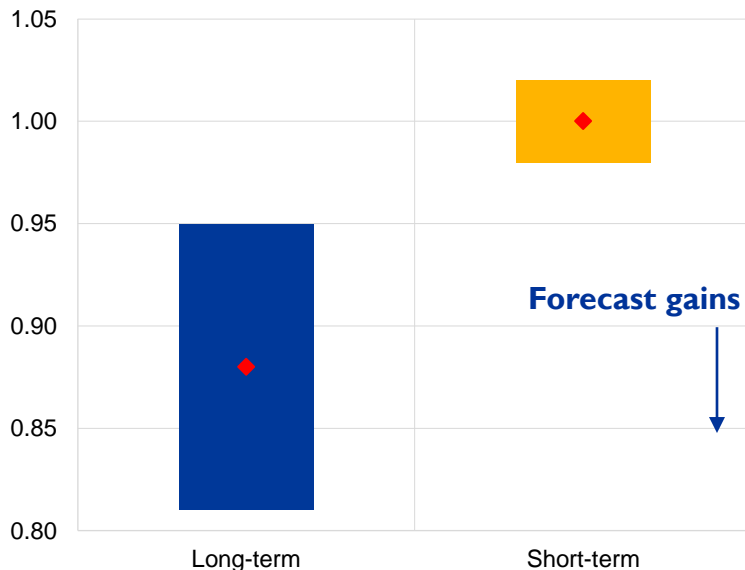(weighted percentages)
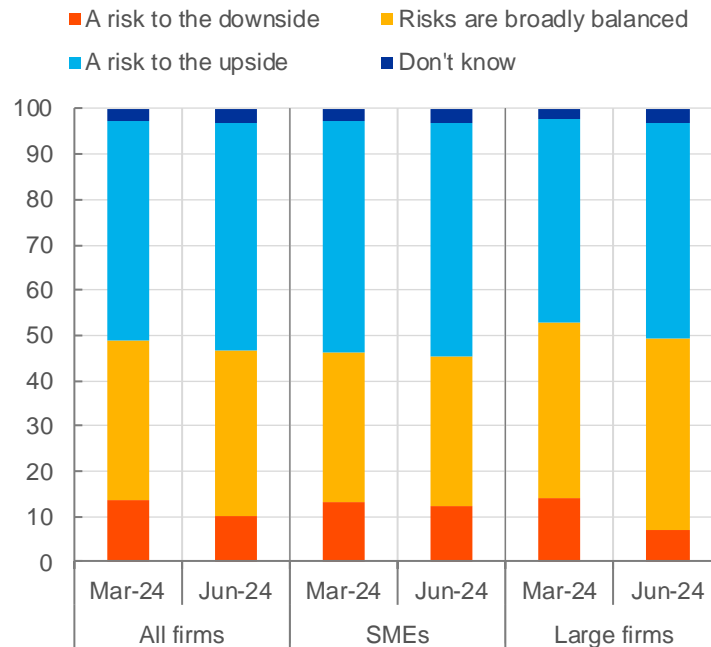
Sources: ECB SAFE and ECB calculations.
Notes: Survey-weighted percentages of firms' subjective inflation outlooks over the next five years. Firms that answered "Don't know" to Question 31 are not considered. The data included in the chart refer to Question 33 of the survey. The latest observation is for June 2024.

Inflation expectations by horizon – role in predicting inflation

Inflation expectations
Forecast gains 1-2 years ahead

(relative RMSFE of Bayesian VAR models incorporating inflation expectations to those not containing expectations)

Short-term selling price expectations
Turning point detection

(lhs: annual percentage changes; rhs: balance of responses)

- HICP services
- Selling price expectations (right-hand scale)
- HICP services turning points
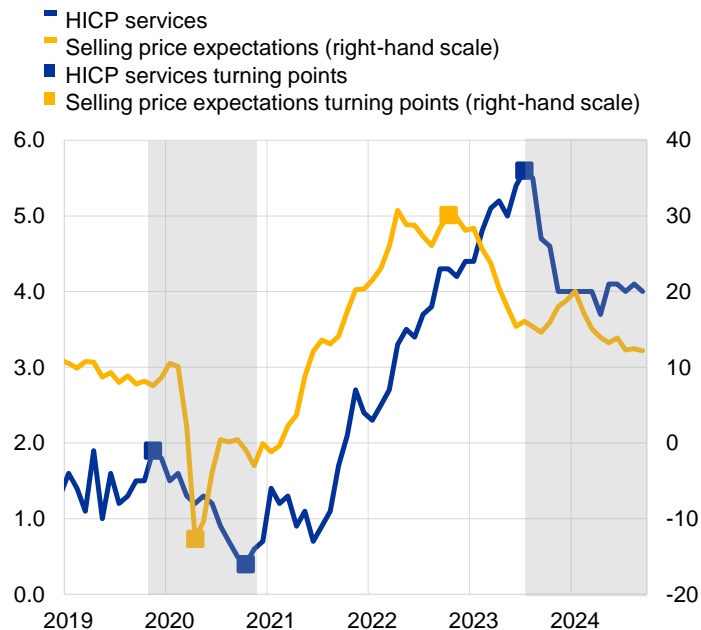- Selling price expectations turning points (right-hand scale)

Sources: ECB staff calculations based on the results in Banbura, Leiva-Leon and Menz (2021).
Notes: Values smaller than one mean that the models with expectations are more accurate. The blue bar represents relative Root Mean Square Forecast Errors (RMSFEs) for Bayesian vector autoregressions (BVARs) where long-term expectations help "pin down" the mean. The yellow bar represents relative RMSFEs where short-term expectations are added as an explanatory variable. The ranges collect the relative RMSFE for different forecast horizons (one and two years), inflation measures (headline and core), and countries (euro area and seven largest euro area countries plus Finland).

Source: Eurostat, European Commission and ECB calculations.
Notes: Shaded areas show downturns for services inflation. The turning points are identified using a modified Bry and Boschan algorithm (see Bry, G. and Boschan, C., "Programmed Selection of Cyclical Turning Points", in Bry, G. and Boschan, C. (eds.), *Cyclical Analysis of Time Series: Selected Procedures and Computer Programs*, National Bureau of Economic Research, 1971, pp. 7-63). The latest data are for September 2024.

# A notable backward-looking component in short-term expectations across agents

Headline inflation and qualitative one-year ahead consumer expectations
(annual growth rate, balance of responses)

- HICP
- Inflation expectations one year ahead (rhs)

Sources: Eurostat and European Commission.
The latest data are for September 2024.

Dependence of survey inflation expectations at various horizons on past inflation
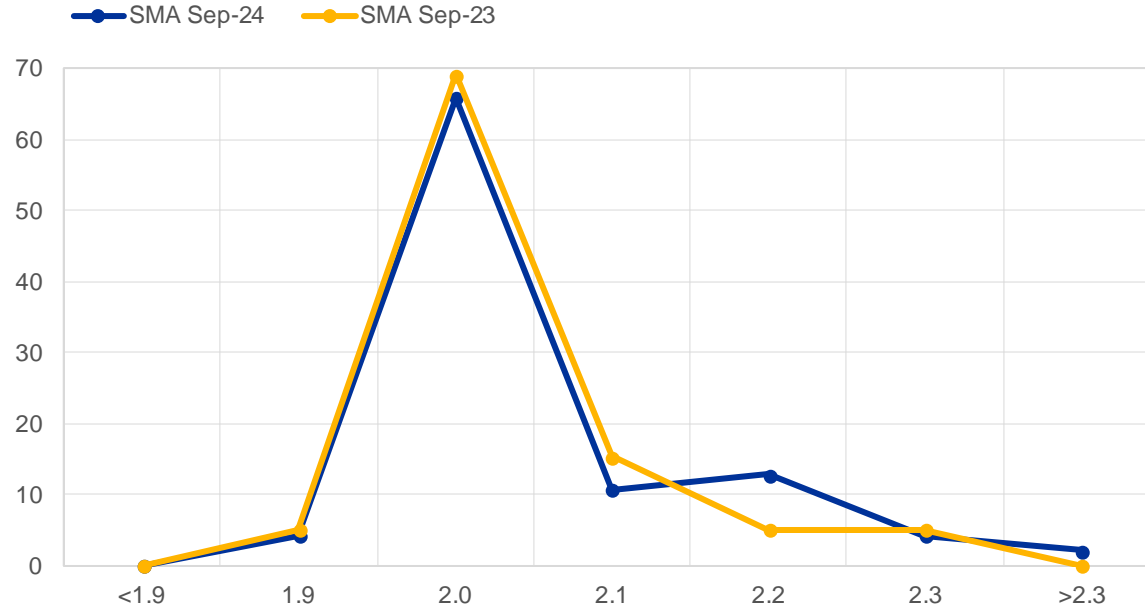
- Elasticity
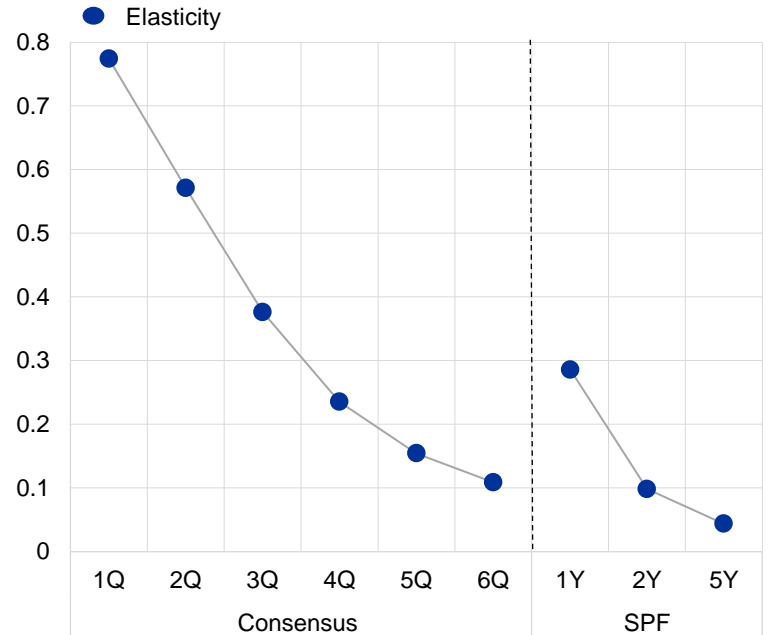
Sources: ECB calculations.
Note: Based on an equation where the survey inflation expectation is regressed against a constant and past inflation on a sample starting in Q1 1999.

Anchoring of longer-term inflation expectations of professionals

SMA: distribution of long run inflation expectations
(percentage of respondents)

Source: SMA.
Note: Vertical axis shows per cent of respondents; horizontal axis shows the HICP inflation rate. The latest observation is for September 2024.

Market-based inflation compensation

5y euro area inflation-linked swap rate
(percentage points per annum)

— 5y inflation-linked swap rate

Sources: Bloomberg and ECB calculations.
Notes: The chart shows the five-year inflation-linked swap rate. The latest observation is for 30 September 2024.

Model-based decomposition of euro area inflation-linked swap rates
(percentage points per annum)

— 5y5y inflation-linked swap rate (fitted)
— Expectations component
▭ Risk premium component
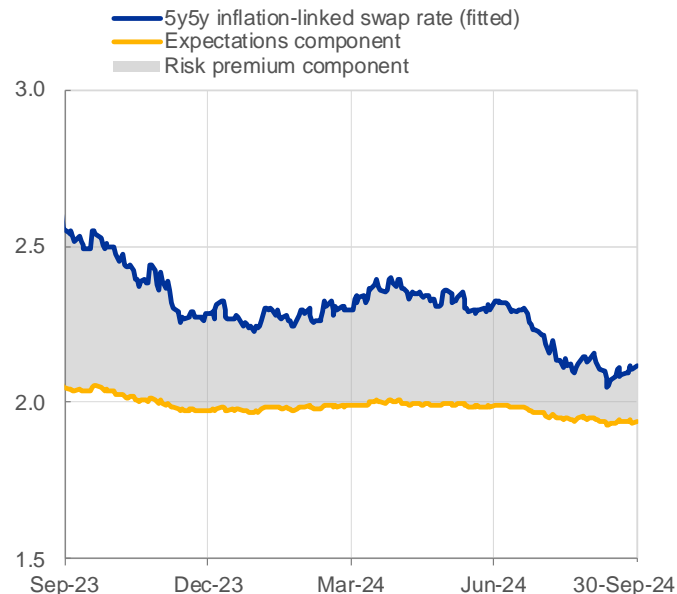
Sources: Bloomberg, LSEG and ECB calculations.
Notes: The chart shows the decomposition of five-year ILS rate five years ahead in expectation and risk premium components. Premia-adjusted forward index-linked swap (ILS) rates are average estimates from two affine term structure models as in Joslin, Singleton and Zhu (2011) applied to index-linked swap (ILS) rates non-adjusted for the indexation lag; see Burban et al. (2022), ECB Economic Bulletin Issue 8, 2021, Box 4. The latest observation is for 30 September 2024.

Assessing balance of risks

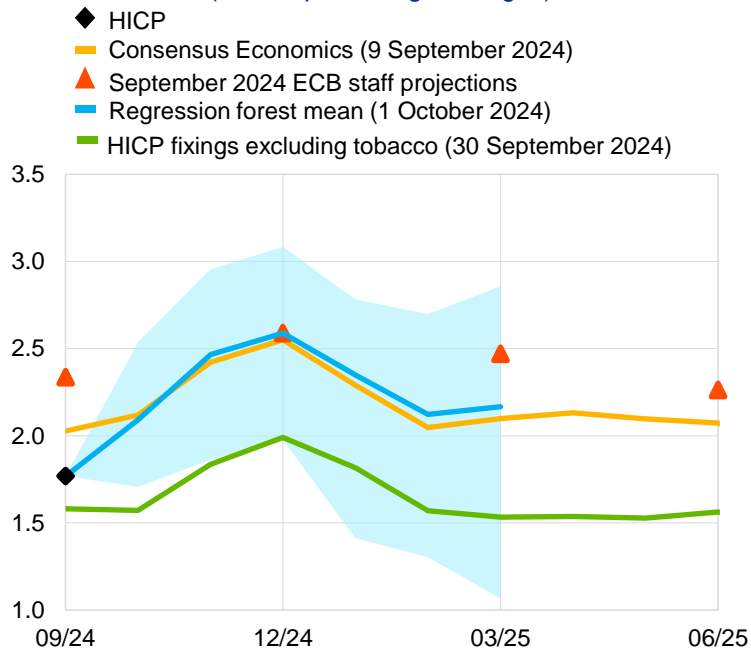## Balance of risks (BoR) to euro area inflation
(percentage points/100)
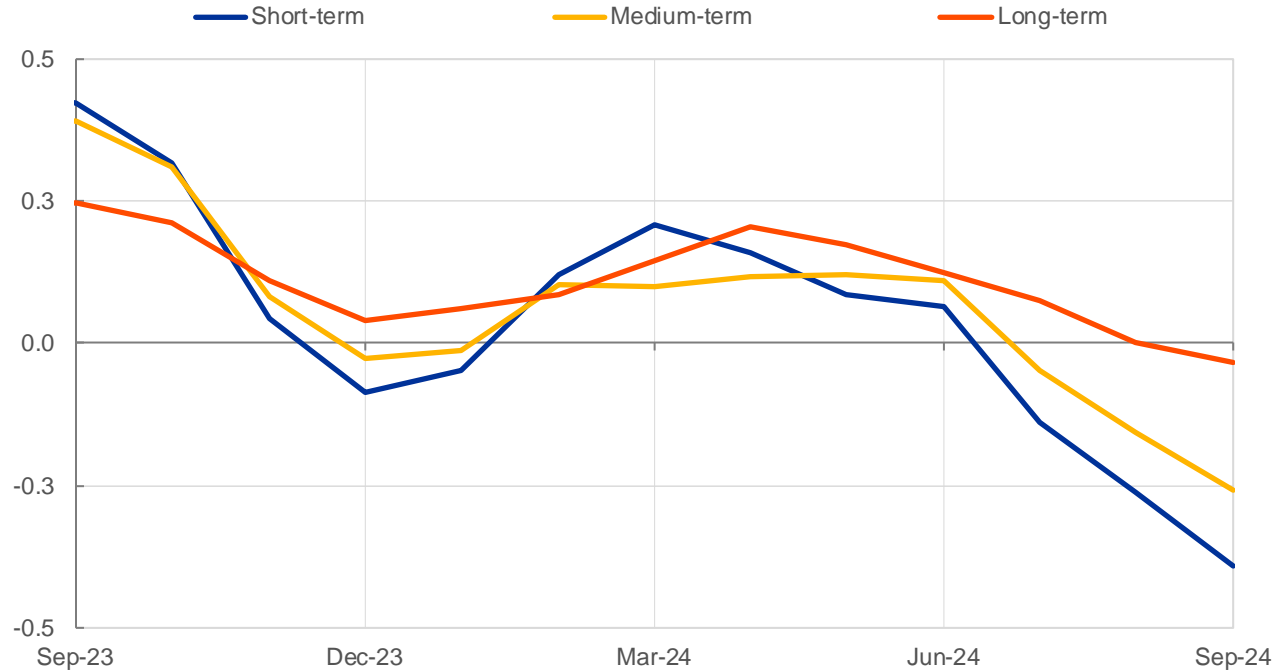
Sources: Bloomberg and ECB calculations.
Notes: As a synthetic market indicator of perceived risks to price stability, the balance of risks (BoR) is defined as the difference between the risk-neutral probability assigned to average inflation being above versus below the 2% quantitative definition of price stability over the lifetime of the option contract (see Garcia, J.A., Gimeno, R., Hinds, P.D., Su, H. and Tretyakov, M.V., 2024). Short, medium and long-term refer to the 2-years, 5-years and 5-years in 5-years maturities, respectively. The latest observation is for September 2024.

Short-term forecast of inflation

Short-term forecasts for HICP
(annual percentage changes)

◆ HICP
— Consensus Economics (9 September 2024)
▲ September 2024 ECB staff projections
— Regression forest mean (1 October 2024)
— HICP fixings excluding tobacco (30 September 2024)

Sources: Eurostat, September 2024 staff projections, Consensus Economics, Bloomberg and ECB staff calculations.
Notes: Quantile Regression Forest estimates (QRF) are from Lenza, Moutachaker and Paredes (2023).The range represents the 5th to 95th quantiles of the density forecasts from the non-linear model (QRF).The HICP fixings are observed market prices. The latest actual observation is for September 2024 (flash estimate).

Short-term forecasts for HICPX
(annual percentage changes)

◆ HICPX
▲ September 2024 ECB staff projections
— Regression forest mean (1 October 2024)
— Synthetic HICPX fixings (30 September 2024)
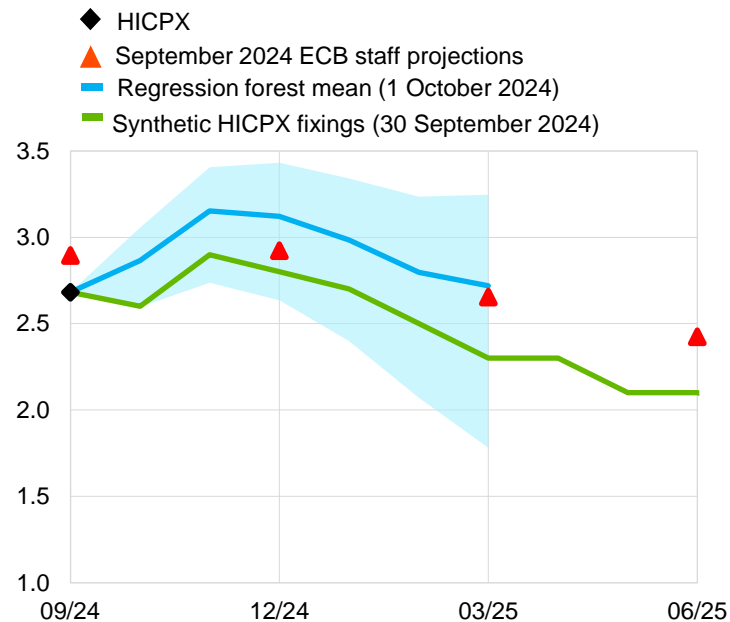
Sources: Eurostat, September 2024 staff projections, Bloomberg and ECB staff calculations.
Notes: QRF are from Lenza, Moutachaker and Paredes (2023). The range represents the 5th to 95th quantiles of the density forecasts from the non-linear model (QRF). The HICP fixings are observed market prices, whereas the HICPX fixings are estimated based on the model in Grønlund, Jørgensen and Schupp (2024). The latest actual observation is for September 2024 (flash estimate).