The state contingency of monetary policy transmission

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The ChaMP network: “Challenges for Monetary Policy Transmission in a Changing World”

Two workstreams:
WS1: Transmission through the financial sector
WS2: Transmission through the real economy

Led for the ESCB as a whole by
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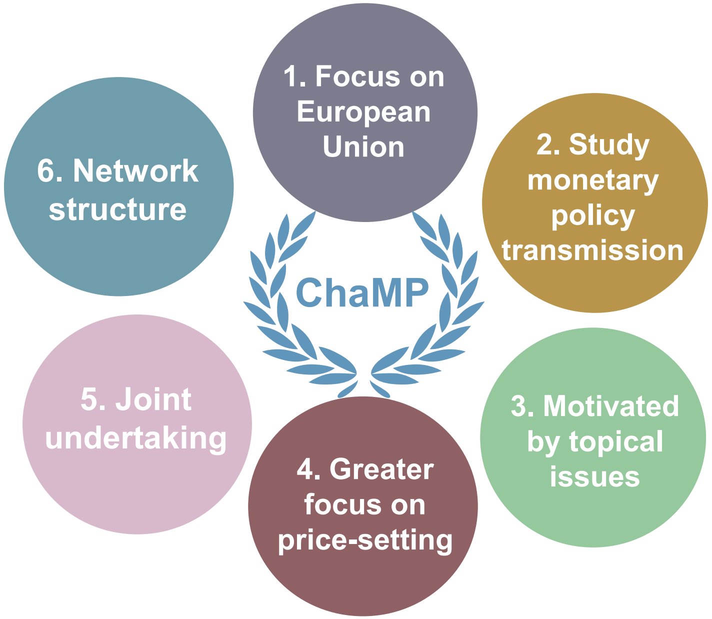
- European Central Bank
- Banca d’Italia
- Oesterreichische Nationalbank
- Banco de Portugal



Aim: Enhance our understanding of how monetary policy transmits to the European economy (speed, strength and heterogeneity) …

Context:
… amid unprecedented shocks, structural changes and shifting inflation dynamics

Ambition: focus on firms’ price setting and inflation

The three stages of monetary policy transmission

Policy rate $\xrightarrow{1}$ Financing conditions $\xrightarrow{2}$ Aggregate demand $\xrightarrow{3}$ Inflation

1. What affects the speed and strength of transmission of monetary policy to financing conditions?

2. How sensitive are firms and households to changes in financing conditions?

3. How are changes in demand transmitted to changes in inflation and output?

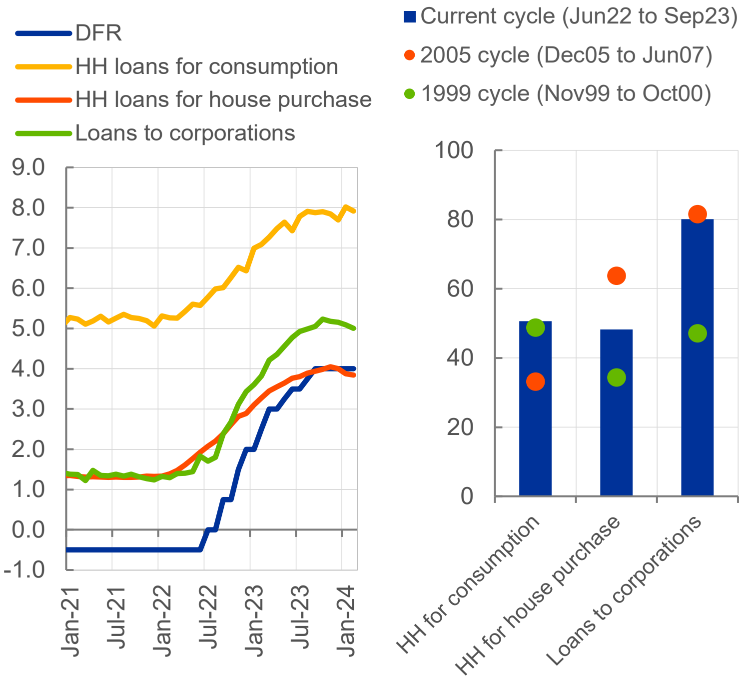
1

Transmission to financing conditions

Strong pass-through to loan rates but weak transmission to overnight deposit rates

Loan rates and betas

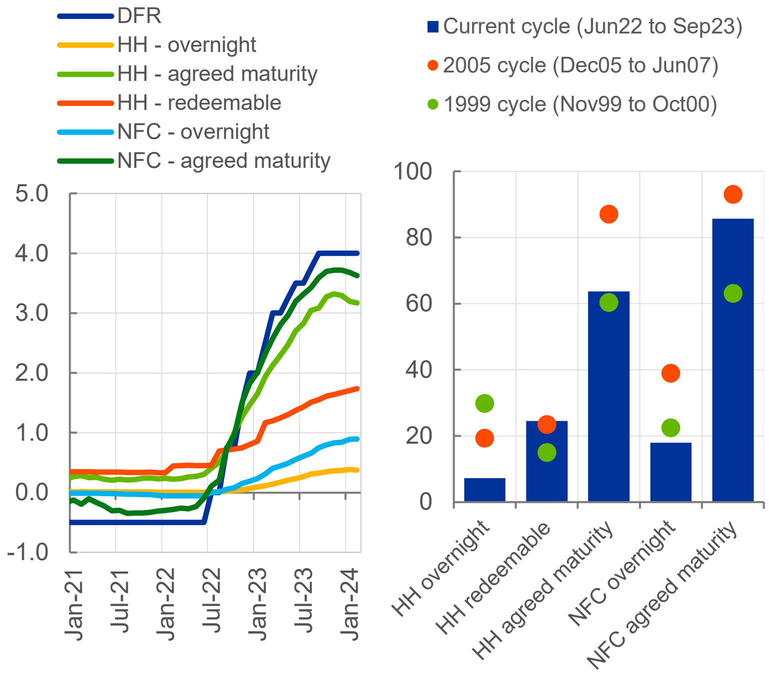
(lhs panel: percentages per annum; rhs panel: percentages)



Sources: ECB (MIR) and ECB calculations.
Notes: ‘HH’ stands for households. The start of hiking cycles is the month in which the hike was explicitly announced, and end is the month of the last policy rate hike.
Latest observation: February 2024.

Deposit rates and betas

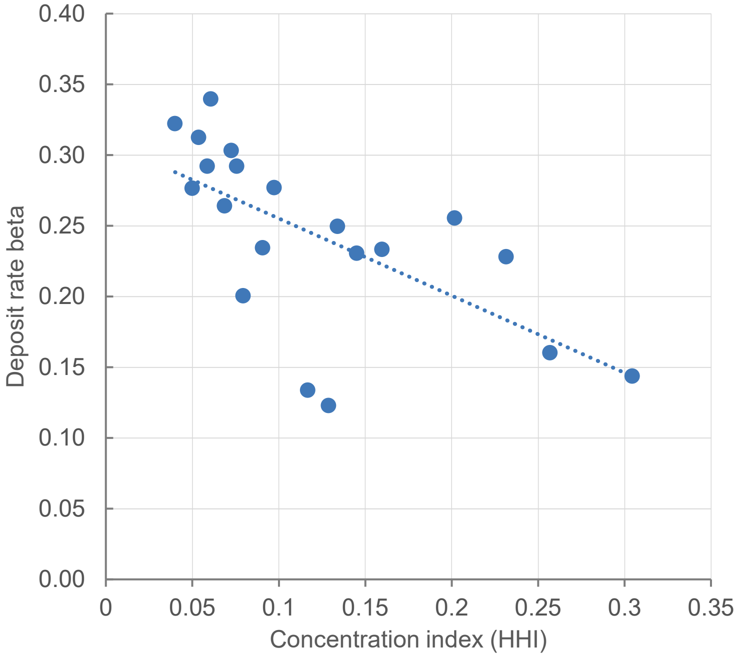
(lhs panel: percentages per annum; rhs panel: percentages)



Sources: ECB (MIR) and ECB calculations.
Notes: ‘HH’ stands for households. ‘NFC’ stands for non-financial corporations. The start of each hiking cycle is the month in which the hike was explicitly announced, and the end is the month of the last policy rate hike. Agreed maturity are deposits with an agreed maturity of up to two years.
Latest observation: February 2024.

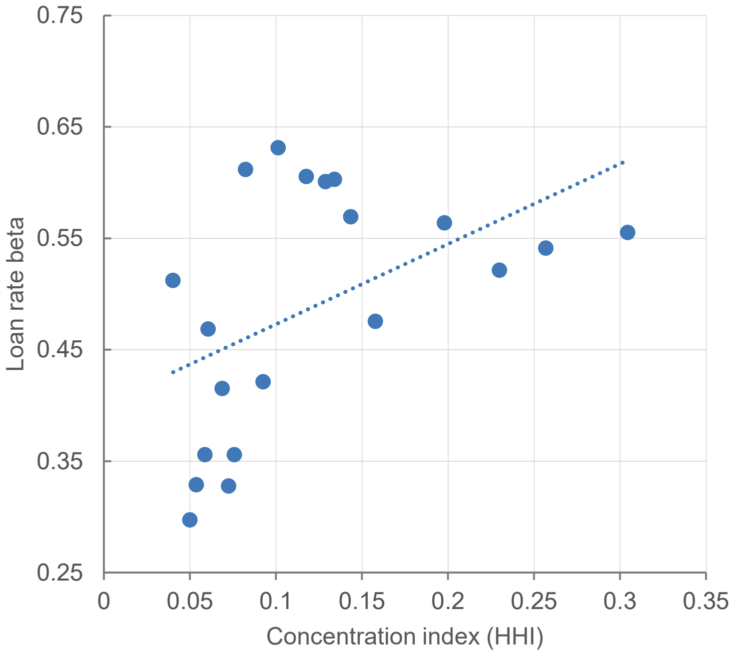
The role of bank concentration for interest rate pass-through

Stronger pass-through in *more* competitive deposit markets



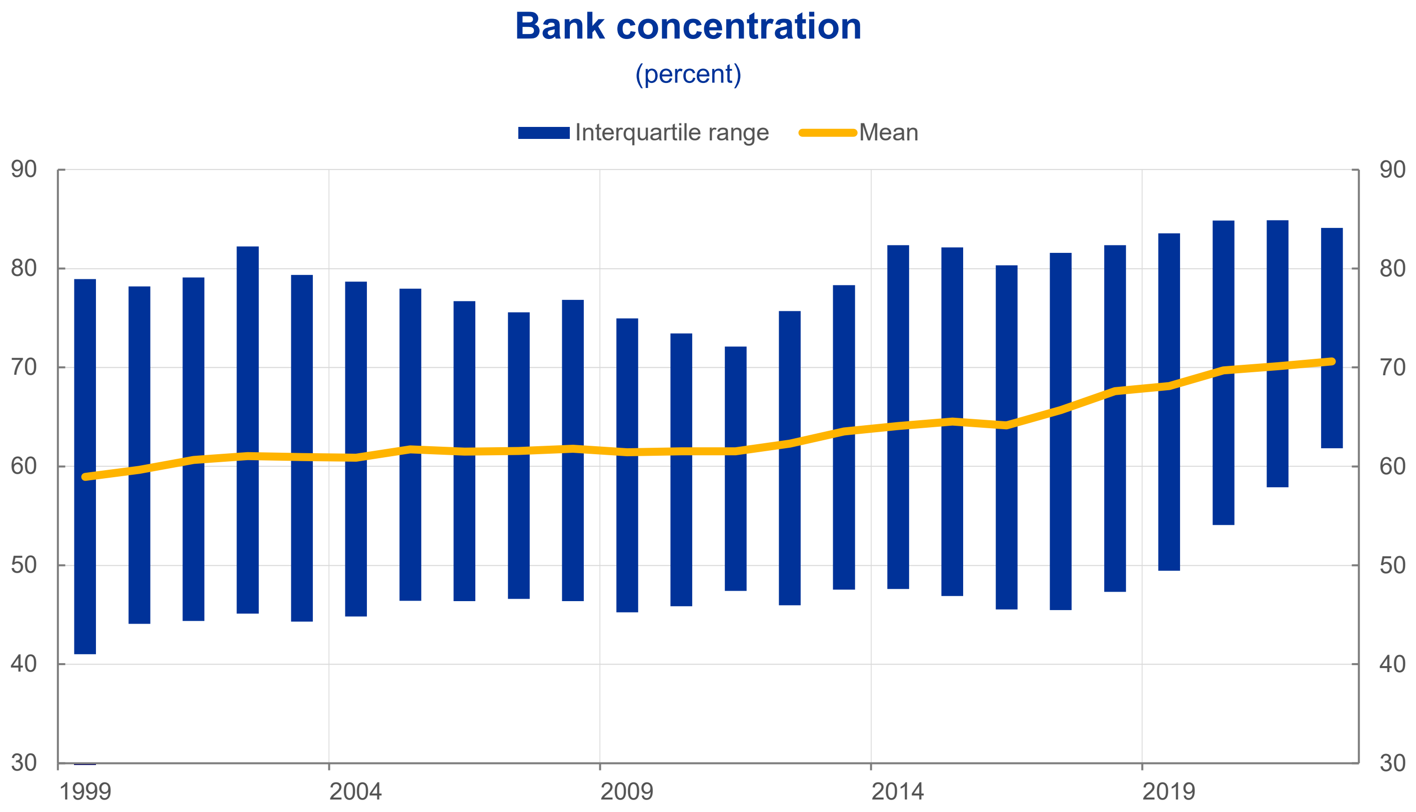
Sources: iBSI, iMIR and ECB staff calculations.
Note: This binned scatter plot shows the relation between bank-level deposit betas (obtained from a regression of the monthly, year-over-year change in average deposit rates on the year-over-year change in DFR between Jan 2022 and December 2023) and a country-level HHI index for the deposit market. The HHI is grouped into 20 equally sized bins, and then the average HHI and Deposit beta is plotted for each bin.

Stronger pass-through in *less* competitive loan markets



Sources: iBSI, iMIR and ECB staff calculations.
Note: This binned scatter plot shows the relation between bank-level loan betas (obtained from a regression of the monthly, year-over-year change in average loan rates on the year-over-year change in DFR between Jan 2022 and December 2023) and a country-level HHI index for the loan market. The HHI is grouped into 20 equally sized bins, and then the average HHI and loan beta is plotted for each bin.

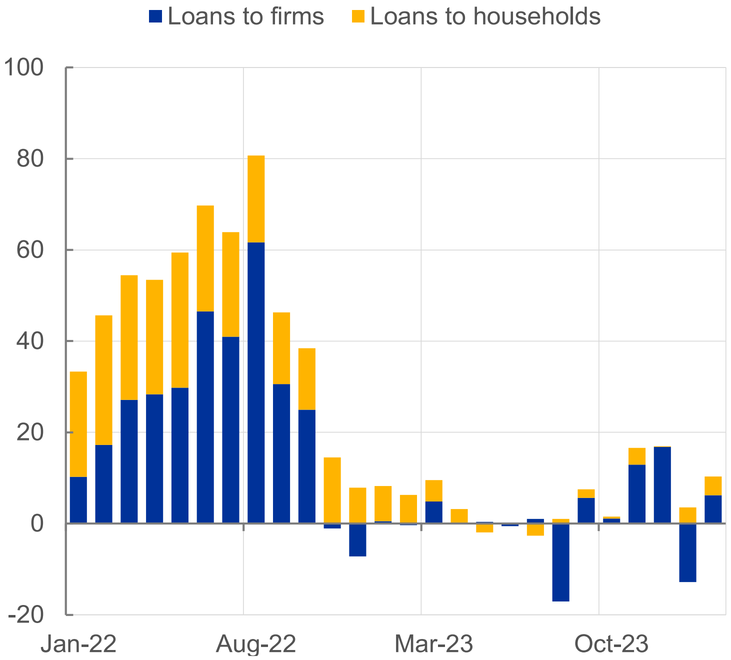
Bank concentration has gradually increased implying lower competition



Sources: Banking structural statistical indicators (SDW) and ECB staff calculations.
Notes: Share of the top five credit institutions in total bank assets for individual euro area countries. The yellow line is a simple average of individual country values. The blue bars show the interquartile range of individual country values.
Latest observation: 2022.

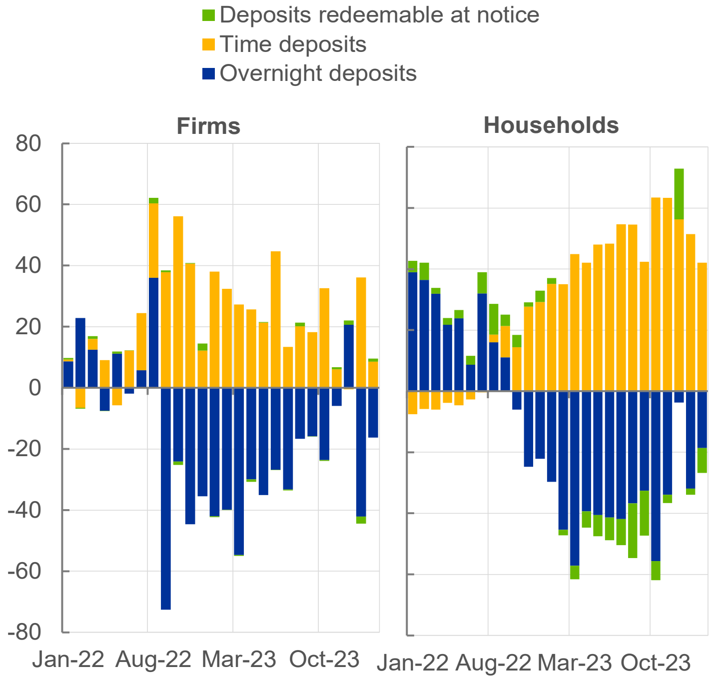
Strong transmission to loan volumes and shift from overnight to time deposits

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



Source: 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: February 2024.

Firm and household deposits
(monthly flows in EUR bn)

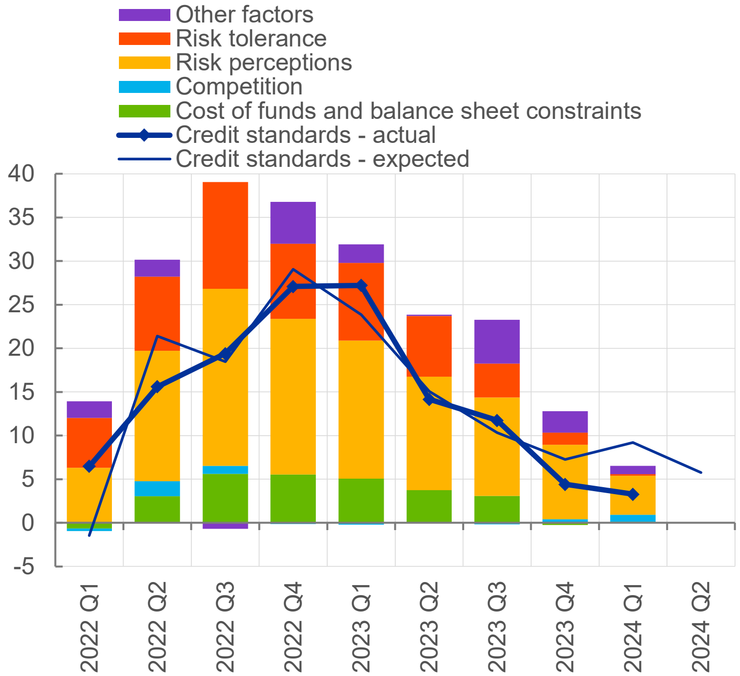


Source: ECB (BSI).
Latest observation: February 2024.

Tighter credit standards meet lower loan demand

Changes in credit standards for loans to firms and contributing factors

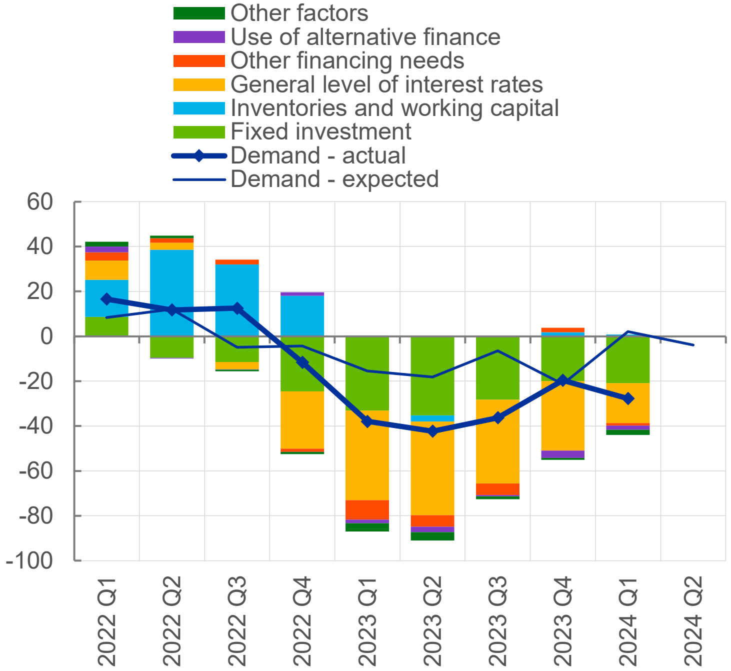
(net percentage of banks)



Source: ECB (BLS).
Note: "Other factors" refer to further factors which were mentioned by banks as having contributed to changes in credit standards.
Latest observation: 2024 Q1.

Change in demand for loans to firms and contributing factors

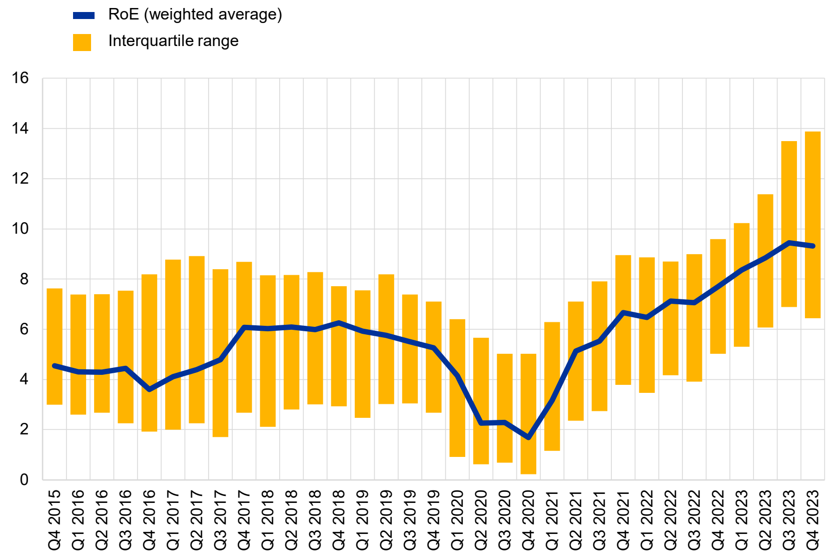
(net percentage of banks)



Source: ECB (BLS).
Notes: “Other financing needs” as unweighted average of “M&A and corporate restructuring” and “debt refinancing/restructuring and renegotiation”; “Use of alternative finance” as unweighted average of “internal financing”, “loans from other banks”, “loans from non-banks”, “issuance/redemption of debt securities” and “issuance/redemption of equity”.
Latest observation: 2024 Q1.

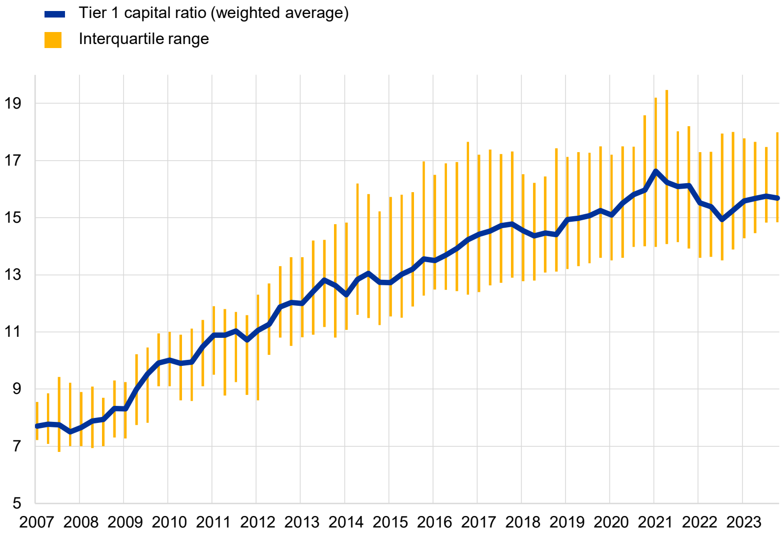
Strong position of euro area banks reduces risk of financial amplification

Euro area bank return on equity (ROE)
(percent)



Sources: ECB supervisory data, ECB calculations.
Note: The sample consists of 75 euro area significant institutions.
Latest observation: Q4 2023.

Capital ratios of banks
(percent)

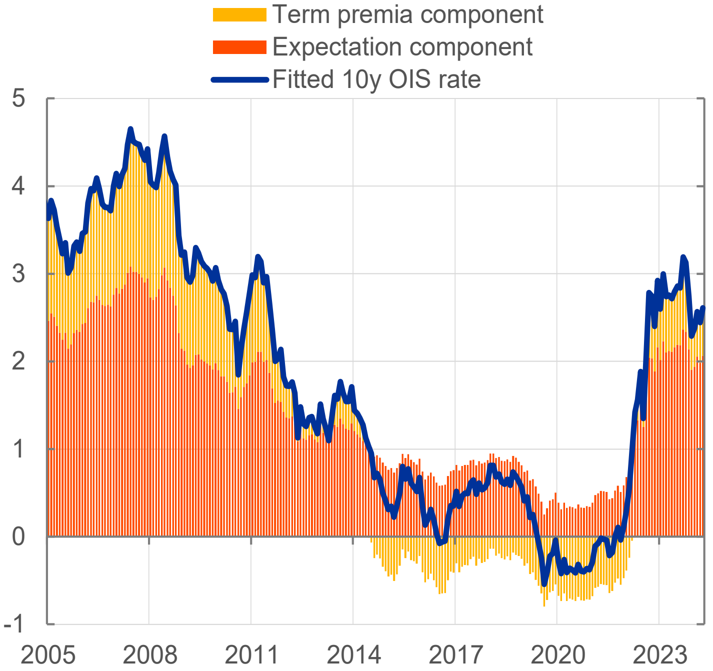


Source: Bloomberg.
Note: Weighted average Tier 1 ratio for an unbalanced sample of up to 80 euro area banks.
Latest observation: Q4 2023.

Tighter long-term yields but term premia remain compressed

Decomposition of 10-year spot EA OIS into expected rates and term premia

(percentages per annum)



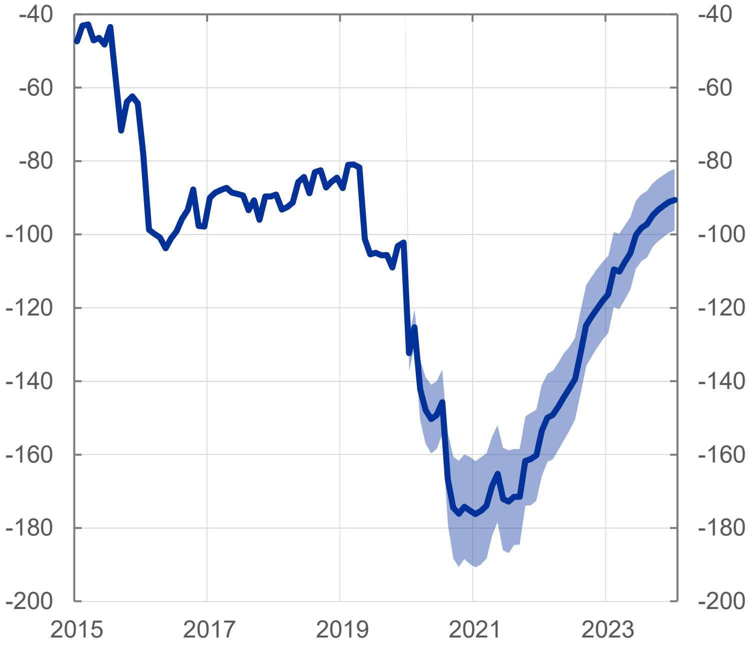
Sources: Refinitiv, Bloomberg and ECB calculations.

Notes: The decomposition of the 10-year spot OIS rate into expected rates and term premia is based on three variations of Joslin, Singleton and Zhu (2011): an affine term structure model without survey information on interest rate expectations, and an affine and a lower bound term structure model both incorporating survey information on interest rates

Latest observation: 22 April 2024.

APP and PEPP portfolios: impact of sovereign bonds on risk premia

(basis points)



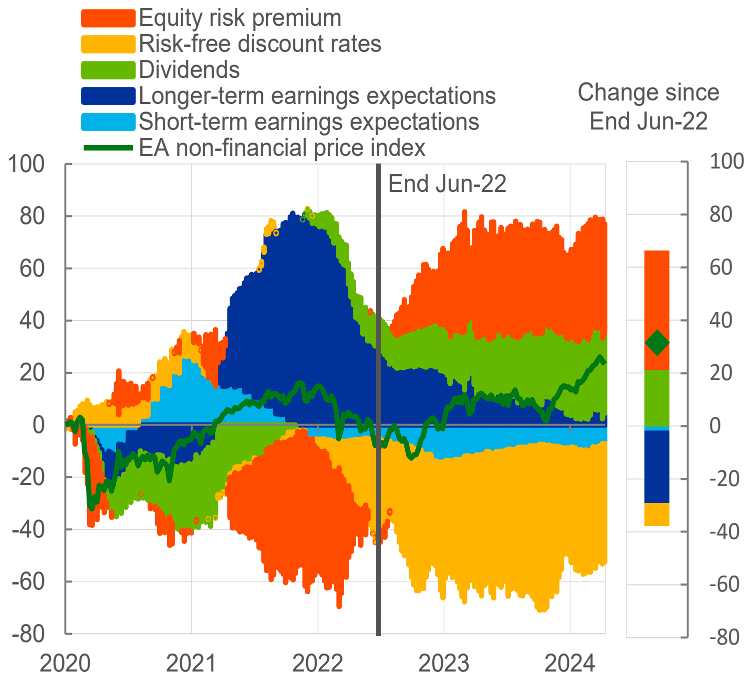
Source: ECB calculations.

Notes: The upper range of estimates of the impact of APP and PEPP on sovereign bond term premia and other risk premia are derived using an arbitrage-free affine model of the term structure with a quantity factor (see Eser et al., 2023). The lower range is derived using an alternative version of the model recalibrated so that the model-implied yield reactions to the March PEPP announcement match the two-day yield changes observed after 18 March. The model results are derived using GDP-weighted averages of the zero-coupon yields of the big-four sovereign issuers (DE, FR, IT, ES). The blue line is based on projections of the Eurosystem's holdings of big-four sovereign bonds as informed by the ECB's September 2023 survey of monetary analysts. Latest observation: March 2024 (monthly data).

Compressed risk premia ease financial conditions in equity and credit markets

Drivers of equity prices: NFCs

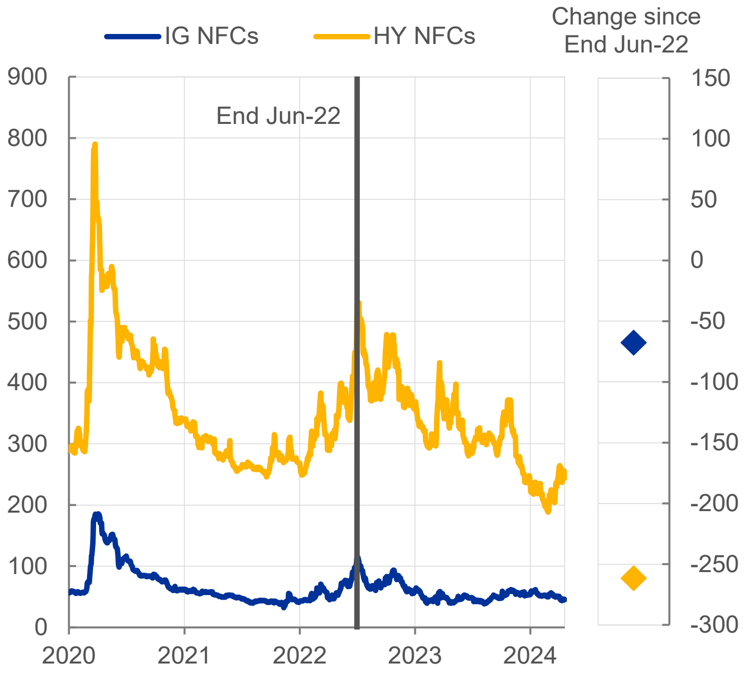
(lhs panel: cumulative percentage changes relative to Jan-20, rhs panel: percentages)



Sources: Refinitiv, IBES, Consensus Economics, Bloomberg and ECB calculations.
Notes: The decomposition is based on a dividend discount model. The model includes share-buybacks, discounts future cash-flows with interest rates of appropriate maturity and includes five expected dividend growth horizons. See ECB Economic Bulletin, issue 4/2018 for more details. The vertical line refers to 24 June 2022.
Latest observation: 12 April 2024 (weekly data).

Non-financial corporate bond spreads

(basis points)



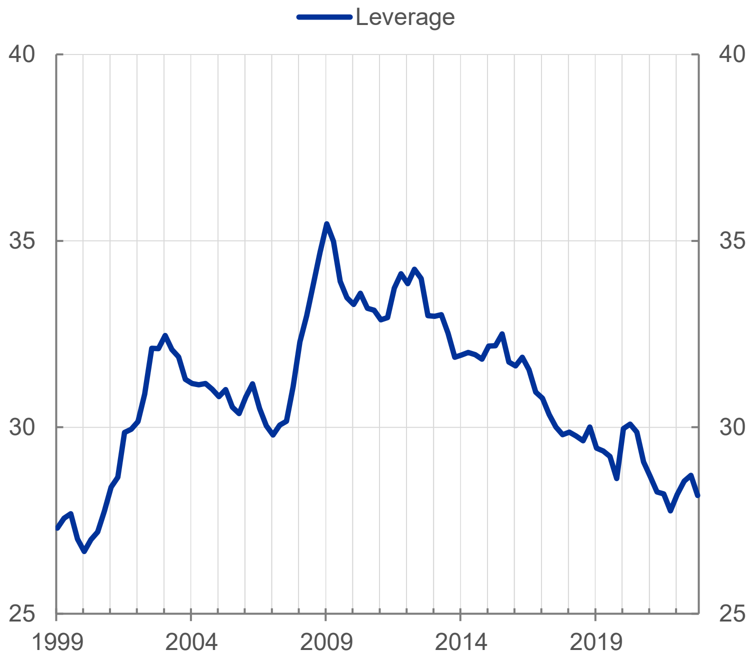
Sources: iBoxx. and ECB calculations.
Notes: The spreads are based on indices including companies that issue bonds in EUR, without strict restriction to their domicile and are calculated as weighted averages of bond spreads over Markit iBoxx swap curve. The vertical line refers to 30 June 2022.
Latest observation:18 April 2024

2

Impact of financing conditions on firms and households

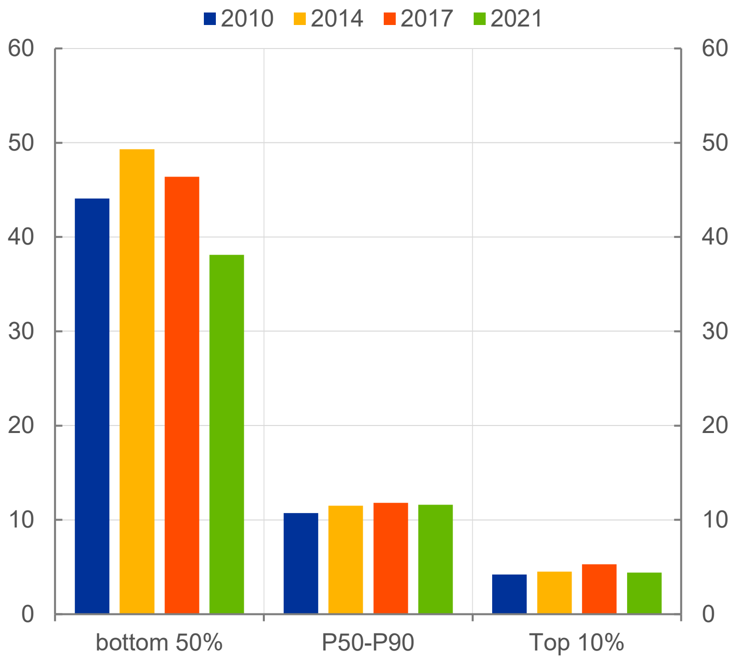
Lower leverage of firms and lower-wealth households may weaken transmission

Firms: debt-to-asset ratio
(percent)



Source: European Systemic Risk Board (2023).
Note: Leverage is defined as the ratio of loans plus debt securities over total assets, using System of National Accounts Data from Eurostat.

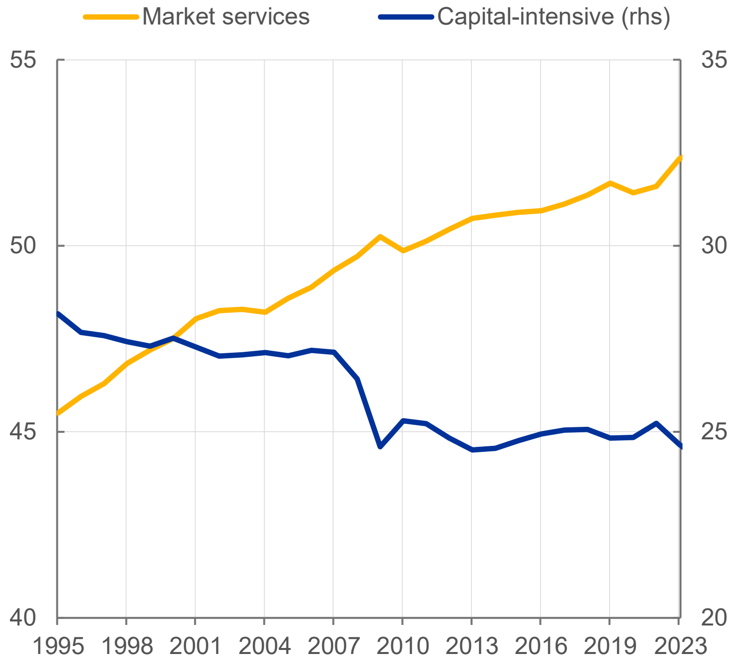
Households: debt-to-asset ratio
(percent)



Source: Household Finance and Consumption Survey (2023).
Note: The graph shows the debt-to-assets ratio reported by households in the 4 waves (2010, 2014, 2017, 2021) of the HFCS, for 3 bins of the wealth distribution (bottom 50 %, 50th to 90th percentile, top 10 %)

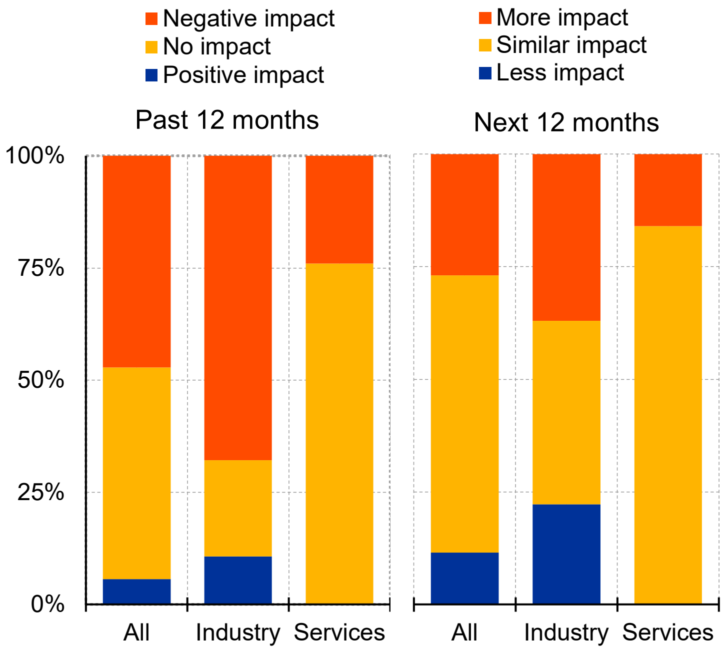
Growing share of less rate-sensitive services may weaken monetary policy transmission

Sectoral shares in euro area gross value added
(percentages)



Sources: Eurostat and ECB calculations.
Note: The market services sector includes, among others, wholesale and retail trade, transportation, accommodation and food services, information and communication, and financial and real estate services. The capital-intensive sector includes, among others, mining, manufacturing, energy and water supply, and construction.
Latest observation: 2023.

Survey: Impact of changes in financing conditions on firms' activity
(percentage of firms)

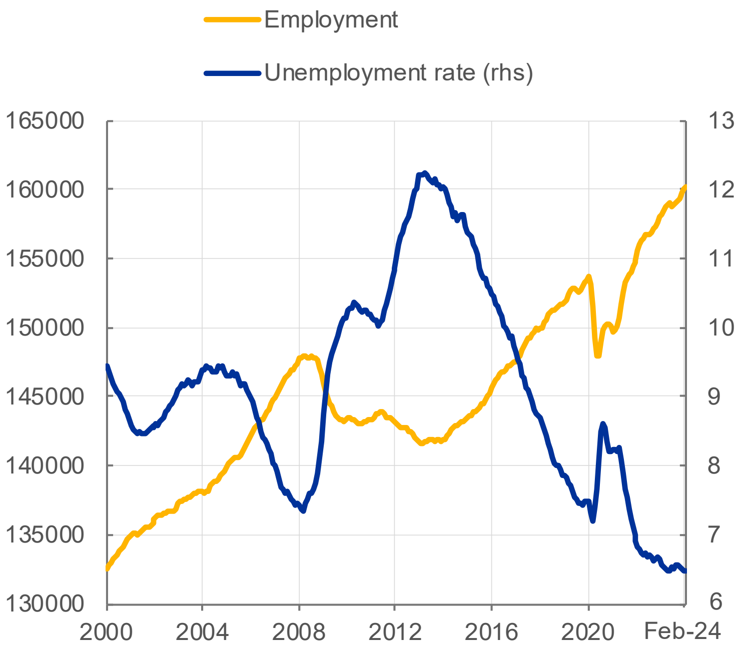


Sources: ECB.
Notes: Based on conversations with 52 contacts, comprising 27 contacts from firms in the industrial sector and 25 contacts from firms in the services sector. The exchanges took place between 25 September and 5 October 2023. For further information see the box entitled: "Main findings from ECB's recent contacts with non-financial companies, ECB Economic Bulletin, Issue 7/2023".

Labour hoarding may weaken monetary transmission, while savings continue to grow

Unemployment rate and employment

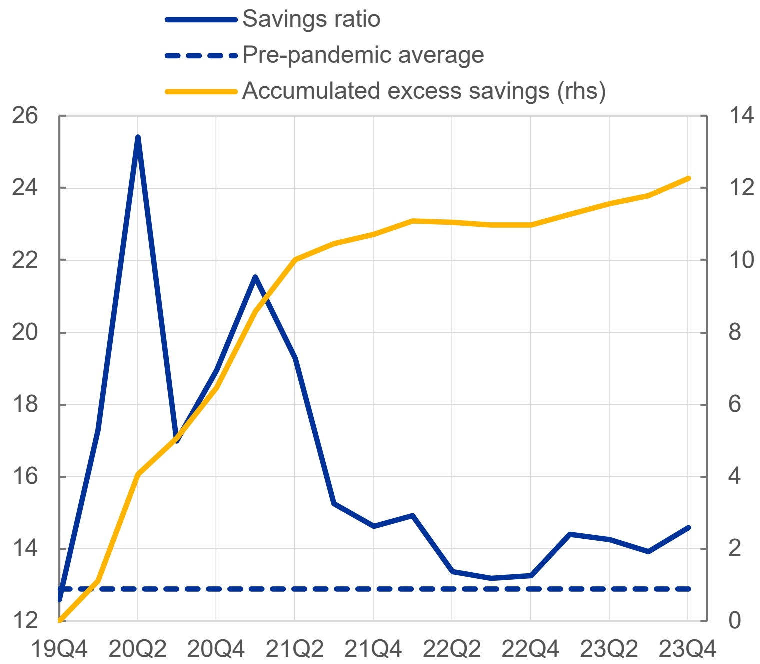
(lhs: thousands of persons; rhs: percentage of the labour force)



Source: ECB calculations based on Eurostat data.
Notes: The monthly employment data have been computed manually as the difference between labour force and unemployment.
Latest observation: February 2024.

Household savings ratio and accumulated savings

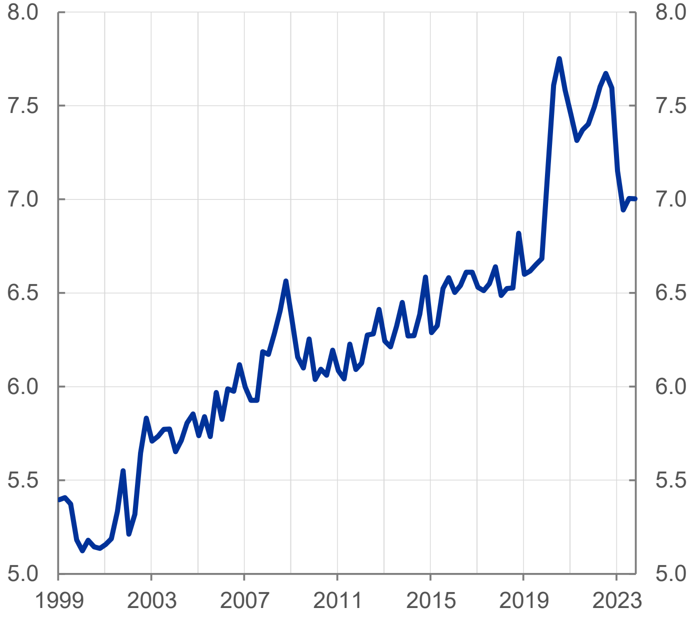
(lhs: percentage share of nominal income; rhs: percentage of annual disposable income)



Sources: Eurostat and ECB calculations.
Notes: Pre-pandemic average of savings ratio is calculated over the period 2014 Q4-2019 Q4. Excess savings are defined as in the ECB Blog “Excess savings: To spend or not to spend” of 2 November 2023.
Latest observation: 2023 Q4.

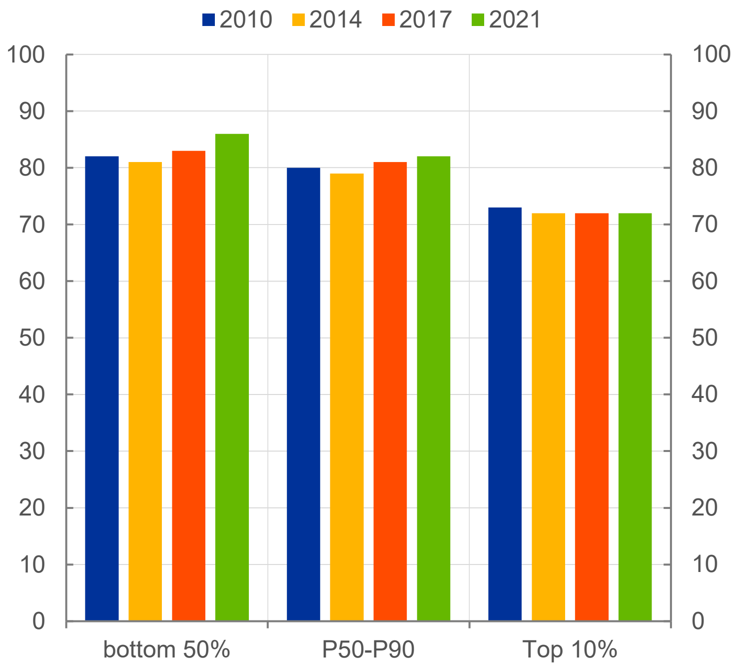
Higher cash buffers for firms and households may slow transmission

Firms: cash over total assets
(percent)



Sources: ECB (QSA) and ECB calculations.
Note: Currency and deposits over total assets, calculated as the sum of firms' financial assets and fixed assets.
Latest observation: 2023Q4.

Households: liquid assets over total financial assets
(percent)

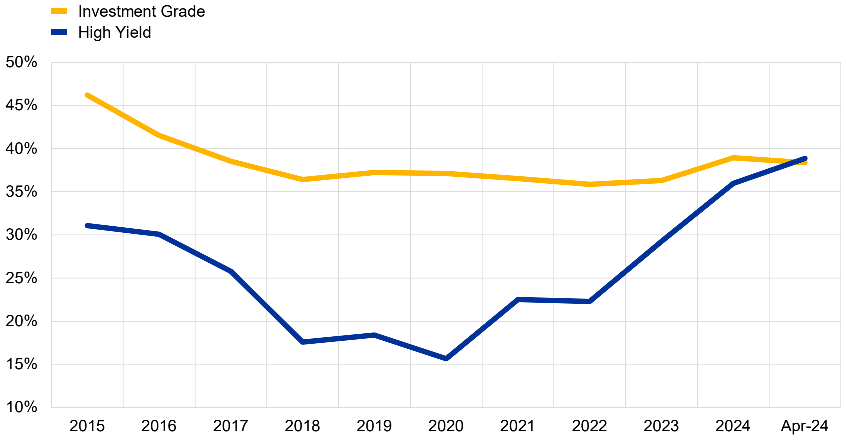


Sources: Household Finance and Consumption Survey (2023).
Note: The graph shows the share of liquid assets in total assets (in percent) reported by households in the 4 waves (2010, 2014, 2017, 2021) of the HFCS, for 3 bins of the wealth distribution (bottom 50%, 50th to 90th percentile, top 10%).

Higher share of fixed-rate debt may slow monetary policy transmission

Euro area corporate bonds maturing within next 3 years

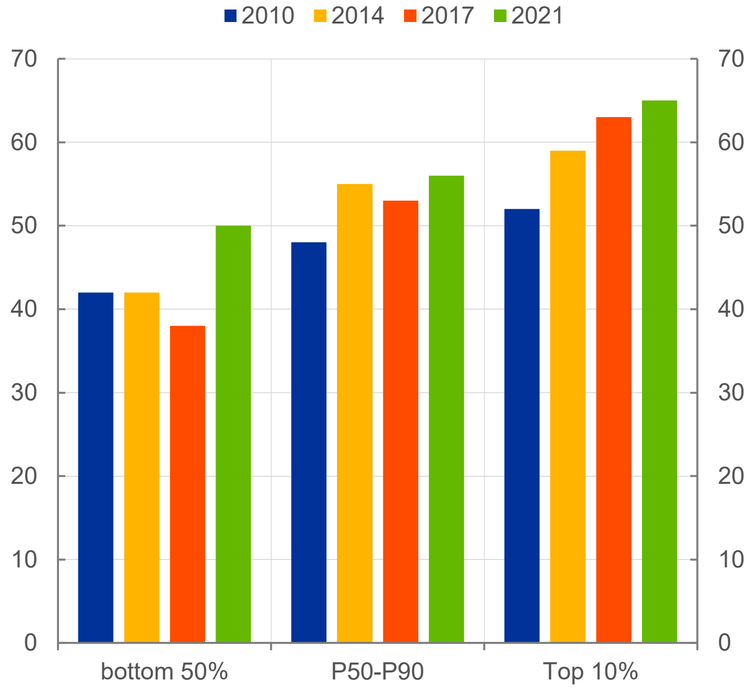
(percentage of total bonds outstanding)



Sources: Bloomberg Finance L.P. and ECB calculations.
Note: Annual data refer to January. Latest observation is 22 April.

Share of fixed-rate mortgages

(percent)



Source: Household Finance and Consumption Survey (2023)
Note: The graph shows the share of fixed rate mortgages (calculated as fixed rate mortgages over total mortgages) reported by households in the 4 waves (2010, 2014, 2017, 2021) of the Household Finance and Consumption Survey, for 3 bins of the wealth distribution (bottom 50 %, 50th to 90th percentile, top 10 %).

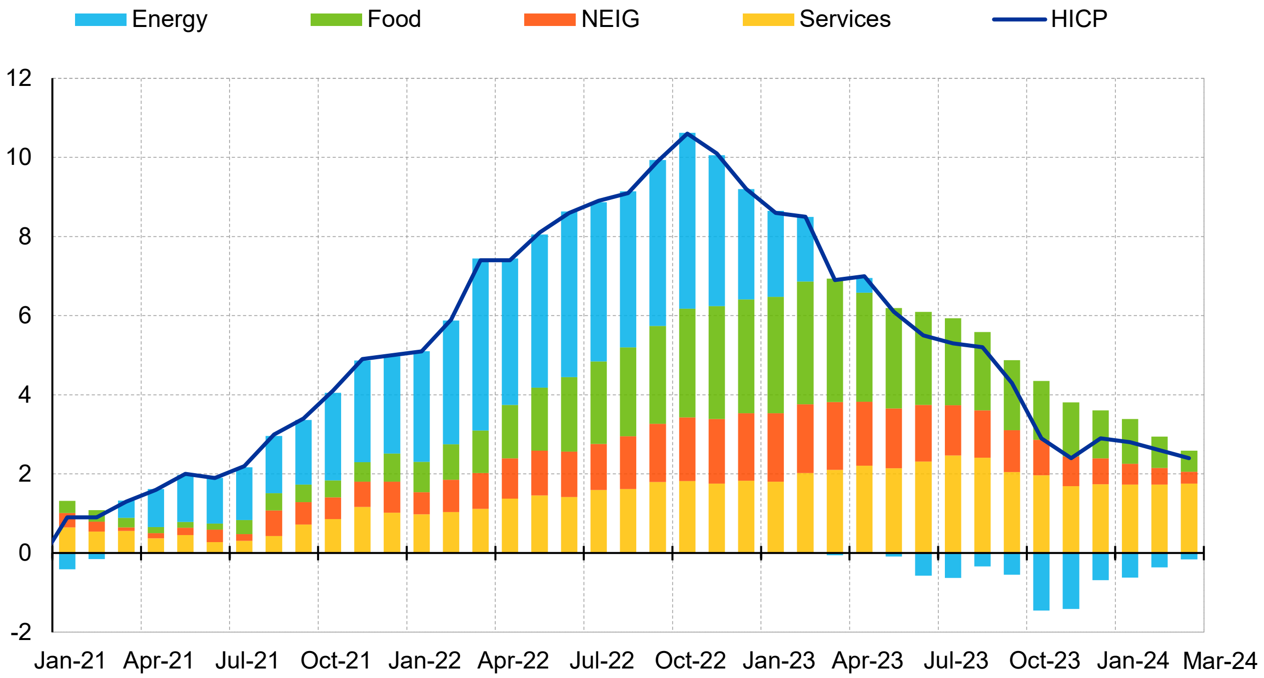
3

A bumpy last mile: bringing inflation back to target

Sharp decline in inflation so far mainly driven by reversal of previous supply-side shocks

HICP inflation and contributions

(annual percentage changes and percentage point contribution)

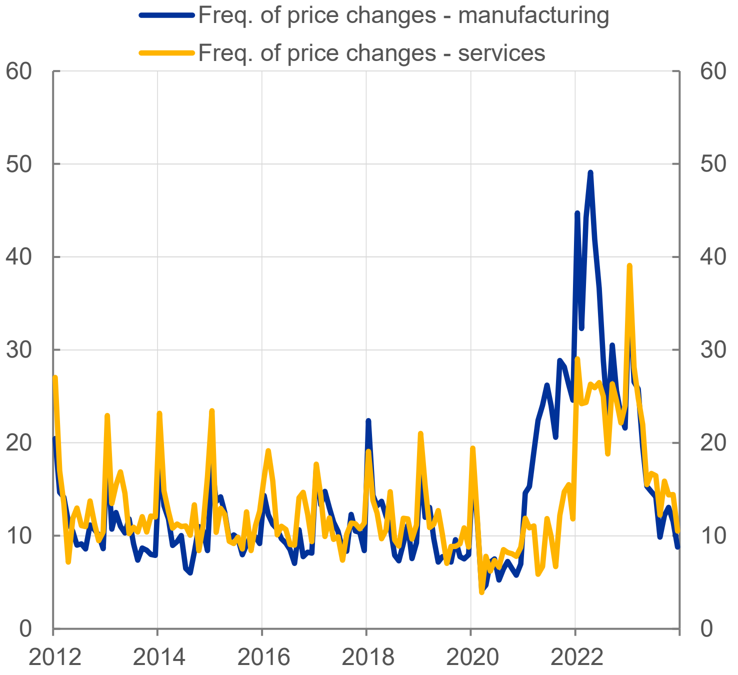


Sources: Eurostat and ECB calculations.
Latest observation: March 2024.

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

Time-varying frequency of price changes

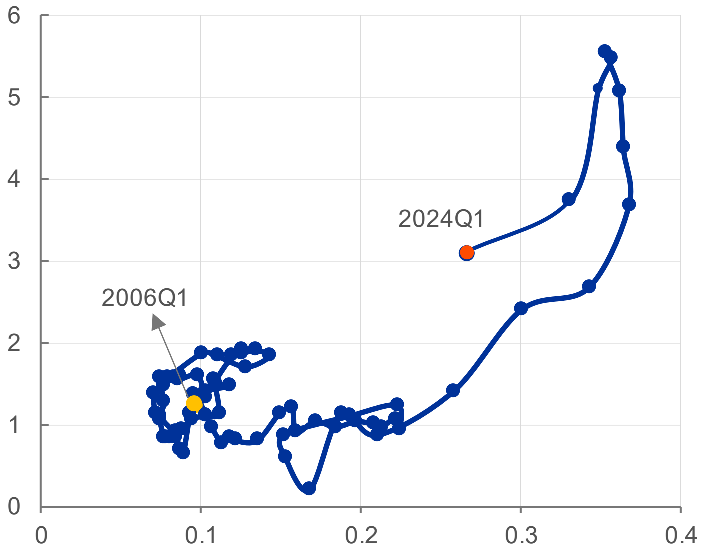
(percent)



Source: 'Enquête Mensuelle de Conjoncture' – Banque de France.

Phillips curve

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

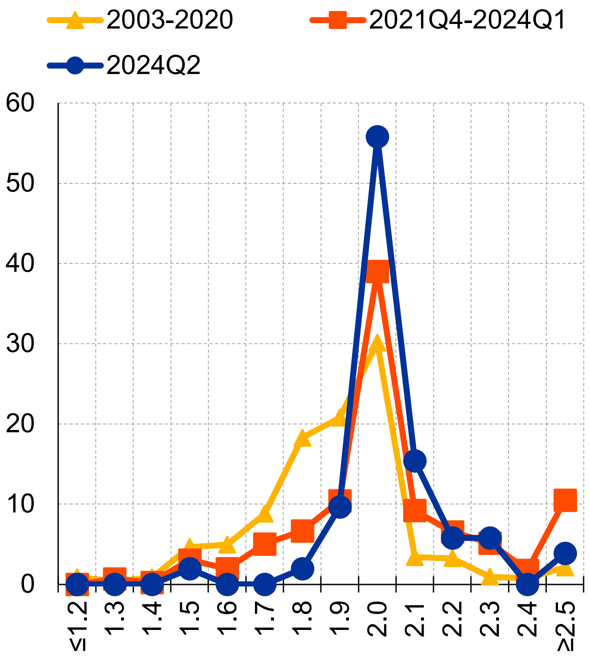


Sources: Haver Analytics, Eurostat, Indeed, and ECB Staff calculations.
Notes: The 2024Q1 vacancy to unemployment ratio is based on Indeed vacancies and the average of the monthly unemployment data from January to February 2024.
Latest observation: 2024 Q1.

Anchoring of inflation expectations critical for monetary policy transmission

SPF: Cross-sectional distribution of longer-term inflation point forecasts

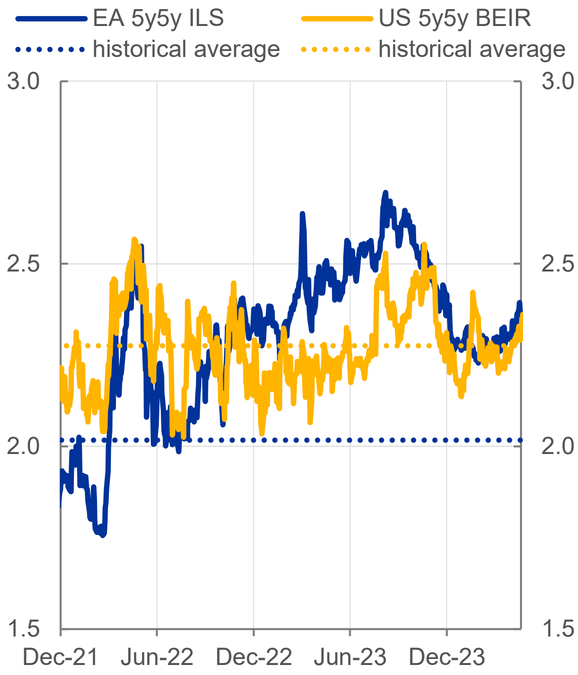
(percent)



Sources: ECB, SPF.
Latest observation: SPF 2024Q2 round.

Euro area and US longer-term inflation compensation

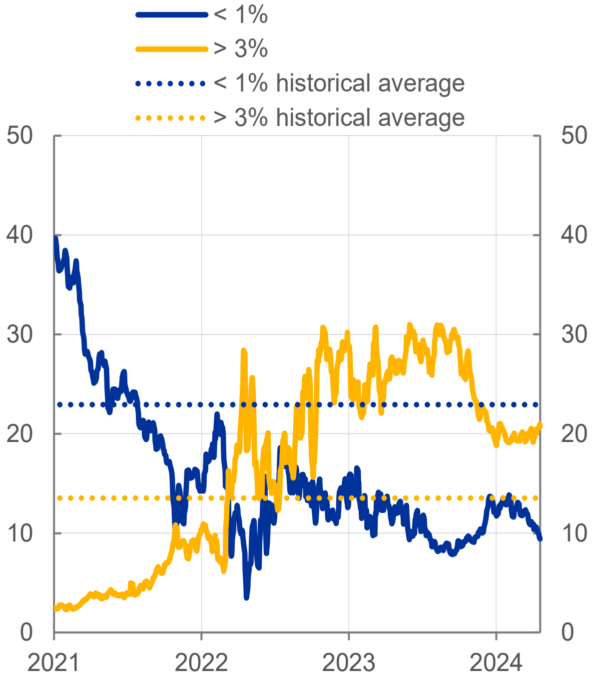
(percentages per annum)



Sources: Refinitiv, Bloomberg and ECB calculations.
Latest observation: 18 April 2024.

Option-implied probabilities of high and low euro area inflation outcomes over 5y5y horizon

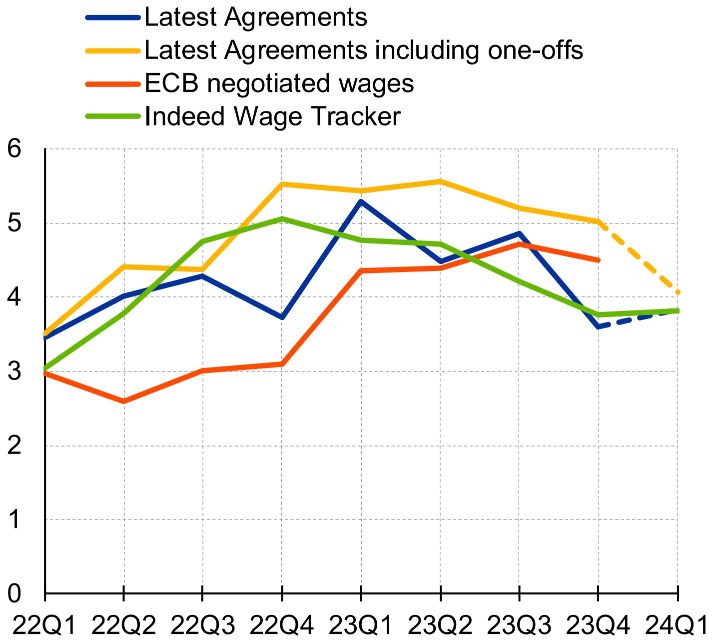
(percentages)



Sources: Refinitiv, Bloomberg and ECB calculations.
Notes: 5-days moving average risk-neutral probabilities of inflation lower than 1% and higher than 3% 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: 18 April 2024.

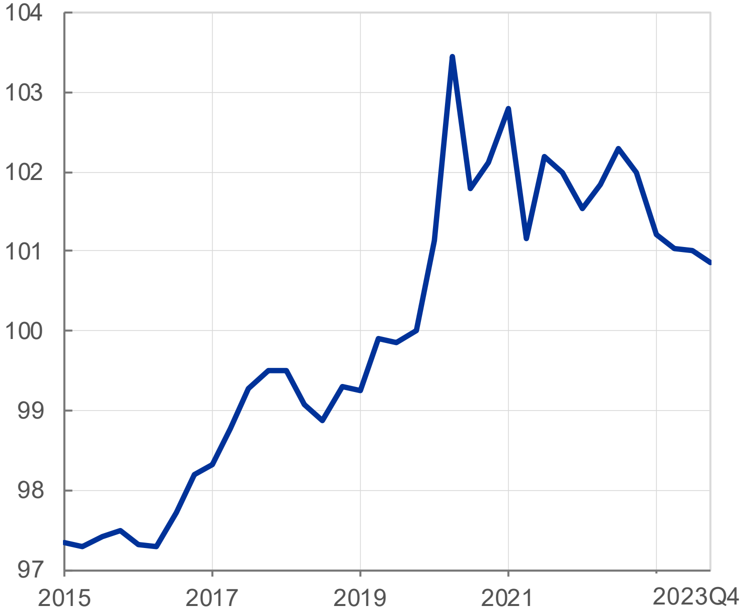
Strong wage growth and falling productivity put upward pressure on unit labour costs

Wage trackers
(annual percentage change)



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: 2024 Q1 (based on March 24) for Indeed wage tracker, 2023Q4 for ECB negotiated wages, 2024Q1 for wage growth in latest agreements preliminary as not all collective agreements reached in 2024Q1 are available/included yet.

Labour productivity per hour
(index 2019 Q4 = 100)

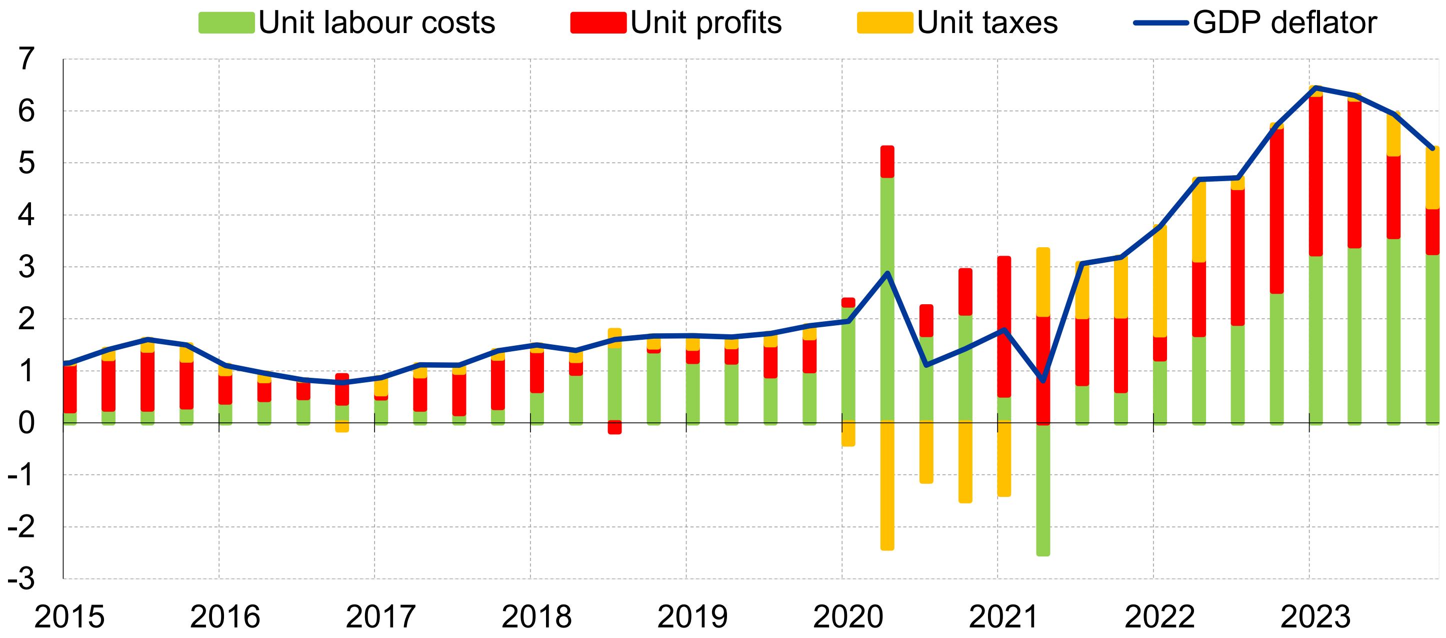


Sources: ECB calculation based on Eurostat data.
Latest observation: 2023 Q4.

Profit margins are expected to absorb higher unit labour costs, but risks remain

Contributions to GDP deflator

(annual percentage changes and percentage change contributions)

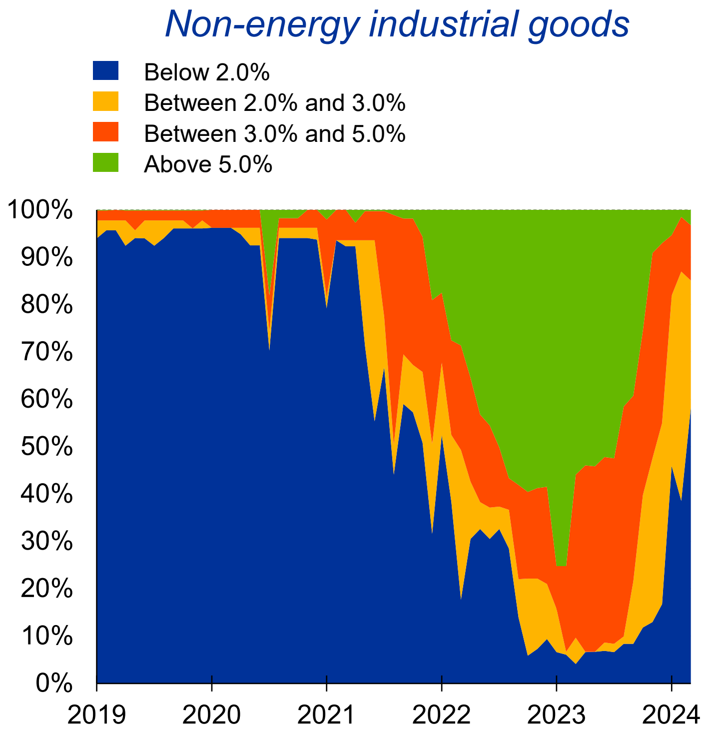


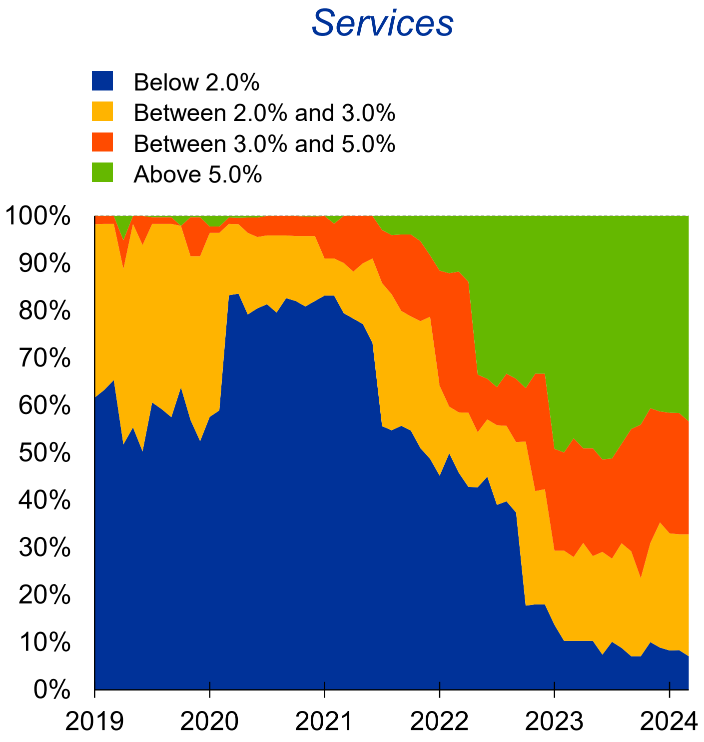
Sources: Eurostat, ECB calculations.
Notes: Unit taxes refer to unit net indirect taxes defined as indirect taxes minus subsidies.
Latest observation: 2023 Q4.

Goods inflation is dropping quickly, while services inflation proves sticky

Weighted distribution of price changes

(%)

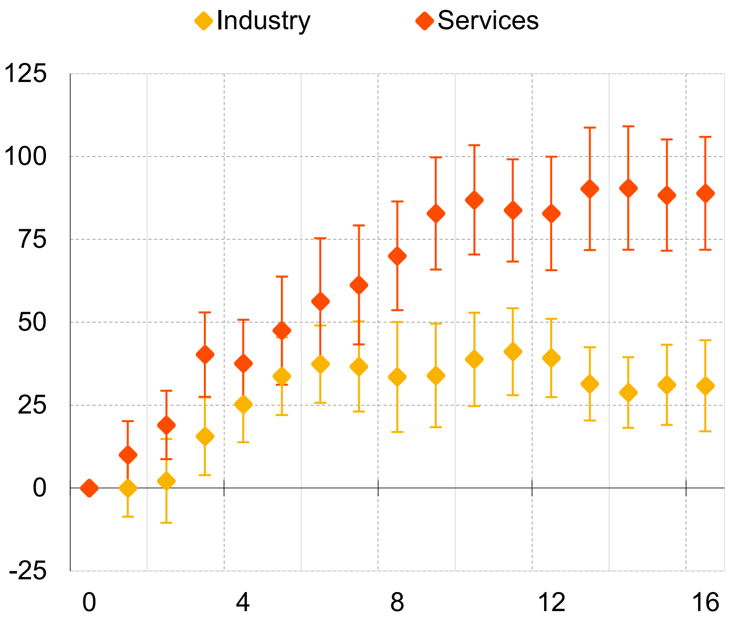




Sources: Eurostat, ECB calculations.
Notes: Based on 39 items for Services and 33 items for Non-energy industrial goods; the weight of items sums up the weight of items in the HICP basket in the different categories.
Latest observation: March 2024.

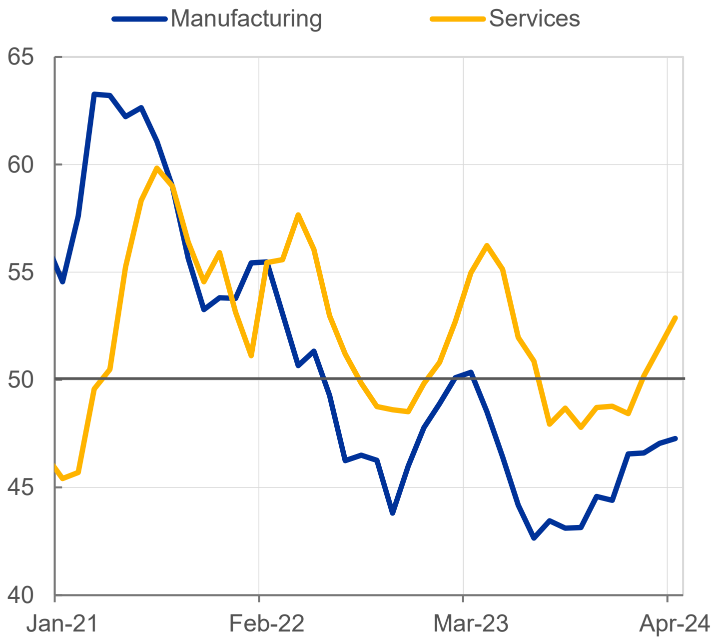
Wage-price pass-through stronger for services, also due to more resilient demand

Wage-price pass-through
(in percentage for different time windows)



Sources: Ampudia, Lombardi, and Renault (forthcoming).
Notes: Data spans 41 sectors. Industry covers mining, manufacturing, and utilities. Services include retail and wholesale trade, transportation, accommodation and food services and information and communication. The diamonds represent the cumulated response of producer prices following a 1% cumulated increase in hourly wage growth for different time windows (in quarters, on x-axis). The lines show 90% confidence intervals.

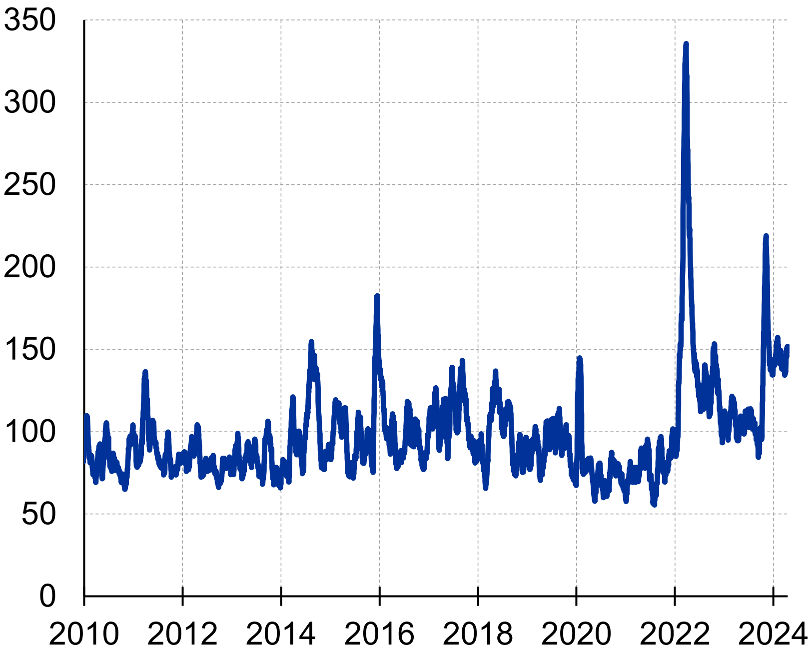
PMI output
(diffusion index)



Source: S&P Global.
Latest observation: April 2024.

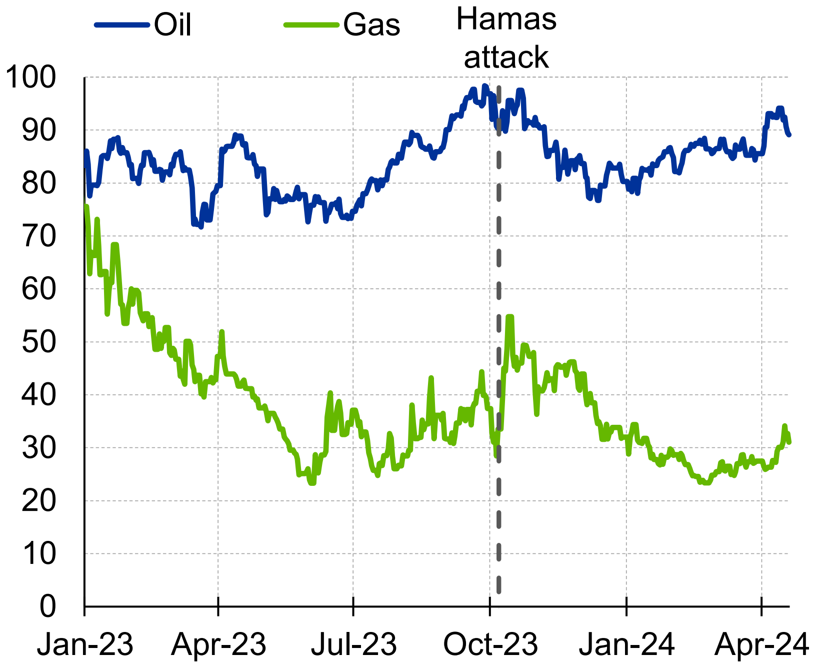
New supply-side shocks: geopolitical risk and energy prices

Geopolitical risk
(index)



Source: 30-day moving average of the daily geopolitical risk index by Caldara and Iacoviello (2022).The index is based on ten newspapers and is constructed by counting the number of articles related to adverse geopolitical events in each newspaper for each month (as a share of the total number of news articles).
Latest observation: 15 April 2024.

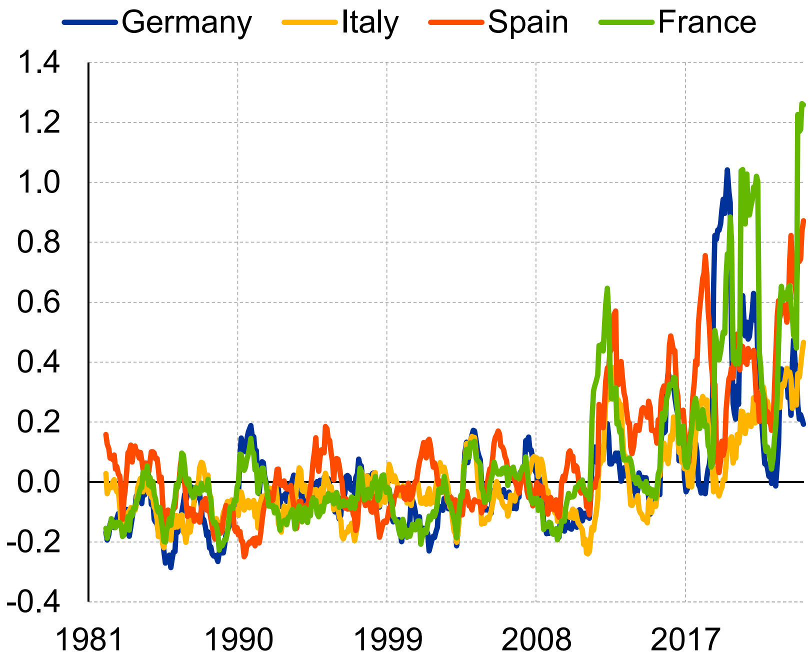
Oil and gas prices
(oil: USD per barrel, gas: EUR per MWh)



Sources: Refinitiv and ECB staff calculations.
Latest observation: 19 April 2024.

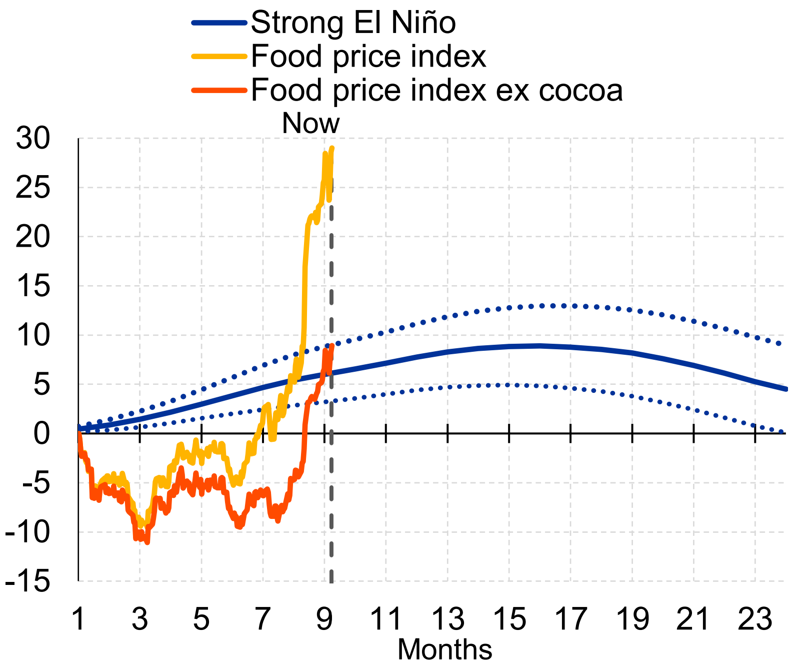
New supply-side shocks: extreme weather events and food prices

Extreme weather events
(12-month rolling average index)



Sources: IFAB and ECB staff calculations.
Notes: The European Extreme Events Climate Index (E3CI) provides a general overview of weather-induced hazards by combining seven components: Extreme Max and Min Temperature, Drought, Extreme Precipitation, Hail, Fire, Extreme Wind. A value over 1 indicates an extreme weather event. The index shows a standardised anomaly with respect to the reference values (based on data ranging from 1981-2010).
Latest observation: February 2024.

Price effects following the start of a strong El Niño period and food price indices
(percent changes)



Sources: Adolfsen and Lappe (2023), HWWI and ECB staff calculations.
Notes: Estimated price effect shows the impact of a 1.0-degree Celsius increase in ocean surface temperatures during El Niño phenomenon, controlling for fertiliser and oil prices as input costs in food production and for global industrial activity as an indicator of the global business cycle. Impulse response functions have been estimated with local projections following Jordà, Ò., "Estimation and Inference of Impulse Responses by Local Projections", Vol. 95, No 1, 2005, pp. 161-182. The charts show 68% confidence intervals. Latest observation: 19 April 2024.

Thank you very much for your attention!