EUROPEAN CENTRAL BANK
EUROSYSTEM

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Member of the Executive Board

The euro area hiking cycle: an interim assessment

Dow Lecture

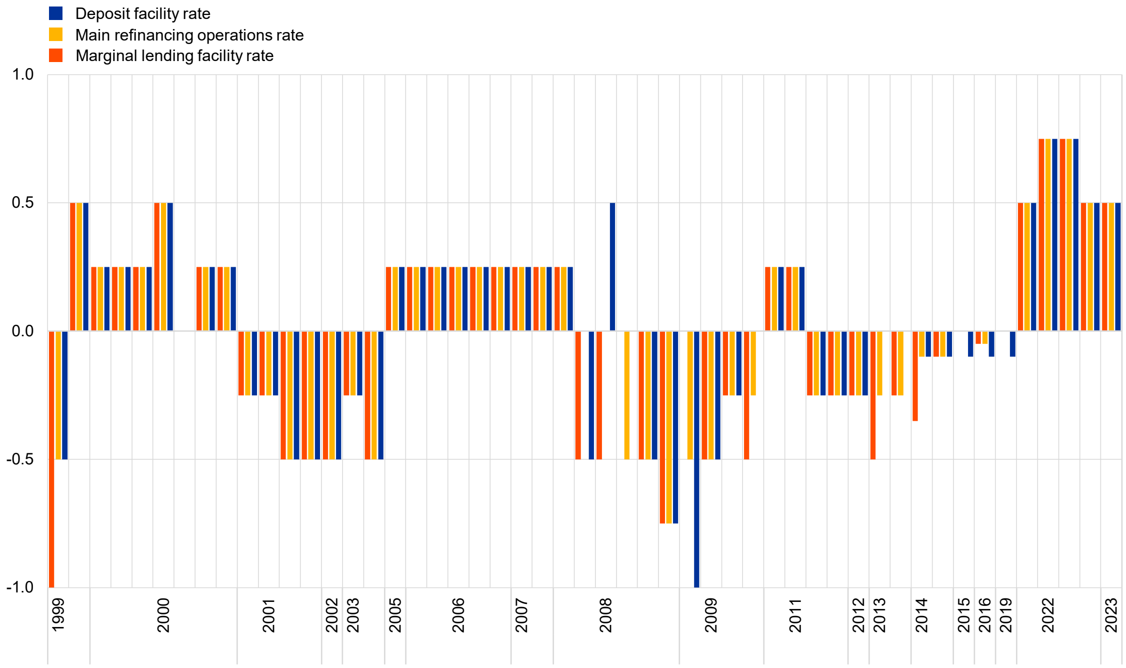
National Institute of Economic and Social Research

London, 16 February 2023

Chart 1

Changes in the key ECB policy rates

(percentage point changes)

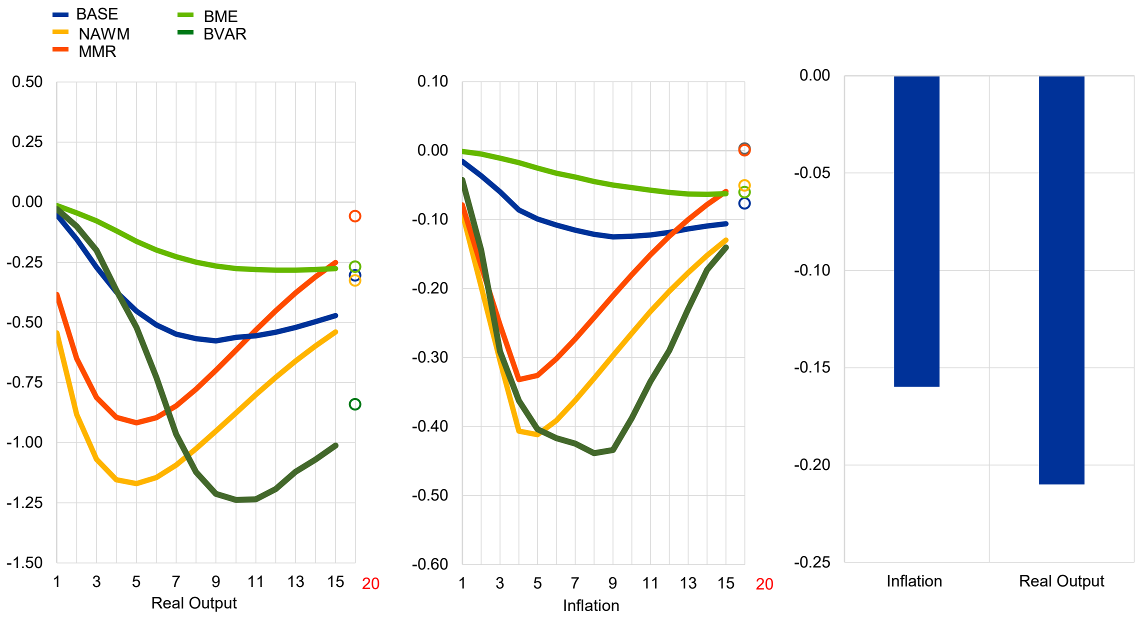


Sources: ECB.
Notes: The latest observation is for 8 February 2023.

Chart 2

Macroeconomic impact of a monetary policy shock of a 100 basis points (left and middle panel), 12-quarter cumulative impact of a standardised €500 billion balance sheet reduction (right panel)

(deviation of output in percent; year-on-year percentage points)

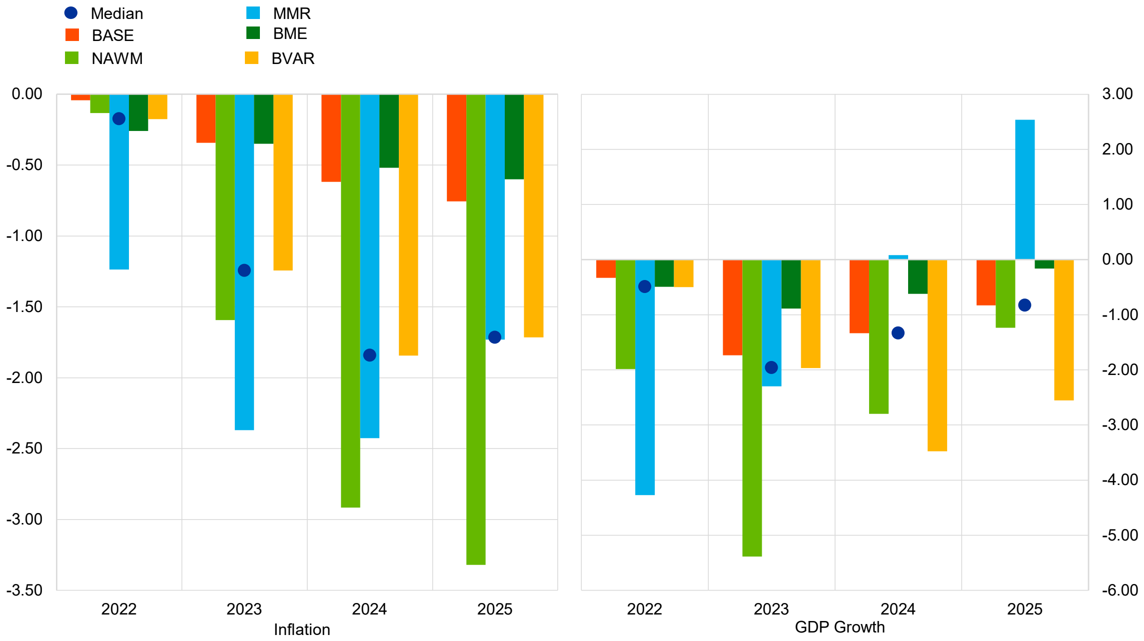


Sources: ECB staff calculations.
Notes: Left and middle panel: This chart depicts the impulse responses of real output and inflation to a standard short-term interest rate shock (normalised to 100 basis points) for the ECB-BASE model, the New Area Wide Model II (NAWM-II), the MMR model, standard projection-based tools (BME) and a large BVAR model including both macro and financial variables. Output gap refers to the output gap as a percentage of potential or steady state GDP. Inflation is in year-on-year percentage change. All responses refer to deviation from the baseline in percentage points. For BMEs latest observation is Q16, for all other models Q20. Right panel: The bars display a cumulative impact on inflation and the output gap over three years of balance sheet reduction. The balance sheet reduction is assumed to start one quarter after announcement and to cumulate to 500bn by the end of 12 quarters relative to baseline. The impact is an average of the estimates in the ECB-BASE, New Area Wide Model II (NAWM II), and MMR models.

Chart 3

Impact of policy tightening so far

(year-on-year percentage points)



Sources: ECB staff calculations.
Notes: The charts show the impact of changes in short- and long-term interest rates due to policy normalisation since December 2021 computed in ECB-BASE, New Area Wide Model II (NAWM II), MMR model, standard projection-based tools (BME), and a large scale BVAR model including both macro and financial variables. The latest observations are for 25 Nov 2021 and 23 Nov 2022.
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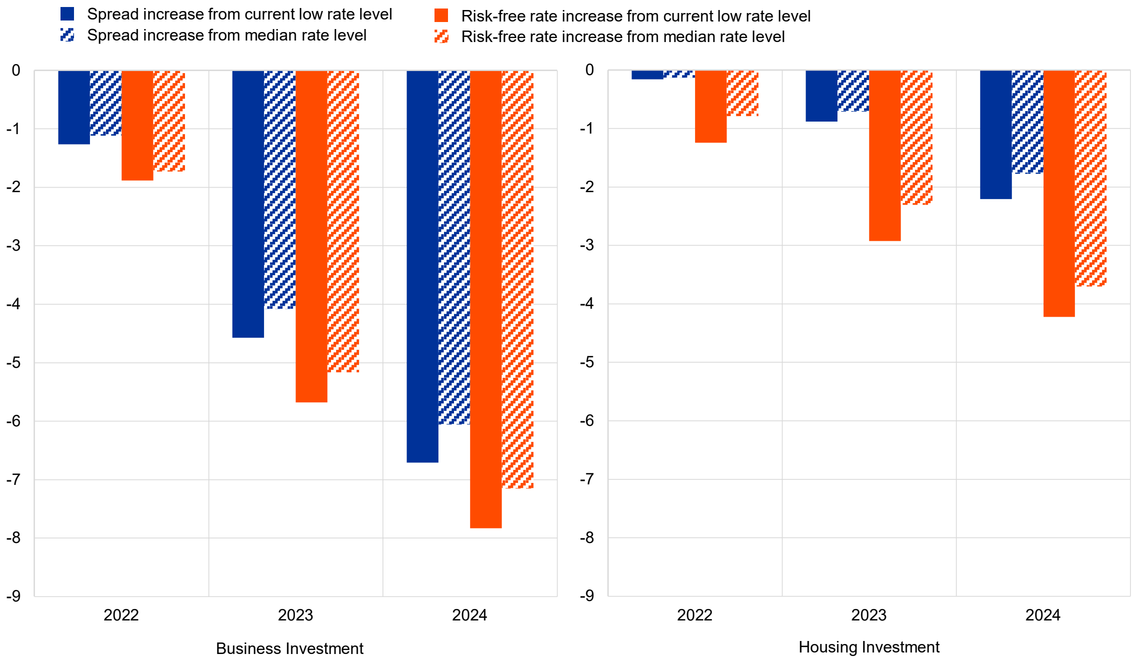
Chart 4

Model estimates of impact of rising lending rates on private investment

(year-on-year percentage points)

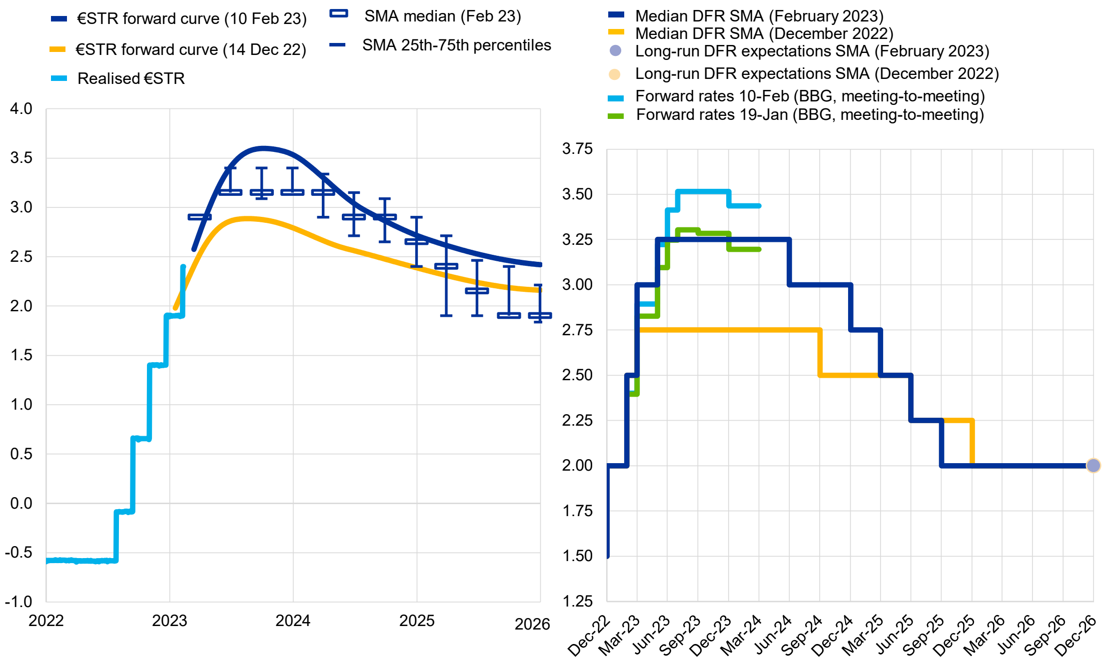


Sources: ECB-BASE simulations and ECB staff calculations.
Notes: Left panel shows the response of business investment to an increase of 100 basis points in corporate rates sustained over the projection horizon. Right panel shows the response of housing investment to an increase of 100 basis points in mortgage rates sustained over the projection horizon. Spread increases are simulated under exogenous monetary policy. The risk-free rate scenarios assume short- and long-term interest rates to increase by 100 basis points, without spread increases, and are allowed to trigger an exchange rate adjustment that amplifies the negative impact of rising rates.

Chart 5

€STR forward curve and Survey of Monetary Analysts (SMA) expectations on the DFR (left panel); median DFR expectations (right panel)

(percentages per annum)

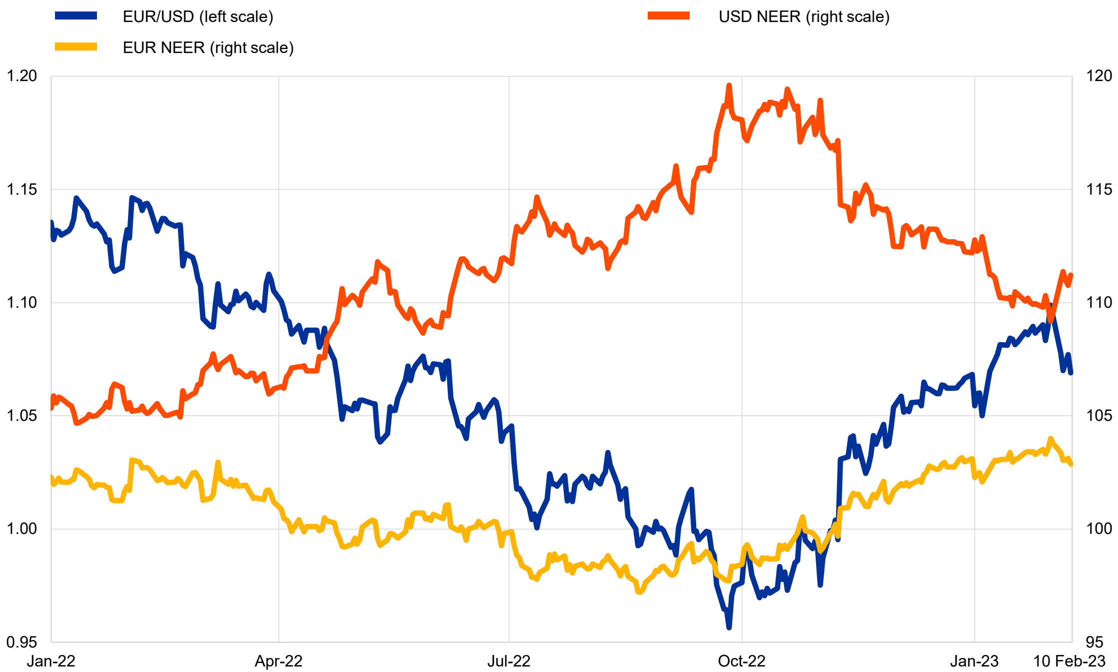


Sources: Left panel: SMA, Refinitiv and ECB calculations; right panel: February 2023 SMA, December 2022 SMA and Bloomberg
Notes: Left panel: the bars depict the median of responses to the February SMA survey on expectations of future deposit facility rates. Surveys are adjusted for the spread between the latest €STR and the DFR observations. Right panel: maximum number of respondents is 41 for February 2023 SMA and 29 for December 2022 SMA. The Bloomberg meeting-to-meeting (M2M) forward rate depicts the market-based expectations for all future Governing Council meetings which are currently announced until February 2024. The latest observations for the left panel are for 10 February 2023.

Chart 6

EUR/USD, EUR and USD effective exchange rate

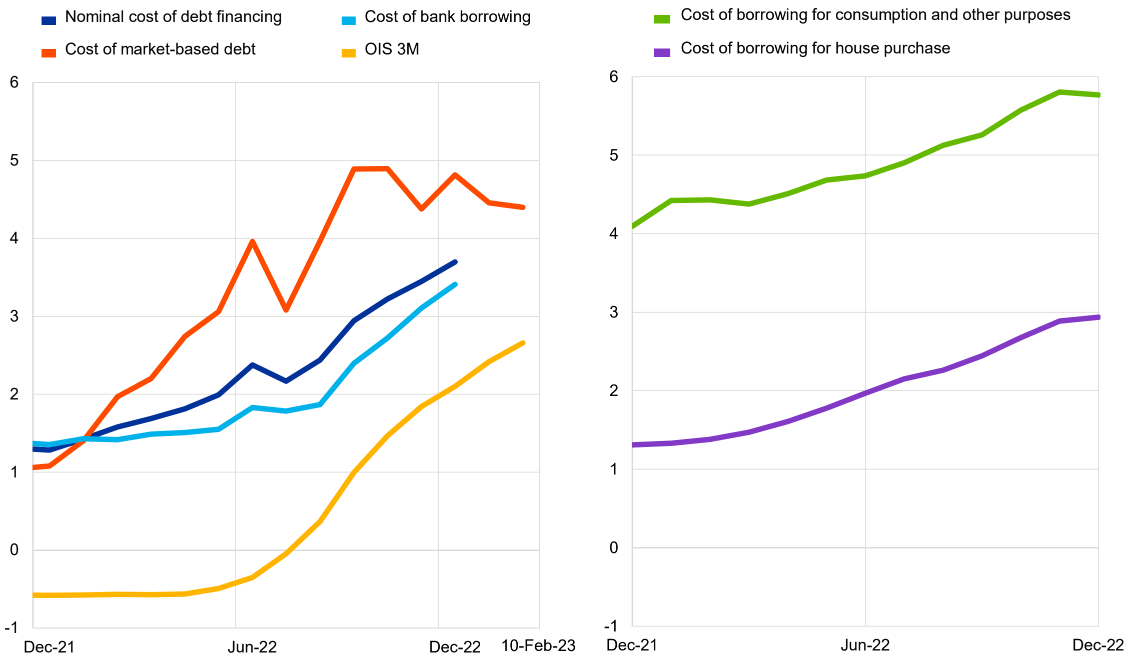
(left scale: USD per EUR, right scale: index – 01 January 2018 = 100)



Sources: ECB and ECB staff calculations.
Notes: Nominal effective exchange rate for 41 trading partners. The latest observations are for 10 February 2023.

Cost of debt financing for euro area NFCs (left panel) and households (right panel)

(percentages per annum)

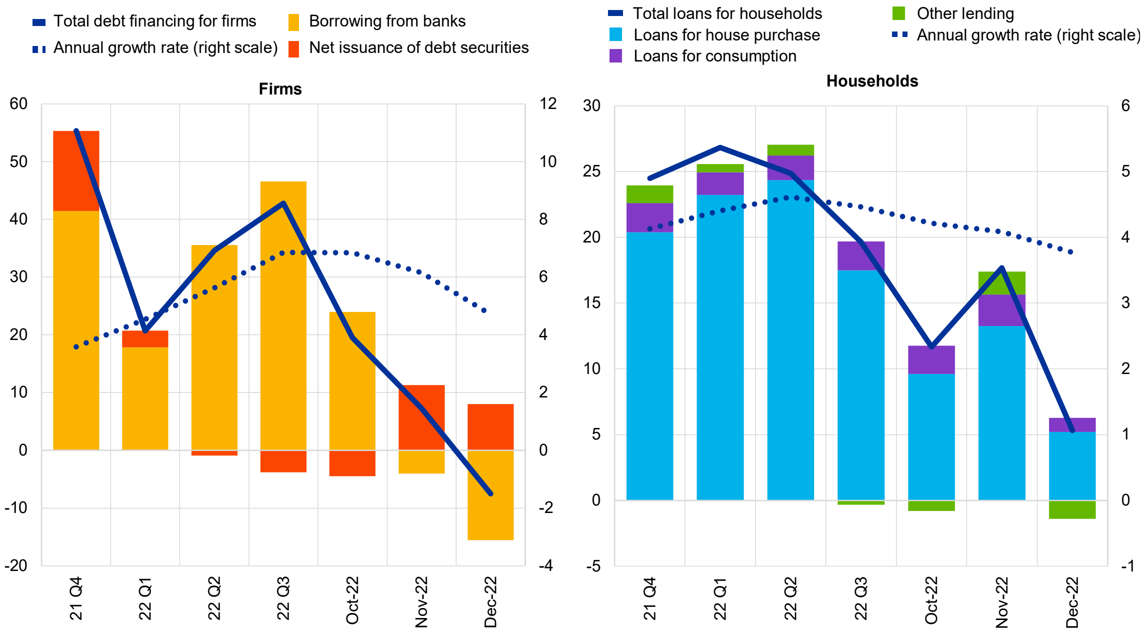


Sources: ECB (MIR, QSA), Merrill Lynch, Refinitiv and ECB staff calculations.
Notes: The latest observations are for December 2022 for the nominal cost of debt financing and bank borrowing and for 10 February 2023 for the cost of market-based debt and OIS.

Chart 8

Debt financing flows of euro area firms and households

(left panel: average monthly flows over the respective period in EUR billions; right panel: annual growth rate in percentages)

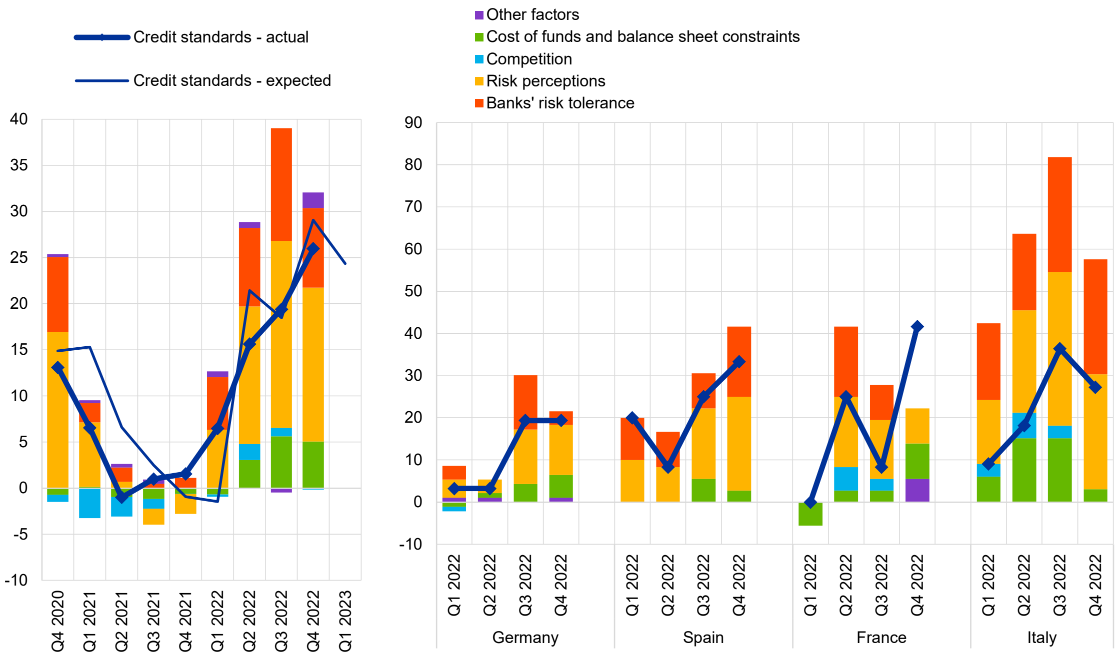


Sources: ECB (BSI) and ECB staff calculations.
Notes: MFI loans are adjusted for sales and securitisation, and for firms also for cash pooling. The seasonal adjustment of the net issuance of debt securities is not official. For the household breakdowns, a harmonised adjustment has been made since February 2022, but not for seasonality and not yet published. This implies possible discrepancies between the sum of the breakdowns and the total. The latest observations are for December 2022.

Chart 9

Changes in credit standards for loans or credit lines to enterprises, and contributing factors

(net percentages)



Source: ECB BLS.

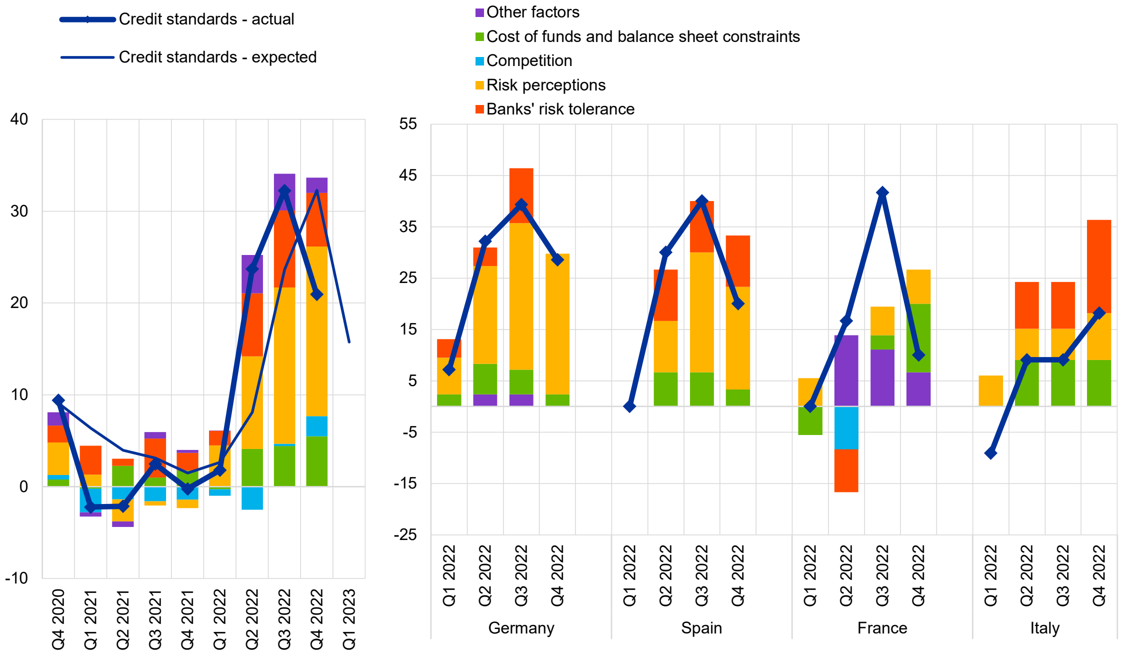
Notes: The net percentage refers to the difference between the sum of the percentages of banks responding “tightened considerably” and “tightened somewhat” and the sum of the percentages of banks responding “eased somewhat” and “eased considerably”. Net percentages for the “other factors” refer to further factors which were mentioned by banks as having contributed to changes in credit standards.

The latest observations are for January 2023 (BLS).

Chart 10

Changes in credit standards applied to the approval of loans to households for house purchase, and contributing factors

(net percentages)



Source: ECB BLS.

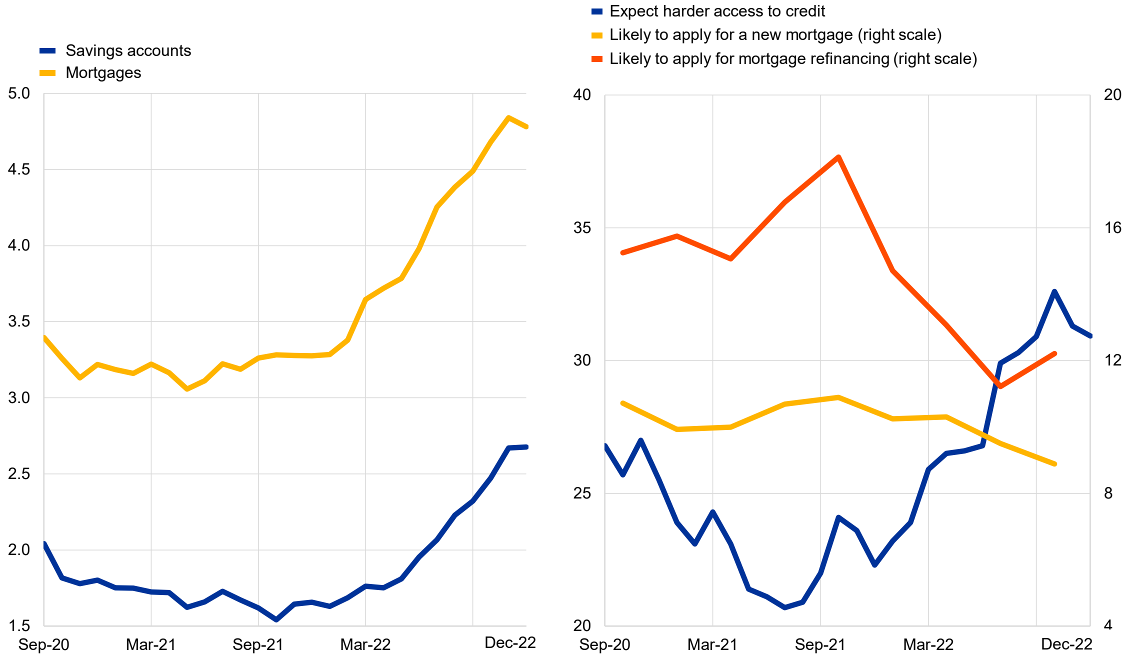
Notes: The net percentage refers to the difference between the sum of the percentages of banks responding “tightened considerably” and “tightened somewhat” and the sum of the percentages of banks responding “eased somewhat” and “eased considerably”. Net percentages for the “other factors” refer to further factors which were mentioned by banks as having contributed to changes in credit standards.

The latest observations are for January 2023 (BLS).

Chart 11

Mean interest rate expectations (left panel); Credit tightness indicators (right panel)

(left panel: percentage; right panel: percentages of respondents)

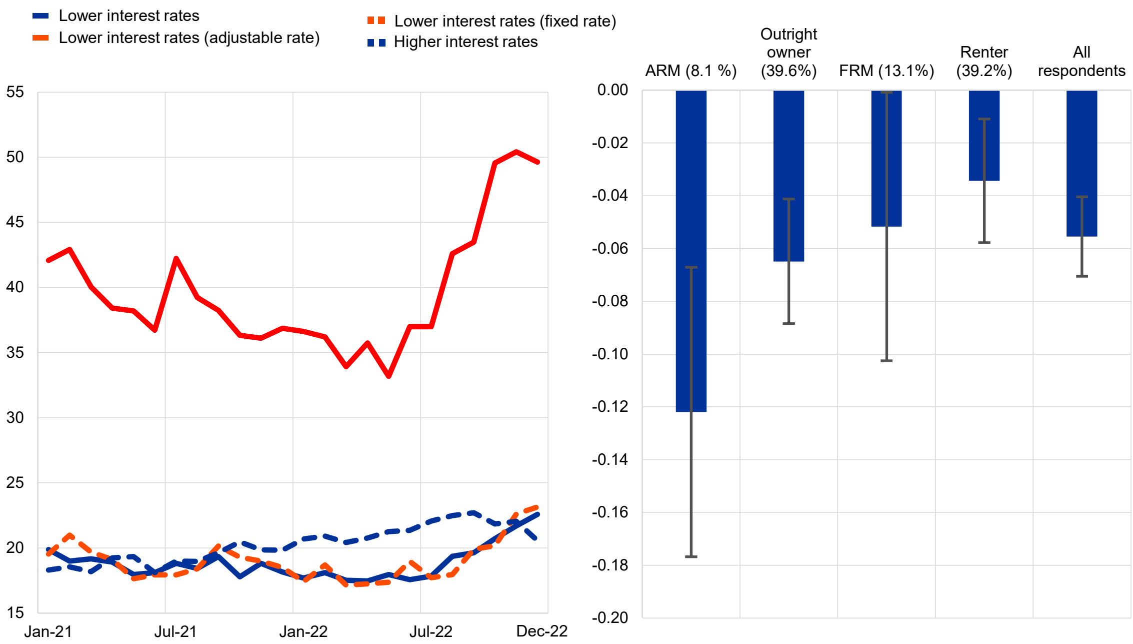


Sources: CES.
Notes: Left panel: weighted estimates. Mean interest rate expectations for mortgages and savings over time. The question reads: “In 12 months from now, what do you think will be the interest rate on mortgages (on saving accounts) in the country you currently live in?. The latest observations are for December 2022. Right panel: weighted estimates. Share of respondents out of all mortgagers who expect i) harder credit access in 12 months’ time (blue line), ii) to apply for a new mortgage (yellow line), and iii) to refinance their mortgage over the next 12 months (red line). The latest observations are for October 2022 and December 2022 for credit access.

Chart 12

Household preferences for interest rates (left panel); impact of expected mortgage rates on expected consumption (right panel)

(left panel: percentage of respondents, right panel: elasticities)



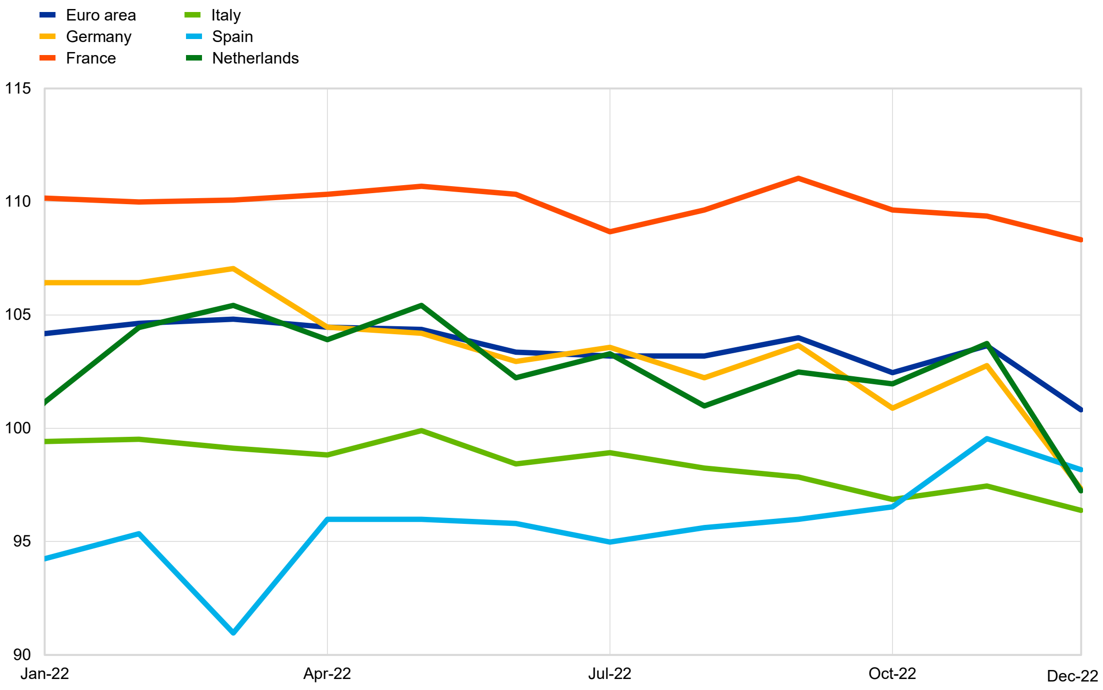
Source: CES.

Notes: Left panel: the question reads: “In your view, which of the following would be best for your household, 12 months from now? 1) Interest rates go up; 2) Interest rates go down; 3) Interest rates remain the same; 4) Interest rate movement would not make a difference.”. Right panel: ARM stands for “adjustable rate mortgage”. FRM stands for “fixed rate mortgage”. The panel estimation regresses changes in expectations of real consumption growth on changes in expectations of mortgage interest rates allowing the coefficients to vary by type of household while controlling for unobserved heterogeneity in the panel dimension and expectations about income growth. The bars show the mean coefficient estimates while the whiskers show confidence intervals. The estimation period spans April 2020 to December 2022. Shares of each bucket in the total population in parenthesis. The latest observations for both panels are for December 2022.

Chart 13

Retail sales

(index; February 2020 = 100)

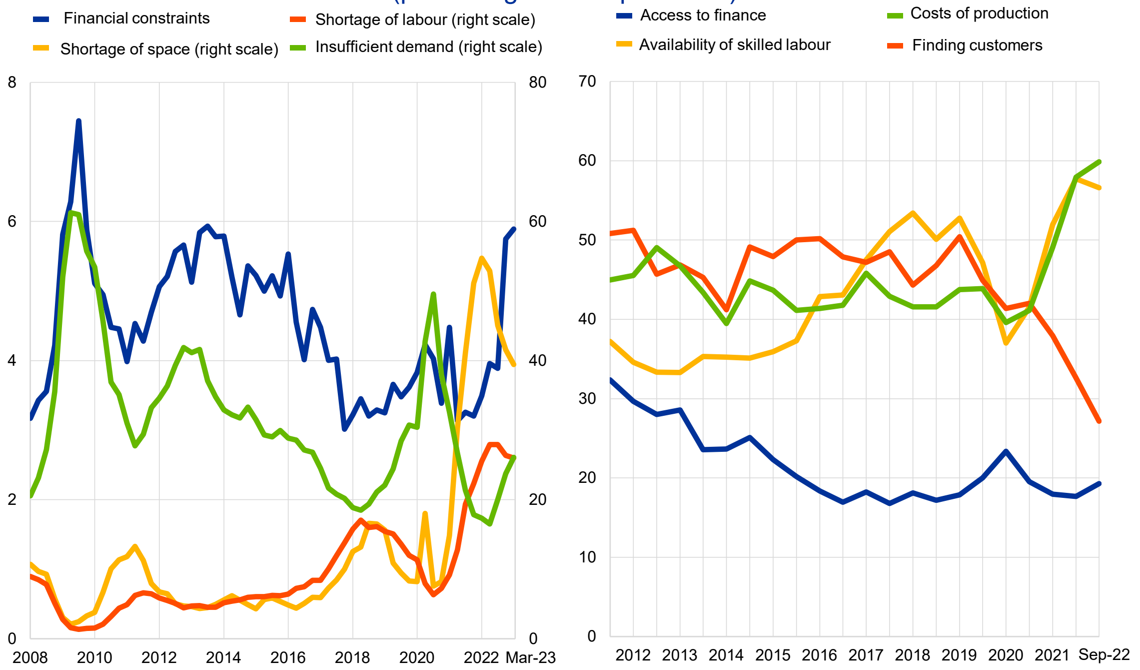


Sources: Eurostat and ECB staff calculations.
Notes: The latest observations are for December 2022.

Chart 14

Limits to production (left panel) and the most important problems (right panel) faced by euro area manufacturing firms

(percentages of respondents)

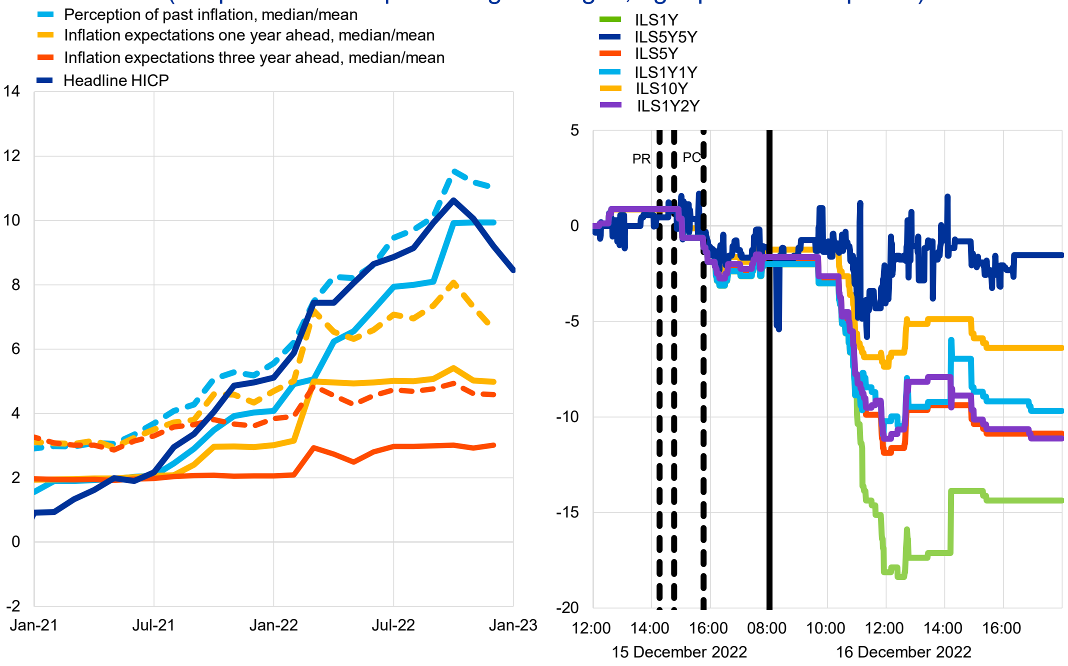


Sources: Left panel: European Commission business and consumer surveys, right panel: Survey on the Access to Finance of Enterprises (SAFE) in the euro area.
Notes: right panel: A "big problem" is defined as scoring min 7 on a scale from 1 to 10. Notes: The latest observations are for the first quarter of 2023 for the left panel, and for September 2022 for the right panel.

Chart 15

ECB consumer expectations survey (left panel); intraday movements of market-based measures of inflation compensations (from inflation-linked swaps) around December 2022 GovC meeting (right panel)

(left panel: annual percentage changes; right panel: basis points)

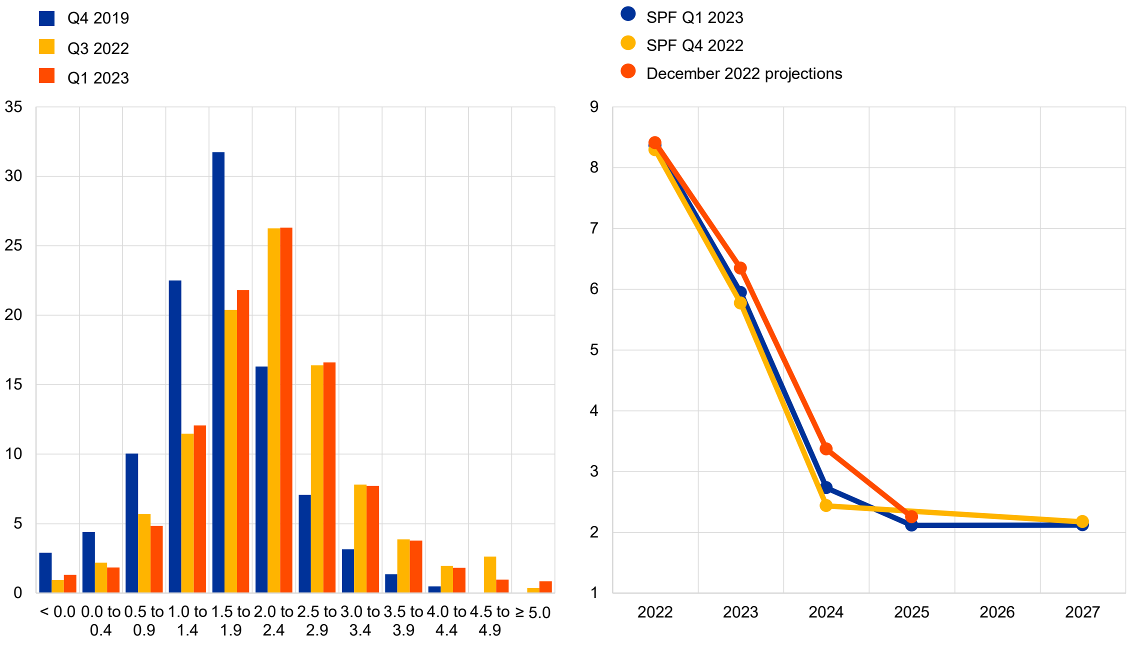


Sources: Left panel: ECB CES; right panel: Bloomberg and ECB calculations.
Notes: Left panel: solid/dashed lines represent the median/mean. The latest observations are for January 2023 (flash) for headline HICP and December 2022 for the rest. Right panel: “PR” (the first vertical dotted line) represents the publication of the ECB’s monetary policy press release. The two vertical dotted lines either side of “PC” represent the start and end of the ECB’s monetary policy press conference. The solid line refers to the opening of markets on the next day. The latest observations are for 16 December 2022.

Chart 16

Aggregate probability distribution for SPF longer term inflation expectations (left panel) and SPF inflation expectations profile (right panel)

(left panel: percentages of respondents; right panel: annual percentage changes)

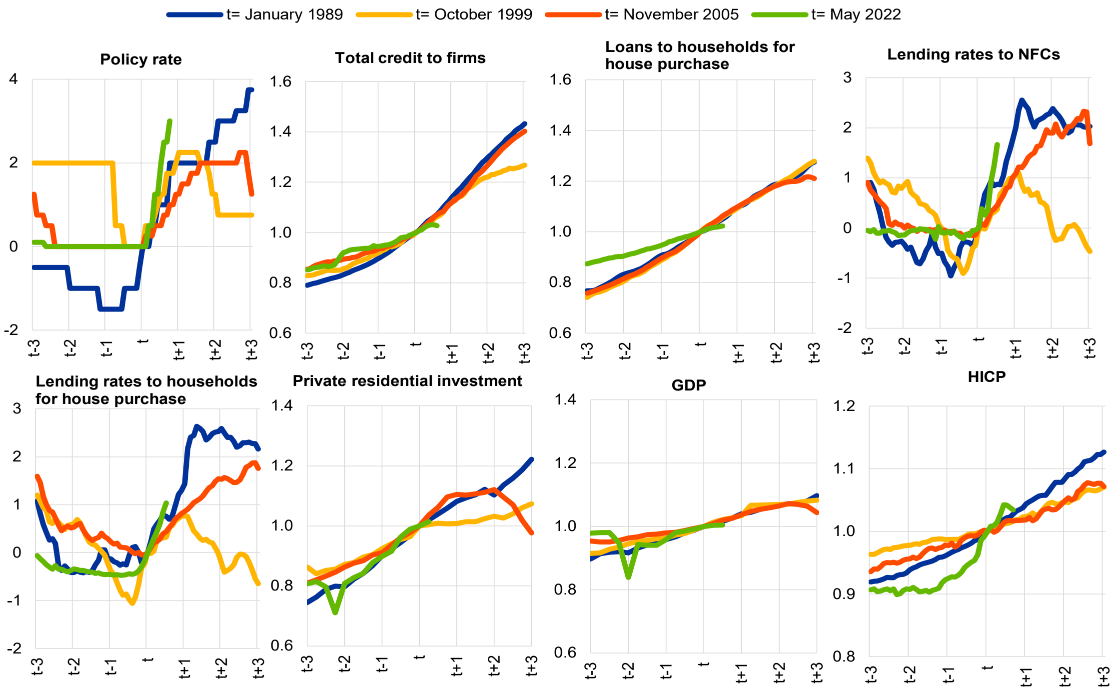


Sources: ECB, December 2022 Eurosystem staff macroeconomic projections for the euro area and ECB Survey of Professional Forecasters (SPF).

Chart 17

Key macro financial variables during hiking cycles

(cumulative changes in percentage points for policy and lending rates; index (t=1) for the rest)



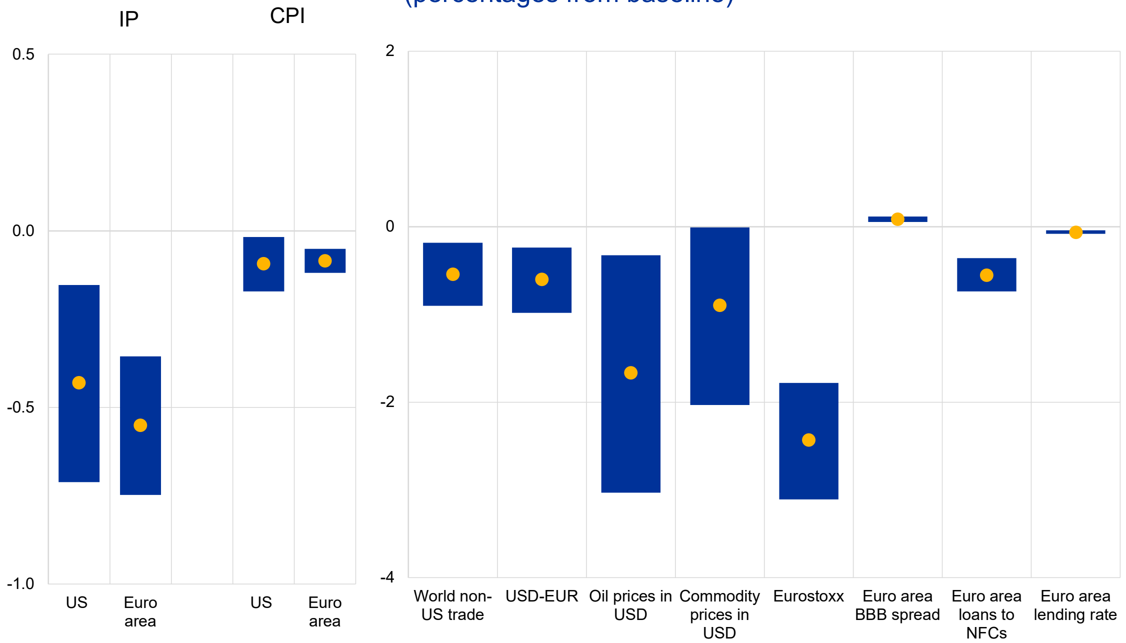
Sources: ECB, Eurostat and ECB staff calculations.

Notes: The ECB-relevant policy rate is the Lombard rate up to December 1998, the main refinancing operations rate up to May 2014 and the deposit facility rate thereafter. Total credit to firms includes borrowing from banks and debt securities issued by NFCs. Monetary financial institution loans to firms and households are adjusted for sales, securitisation and cash pooling. Data for debt securities and private residential investment before 1989 are not available and have been estimated. The latest observations are for December 2022 for lending rates and loans, January 2022 for HICP, February 2022 for the deposit facility rate, Q3 2022 for private residential investment and Q4 2022 for GDP.

Chart 18

Estimated impact of US Federal Reserve tightening on industrial production (IP) and the consumer price index (CPI), trade, and selected financial asset and commodity prices

(percentages from baseline)

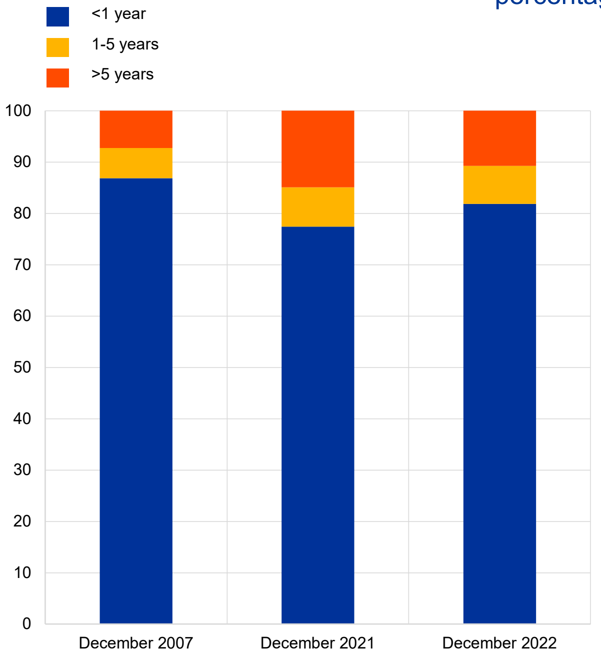


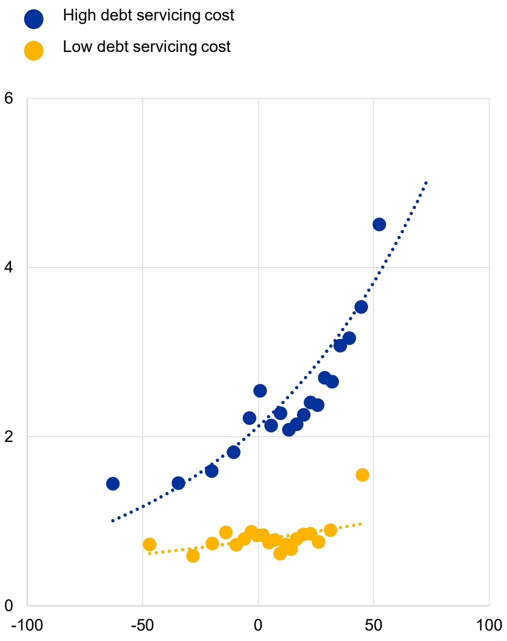
Sources: ECB and ECB staff calculations.
Notes: Yellow dots show point estimate of impulse responses. Blue bars show 68% confidence bands. The point estimates shown are the maximum/minimum effects over a horizon of 24 months. Estimates are obtained from using the high-frequency-based US monetary policy shocks (sum of conventional, Odyssean forward guidance and QE) of Jarocinski (2021) in monthly smooth local projections. The sample period spans 1991 to 2019.

Chart 19

Share of new loans to firms by fixation period (left panel); relation between firms’ default risk and net leverage by debt servicing cost (right panel)

(left panel: share as a percentage of new loans; right panel: x-axis – net debt level as a percentage of total assets; y-axis – expected default frequency in percentages)



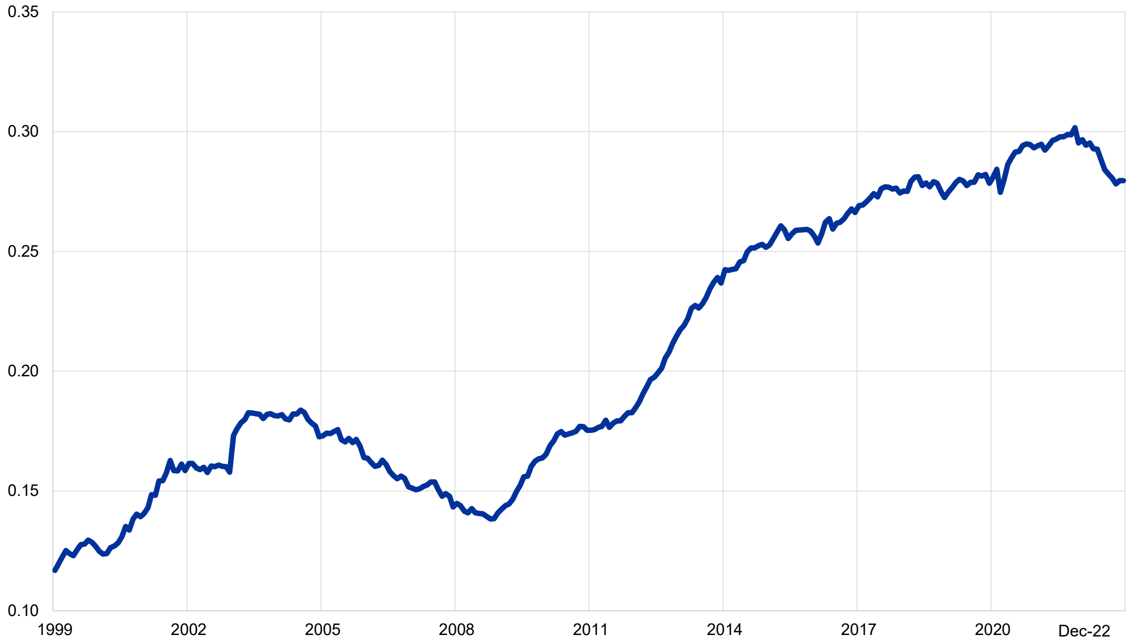


Sources: ECB (MIR), Worldscope, Refinitiv, Moodys and ECB staff calculations.
Notes: Left panel: the latest observations are for December 2022.
Right panel: high debt servicing costs are those above the median, while low debt servicing costs are those below the median. Net debt is measured as a percentage of value added. The chart is a bin scatter. The latest observations are for Q2 2021.

Chart 20

Ratio of bonds over loans in euro area NFCs

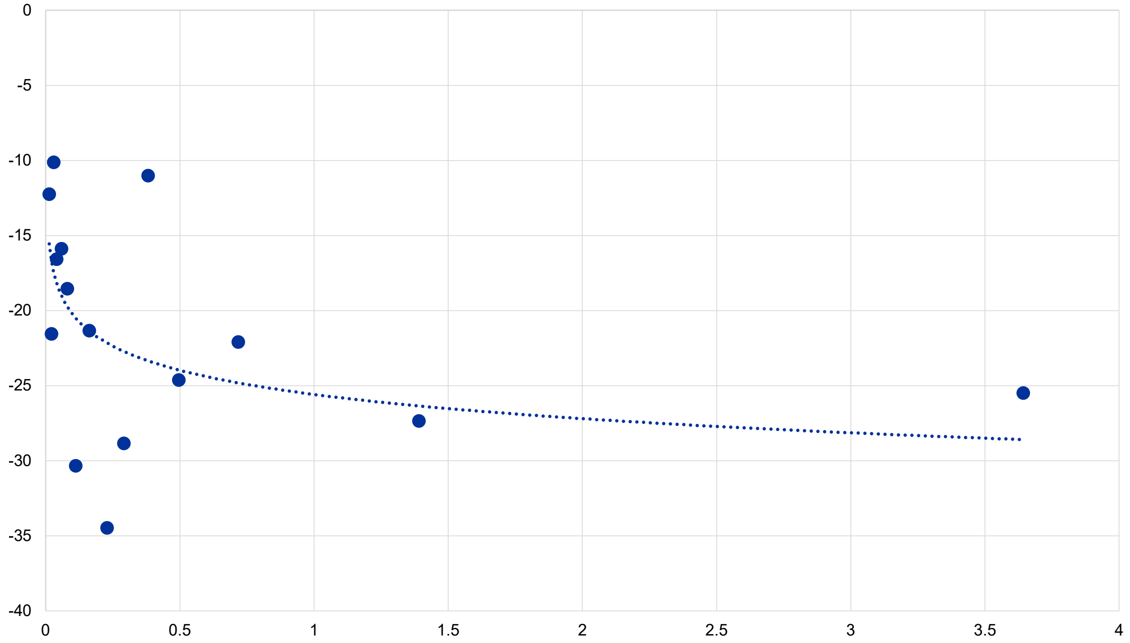
(ratio)



Source: ECB (BSI, CSEC).
Notes: Data cover NFCs. Loans and bonds are notional stocks. The latest observation is for December 2022.

Changes in share of bonds issued by firm default risk after June 2022

(x-axis: 1-year ahead expected default frequency in percentage points, y-axis: bond flows in percentage points of total new credit flows, changes relative to average January 2019-May 2022)

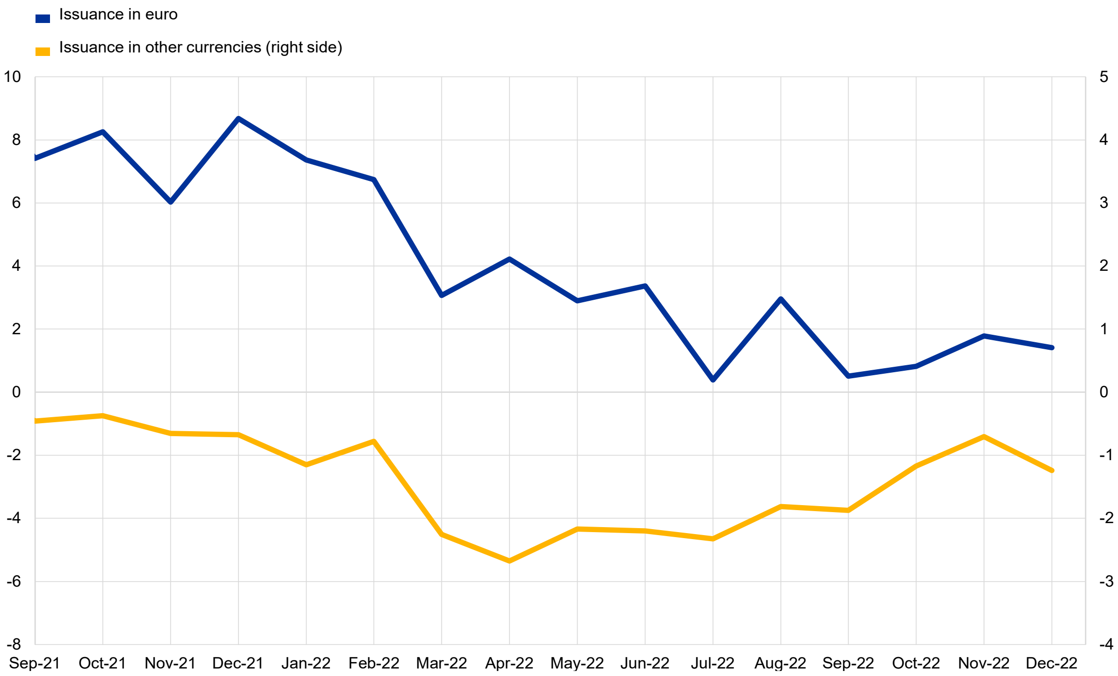


Sources: Moody's Analytics, Refinitiv, Anacredit, CSDB and ECB staff calculations.
The latest observation is for August 2022.

Chart 22

Bond issuances in euro and non-euro currencies by euro area firms

(EUR billion, moving averages)

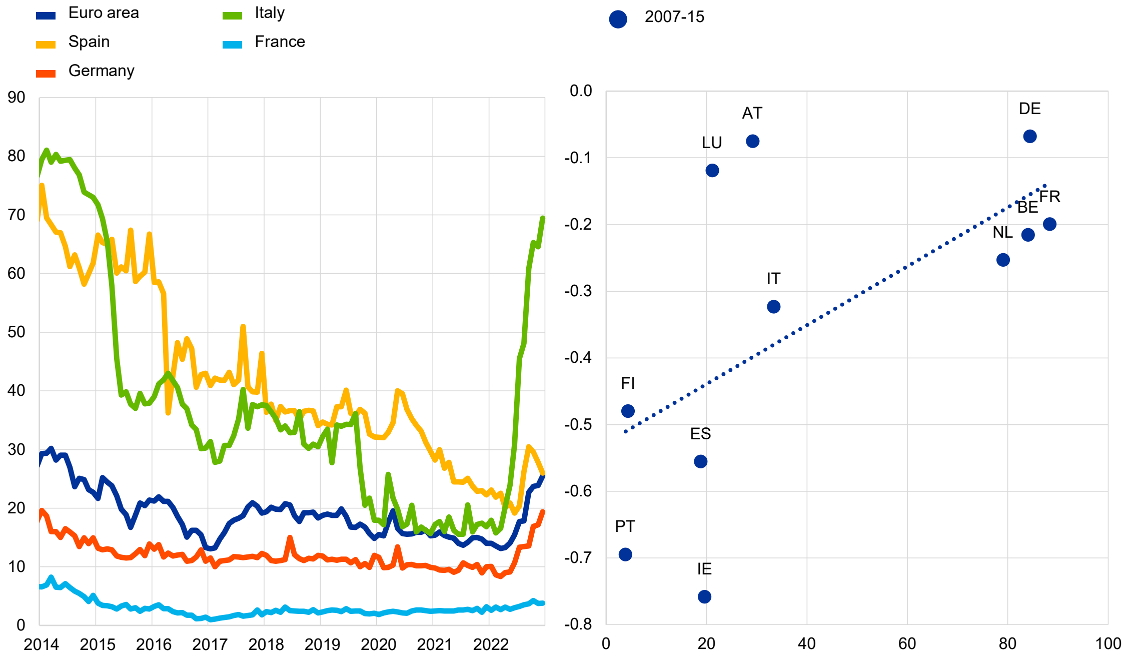


Sources: ECB (CSEC) and ECB staff calculations.
Notes: Data are smoothed using a 7-month-centred window.
The latest observation is for December 2022.

Chart 23

Fixed-rate mortgage share and consumption response to contractionary monetary policy shock

(left panel: share of variable mortgages as a percentage of new loans; right panel: x-axis: share of fixed mortgages as a percentage of total new business, y-axis: peak reaction of consumption (percentage) after a 25 basis point tightening of the policy rate)

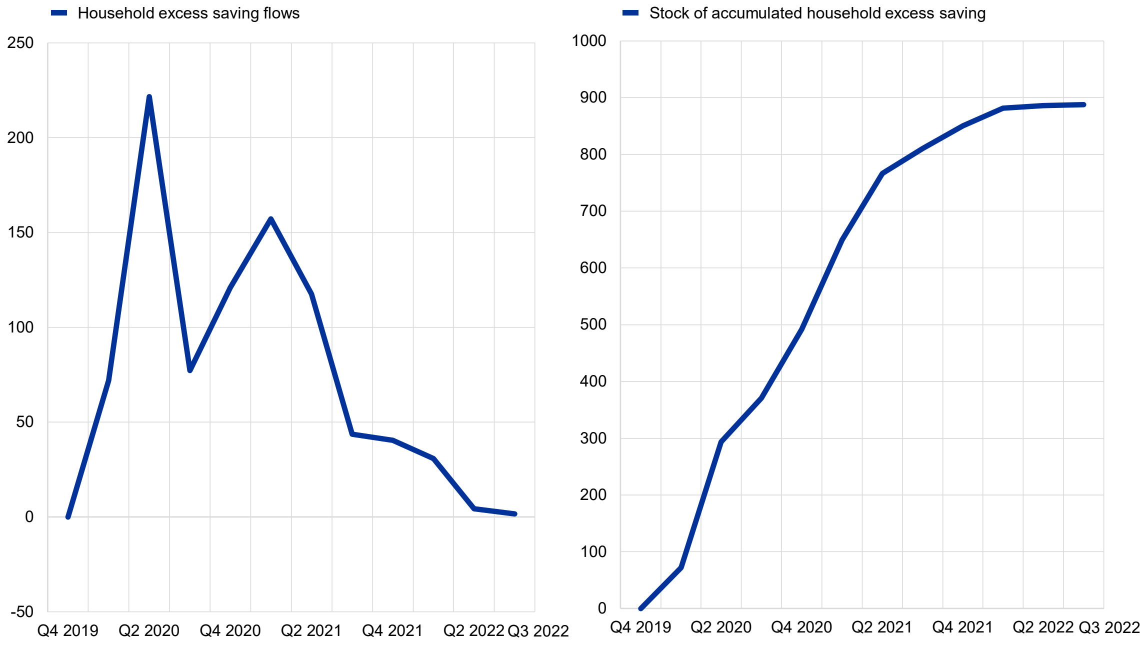


Sources: ECB (MIR), ECB staff calculations and Corsetti et al. (2020).
Notes: The right panel shows peak impacts of monetary policy shock on consumption and average share of fixed mortgages in 2007-15 as reported in Corsetti et al. (2020).
The latest observation is for December 2022.

Chart 24

Household excess savings during the pandemic

(left panel: household excess savings flows, EUR billions (seasonally adjusted); right panel: stock of accumulated household excess savings (EUR billions, cumulative increase since the fourth quarter of 2019))

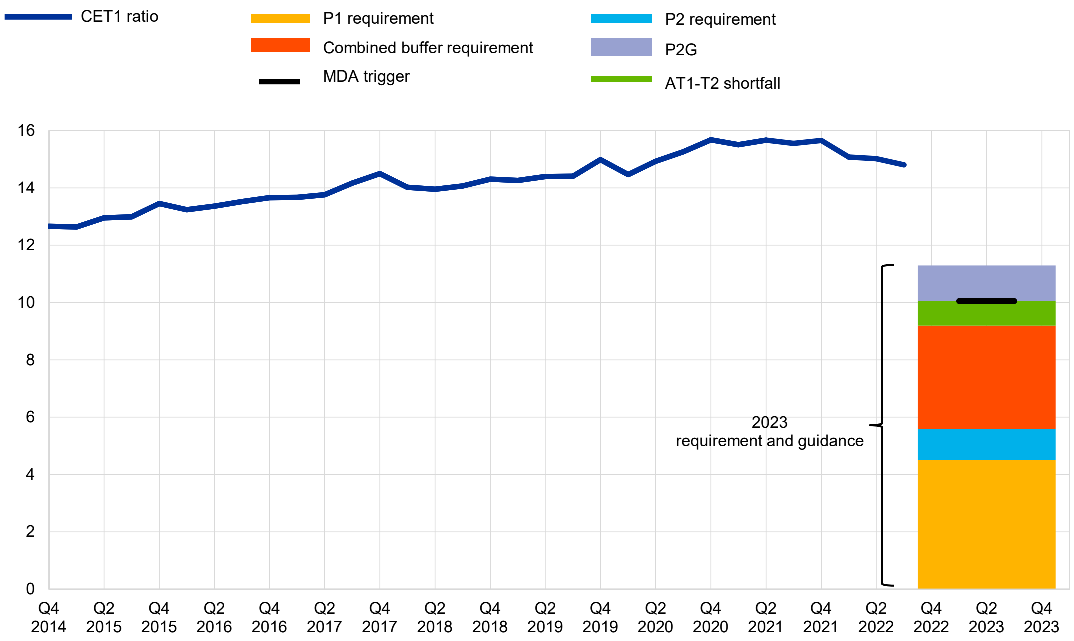


Sources: Eurostat, ECB staff calculations.
Notes: Excess household savings flows are calculated by multiplying the difference between the actual savings rate and the savings rate in the fourth quarter of 2019 for each quarter by the actual income in each quarter.
The latest observation is for the third quarter of 2022.

Chart 25

Evolution of CET1 ratio and capital requirements

(percentages)

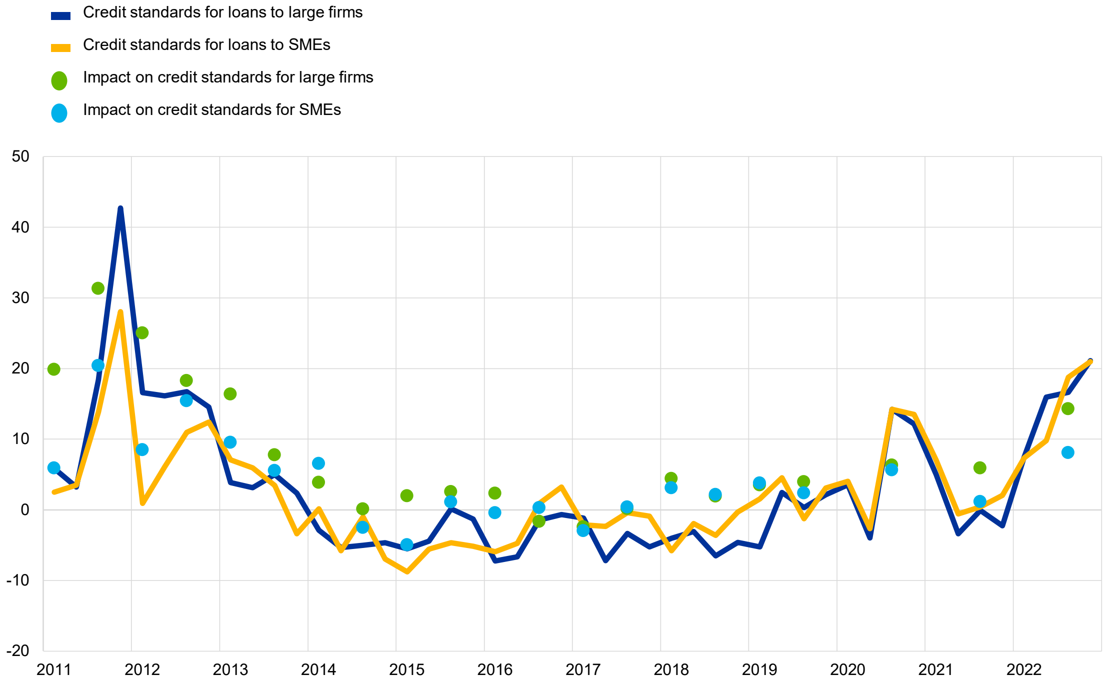


Sources: ECB supervisory reporting and ECB staff calculations.
Notes: CET1 capital ratios are based on data for a balanced panel of 103 significant institutions under the supervision of the ECB. The sample has been adjusted for major M&As. CET1 levels, systemic buffers and CBR (Combined Buffer Requirement) calculation as at the third quarter of 2022. P1 stands for Pillar 1; P2 (Pillar 2) requirement and P2G (Pillar 2 Guidance) are based on the 2022 SREP decisions applicable as of 1 January 2023, based on a sample of 100 banks subject to the SREP. MDA (Maximum Distributable Amount) trigger indicates the level below which banks face restrictions on the amount of distributable profits. Banks must fulfil both P1 and P2R with a minimum of 56.25% of CET1 and can meet the rest with AT1 and T2, with at most 25% of T2. A failure to have enough AT1 or T2 creates a shortfall that banks must fulfil with additional CET1, which is the one displayed in the chart.
The latest observation is for the third quarter of 2022.

Chart 26

NFC credit standards and impact of supervisory and regulatory requirements on credit standards

(net percentages of banks)

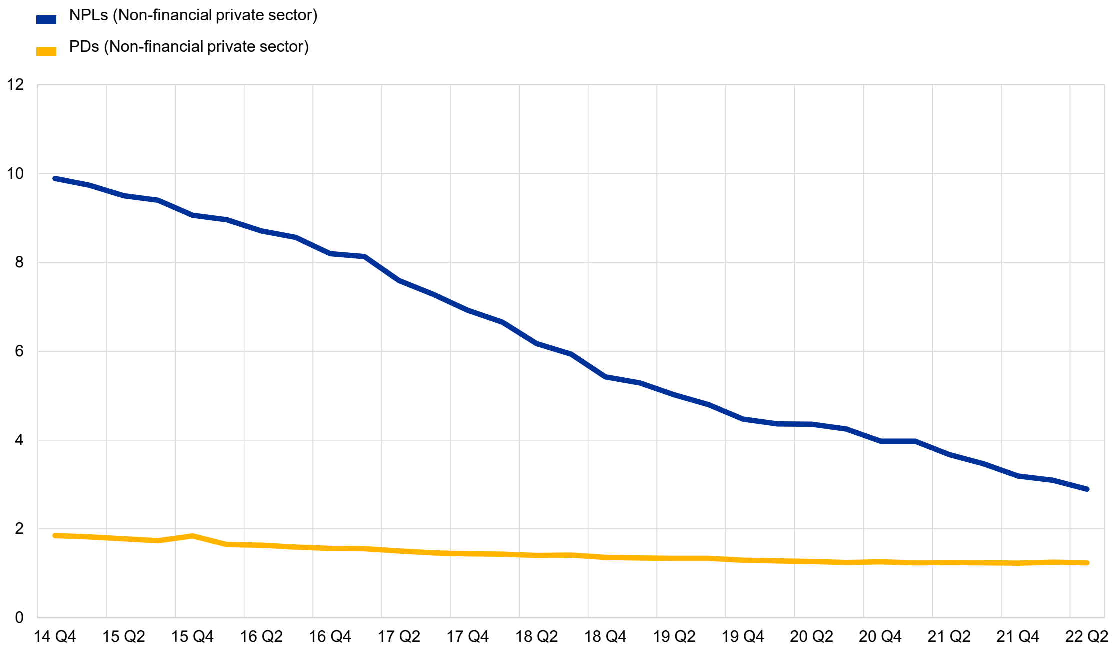


Sources: ECB (Bank Lending Survey).
Notes: Net percentages are defined as the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably". The question refers to regulatory or supervisory actions relating to capital, leverage, liquidity, or provisioning that have recently been approved/implemented or that are expected to be approved/implemented in the near future. "SMEs" denote small and medium-sized enterprises. The latest observation is for the fourth quarter of 2022.

Chart 27

Developments in non-performing loan ratios and probabilities of defaults

(percentages)

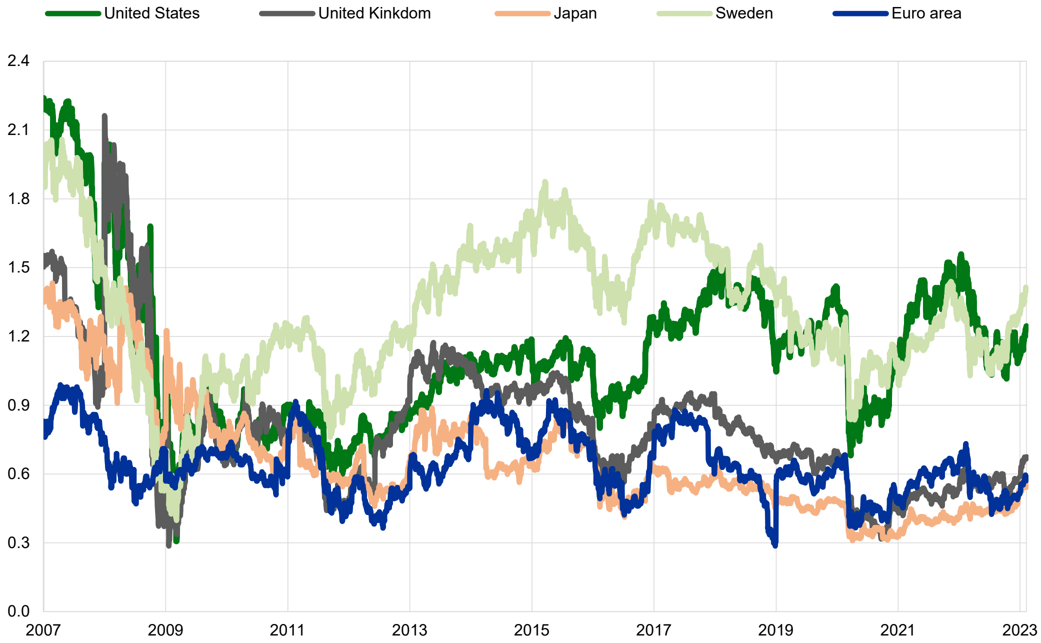


Sources: ECB supervisory reporting and ECB staff calculations.
Notes: Based on a balanced panel of significant institutions (92 SIs) under the supervision of the ECB reporting FINREP data on a consolidated basis. The sample has been adjusted for major M&As. Non-performing loans (NPLs) and probabilities of defaults (PDs) refer to loans to the non-financial private sectors (i.e. non-financial corporations and households).
The latest observation is for the second quarter of 2022.

Chart 28

Developments in price-to-book ratios

(ratio)

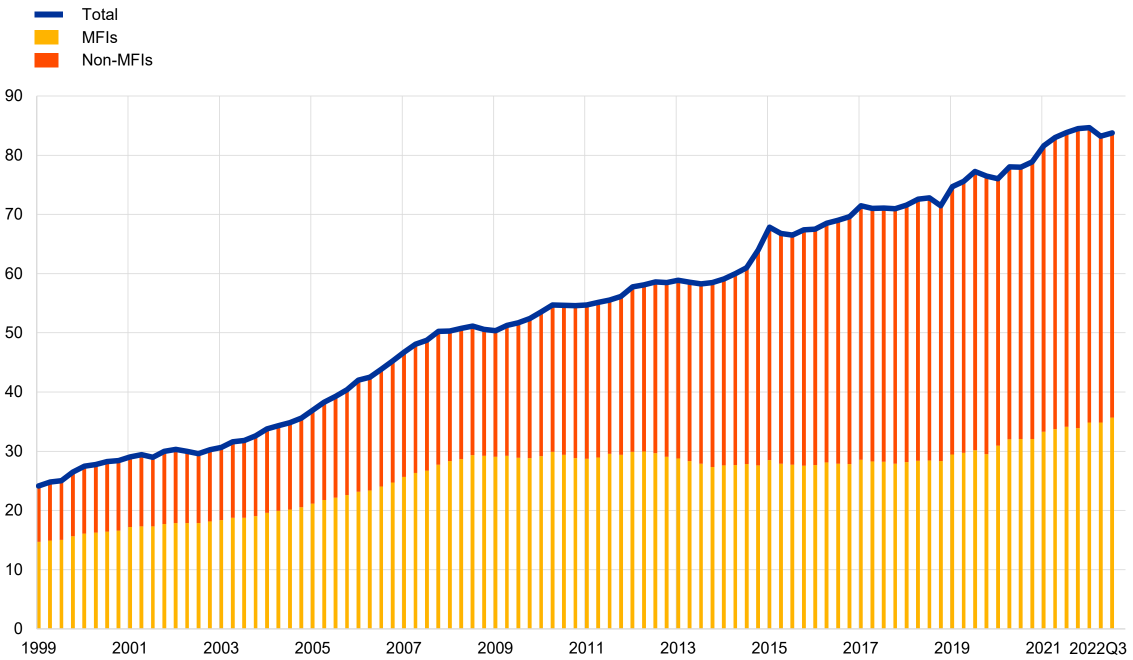


Sources: Refinitiv.
Notes: Price-to-book ratios for the banking sector of selected countries. The latest observation is for 7 February 2023.

Chart 29

Financial assets holdings in the euro area

(EUR trillion)

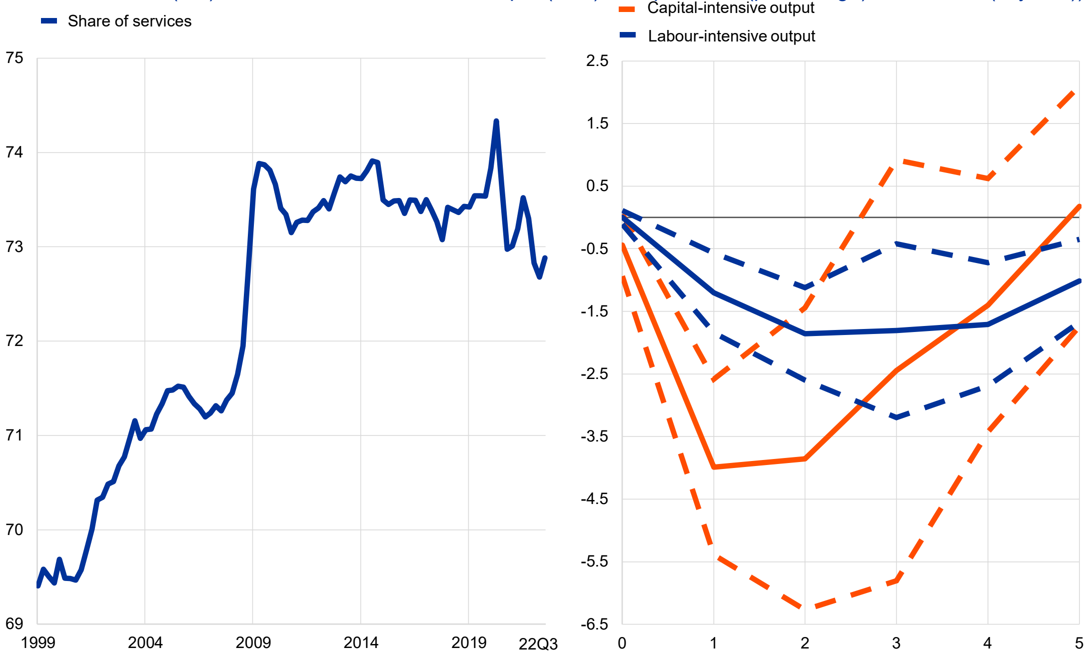


Source: Euro area accounts.
Notes: Non-MFIs include insurance companies and pension funds (ICPFs), investment funds (IFs), and other financial intermediaries (OFIs). MFIs exclude the Eurosystem. Calculations are based on market values.
The latest observation is for the third quarter of 2022.

Chart 30

Share of services in gross value added and sectoral response to contractionary monetary policy shock

(left panel: share of gross value added (GVA) generated in the service sector (percentage), right panel: y-axis: impact of 100 basis point rate hike on regional output in the capital-intensive sector (red) and in the labour-intensive output (blue), sample mean (percentage). x-axis: IRF (in years))



Sources: Left panel: Eurostat, ECB calculations. Right panel: Hauptmeier, S., Holm-Hadulla, F. and Nikalexi, K. (2020), “Monetary policy and regional inequality”, Working Paper Series, No 2385, ECB.
Notes: The latest observation is for 2022Q3.