Challenges for monetary policy at times of stubborn inflation

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Economic growth and inflation in the euro area since the start of the pandemic

Real GDP
(index: Q4 2019 = 100)

Inflation
(annual percentage changes, quarterly data)

Sources: Eurostat, ECB and Eurosystem.
Latest observation: Q2 2023 for realised GDP (diamond).

Sources: Eurostat and ECB.
Latest observation: Q2 2023 for quarterly data, August 2023 for monthly data (diamond).
ECB took determined policy action to tackle unprecedented inflation surge

**ECB key interest rates**

(%)  

- MRO  
- DFR  
- MLF

**Monetary policy assets**

(€ billion)

- MRO  
- LTRO  
- TLTRO  
- Private APP  
- Public APP  
- PEPP

Source: ECB.  

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Notes: Public APP is PSPP, Private APP is CBPP3, ABSPP and CSPP.  
Tightening of financial conditions occurred to the largest part in 2022.

**Financial conditions indices**
(lhs panel: index; rhs panel: index points)

- Sources: Refinitiv, Bloomberg, ECB calculations.
- Notes: The VAR- and BME-based FCIs are constructed as weighted averages of the 1y OIS, the 10y OIS, the euro NEER-42 and the EuroStoxx Index. The VAR-based weights are derived from the impulse responses of HICP inflation to a shock in each of the four variables gleaned from individual VAR models. The weights for the BME-based FCI are derived from the Basic Model Elasticities (BMEs). All the series have been standardised by their historical means and standard deviations. The change bars refer to the periods 3 January 2022 – 30 December 2022 and 2 January 2023 - latest, respectively.
Strong transmission 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.  
Latest observation: July 2023.

**Bank loans to firms and households**  
(monthly flow in EUR bn)

Sources: ECB (BSI).  
Notes: Loans to households and firms are adjusted for sales and securitisation. Loans to firms are also adjusted for cash pooling.  
Latest observation: July 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.
Limited pass-through to deposit rates and moderate decline in house prices

Deposit rate pass-through
(lhs: percentage per annum; rhs: percentage points)

Sources: ECB (MIR, FM) and ECB calculations.
Last observations: September 2023 for the ECB policy rate, July 2023 for deposit rates.

House prices
(Monthly RRE price indices – December 2019 = 100)

Notes: RRE stands for Residential Real Estate. Last EA observation from Eurostat is for Q1 2023, so several countries with more timely data available are added. For IT and ES an average listing price index is reported. For ES Dec 2019 to March 2020 is the Eurostat variable due a lack of data. For all other countries the index reported is a hedonic price index based on transaction prices.
Latest observation: July 2023 for DE, FR and NL, August 2023 for ES and IT Q1 2023 for EA.
Surveys point to weakening of euro area growth and employment
Resilient labour market and rising real income as supporting factors

**Labor force participation and unemployment**

(%)  

![Graph showing labor force participation and unemployment](image)

Source: Eurostat.  
Latest observations: Q2 2023 for unemployment rate and Q2 2023 for participation rate.

**Real disposable income**

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

![Graph showing real disposable income](image)

Source: 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.
Decline in headline inflation, while underlying inflation proves more stubborn

Contributions to headline inflation
(annual percentage changes and percentage point contribution)

Measures of underlying inflation
(annual percentage change)

Sources: Eurostat and ECB calculations.
Latest observation: August 2023.

- HICP excluding energy and food (HICPX)
- HICP excluding energy, food, travel-related items and clothing (HICPXX)
- Trimmed mean (10%)
- PCCI excluding energy
- Domestic inflation

Latest observation: August 2023.
Inflation momentum for HICP and sub-components
(annual percentage change, 3m-o-3m annualised percentage change)

Momentum remains high and has been rising recently for HICP and HICPX.

Sources: Eurostat and ECB calculations.
Notes: Momentum is defined as annualised 3 months-on-3 months rates, seasonally adjusted data. HICPX: HICP excluding energy and food, Goods are non-energy industrial goods.
Latest observation: August 2023.
Inflation expectations in surveys and markets remain elevated or have risen further.

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

- **2003Q3-2019Q4**
- **2023Q3**

Sources: Survey of Professional Forecasters (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.

**Model-based decomposition of euro area inflation-linked swap rates (percentages)**

- **5y5y risk premia component (rhs)**
- **5y5y expectation component**
- **5y5y fitted**

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: 18 September 2023.
New supply-side shocks may pose upside risks to inflation

Daily oil price decomposition
(cumulated percentage change)

Commodity price index
(2018=100)

Sources: Refinitiv and ECB staff calculations.
Notes: Structural shocks are estimated using the spot price, futures-to-spot spread, markets expectations on oil price volatility and stock price index. The model decomposes the 1-month Brent crude futures price. Latest observation: 18 September 2023.

Sources: HWWI and ECB staff calculations.
Extreme weather events due to climate change and El Niño may affect future food prices

**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).

**Medium-term corn and wheat price risks derived from option prices (2005=100)**

Sources: Refinitiv and ECB Staff Calculations.
Notes: Ranges for possible future prices of corn and wheat are calculated using percentiles of option-implied risk-neutral price distributions calculated from option quotes on corn and wheat at different delivery dates traded on 22 August 2023 following Black, F. and Scholes, M. (1973). Latest observation: 15 September 2023.
Dynamics in wage growth remain strong, while labour shortages persist

**Wage trackers**  
(annual percentage change)

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

**Limits to production**  
(percentage of respondents)

- Shortage of space and/or equipment
- Shortage of labour
- Insufficient demand
- Financial constraints

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: August 2023 for Indeed Wage Tracker; June 2023 for the rest.

Sources: European Commission and ECB calculations.

Latest observation: 2023 Q3.

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Unit labour costs are largest contributor to domestic inflation, while profits contribute less.

**GDP deflator – income side decomposition**

(annual percentage changes, percentage points contributions)

- Labour productivity
- Wages
- Unit profits
- Unit net taxes
- Unit labour costs
- GDP deflator

Sources: Eurostat and ECB staff calculations.
Latest observation: 2023 Q2.

**Labour productivity per hour**

(index 2019 Q4 = 100)

Sources: ECB calculation based on Eurostat data.
Latest observation: 2023 Q2.
Business investment below pre-pandemic trend and subdued average working hours

**Real business investment**
(index: 2019 Q4 = 100)

Source: ECB calculation based on Eurostat data.
Note: Pre-pandemic trend estimated on the basis of quarterly data between 2013 Q1 and 2019 Q4. Real investment adjusted for the statistical volatility of intangible investment in Ireland.
Latest observation: 2023 Q2.

**Total hours, employment and average hours**
(index 2019 Q4= 100)

Source: ECB calculation based on Eurostat data.
Latest observation: 2023 Q2.
Energy shock threatens to leave permanent scars in the euro area

Competitive position in domestic market
(percentage balance)

Industrial production: manufacturing sector
(index: December 2019 = 100)

Source: DG-ECFIN.

Notes: Data are seasonally-adjusted. Industrial production indices for individual sectors are aggregated with value-added weights. Low (high) energy-intensity 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: July 2023.
Thank you very much for your attention!