The risks of stubborn inflation

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Headline inflation drops mainly due to energy and food, while core inflation proves sticky.

Source: June 2023 Eurosystem staff projections.
Inflation is increasingly driven by domestic factors, in particular wage growth.

**Global manufacturing PMI**
(diffusion index)

- Input prices
- New orders
- Suppliers’ delivery times

**GDP deflator, import deflator and compensation per employee**
(y-o-y changes)

- GDP deflator (lhs)
- Compensation per employee (lhs)
- Import deflator (rhs)


Although fewer firms expect raising prices further, inflation risks remain tilted to the upside.

### Firms’ selling price expectations
(diffusion index)

- **Manufacturing**
- **Services**

Source: DG-ECFIN.

### Risk-neutral option-implied probabilities for inflation outcomes above 3% and below 1%
((percentages)

- **Above 3%, 5y5y**
- **Below 1%, 5y5y**
- **90th percentile, 5y5y**

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: 12 June 2023.
Extreme weather events from climate change and El Niño raise upside risks to food prices

Global food price effects of a one degree temperature change during El Niño
(percent)

North Atlantic sea surface temperature anomaly
(degree Celsius)

Sources: Haver, US NOAA and ECB staff calculations.
Notes: The impulse response shows the impact of a 1°C increase in temperature during El Niño. Climate data based on the Oceanic Nino Index (ONI) of the US National Oceanic and Atmospheric Administration (NOAA), identifying El Niño as periods when the sea surface temperature in the East-Central tropical Pacific increases by 0.5°C compared to a 30 year average for five consecutive months. The chart shows 68% confidence intervals.
Average hours worked have not recovered completely, as sick leaves are rising.

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

![Graph showing total hours, employment, and average hours from 19Q4 to 23Q1.](chart1)

**Germany: Sick leaves from work**
(percent of employees)

![Graph showing sick leaves from 2018Q1 to 2023 May.](chart2)

Sources: ECB calculation based on Eurostat data.
Latest observation: 2023Q1.

Source: Public health insurance funds in Germany.
Notes: Number of employees recorded as sick on the first day of the respective month as a share of all insured employees. The dashed line denotes the 12-month moving average.
Investment gap points to hysteresis effects, which may dampen potential growth.

Real business investment
(index: January 2020 = 100)

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

Euro area car registrations
(index: January 2020 = 100)

Sources: Eurostat and ECB calculations.
Lower productivity growth raises unit labour costs, posing risks to inflation

**Labour productivity per hour and per person**
(y-o-y change in percent)

- Per person
- Per hour

**Unit labour cost and GDP deflator**
(annual percentage changes)

Sources: Eurostat and ECB calculations.
Latest observation: 2023Q1.
Large uncertainty about the effects of monetary policy on inflation

Price level response to a one percentage point monetary policy shock (per cent)

Impact of ECB policy normalisation since December 2021 on HICP Inflation (year-on-year percentage points)

Sources: ECB calculations using the New Area-Wide Model (Coenen, Karadi, Schmidt, Warne (2021)), the MMR model (Mazelis, Motto, Ristiniemi (2023)), and the BASE model (Angelini, Bokan, Christoffel, Ciccarelli, Zimic (2019)).

Notes: The chart shows the impact of policy normalisation between December 2021 and June 2023. The mean refers to the mean of the three models (ECB-BASE, NAWM-II, and MMR).


Notes: Chart shows the GDP deflator in level. Median (line), percentiles 16–84 (darker band), percentiles 5–95 (lighter band).
Long period of above-target inflation raises concerns about shift in inflation expectations

Euro area 1y9y inflation-linked swap rate and HICP inflation (percentages per annum)

Source: Refinitiv and ECB calculations.
Notes: The black dashed line is based on the left-hand axis and marks the ECB’s 2% inflation target.

Bank of America sentiment survey: view on central bank inflation targets (% share in total respondents)

Source: Bank of America Global Research FX and Rates Sentiment Survey.
Italian firms expect consumer price inflation to decline but to remain very high

Expectations of consumer price inflation by Italian firms

(percentage changes on year-earlier period)

Most euro area consumers expect prices to remain unchanged or to rise strongly.

The ECB’s Consumer Expectations Survey: histograms
(per cent)

**One year ahead inflation expectations**
- April 2020-April 2023
- April 2023

**Three years ahead inflation expectations**
- April 2020-April 2023
- April 2023

Source: ECB-CES and ECB Staff calculations.
Inflation perceptions stay historically high despite falling inflation

Germany: inflation expectations three years ahead
(per cent)

Source: ECB-CES, Bundesbank BOP-HH and ECB Staff calculations.
Notes: The ECB’s CES (Consumer Expectations Survey) depicts consumer inflation expectations from the German subsample of a representative survey run by the ECB in each of the six largest euro area countries (Belgium, Germany, Spain, France, Italy and the Netherlands). The BOP-HH (Bundesbank Online Panel Households) depicts inflation expectations for German citizens.

Inflation perceptions and HICP
(percent balance and percent)

Source: European Commission Consumer Survey and Eurostat.
Impact of tighter monetary policy on households’ net interest income is limited so far

Change in interest earnings and payments between 21Q4 and 22Q4

**Sources:** Eurostat and ECB calculations.
**Note:** Computations based on euro area sector accounts and the Household Finance and Consumption Survey. Net borrower = households with negative net financial wealth; Net saver = households with positive net financial wealth. Latest observation: 2022Q4.

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Euro area households’ interest earnings and payments

**Sources:** Eurostat and ECB calculations.
**Note:** Interest payments/earnings after allocation of FISIM (financial intermediation services indirectly measured), based on four-quarter sums. Latest observation: 2022Q4.
Tight labour market and more frequent price changes raise risk of wage-price spiral

**Ratio of vacancies to unemployed workers**

![Graph showing the ratio of vacancies to unemployed workers from 2009 to 2023Q1.]

Sources: ECB calculation based on Eurostat and Haver data. Latest observation: 2023Q1.

**Frequency of price adjustment in Italy**

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

![Graph showing the frequency of price adjustment in Italy from 2017 to Dec-22.]

Robust monetary policy protects against de-anchoring of inflation expectations

Model-implied responses to a cost shock  
(percent)

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<th>Real rate</th>
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Notes: Robust control refers to a scenario where the central banks acts as if inflation persistence is high although persistence is actually low. The best (worst) case describes a situation where actual inflation persistence is low (high) and the central bank assumes persistence is low.
Policy outcomes can be improved by giving more weight to observable data.
Thank you very much for your attention!