



EUROPEAN CENTRAL BANK

EUROSYSTEM

# Disinflation and the Phillips curve

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31 August 2023

Isabel Schnabel, Member of the Executive Board of the ECB  
Conference on “Inflation: Drivers and Dynamics 2023”



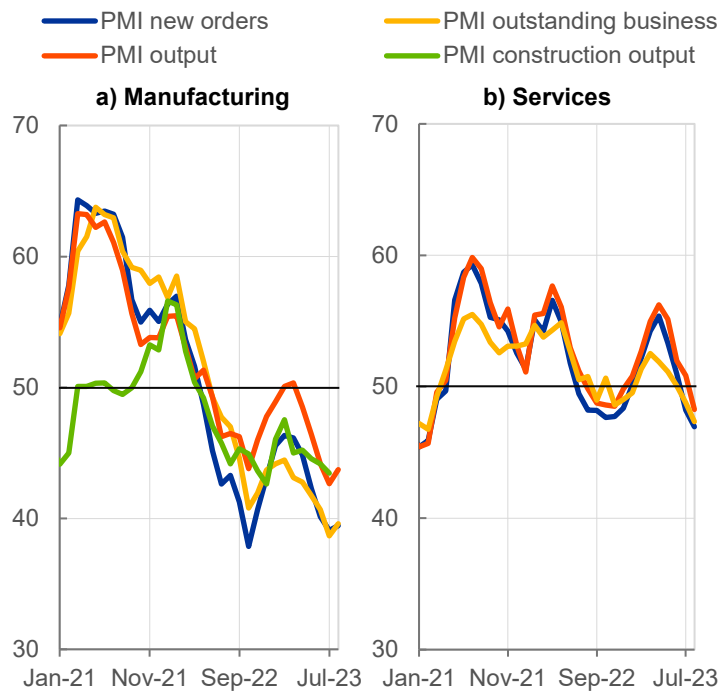
# Surveys point to weaker euro area growth and employment

## PMI activity indicators

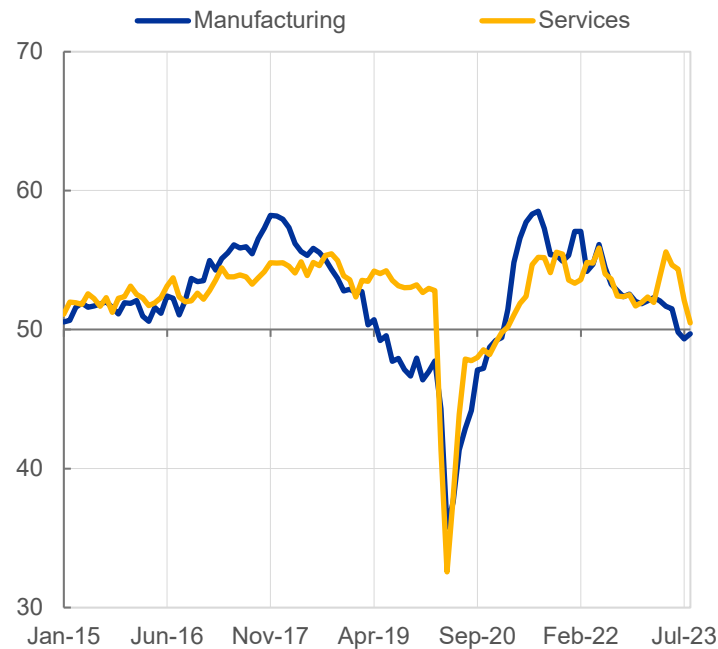
(diffusion indices)

## PMI employment

(diffusion indices)



Source: S&P Global.  
Latest observation: August 2023.



Source: S&P Global.  
Latest observation: August 2023.

# Falling headline inflation and rising wages are supporting consumer confidence

## Consumer confidence (standardised percentage balance)



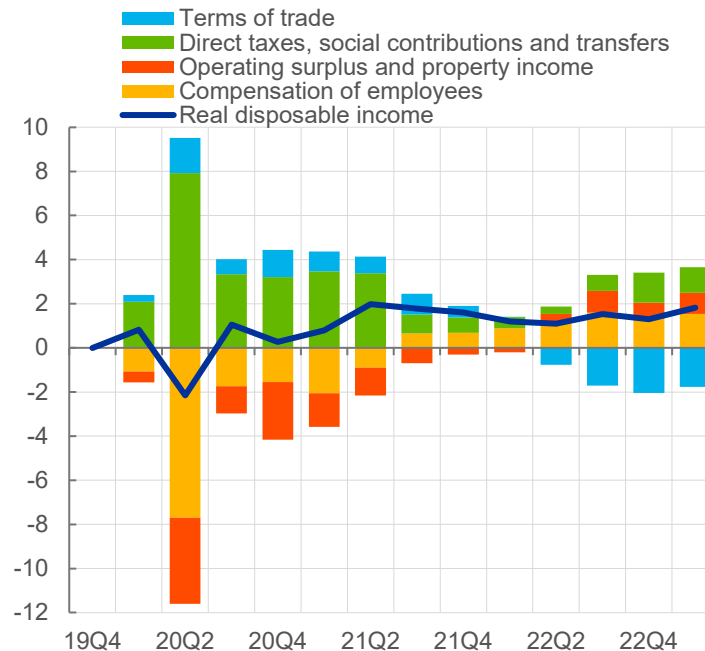
Source: DG-ECFIN.

Notes: The series is standardised over the period 1985-2019.

Latest observation: August 2023.

## Real disposable income

(index: Q4 2019 = 0, percentages and percentage point contributions)



Sources: Eurostat and ECB calculations.

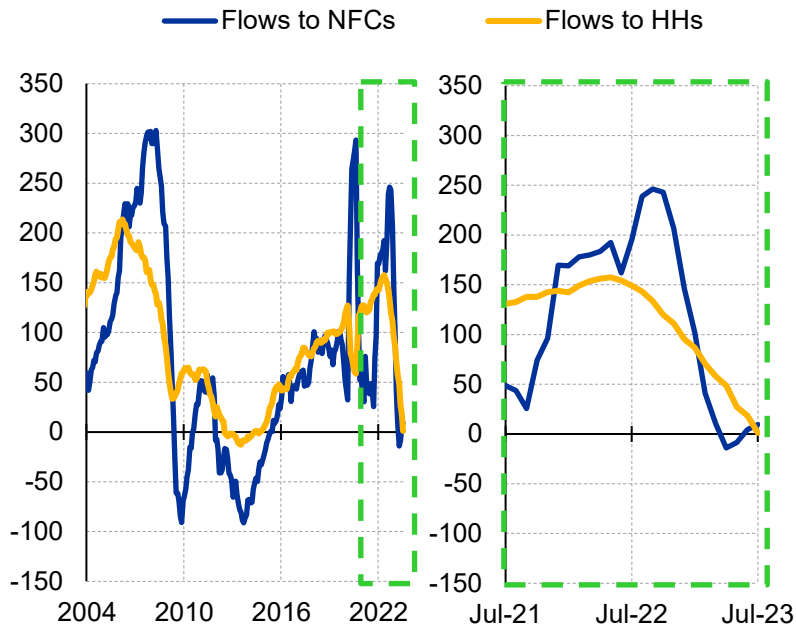
Notes: Disposable income is deflated with the private consumption deflator, whereas its components are deflated with the GDP deflator. "Terms of trade" are calculated as the ratio of GDP to the private consumption deflators. For more details, see [De Santis and Stoevsky \(2023\)](#).

Latest observations: Q1 2023.

# New lending has declined sharply as interest rates rise and credit standards tighten

## Lending to non-financial firms and households

(6-month cumulated flows in EUR bn, seasonally adjusted)



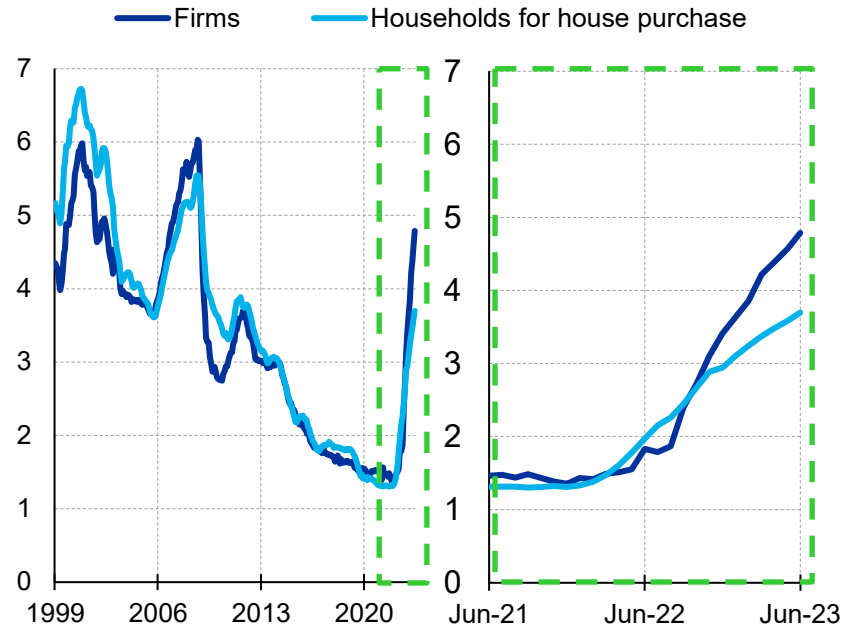
Sources: ECB (BSI) and ECB calculations.

Notes: Loans are adjusted for sales, securitisation and cash pooling.

Latest observation: July 2023.

## Composite cost of borrowing

(percentages per annum)



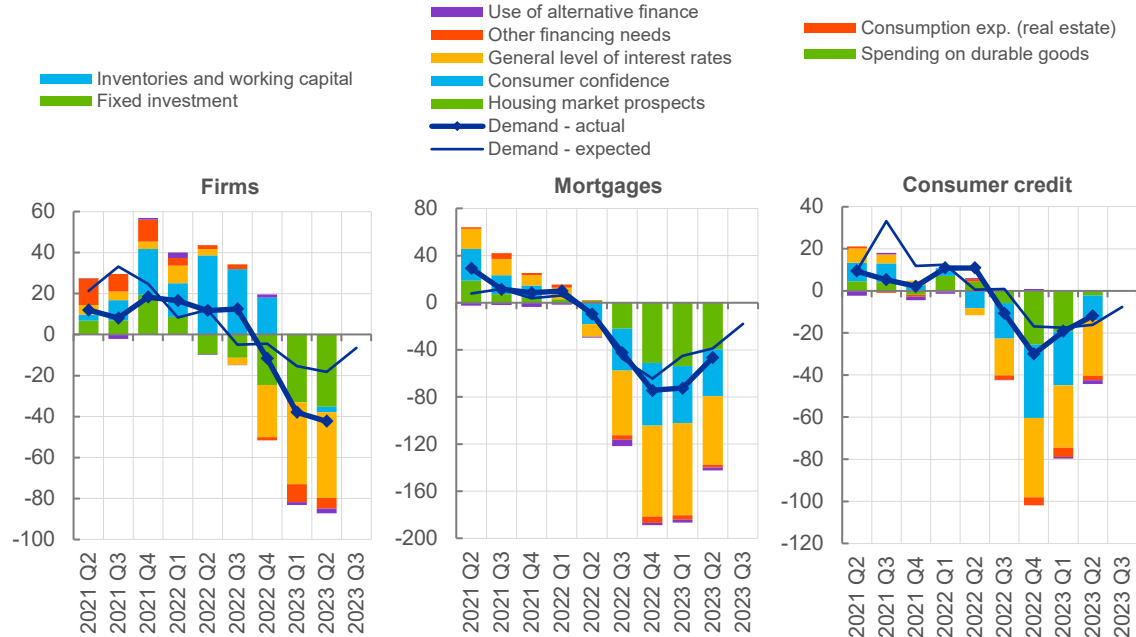
Sources: ECB (MIR) and ECB calculations.

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.

Latest observation: June 2023.

# Higher interest rates are a key factor causing the decline in loan demand

## Demand for loans to firms, households for house purchase and consumer credit (net percentages of banks)



Source: ECB (July 2023 Bank Lending Survey).

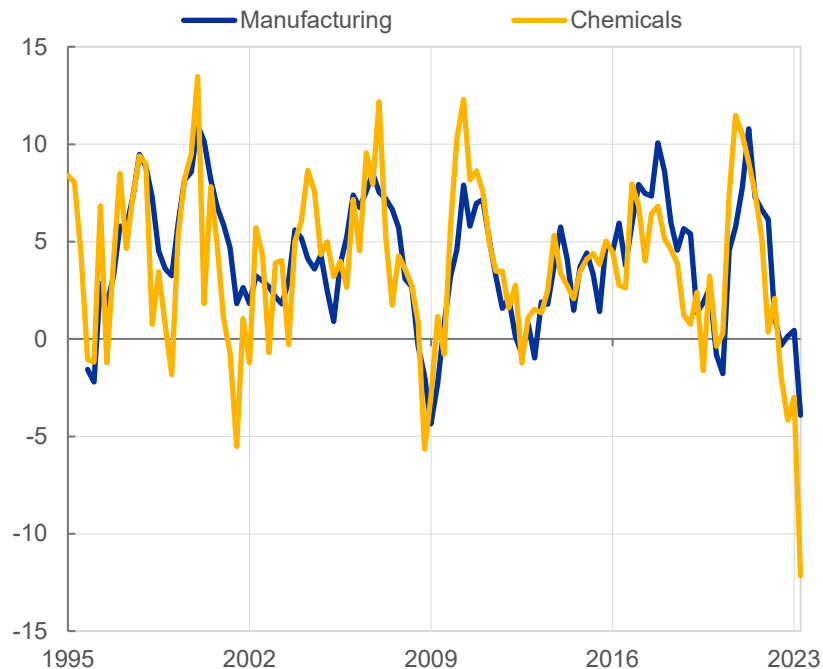
Notes: The net percentage refers to the difference between the sum of the percentages for “increased considerably” and “increased somewhat” and the sum of the percentages for “decreased somewhat” and “decreased considerably”.

Latest observation: 2023Q2.

# Energy shock threatens to leave permanent scars in the euro area

## Competitive position in domestic market

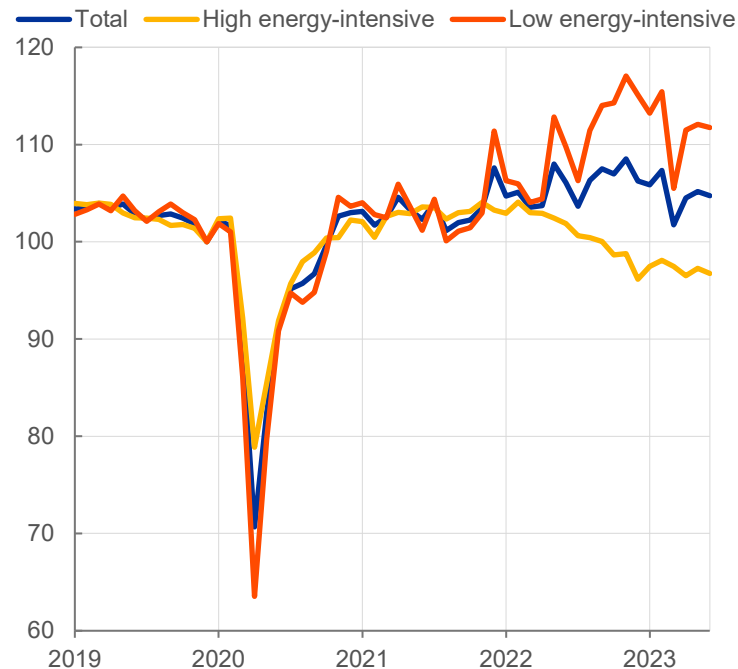
(percentage balance)



Source: DG-ECFIN.  
Latest observation: Q3 2023.

## Industrial production: manufacturing sector

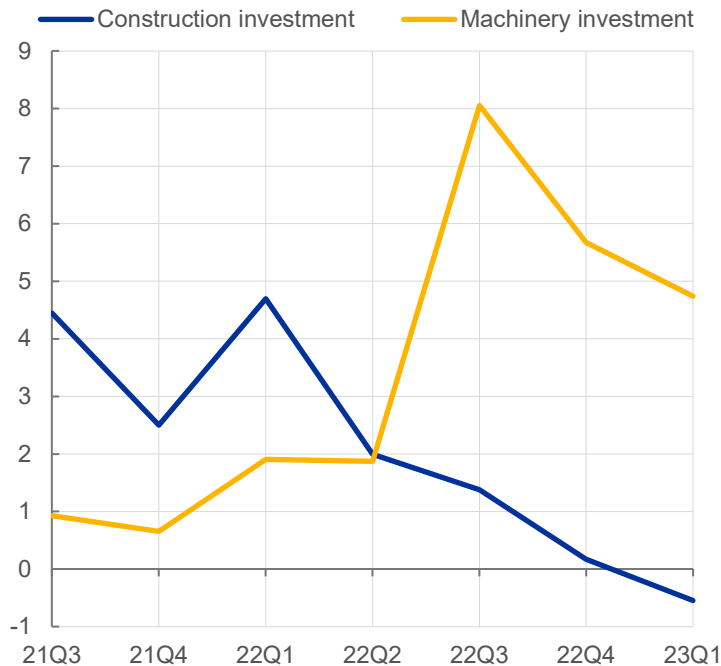
(index: December 2019 = 100)



Sources: Eurostat, Trade Data Monitor and ECB staff calculations.  
Notes: Data are seasonally-adjusted. Industrial production indices for individual sectors are aggregated with value-added weights. Low (high) energy-intensive sectors are defined as those with an energy intensity lower (higher) than that of the median sector. For more details, see [Chiacchio, De Santis, Gunnella and Lebastard \(2023\)](#).  
Latest observation: June 2023.

## Construction and machinery investment

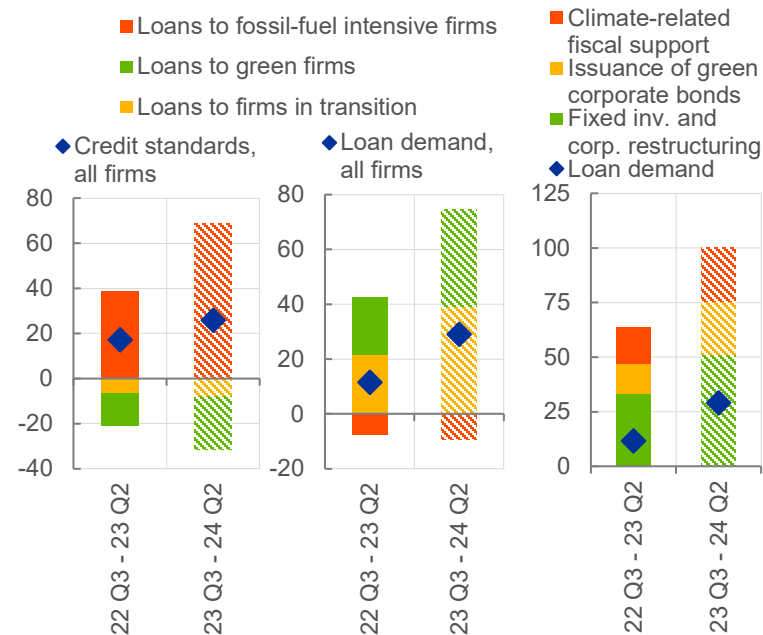
(y-o-y percentage change)



Source: Eurostat.  
Latest observations: Q1 2023.

## Impact of climate change on credit standards and loan demand

(net percentage of banks; over the past and next twelve months)



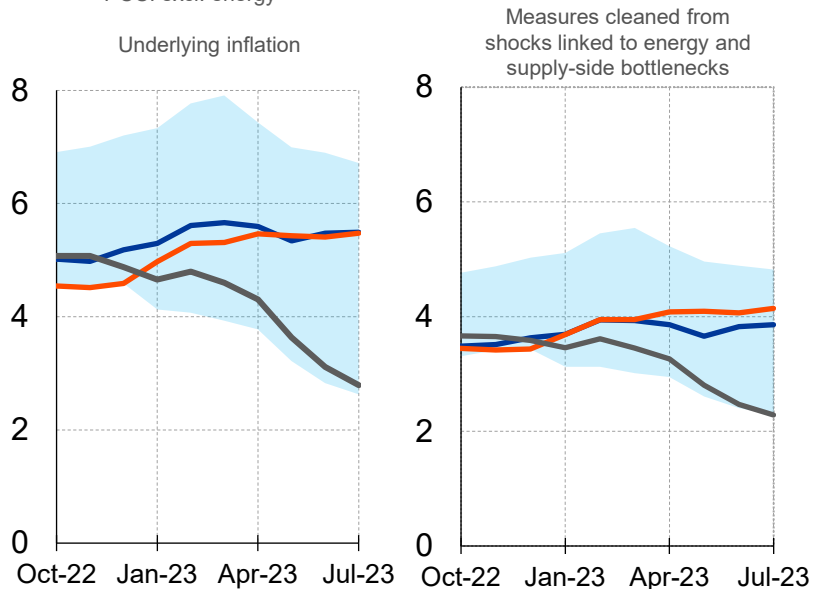
Source: ECB (July 2023 Bank Lending Survey).

Notes: "Green firms": firms that do not contribute, or contribute little, to climate change; "Firms in transition": firms that contribute to climate change but are making relevant progress in the transition; "Fossil-fuel intensive firms": firms that contribute strongly to climate change, and have not yet started, or have so far made only little progress, in the transition. Net percentages are defined as the difference between the percentages of banks reporting "contributed considerably/somewhat to tightening" and the percentages of banks reporting "contributed somewhat/considerably to easing". Latest observation: 2023Q2.

# Underlying inflation measures point in different directions and remain too high

## Underlying inflation measures (annual percentage changes)

- Domestic
- HICPX
- PCCI excl. energy

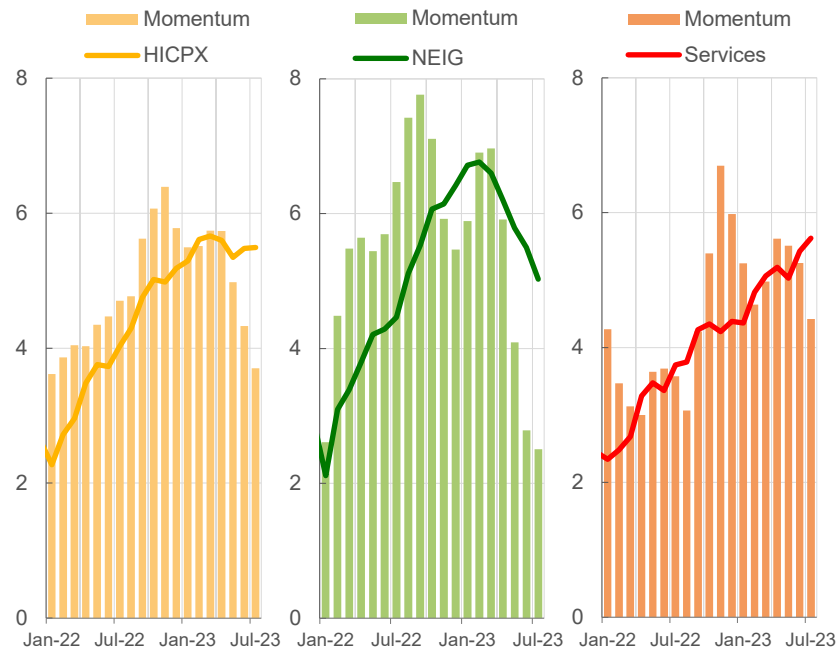


Sources: Eurostat, ECB calculations.

Notes: Adjustments based on Bańbura, M., Bobeica, E. and Martínez Hernández, C., "What drives core inflation? The role of supply shocks" (forthcoming) using a large BVAR model accounting for many drivers of inflation (17 variables), identified with zero and sign restrictions and estimated from January 1995 to June 2023. Latest observation: July 2023.

## Inflation momentum for HICPX, goods and services

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



Sources: Eurostat, ECB calculations.

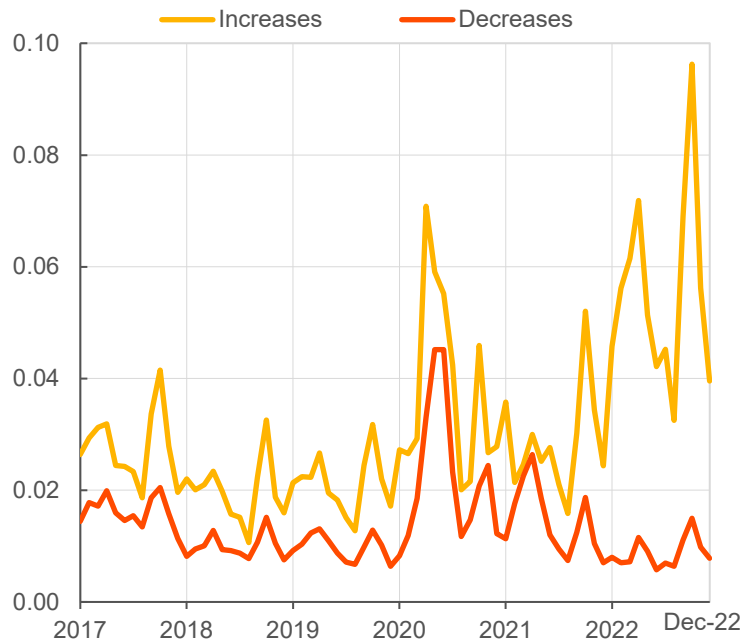
Notes: Momentum is defined as annualised 3 months-on-3 months rates of seasonally adjusted data. HICPX, NEIG and services are non-seasonally adjusted. Latest observation: July 2023.



# Firms change their prices more frequently when faced with large cost-push shocks

## Frequency of price adjustment in Italy

(share of items with a price change compared to previous month)

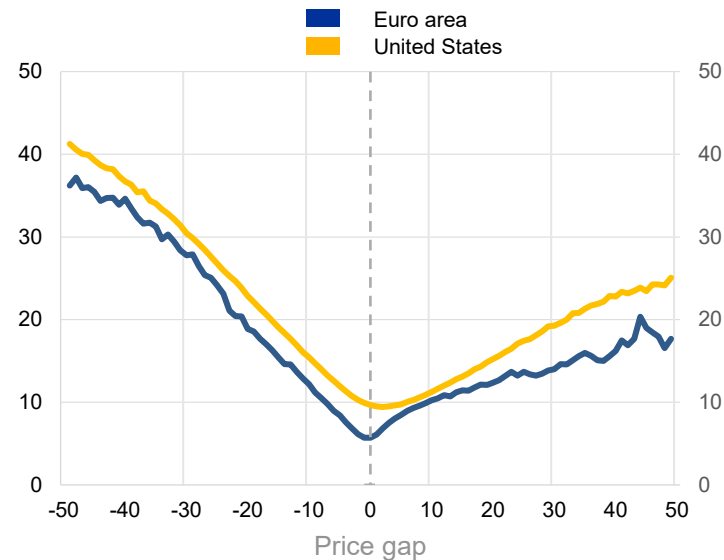


Sources: Istat and Banca d'Italia staff calculations.

Notes: Statistics computed excluding temporary sales.

Latest observation: December 2022.

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



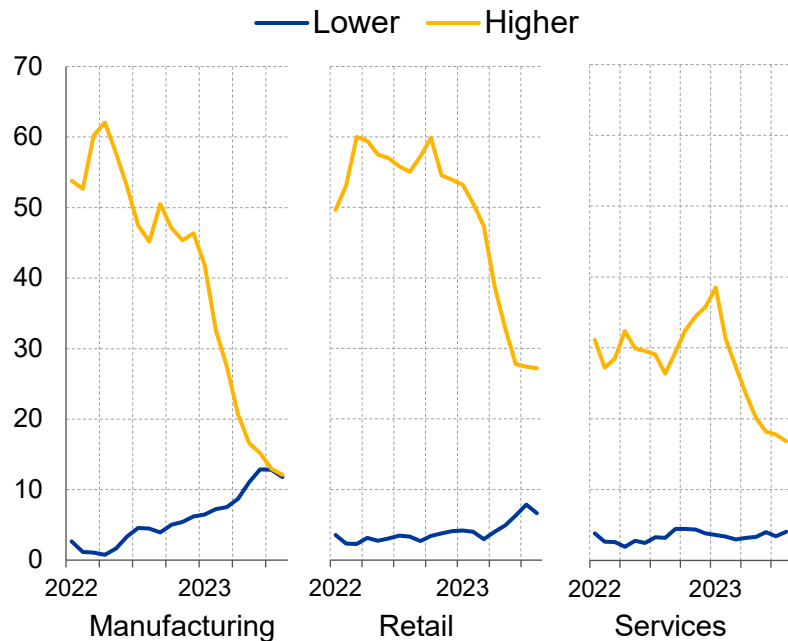
Source: Karadi, P., J. Amann, J.S. Bachiller, P. Seiler and J. Wursten (forthcoming), "Price setting on the two sides of the Atlantic - Evidence from supermarket scanner data", *Journal of Monetary Economics*.

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.

# Few firms intend to cut prices although input costs are falling rapidly

## Selling price expectations

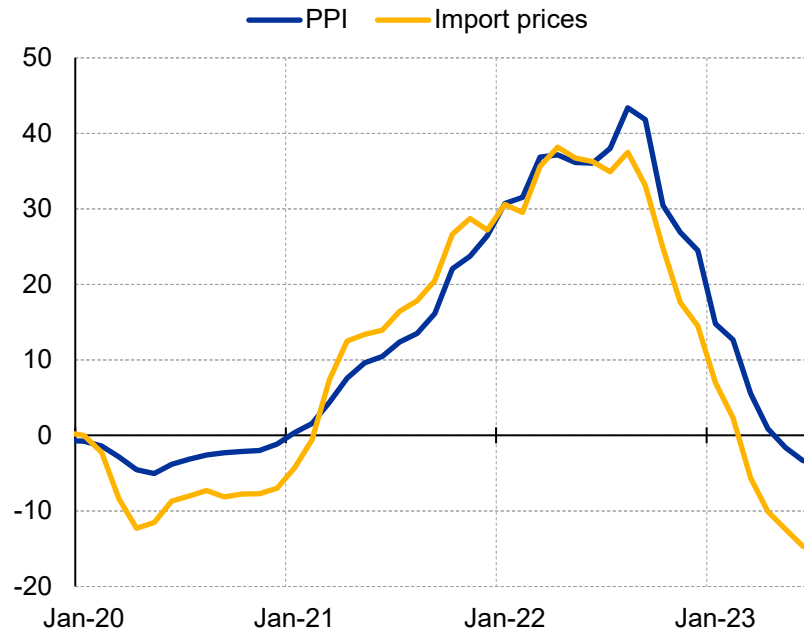
(share of firms expecting lower/higher selling prices)



Sources: European Commission (including Eurostat).  
Notes: Data are non-seasonally adjusted.  
Latest observation: August 2023.

## Producer and import price inflation

(annual percentage changes)

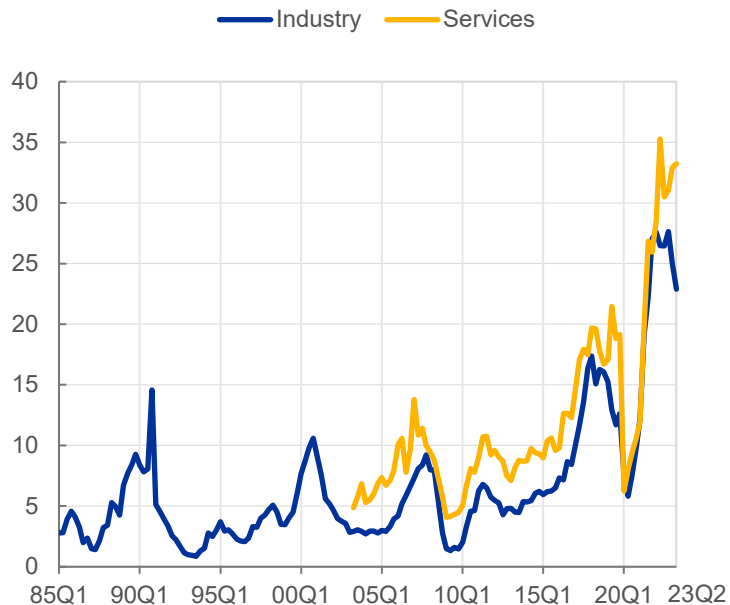


Sources: Eurostat.  
Notes: PPI and import prices refer to total industry excluding construction.  
Latest observation: June 2023.

# A steeper Phillips curve raises hopes of a “soft landing”

## Labour as factor limiting production

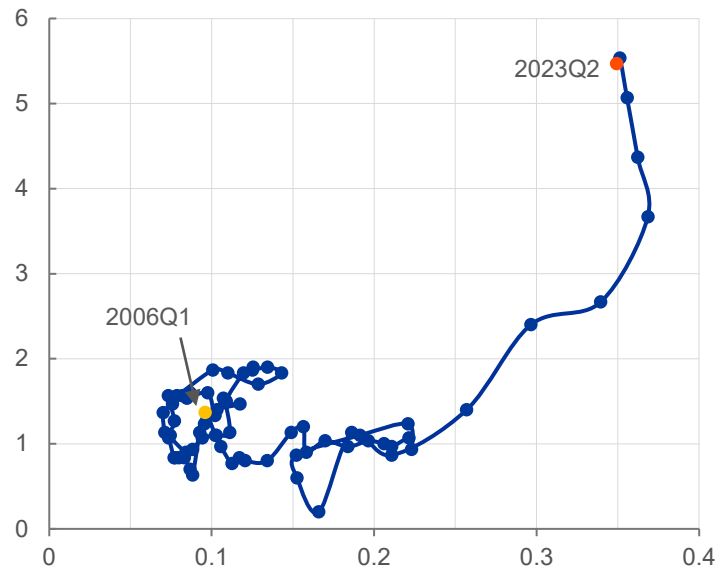
(%)



Source: European Commission.  
Latest observation: 2023Q2.

## Phillips curve

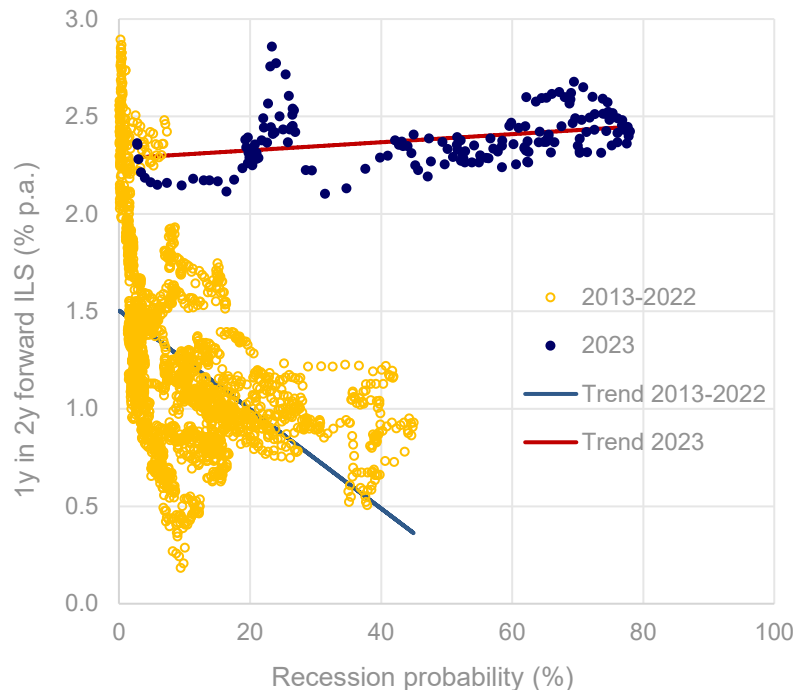
(y-axis: HICPX annual rate of change;  
x-axis: vacancy to unemployment ratio)



Sources: Haver Analytics, Eurostat, Indeed, and ECB Staff calculations.  
Notes: The 2023Q2 vacancy to unemployment ratio is based on Indeed vacancies.  
Latest observation: 2023 Q2.

# Inflation risk premia are rising despite elevated expectations of recession

## Market-based inflation compensation and recession probability in the euro area

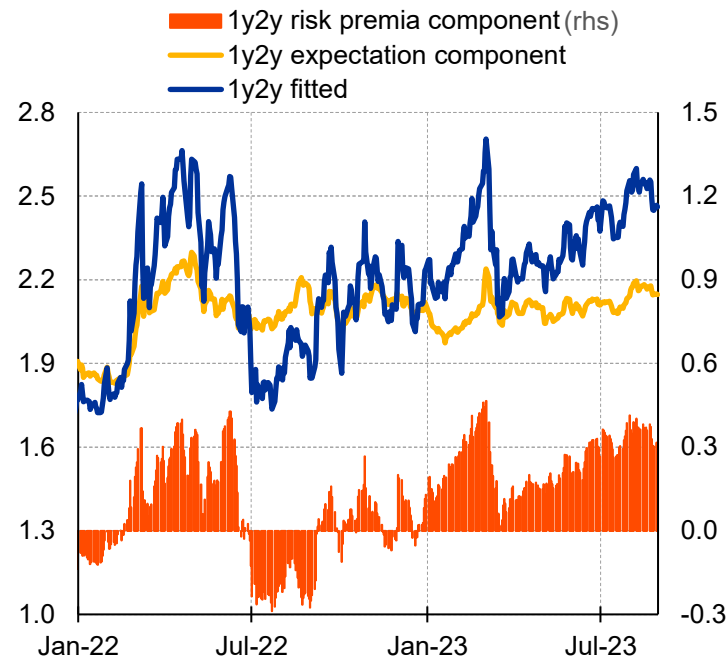


Sources: Deutsche Bundesbank, Fenics Market Data and German Council of Economic Experts.

Notes: Estimated recession probability based on the 10-year and 3-month Bund term spread, adjusted for the impact of the Eurosystem's asset purchases on the 10-year yield.

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

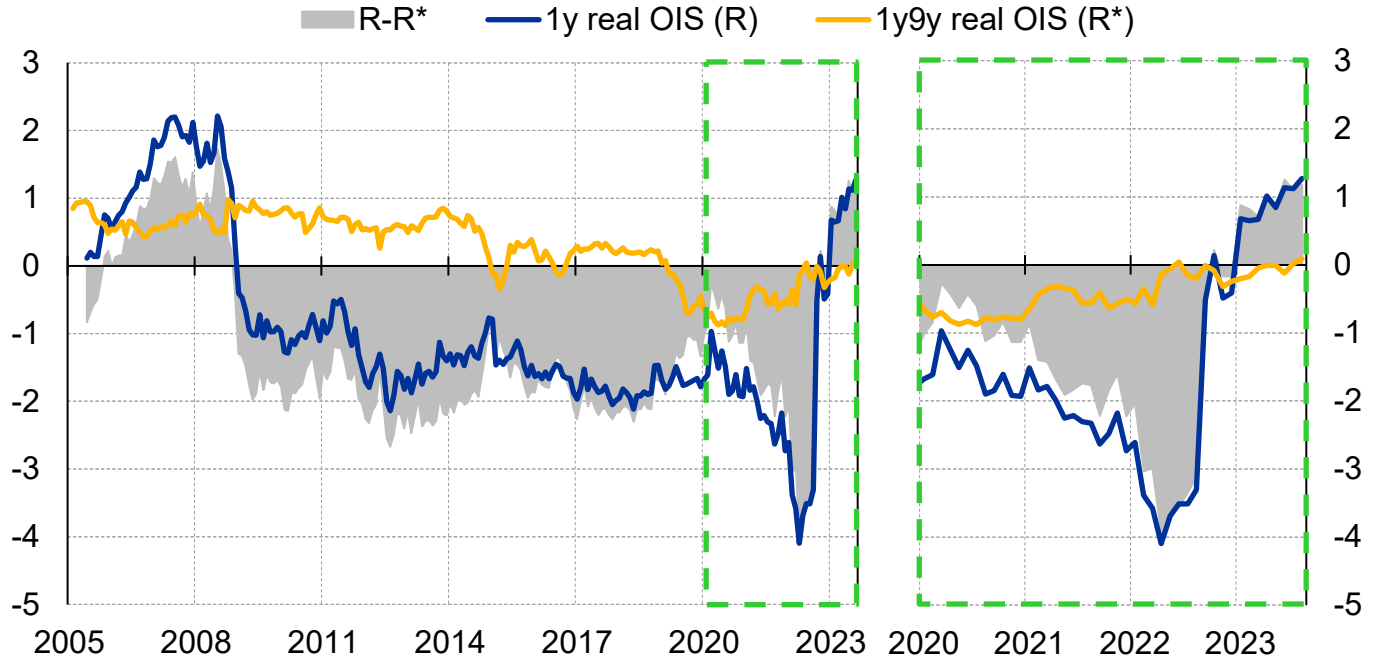
(percentages)



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: 29 August 2023.

## Market-based estimate of monetary policy stance (percentages)



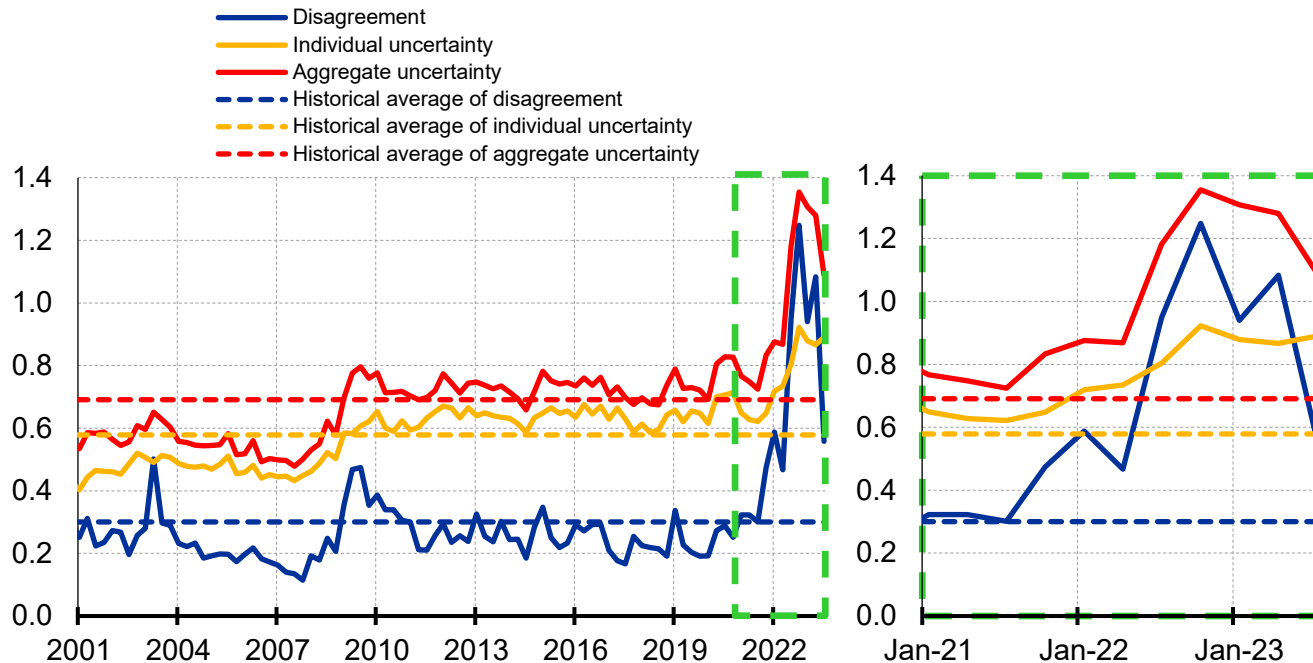
Sources: Bloomberg and ECB calculations.

Notes: "R" is measured by the real 1-year OIS rate and R\* is measured by the real 1y9y OIS rate. Term premia have been removed from both R and R\* to show "genuine" real rates.

Latest observation: August 2023 (monthly data).

# Uncertainty about inflation outlook remains exceptionally high

## Survey of Professional Forecasters: uncertainty around two-year ahead inflation expectations (percentage points)



Sources: SPF and ECB calculations.

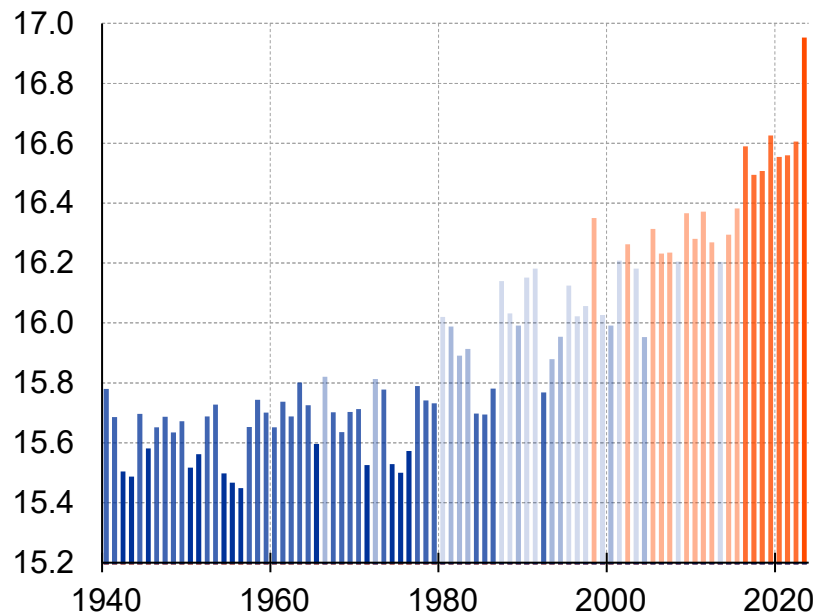
Notes: Aggregate uncertainty is measured by the standard deviation of the aggregate probability distribution, which is a function of disagreement (measured by the standard deviation of the individual forecasts) and average individual uncertainty (measured by the average of the standard deviations of the individual probability distributions). Dashed lines represent historical averages, calculated over the sample from 1999Q1 – 2023Q3.

Latest observation: Q3 2023 SPF.

# Climate crisis is more urgent than ever, posing upside risks to inflation

## Global surface air temperature

(in °C)

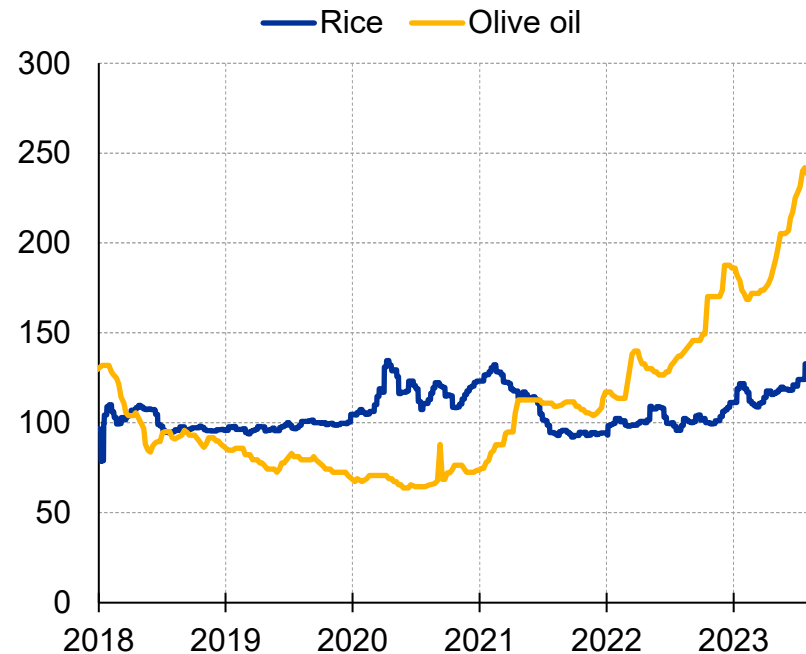


Sources: ERA5, ECMWF, Copernicus Programme.

Notes: Anomalies are calculated relative to July average during 1991-2020 reference period (16.23 °C). Shades of blue show below-average years, shades of red show above-average years. Latest observation: July 2023 (monthly).

## Selected food commodity prices

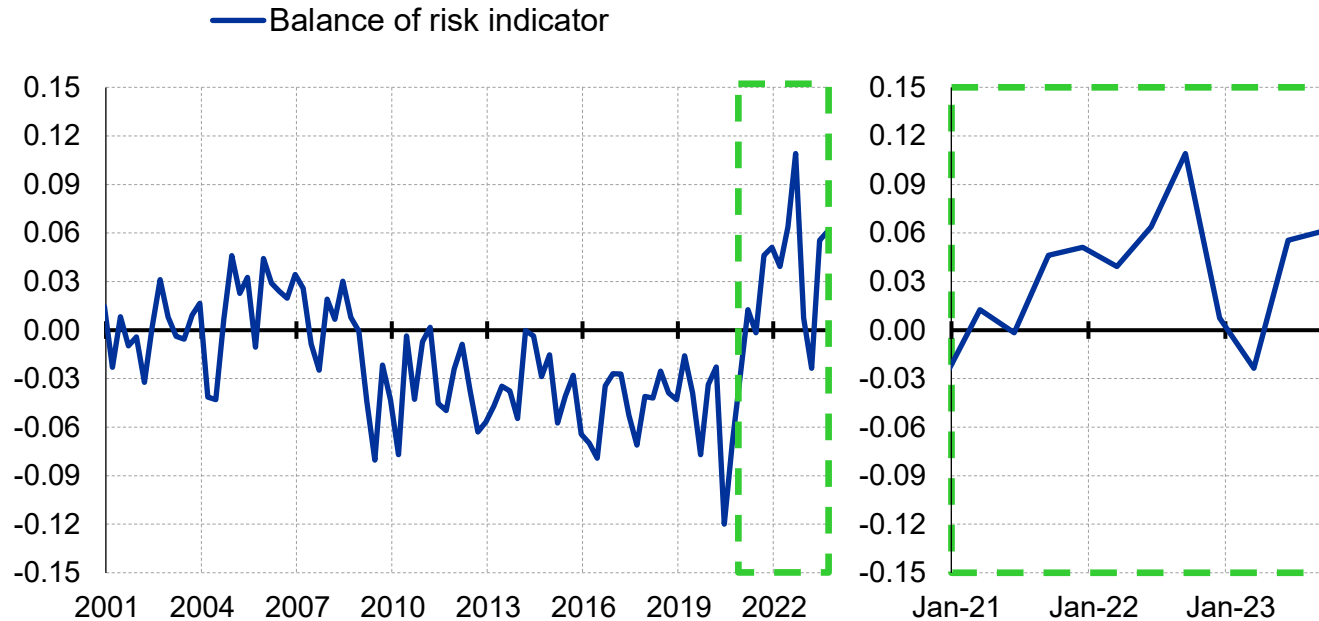
(index: 2018=100)



Sources: HWWI, Haver and ECB calculations.

Notes: Rice prices are based on White Thai Long Grain, 100% Broken (fob) and olive oil is based on Olive Oil, Italy (CIF). Latest observation: 25 August 2023 (weekly).

## Survey of Professional Forecasters: balance of risk indicator for two-year ahead inflation expectations (percentage points)



Sources: SPF and ECB calculations.

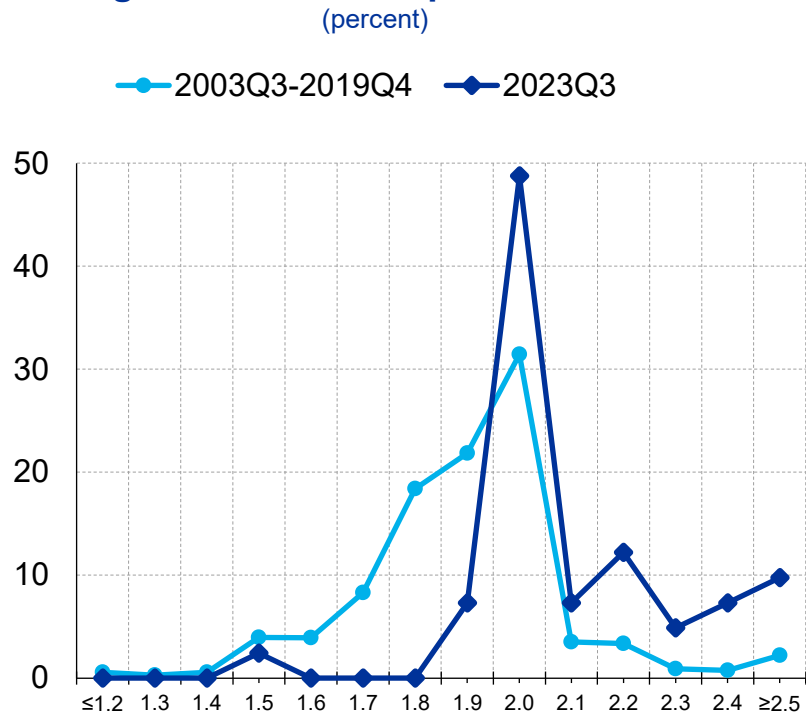
Notes: The balance of risk indicator is calculated as the estimated mean of the aggregate distribution minus the average reported point expectation. Values less than zero indicate downside risk, while those above zero indicate upside risk.

Latest observation: Q3 2023 SPF.



# Surveys and option prices suggest upside risks to longer-term inflation

## Cross-sectional distribution of longer-term inflation point forecasts (percent)

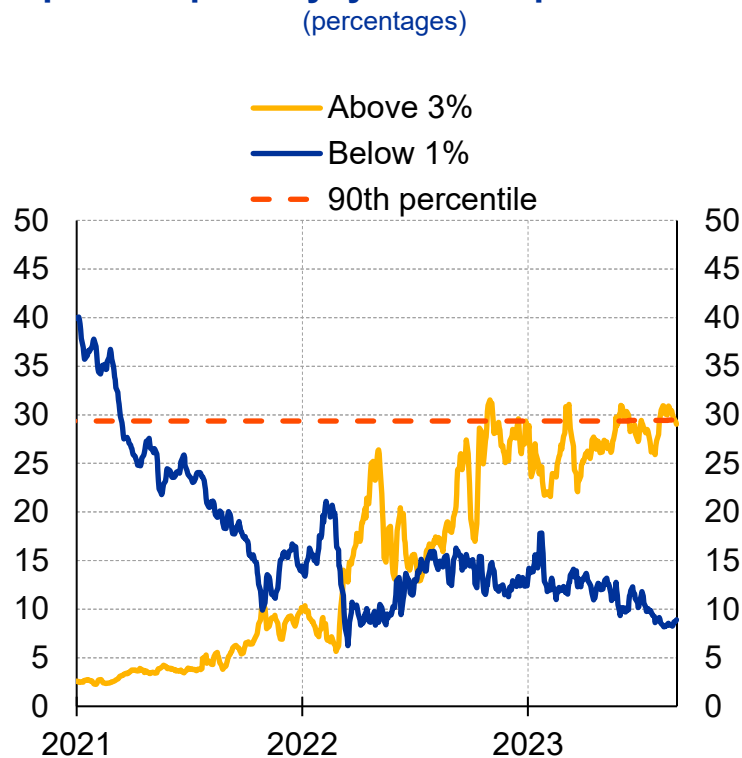


Sources: SPF and ECB calculations.

Notes: Y-axis shows percent of respondents; x-axis shows the HICP inflation rate. Longer-term expectations refer to 4-5 years ahead.

Latest observation: Q3 2023 SPF.

## Option-implied 5y5y inflation probabilities (percentages)

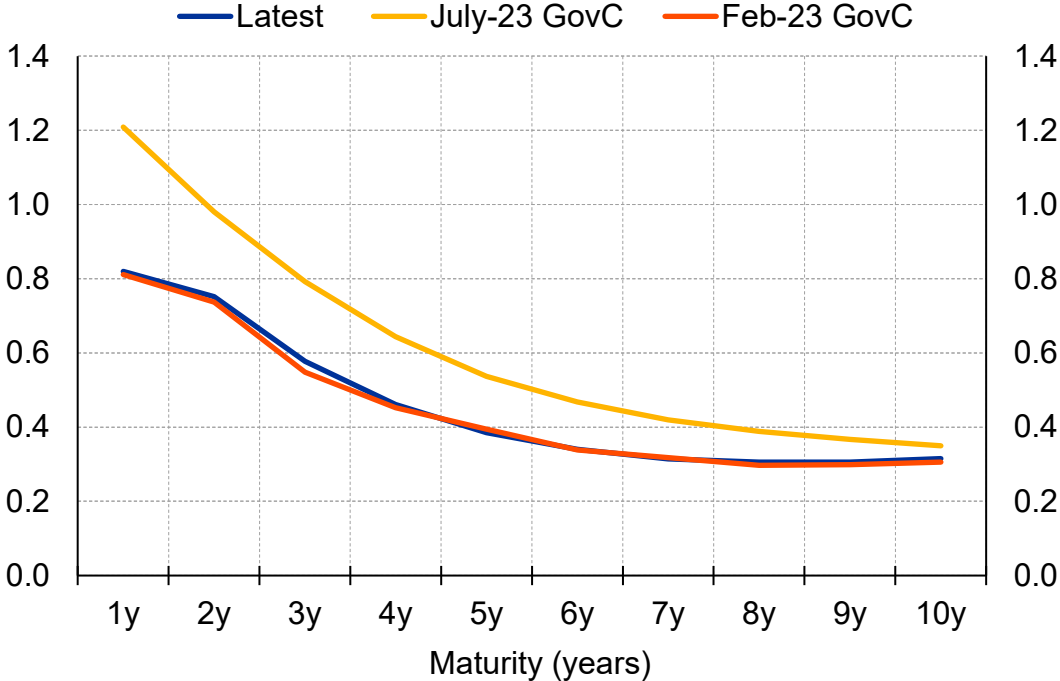


Sources: Bloomberg, Refinitiv and ECB calculations.

Notes: 5-days moving average of risk-neutral probabilities of inflation higher than 3% and lower than 1% 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: 29 August 2023.

## OIS spot real yield curve (percentage per annum)



Source: Refinitiv, Bloomberg and ECB calculations.  
Latest observation: 29 August 2023.

**Thank you very much for your attention!**