Inflation and Monetary Policy

The ECB and Its Watchers XXIII

Frankfurt

22 March 2023

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# March 2023 MPE: key macroeconomic variables

	March 2023 (annual percentage change)				Revisions vs December 2022 (percentage points)			
	2022	**2023**	**2024**	**2025**	**2022**	**2023**	**2024**	**2025**
HICP	8.4	5.3	2.9	2.1	0.0	-1.0	-0.5	-0.2
HICP excl. energy and food	3.9	4.6	2.5	2.2	0.0	0.4	-0.3	-0.2
Compensation per employee	4.6	5.3	4.4	3.6	0.1	0.1	-0.1	-0.3
Real GDP	3.6	1.0	1.6	1.6	0.2	0.5	-0.3	-0.2
Private consumption	4.3	0.7	1.3	1.4	0.3	0.0	-0.2	-0.1
Government consumption	1.4	-0.2	1.4	1.4	0.4	0.8	0.3	0.1
Total investment	3.7	0.3	1.4	1.8	0.6	-0.4	-0.8	-1.0
Unemployment rate (% of labour force)	6.7	6.6	6.6	6.6	0.0	-0.3	-0.2	0.0
	March 2023 (Q4 on Q4 percentage change)				Revisions vs December 2022 (percentage points)			
	22Q4	**23Q4**	**24Q4**	**25Q4**	**22Q4**	**23Q4**	**24Q4**	**25Q4**
HICP	10.0	2.8	2.7	2.0	0.0	-0.8	-0.6	0.0
Real GDP	1.9	1.1	1.7	1.5	0.3	0.3	-0.5	0.0

Source: March 2023 MPE.
Notes: Revisions are calculated based on rounded figures.

Recent (B)MPE projections for real GDP
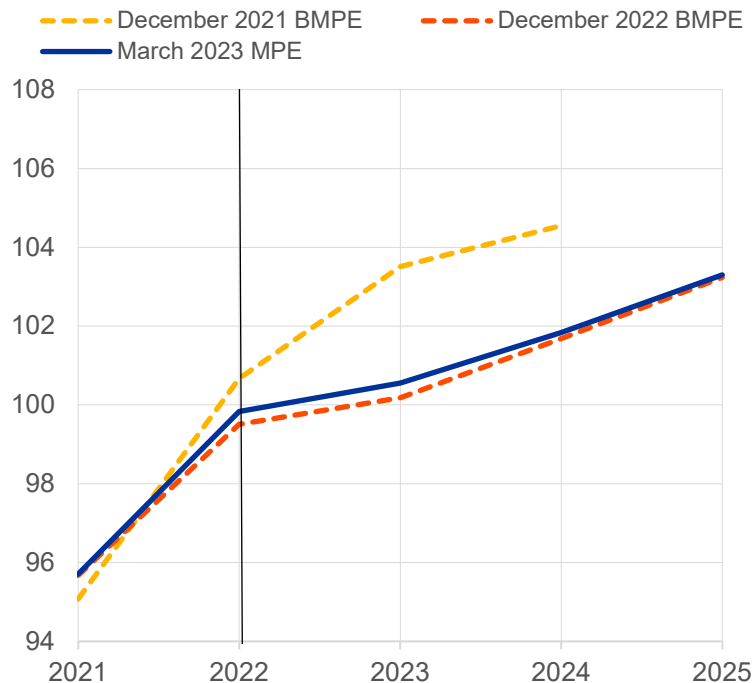(chain linked volumes, 2019Q4=100)
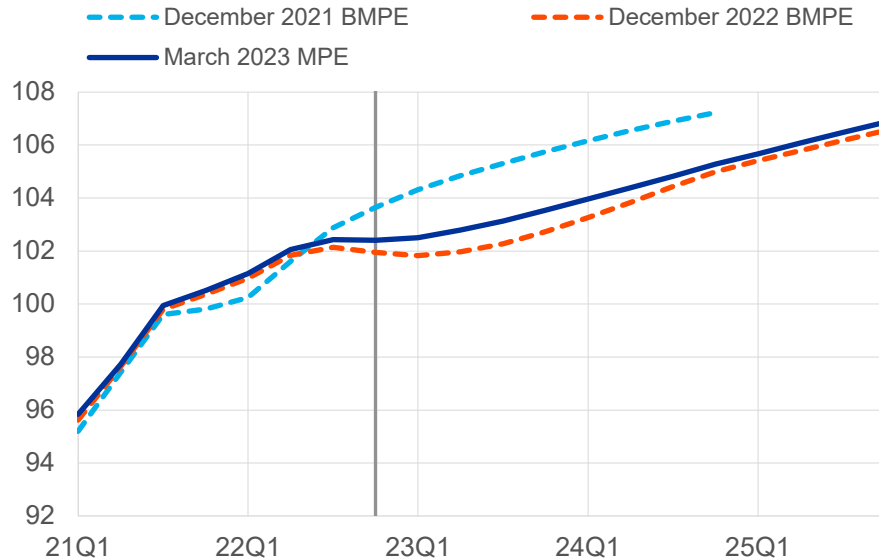
Source: (B)MPE. MPE refers to ECB staff macroeconomic projections. BMPE refers to Eurosystem staff macroeconomic projections.

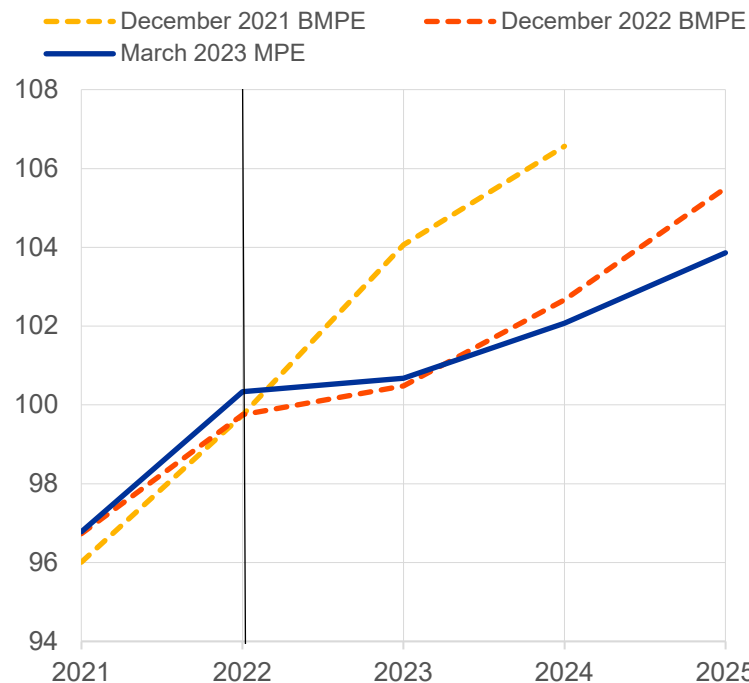# Consumption and investment projections since December 2021

Private consumption
(chain linked volumes, 2019=100)

- - - December 2021 BMPE
- - - December 2022 BMPE
——— March 2023 MPE

Total investment
(chain linked volumes, 2019=100)

- - - December 2021 BMPE
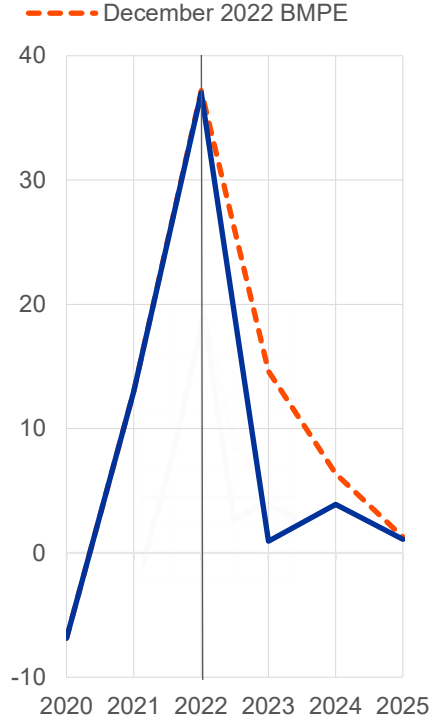- - - December 2022 BMPE
——— March 2023 MPE

Source: (B)MPE. MPE refers to ECB staff macroeconomic projections. BMPE refers to Eurosystem staff macroeconomic projections.
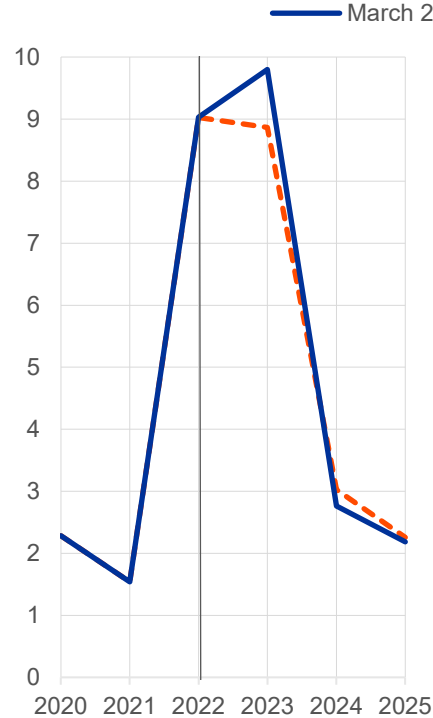
March 2023 MPE: HICP across components
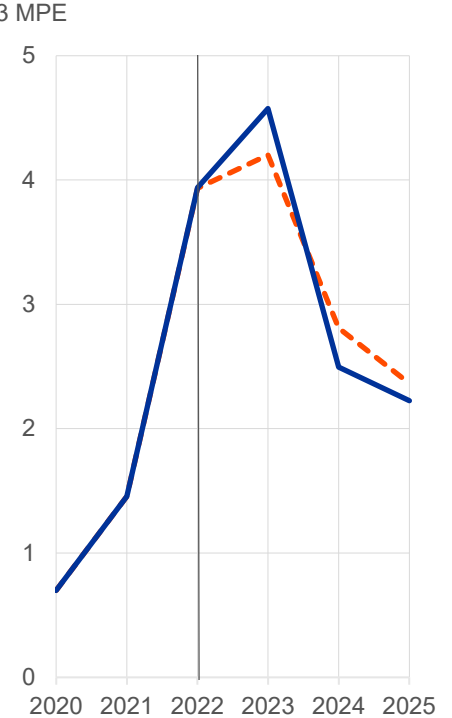

HICP
(annual percentage changes)
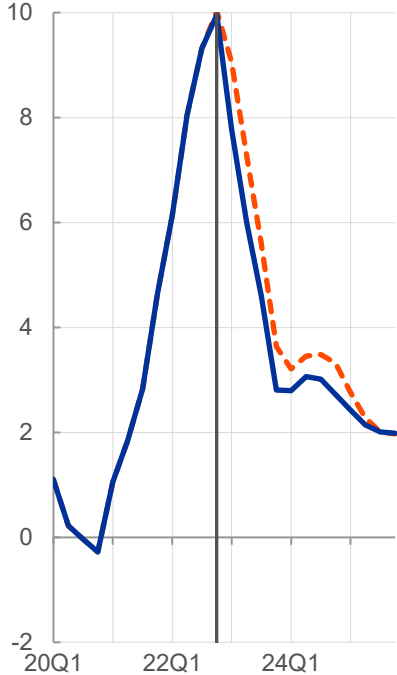
HICP energy
(annual percentage changes)

HICP food
(annual percentage changes)

HICP excl. energy and food
(annual percentage changes)

- - - - December 2022 BMPE ——— March 2023 MPE
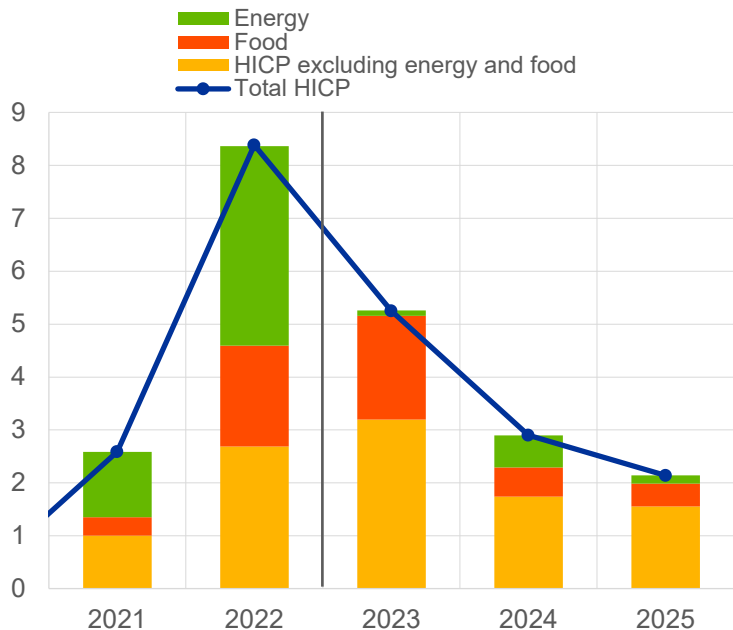
Source: March 2023 MPE.
Note: Headline HICP is shown at quarterly frequency. The components of HICP are shown at annual frequency.

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HICP
(annual percentage change; percentage points)

Legend:
- Energy
- Food
- HICP excluding energy and food
- Total HICP

Source: March 2023 MPE.

Role of indirect effects from energy prices and exchange rate for HICPX
(left side: percentage points; right side: percentage change)

Legend:
- Impact of exchange rate depreciation Q1 2021-Q3 2022
- Impact of exchange rate appreciation since Q4 2022
- Impact of changes in synthetic index Q1 2021-Q3 2022
- Impact of decreases in synthetic index since Q4 2022
- Total impact of synthetic index and FX since Q1 2021
- Total impact at the time of the December 2022 BMPE
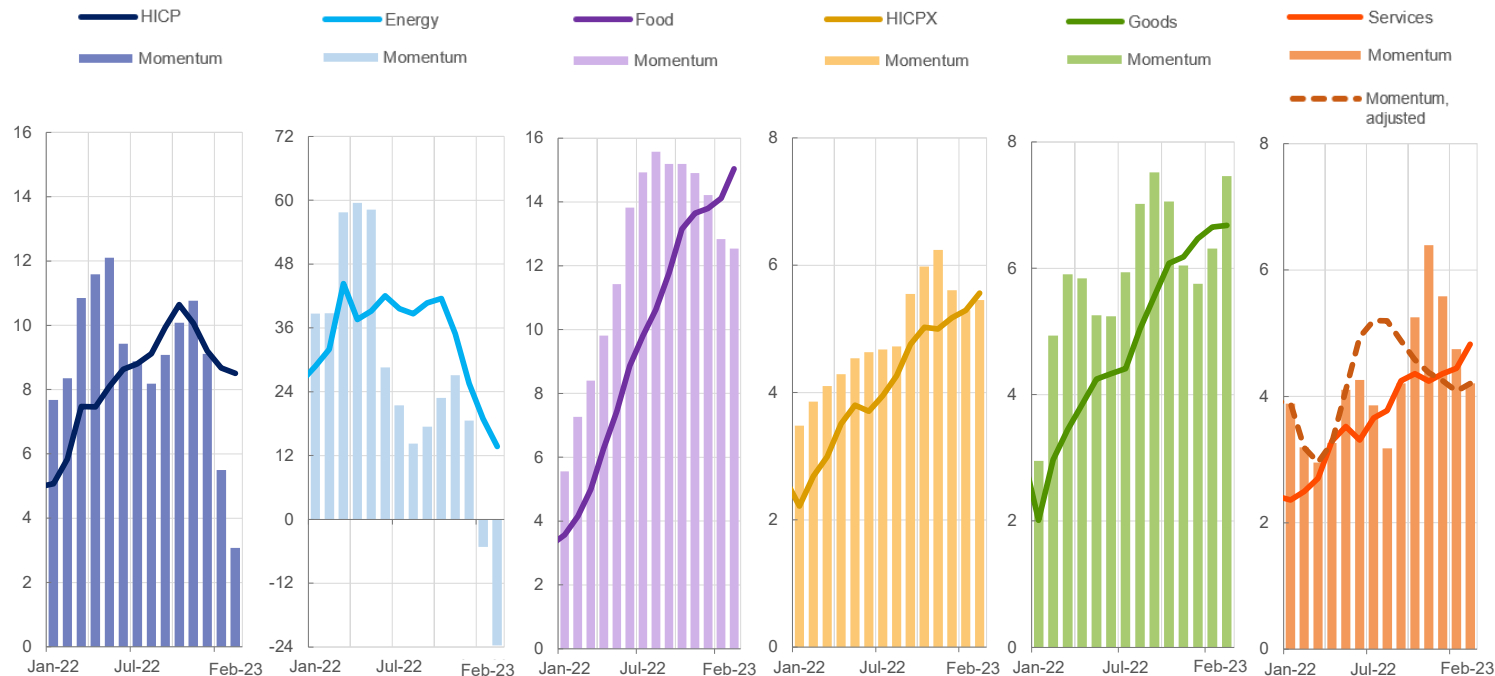- HICP excluding energy and food (March 2023 MPE)

Sources: Basic Model Elasticities (BME) and ECB calculations.
Notes: The indirect effect is calculated by applying the historical and assumed movements in a synthetic indicator (which combines oil and gas prices) to the BMEs for oil and movements in the nominal effective exchange rate of the euro to the BMEs for the nominal effective exchange rate (NEER). The BMEs are derived from the macroeconomic models used in the projections by national central banks.

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Inflation momentum for HICP and sub-components
(3 months-on-3 months; annualised percentage changes)
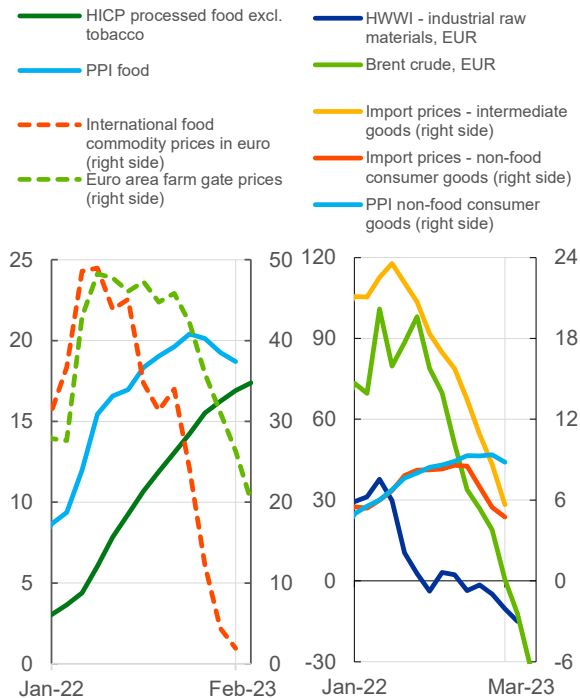

Sources: Eurostat and ECB calculations.
Notes: Momentum is defined as annualised 3 months-on-3 months rates, seasonally adjusted. HICPX: HICP excluding energy and food. The adjusted momentum series on the right panel corresponds to annualised 3 months-on-3 months rates excluding the effects of the 9 euro ticket in Germany.
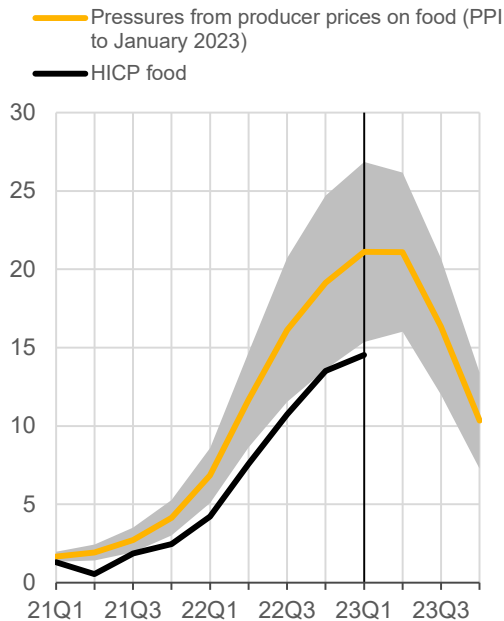The latest observation is for February 2023.

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Pipeline pressures

Pipeline pressures for food and NEIG
(annual percentage changes)

Legend:
- HICP processed food excl. tobacco
- PPI food
- International food commodity prices in euro (right side)
- Euro area farm gate prices (right side)
- HWWI - industrial raw materials, EUR
- Brent crude, EUR
- Import prices - intermediate goods (right side)
- Import prices - non-food consumer goods (right side)
- PPI non-food consumer goods (right side)

Sources: Eurostat, Hamburg Institute of International Economics (HWWI) and ECB calculations.
The latest observations are for March 2023 for brent crude (EUR), February 2023 for euro area farm gate prices and January 2023 for the rest.
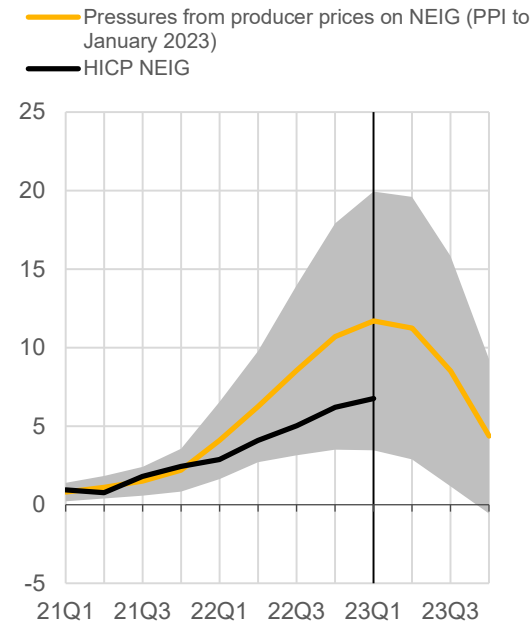
Pipeline pressures for food
(annual percentage changes)

Legend:
- Pressures from producer prices on food (PPI to January 2023)
- HICP food

Pipeline pressures for NEIG
(annual percentage changes)

Legend:
- Pressures from producer prices on NEIG (PPI to January 2023)
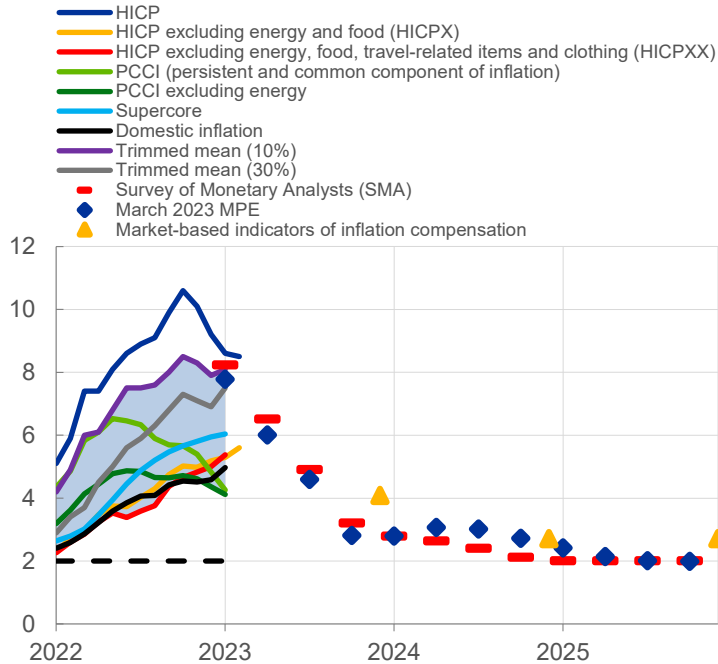- HICP NEIG

Sources: Eurostat, ECB staff estimates.
Notes: The latest observations are February 2023 for HICP and January 2023 for producer price index (PPI). The shaded area shows 95% confidence interval for the indicator for producer price pressures (IPPI). The IPPI for food is estimated with local projections with food (seasonally adjusted) as dependent variable, autoregressive terms and PPI for the food industry. The results for the IPPI for food display directional nonlinearities, i.e. a higher impact for positive PPI changes than negative ones. The IPPI for NEIG is estimated with local projections and no nonlinearities in the response for NEIG were found. The sample period of the estimations for both models goes up to the second quarter of 2022.

Indicators of underlying inflation
(annual percentage changes)

Legend:
- HICP
- HICP excluding energy and food (HICPX)
- HICP excluding energy, food, travel-related items and clothing (HICPXX)
- PCCI (persistent and common component of inflation)
- PCCI excluding energy
- Supercore
- Domestic inflation
- Trimmed mean (10%)
- Trimmed mean (30%)
- Survey of Monetary Analysts (SMA)
- March 2023 MPE
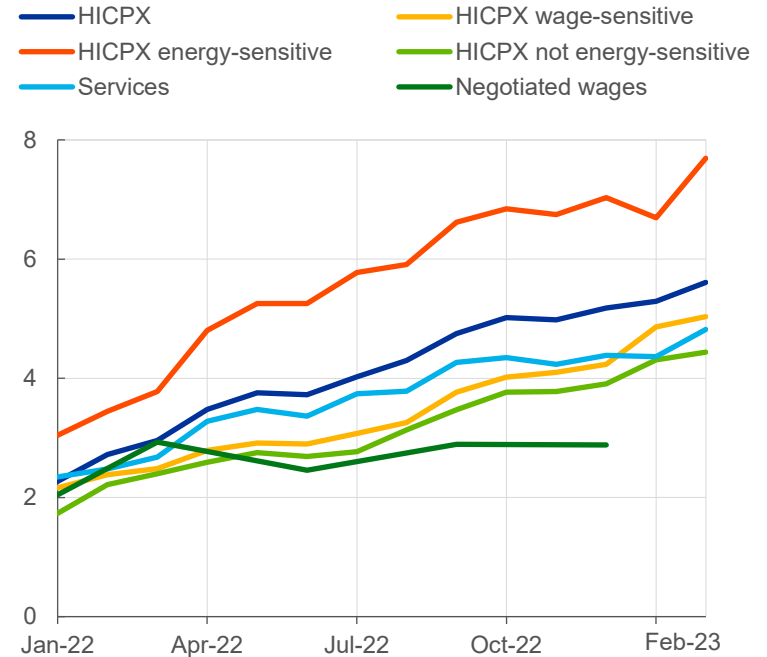- Market-based indicators of inflation compensation

Sources: Eurostat, Refinitiv, ECB Survey of Professional Forecasters (SPF), March 2023 ECB staff macroeconomic projections and ECB calculations.
Notes: The SMA and the March 2023 ECB staff macroeconomic projections show quarterly forecasts. The cut-off date for data included in the ECB staff macroeconomic projections was 1 March.
The latest observations are for February 2023 (flash) for HICP and HICPX and January 2023 for the rest. The latest observation for market-based indicators of inflation compensation is 14 March 2023.

HICPX inflation
(annual percentage changes)

Legend:
- HICPX
- HICPX energy-sensitive
- Services
- HICPX wage-sensitive
- HICPX not energy-sensitive
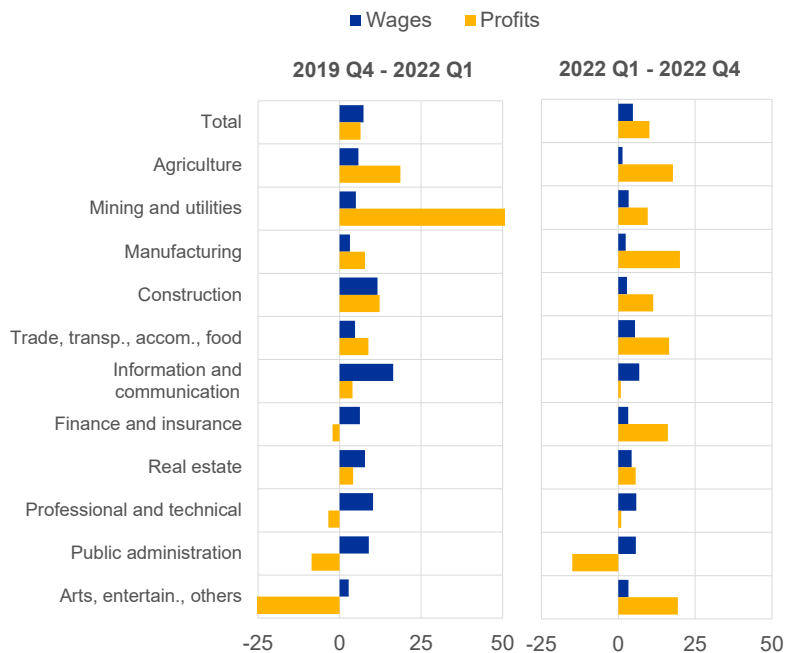- Negotiated wages

Sources: Eurostat and ECB calculations.
Notes: HICPX wage-sensitive items are an experimental composite measure based on items with a share of wages in direct costs above 40%. The energy-sensitive component is based on items with a share of energy in total (direct and indirect) costs above the average energy share across NEIG and services items.
The latest observations are December 2022 for negotiated wages and February 2023 for the rest.

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Sectoral wage and profit developments
(percentage changes over the indicated period)

■ Wages ■ Profits

2019 Q4 - 2022 Q1   **2022 Q1 - 2022 Q4**

Total
Agriculture
Mining and utilities
Manufacturing
Construction
Trade, transp., accom., food
Information and communication
Finance and insurance
Real estate
Professional and technical
Public administration
Arts, entertain., others

Sources: Eurostat and ECB calculations.
Notes: Wages refer to compensation of employees, profits to gross operating surplus. Wages include income for the self-employed. In the left panel the value for mining and utilities is 54.3% and for arts, entertainment and others it is -29.4%.
The latest observation is for the fourth quarter of 2022.

Sectoral unit profits and unit labour costs
(percentage changes over the indicated period)

■ Unit profits ■ Unit labour costs

2019 Q4 - 2022 Q1   **2022 Q1 - 2022 Q4**

Total
Agriculture
Energy and utilities
Manufacturing
Construction
Total services
Contact-intensive services
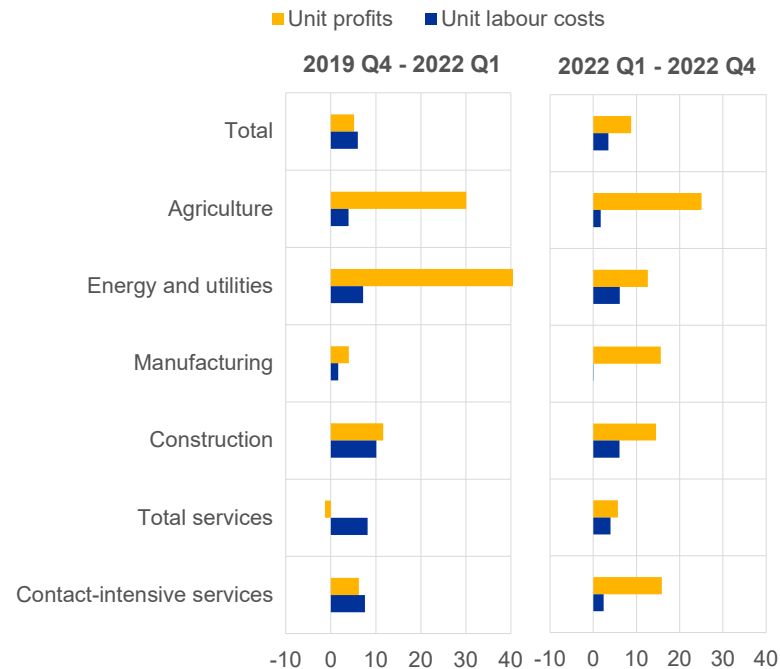
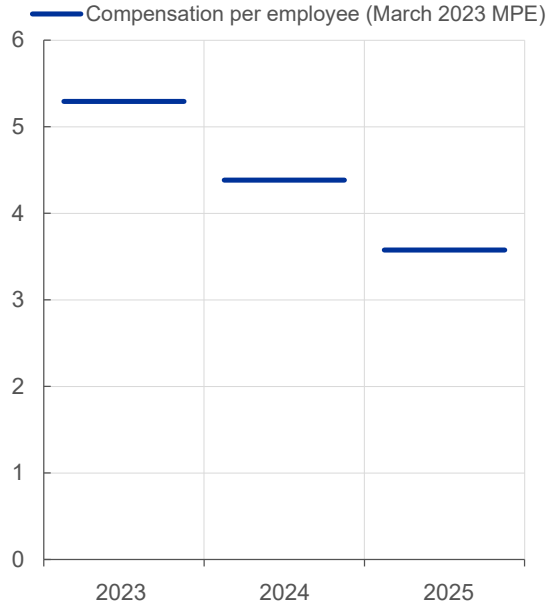Sources: Eurostat and ECB staff calculations.
Notes: Unit profits correspond to gross operating surplus over real value added. Contact-intensive services include trade, transport, accommodation and food and arts, entertainment, recreation and other services.
The latest observation is for the fourth quarter of 2022.

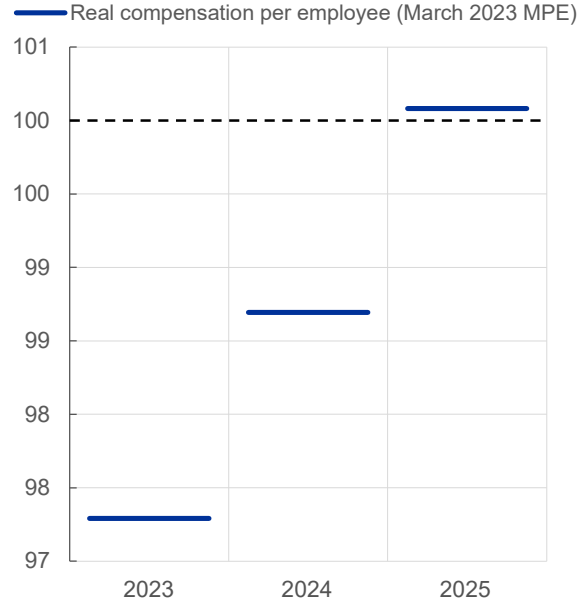# March 2023 MPE: Nominal wages, real wages and unit labour costs
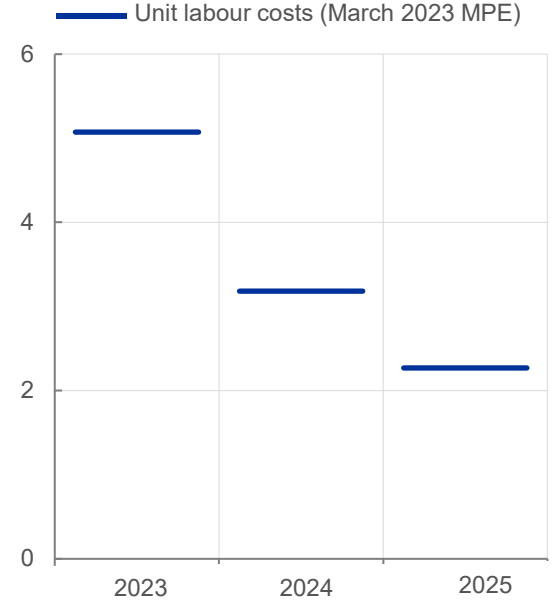

Nominal wages
(annual percentage changes)

Compensation per employee (March 2023 MPE)

Real wages
(Index 2019 = 100; deflated by HICP)

Real compensation per employee (March 2023 MPE)
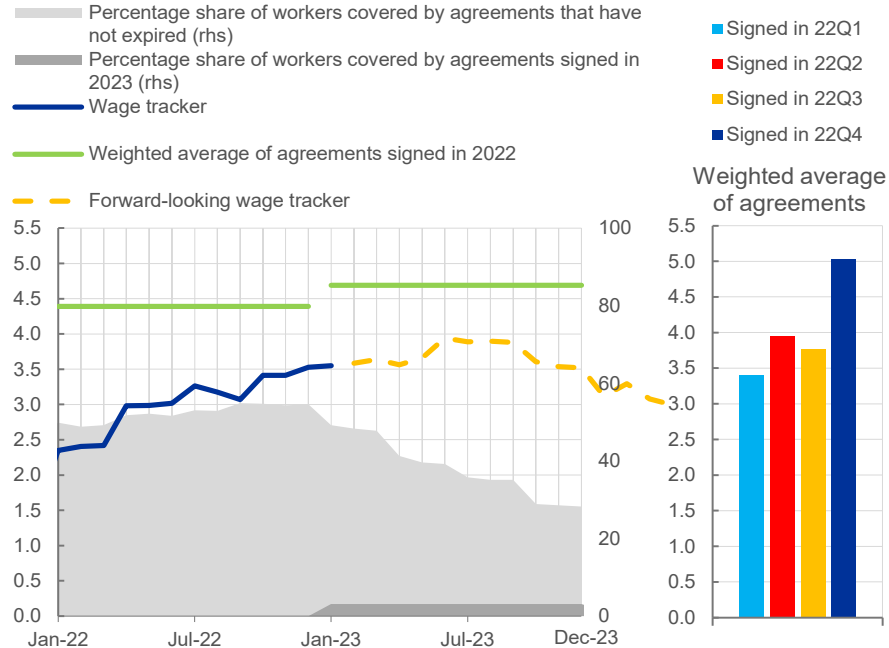
Unit labour costs
(annual percentage changes)

Unit labour costs (March 2023 MPE)

Sources: March 2023 ECB staff macroeconomic projections, Eurostat and ECB calculations.
The latest observations are for Q4 2022.

Forward-looking wage trackers
## (annual percentage changes)

Legend:
- Percentage share of workers covered by agreements that have not expired (rhs)
- Percentage share of workers covered by agreements signed in 2023 (rhs)
- Wage tracker
- Weighted average of agreements signed in 2022
- Forward-looking wage tracker

- Signed in 22Q1
- Signed in 22Q2
- Signed in 22Q3
- Signed in 22Q4

Weighted average of agreements

Sources: Calculations based on micro data on wage agreements provided by Deutsche Bundesbank, Banco de España, the Dutch employers' association (AWVN), Oesterreichische Nationalbank, Bank of Greece, Banca d'Italia and Banque de France. Data for France are based on an updated version of Gautier, E. (2022): Negotiated wage rises for 2022: the results so far. Note: Euro area aggregate based on ES, IT, GR, AT, DE, NL, FR as at February 2023.

Unemployment, employment and labour force

Unemployment and job vacancy rates
(percentages of the labour force; percentages of jobs)
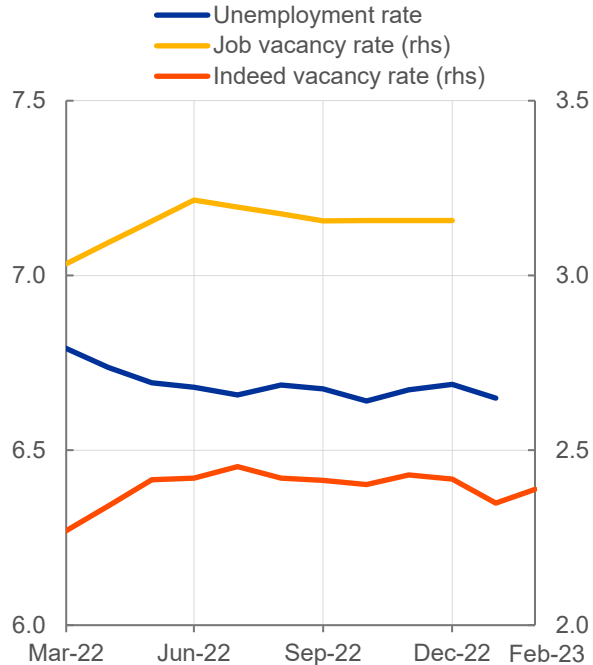
Sources: Eurostat, Indeed and ECB calculations.
Note: The indeed rate is computed as job postings over job postings plus implied monthly employment.
The latest observations are for January 2023 for unemployment, Q4 2022 for Job vacancy rate, February 2023 for Indeed vacancy rate.
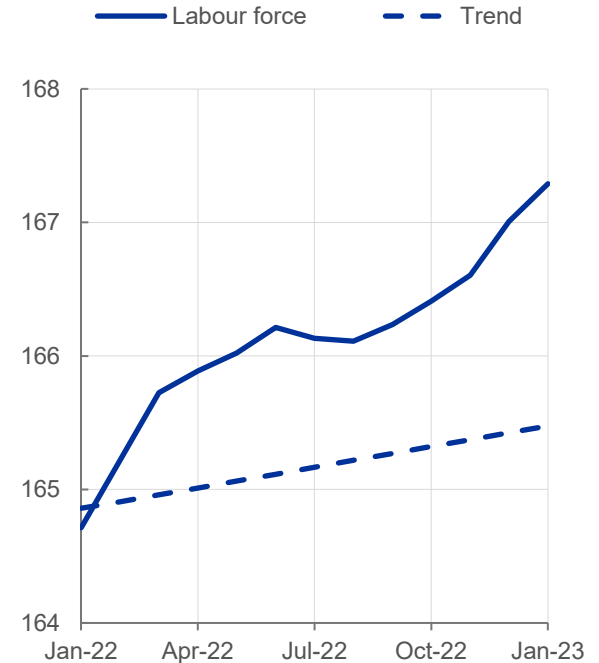
GDP, employment and hours worked
(index: 2019Q4 = 100; diffusion index)
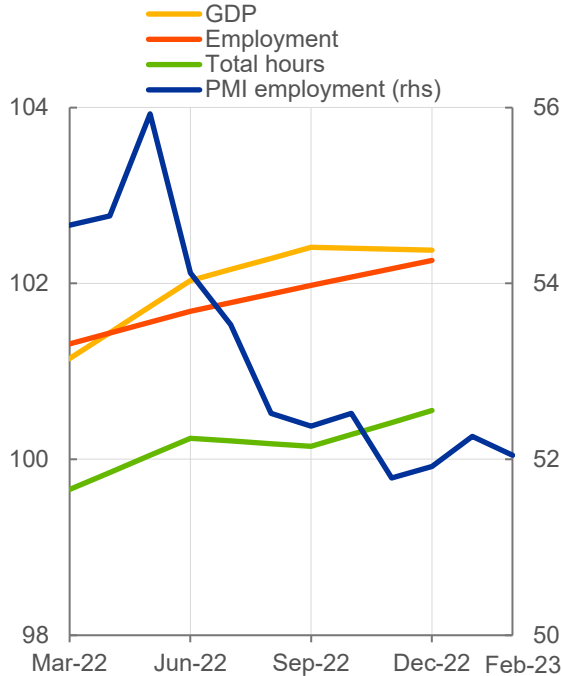
Sources: Eurostat, S&P Global and ECB calculations.
The latest observations are for Q4 2022 and for February 2023 for PMI.
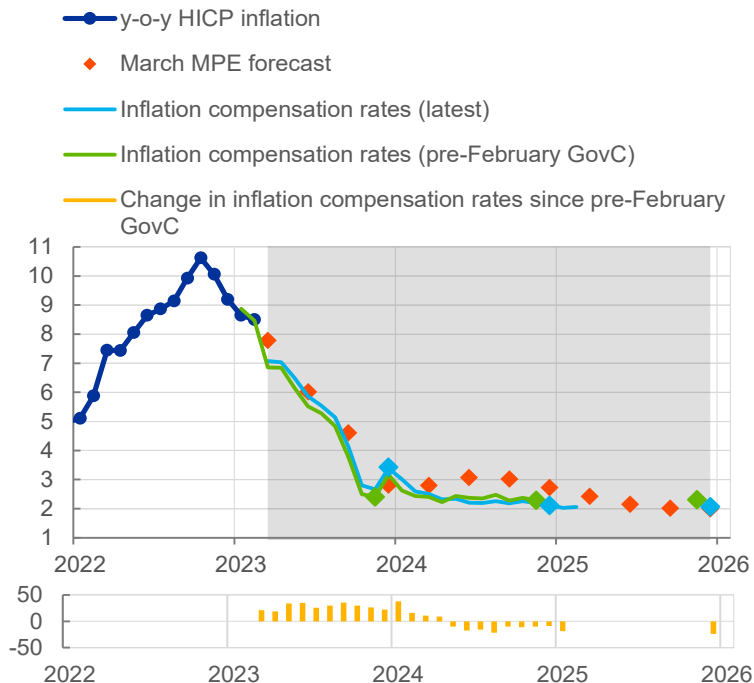
Labour force
(millions)

Sources: Eurostat and ECB calculations.
Note: The linear trend is computed for the period January 2005 and December 2019.
The latest observation is for January 2023.

Inflation path implied by market-based inflation compensation and staff projections
(percentages per annum)

- ●— y-o-y HICP inflation
- ◆ March MPE forecast
- — Inflation compensation rates (latest)
- — Inflation compensation rates (pre-February GovC)
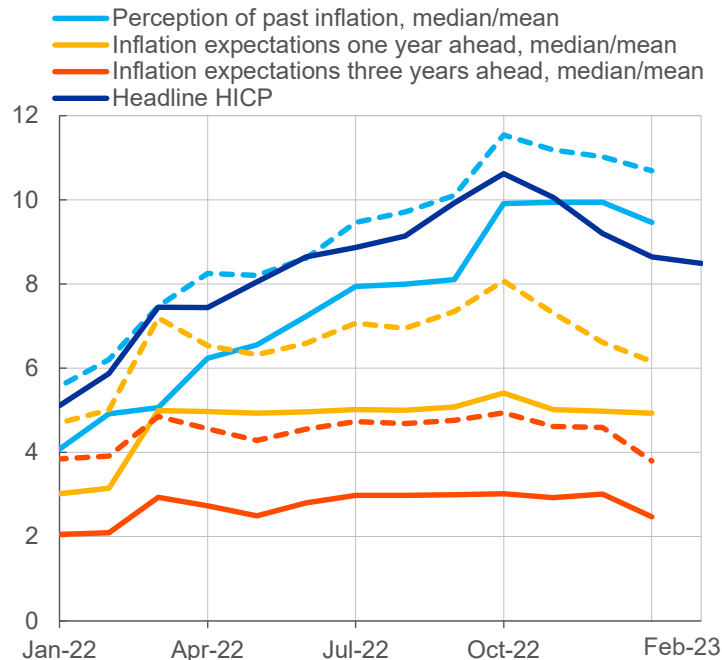- — Change in inflation compensation rates since pre-February GovC

Sources: Bloomberg, Refinitiv and ECB calculations.
Notes: The coloured diamonds refer to forward inflation-linked swap (ILS) rates that extend the equally coloured line of inflation fixings. 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 adjusted for the indexation lag, with the long-run mean calibrated to 1.9% until the end of April 2021 and to 2% thereafter; see Burban et al. (2021), Economic Bulletin, Issue 8, ECB, Box 4. The grey area refers to the projection horizon ending in December 2025.
The latest observations are for 20 March 2023 for inflation compensation rates and 15 February 2023 for March MPE.

ECB CES: inflation perceptions and expectations
(annual percentage changes)

- — Perception of past inflation, median/mean
- — Inflation expectations one year ahead, median/mean
- — Inflation expectations three years ahead, median/mean
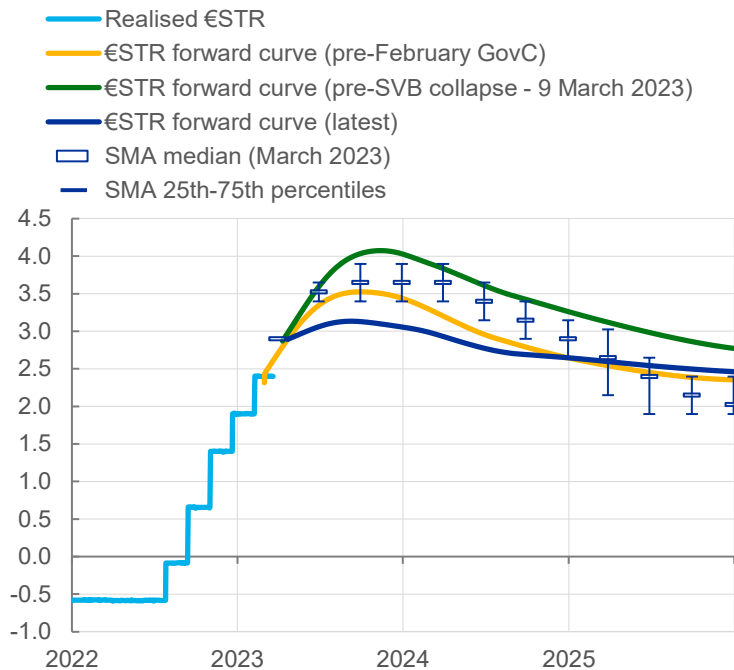- — Headline HICP

Source: ECB (Consumer Expectations Survey).
Note: Solid/dashed lines represent the median/mean.
The latest observation is for February 2023 for headline HICP, January 2023 for the rest.

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Euro area risk-free rates

€STR forward curve and survey expectations for the deposit facility rate
(percentages per annum)

Legend:
- Realised €STR
- €STR forward curve (pre-February GovC)
- €STR forward curve (pre-SVB collapse - 9 March 2023)
- €STR forward curve (latest)
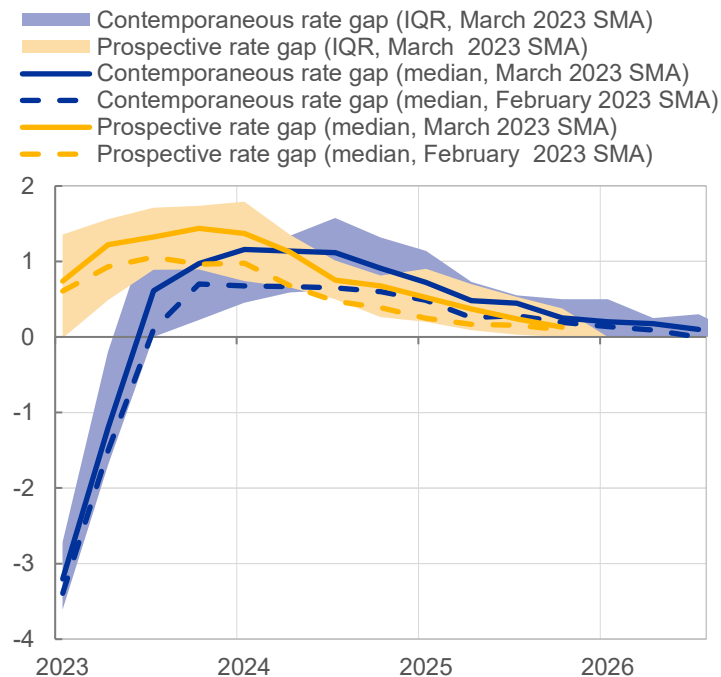- SMA median (March 2023)
- SMA 25th-75th percentiles

Sources: Refinitiv and ECB calculations.
Notes: The bars depict the median of responses in the 2 March SMA survey on expectations of future deposit facility rates. Surveys are adjusted for an €STR vs DFR spread.
The latest observation is 20 March 2023.

Expected real rate gap path
(percentages per annum)

Legend:
- Contemporaneous rate gap (IQR, March 2023 SMA)
- Prospective rate gap (IQR, March 2023 SMA)
- Contemporaneous rate gap (median, March 2023 SMA)
- Contemporaneous rate gap (median, February 2023 SMA)
- Prospective rate gap (median, March 2023 SMA)
- Prospective rate gap (median, February 2023 SMA)

Sources: SMA, Refinitiv, Bloomberg and ECB calculations.
Notes: The contemporaneous rate gap is computed as the difference between the current period DFR and one quarter ahead y-o-y inflation. The prospective rate gap is the difference between the DFR expectations for the current and three following periods and the expectations for one year ahead y-o-y inflation.
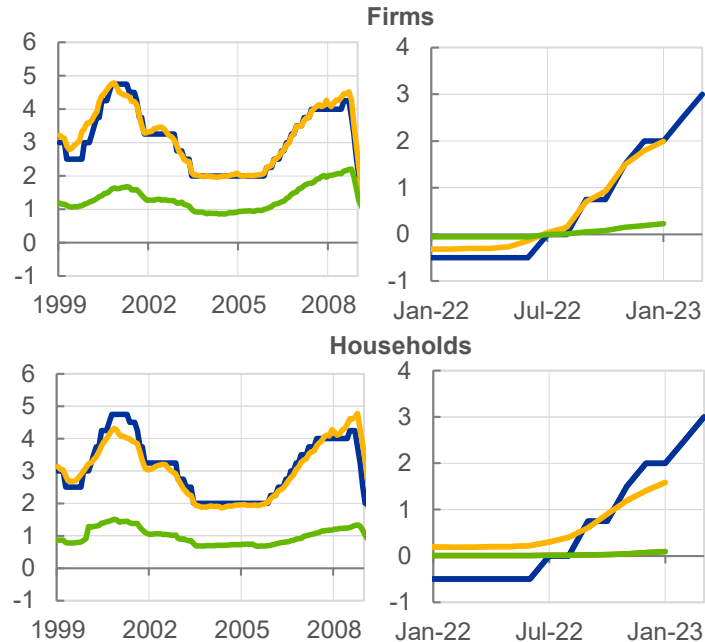The latest observations are for 2 March 2023 for SMA.

Bank funding conditions

Policy and deposit rates
(percentages per annum)

Legend: ECB relevant policy rate — Time deposits — Overnight deposits

Firms

Households

Bank funding costs
(percentages per annum)

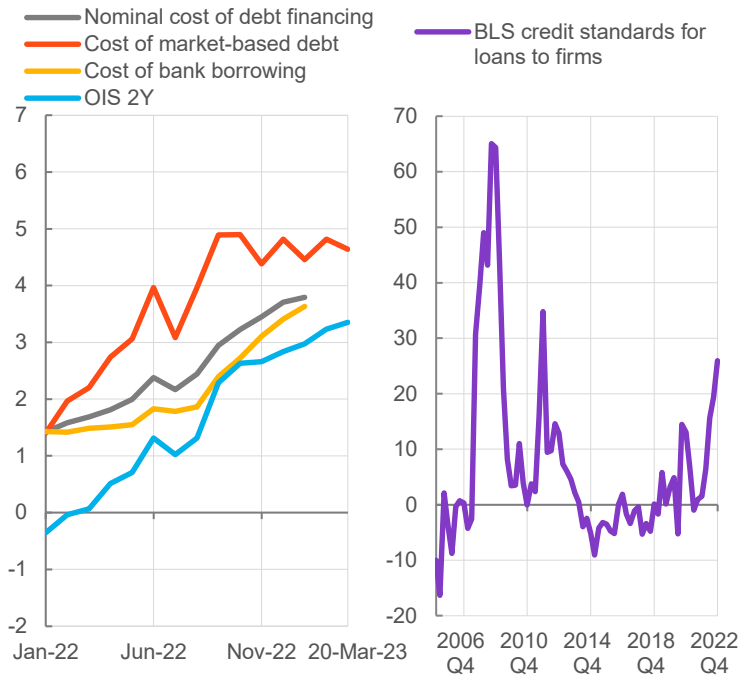Legend: Composite funding cost — Deposit rates to households — Deposit rates to firms — Bank bond yields
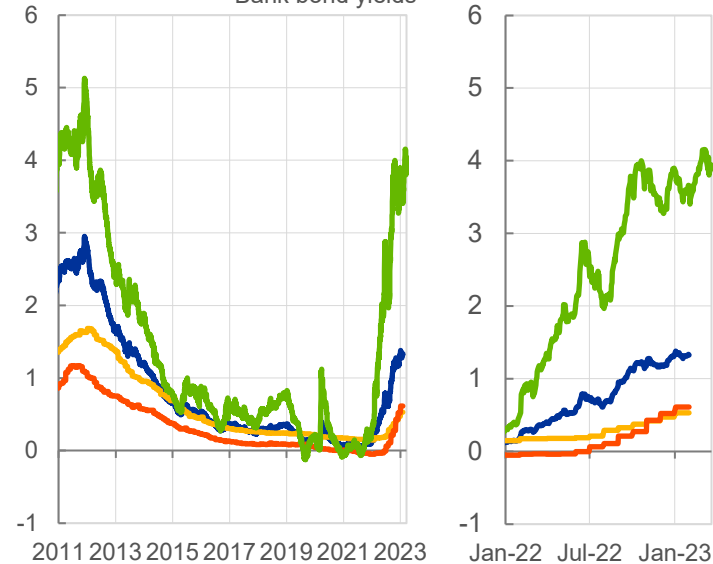
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## Cost of debt financing and credit standards for firms

(left panel: percentages per annum, right panel: percentage balances)

Sources: ECB (MIR, Quarterly Sector Accounts (QSA), Bank Lending Survey (BLS)), Merrill Lynch, Refinitiv and ECB calculations.
The latest observations are for the fourth quarter of 2022 for BLS credit standards for loans to firms, January 2023 for the nominal cost of debt financing and bank borrowing and 20 March 2023 for the cost of market-based debt and OIS.

Total debt financing of euro area firms and loan growth by country
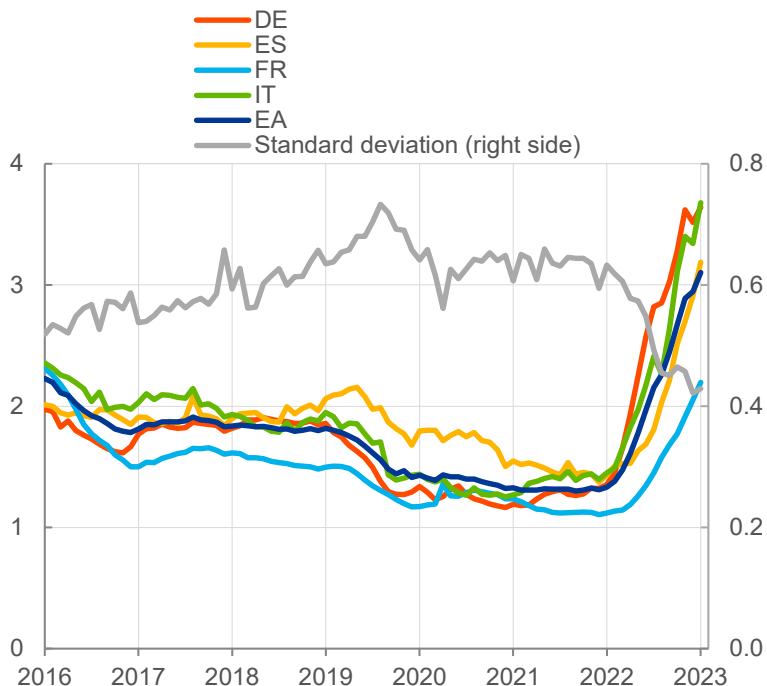
(left panel: monthly average flows over the period in EUR billions, right panel: annual percentage changes)
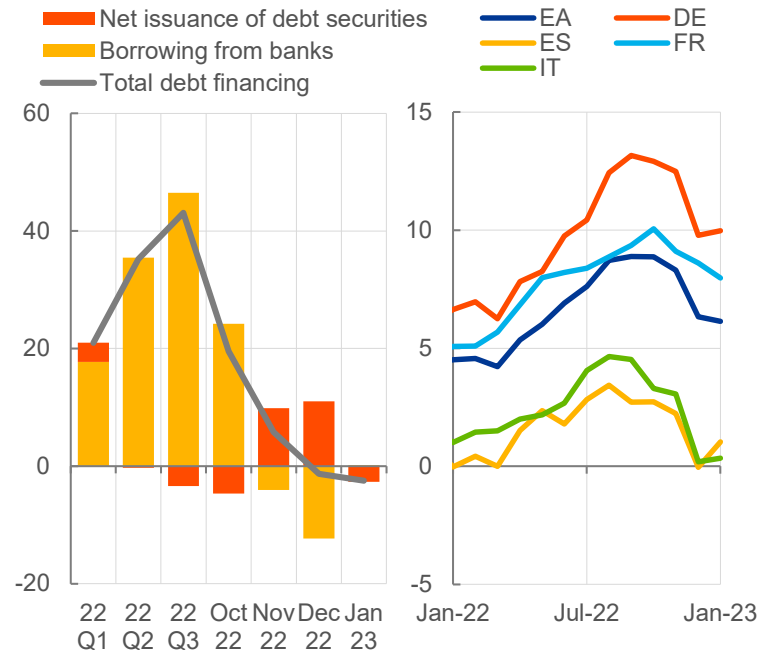
Sources: ECB (BSI, CSDB-Derived Securities Issues Statistics (CSEC) and ECB calculations.
Notes: Total debt financing is the sum of MFI loans and net issuance of debt securities. MFI loans are adjusted for sales, securitisation and cash pooling activities. The seasonal adjustment of debt securities is not official.
The latest observation is for January 2023.

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Lending to households

Cost of borrowing for households for house purchase
(percentages per annum)

Legend:
- DE
- ES
- FR
- IT
- EA
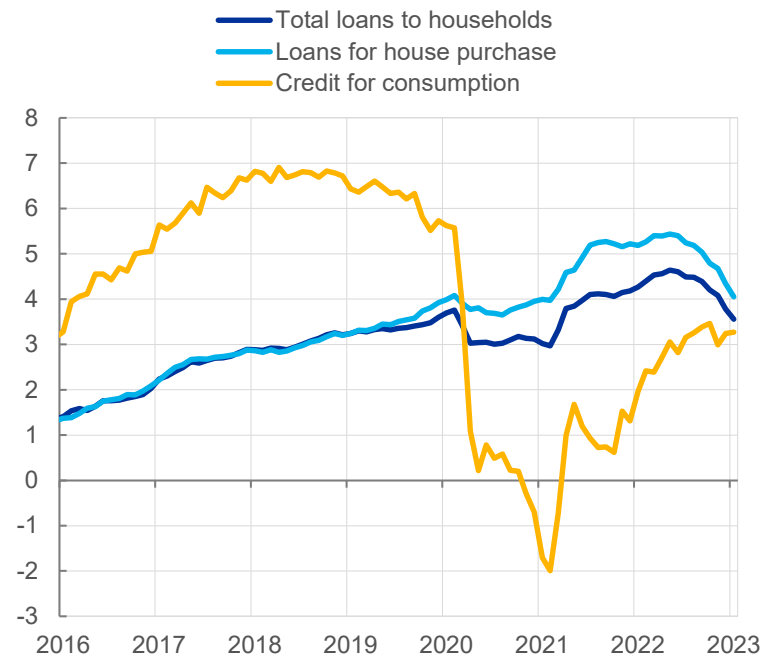- Standard deviation (right side)

Sources: ECB (MIR) and ECB calculations.
Notes: The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries.
The latest observation is for January 2023.

Loans to households by purpose
(annual percentage changes)

Legend:
- Total loans to households
- Loans for house purchase
- Credit for consumption

Source: ECB (BSI).
Notes: MFI loans are adjusted for sales and securitisation. Up to January 2022, the adjustment for sales and securitisation in loans by purpose is not fully harmonised across countries. Since February 2022, it is based on data collected under the current BSI Regulation but not yet published on the ECB website.
The latest observation is for January 2023.

## Variable and fixed rate mortgages: spreads and changes in shares

(x-axis: spread between variable and fixed mortgage rates in percentages per annum; y-axis: change in the share of variable mortgages since December 2021 in percentage points)
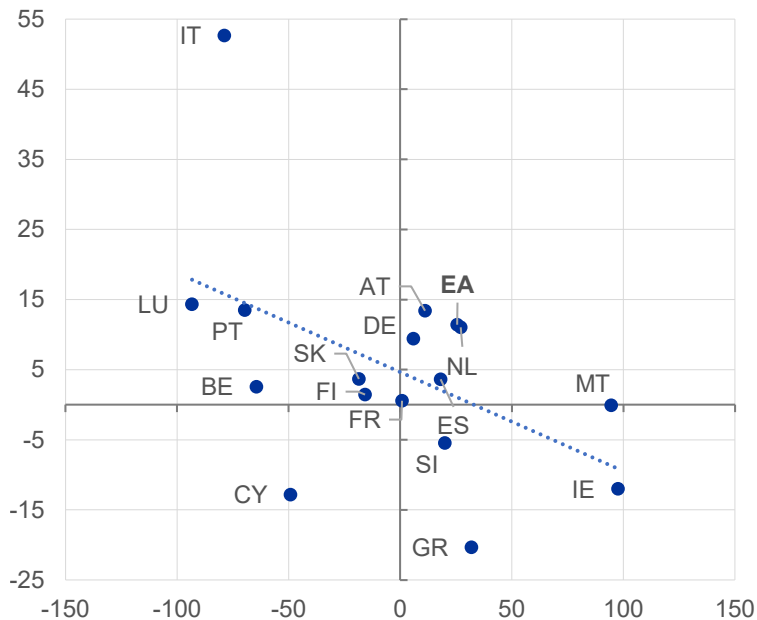
Sources: ECB (MIR) and ECB calculations.
Notes: Shares refer to new business lending.
The latest observation is for December 2022.

Household time deposit rates: state of transmission in January 2023

(percentages per annum)

◆ Actual series   ━ Conditional forecasted rates
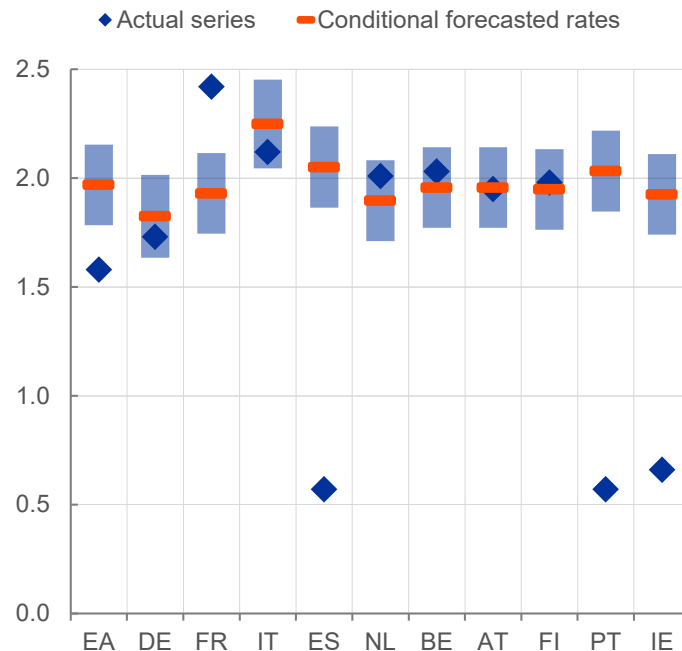
Sources: ECB and ECB calculations.
Notes: Results are based on a panel ECM using the Pooled Mean Group (PMG) estimator on euro area-10 data over January 1999-December 2021. Blue bars refer to 95% confidence bands. The model for time deposits (<2y) uses the 1m Euribor and 10y sovereign spreads as explanatory variables. The model allows the estimated parameters to differ across periods distinguishing between before and after the Global Financial Crisis. The latest observation is for January 2023.