BANCO DE ESPAÑA
Eurosistema

REFLECTIONS ON MONETARY POLICY ANALYSIS FROM THE LATEST INFLATIONARY-DISINFLATIONARY EPISODE

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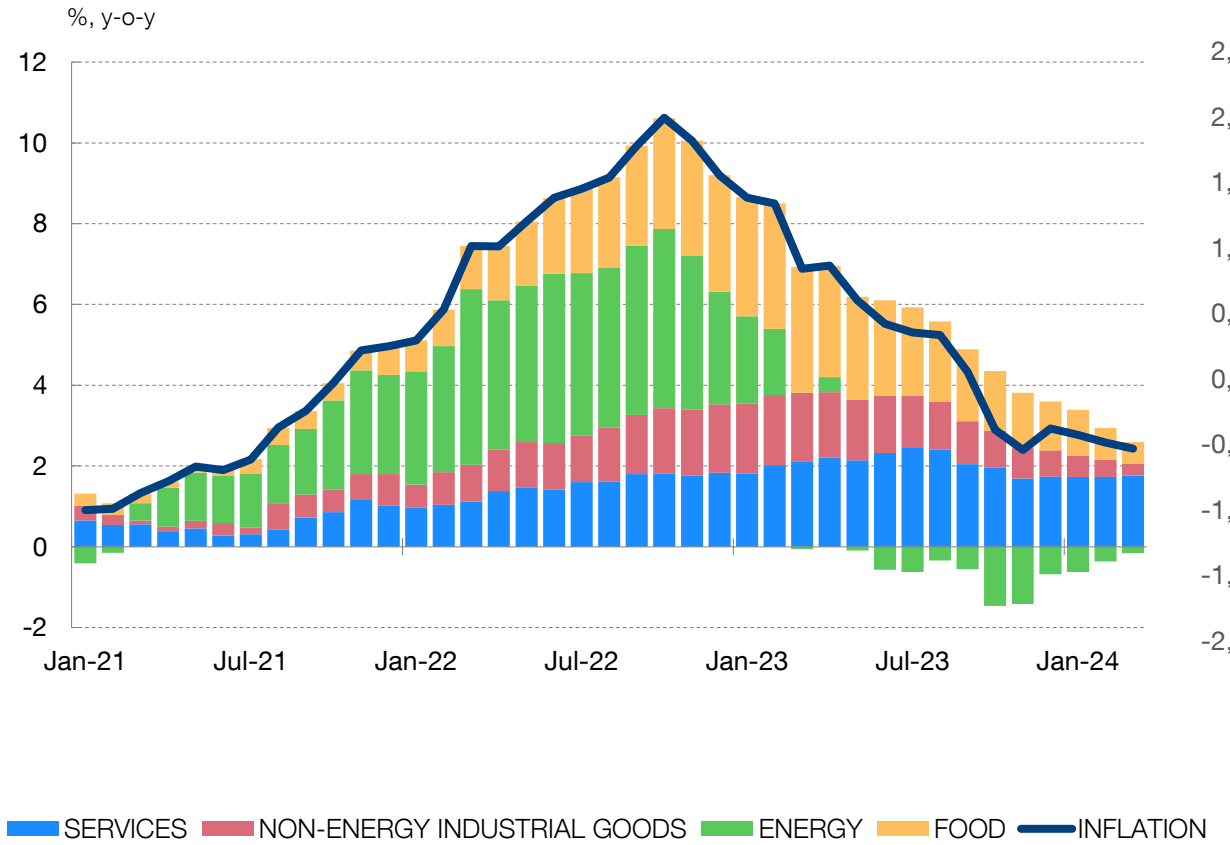
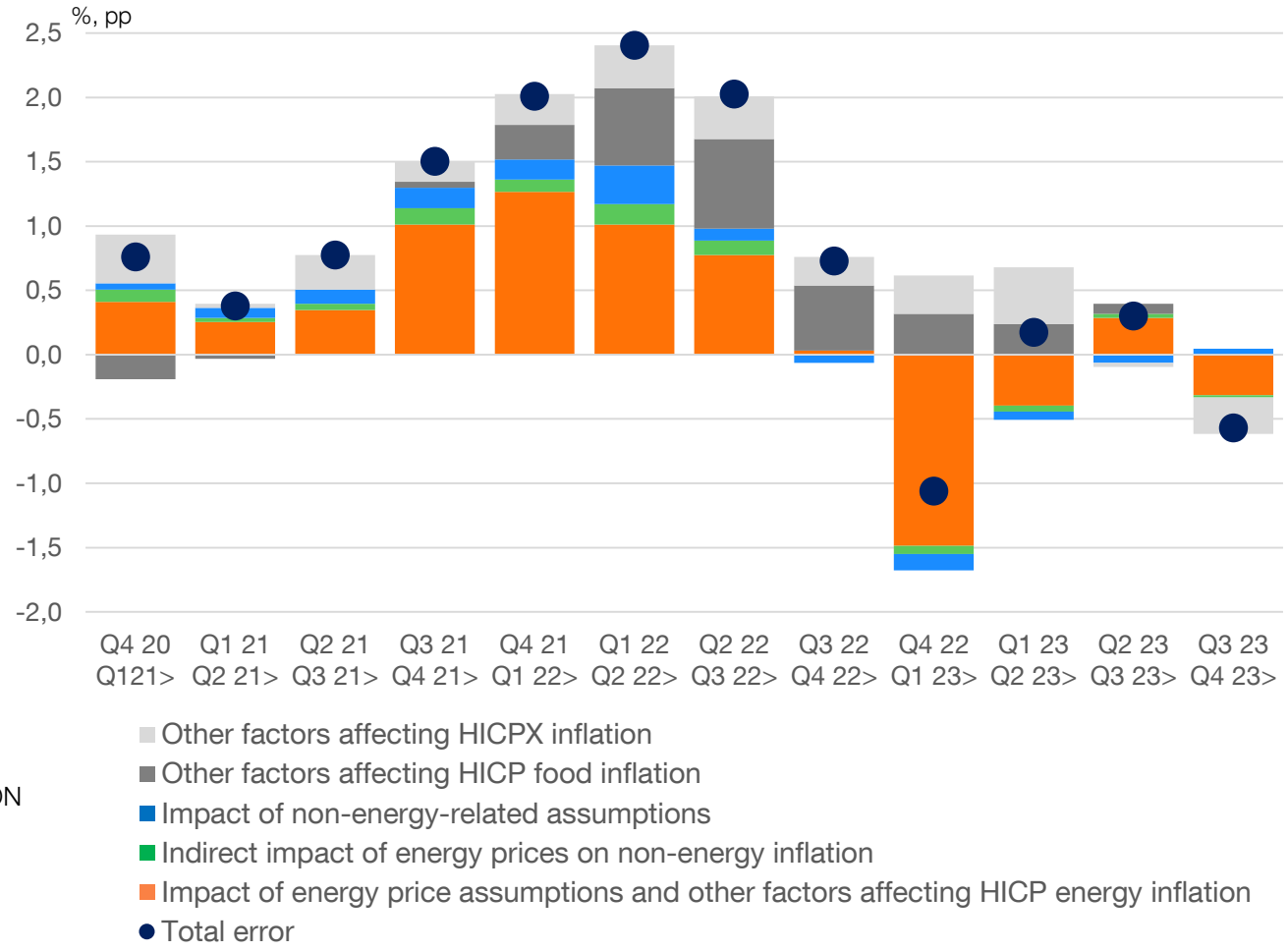
THE INFLATIONARY SHOCK, A RESULT OF SUPPLY AND DEMAND SHOCKS, WAS UNPRECEDENTED IN SCALE AND PERSISTENCE, WHICH SURPRISED ALL FORECASTERS

CONTRIBUTIONS TO HCPI INFLATION IN THE EURO (a)

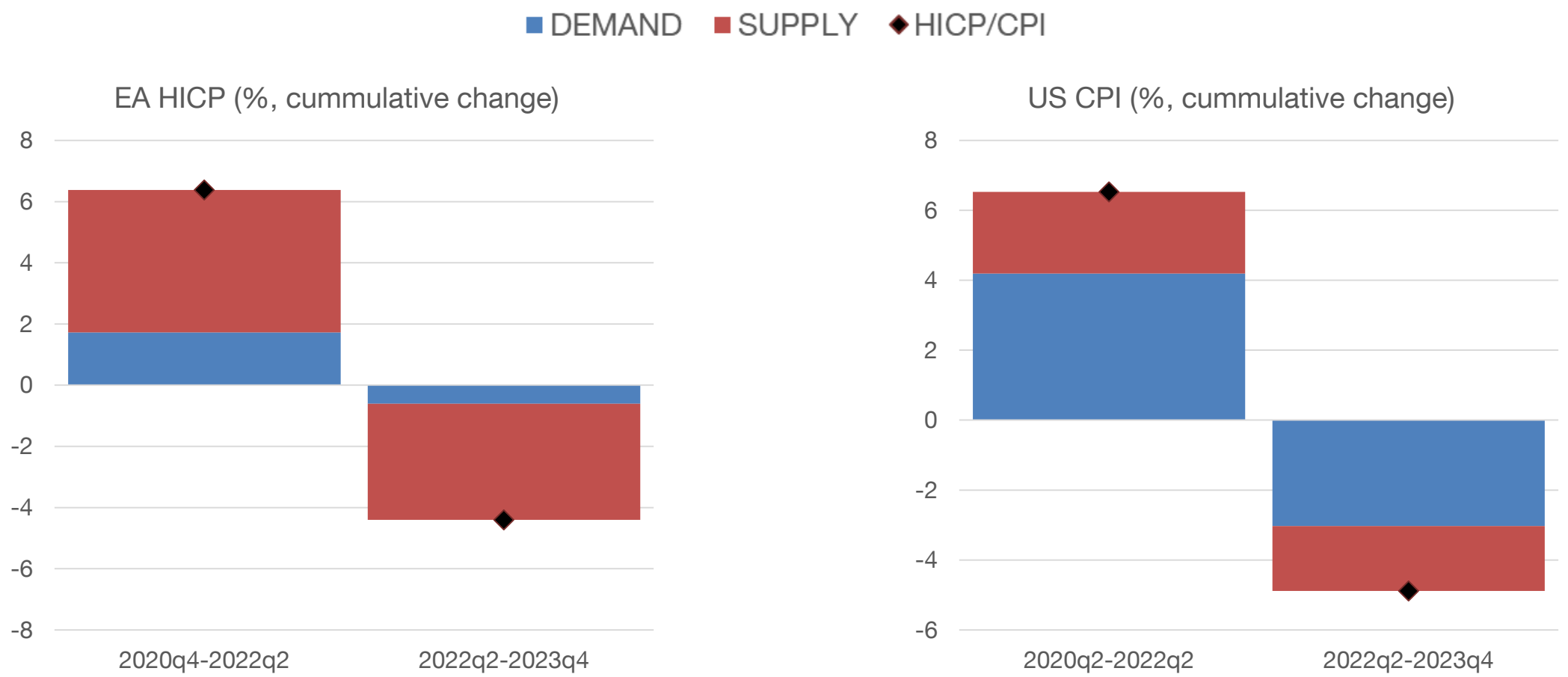


DECOMPOSITION OF ONE-QUARTER-AHEAD HICP INFLATION ERRORS IN EUROSYSTEM/ECB STAFF PROJECTIONS (b)



SOURCES: Eurostat, European Central Bank and Banco de España.
a. Latest data corresponds to March 2024.
b. "Total error" is the outturn minus the projection. The labels on the horizontal axis indicate the quarter in which the projections were published and the quarter to which they relate. "Indirect impact of energy prices on non-energy inflation" is the sum of the indirect effects of oil, gas and electricity prices, using the elasticities derived from Eurosystem staff macro models for oil. "Impact of non-energy related assumptions" relates to assumptions of short and long-term interest rates, stock market prices, foreign demand, competitors' export prices, food prices and the exchange rate.

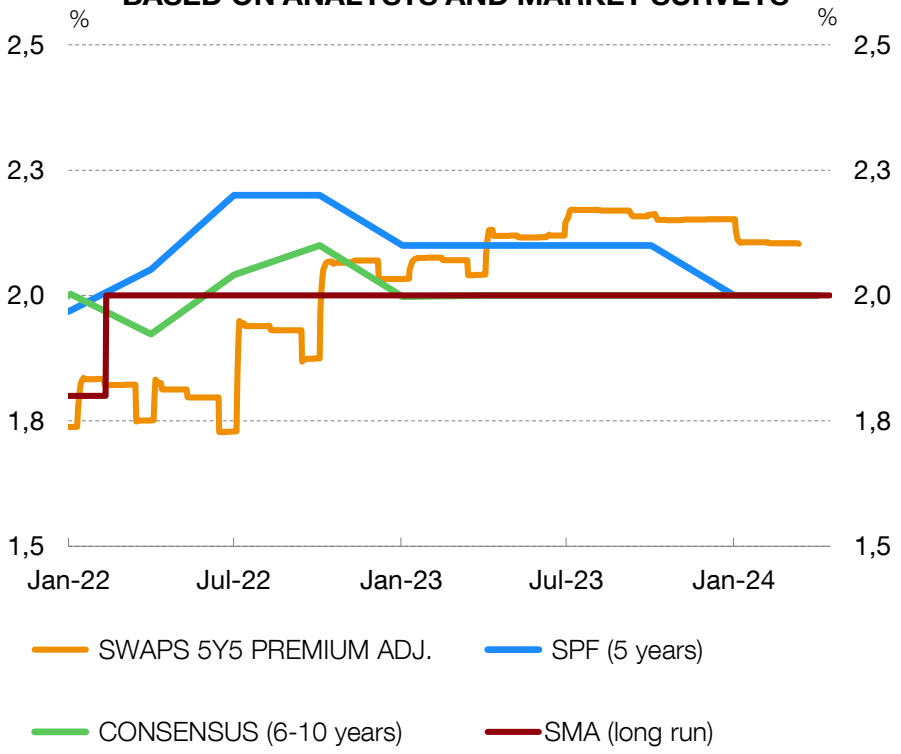
THE MAIN DRIVERS OF INFLATION IN THE EURO AREA HAVE BEEN SUPPLY-SIDE SHOCKS, WITH A MORE LIMITED ROLE FOR DEMAND SHOCKS COMPARED TO THE US



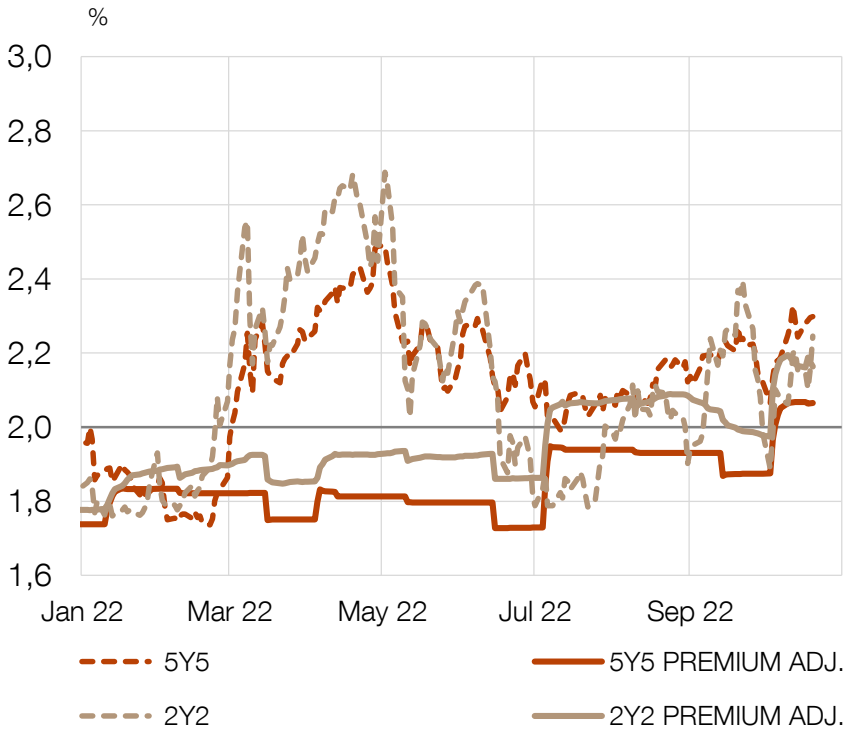
Sources: FRED St Louis, Eurostat, Bank of Spain and own calculations.
Notes: Historical decomposition (mean deviations) based on a structural VAR model using quarterly data from the US (1990Q2 to 2023Q4) and the euro area (2007Q1 to 2023Q4) of the following variables: real GDP, HICP/CPI, Spot Oil Price (WTI or Brent), effective funds rate from the effective federal funds rate or the ECB deposit facility rate (DFR) and the bottleneck indices from Burriel et al (2024). Structural shocks are identified through exclusion and sign restrictions, see Kataryniuk, Martinez-Martin, Pappa and Rast, 2024 (forthcoming). Demand structural shocks aggregate demand and monetary policy shocks, while supply shocks aggregate cost-push, oil and bottenecks shocks. Following Serena Ng (2021) Covid-19 cases entered the model as exogenous.

LONG-RUN INFLATION EXPECTATIONS IN THE EURO AREA HAVE REMAINED ANCHORED

EURO AREA: LONG-TERM INFLATION EXPECTATIONS (a) BASED ON ANALYSTS AND MARKET SURVEYS



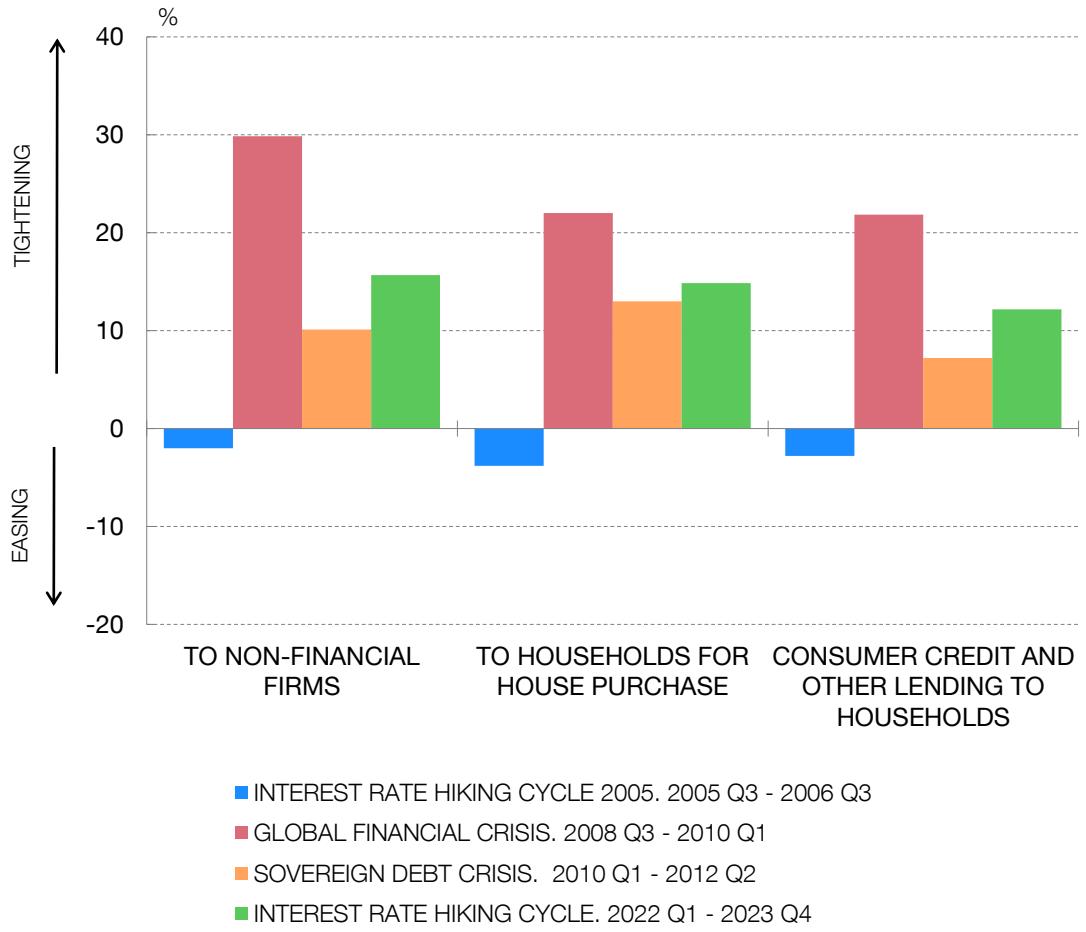
EURO AREA LONG-TERM INFLATION EXPECTATIONS



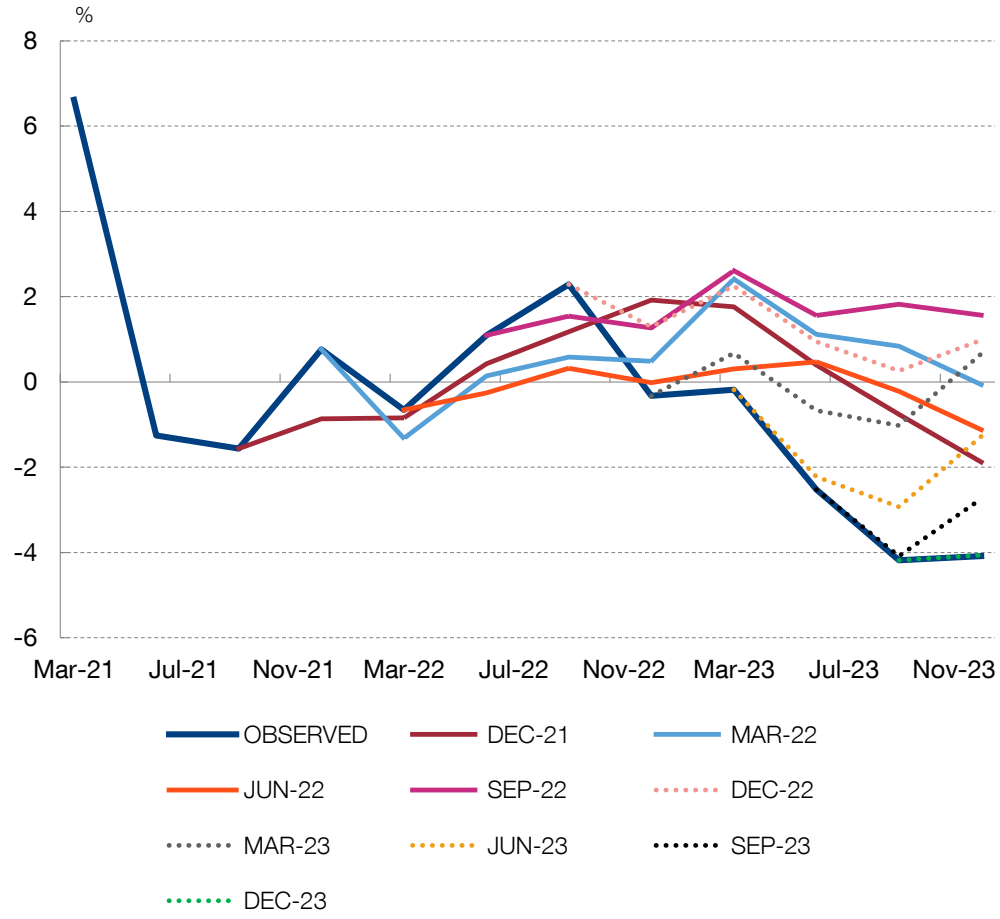
(a) The Survey of Professional Forecasters (SPF) inflation expectations are for a period of 4/5 years. The last SPF is from March and it refers to the year 2028. The last Survey of Monetary Analysts (SMA) is from April 2024 and it refers to the long run expectations, interpreted as the horizon over which the effects of all shocks will have vanished.
Sources: Refinitiv, BCE and Gimeno and Ortega (2022) Modelling inflation expectations: the value of mixing information and frequencies, Bank of Spain Working Paper (forthcoming).

MONETARY POLICY TRANSMISSION TO CREDIT STANDARDS AND NET CREDIT FLOWS HAS BEEN STRONGER THAN IN OTHER TIGHTENING EPISODES

CHANGE IN EURO AREA BANK LENDING STANDARDS (a)



LOAN PROJECTIONS (YoY). SPANISH NON-FINANCIAL FIRMS (b)



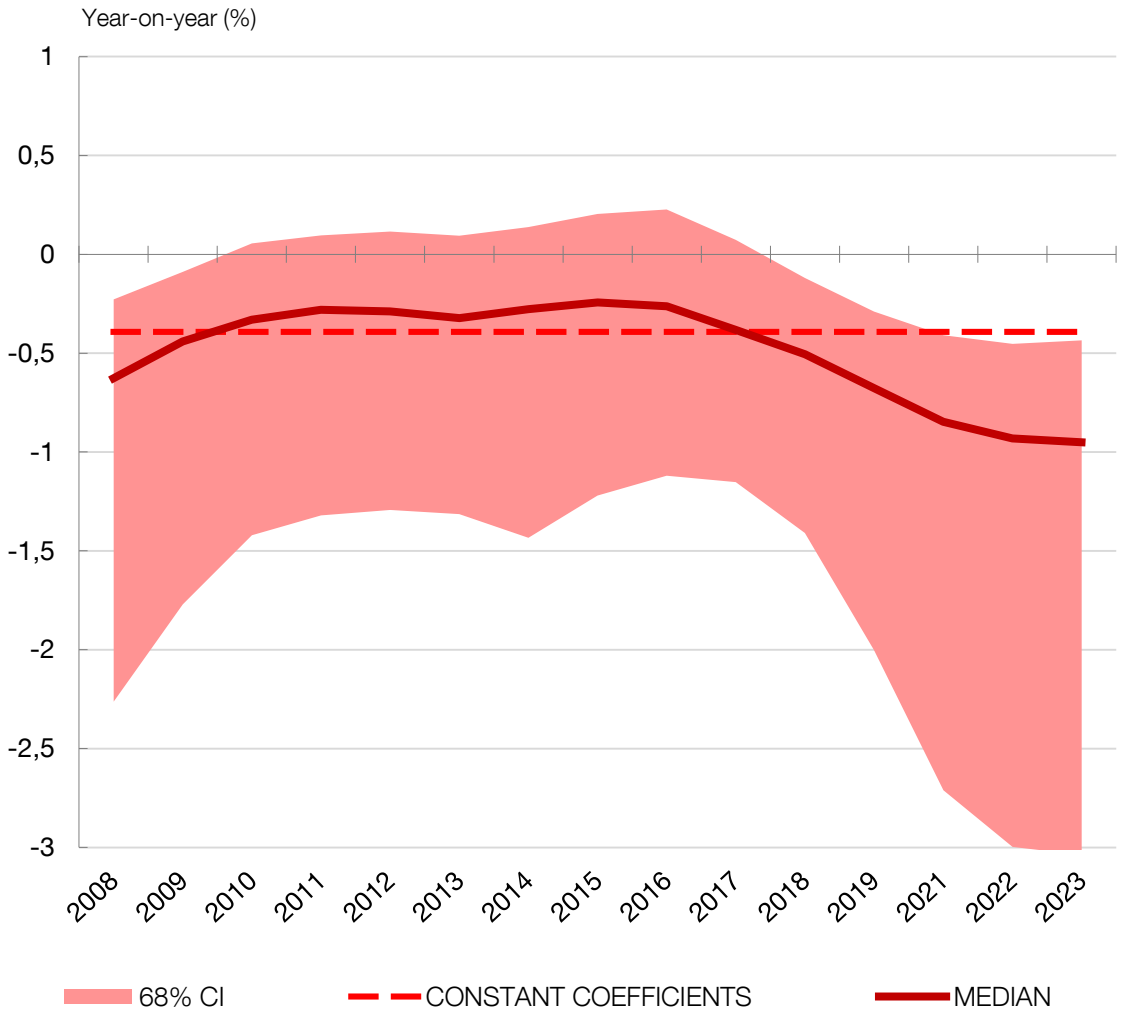
SOURCES: European Central Bank and Banco de España.

a. Average of the net percentage for the corresponding period (percentage of banks reporting a tightening less percentage of banks reporting an easing).

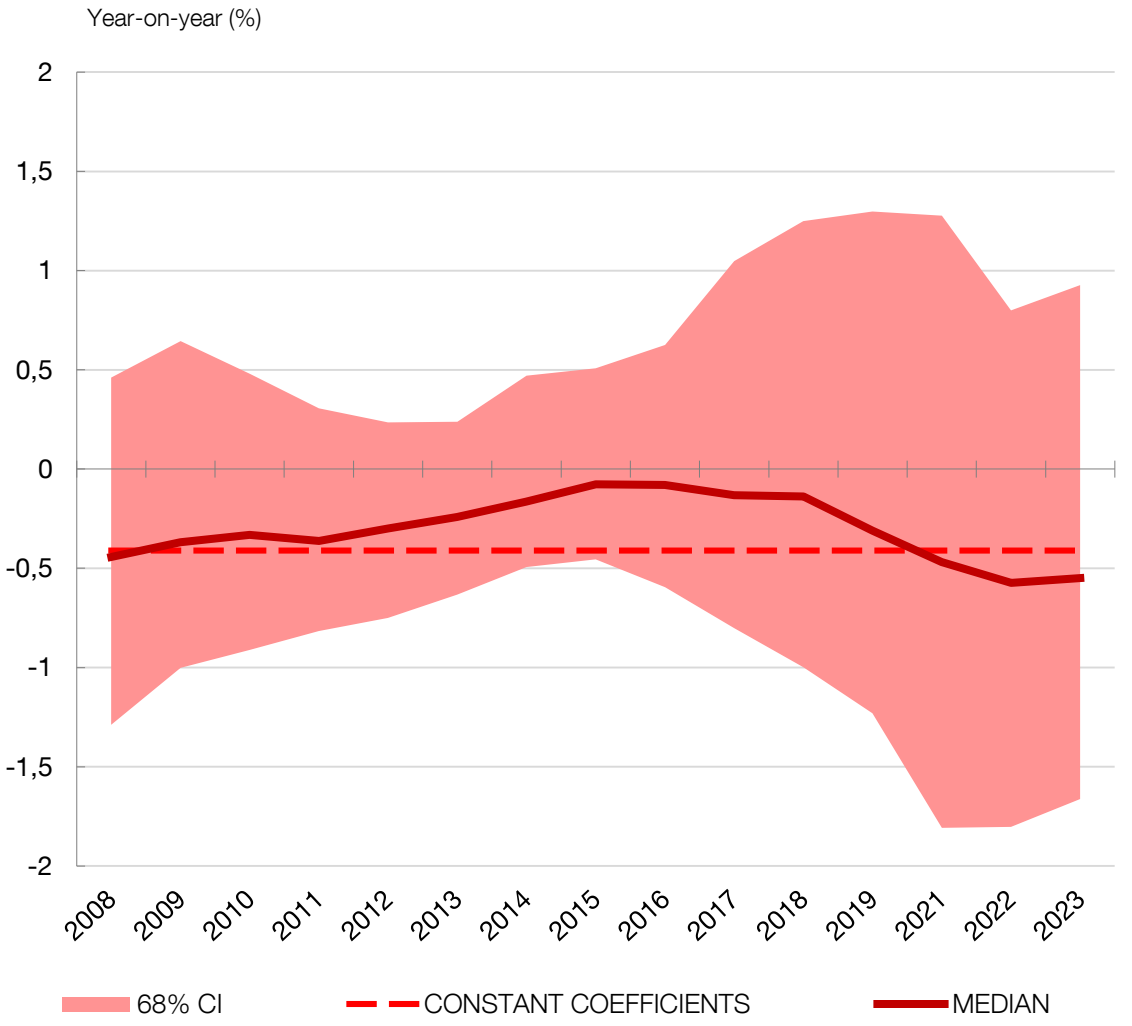
b. In all forecasting exercises the explanatory variables are those observed at December 2023.

TIGTHER FINANCIAL CONDITIONS HAVE TRANSMITTED MORE FORCEFULLY TO ACTIVITY AND (ALTHOUGH NOT SIGNIFICANT TO) INFLATION THAN IN PREVIOUS CYCLES ON AVERAGE

TIME-VARYING IMPACT OF A 100 BPS SHOCK ON GDP OVER THE FIRST YEAR



TIME-VARYING IMPACT OF A 100 BPS SHOCK ON HICP OVER THE SECOND YEAR

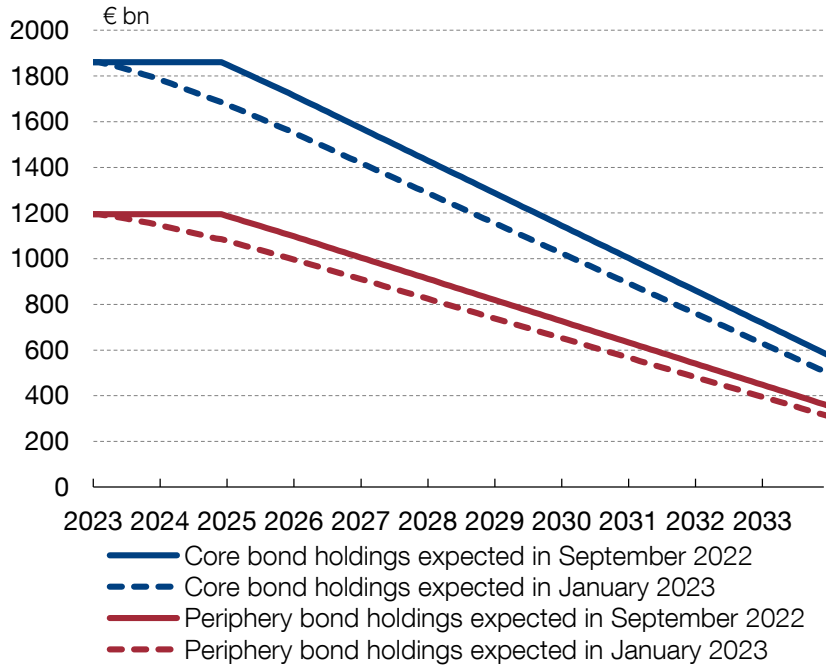


SOURCE: Banco de España.
NOTES: Impact of a 25 bps (non-systematic) monetary policy shock based on recursive estimates of a Structural VAR (SVAR) model extension from Brandt et al (2019). Structural shocks are identified through sign restrictions.

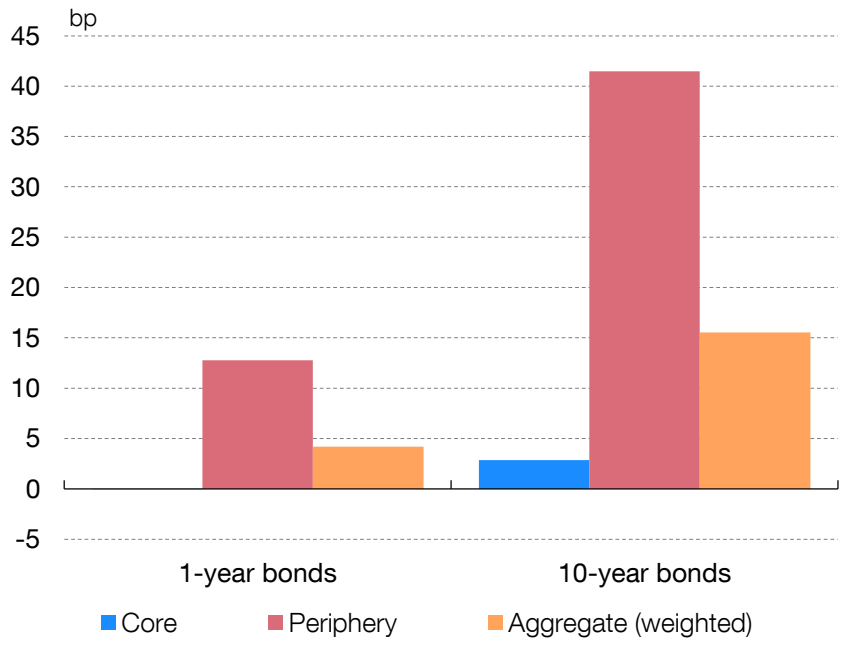
SIMULATING A SURPRISE REDUCTION IN THE EUROSYSTEM'S SOVEREIGN BOND PORTFOLIO

- **The exercise simulates the response of EA sovereign bond yields to the December, 2022 QT announcement under the assumption that financial markets are surprised by the pace of the decline in the APP portfolio.**
- **The announcement especially affects longer-term bond yields (*duration risk channel*) and also yields of countries considered to have a higher probability of default *(sovereign risk channel).***

BONDS PORTFOLIO EXPECTED BY THE MARKET (a)



IMPACT OF THE ANNOUNCEMENT ON THE SOVEREIGN YIELDS (b)

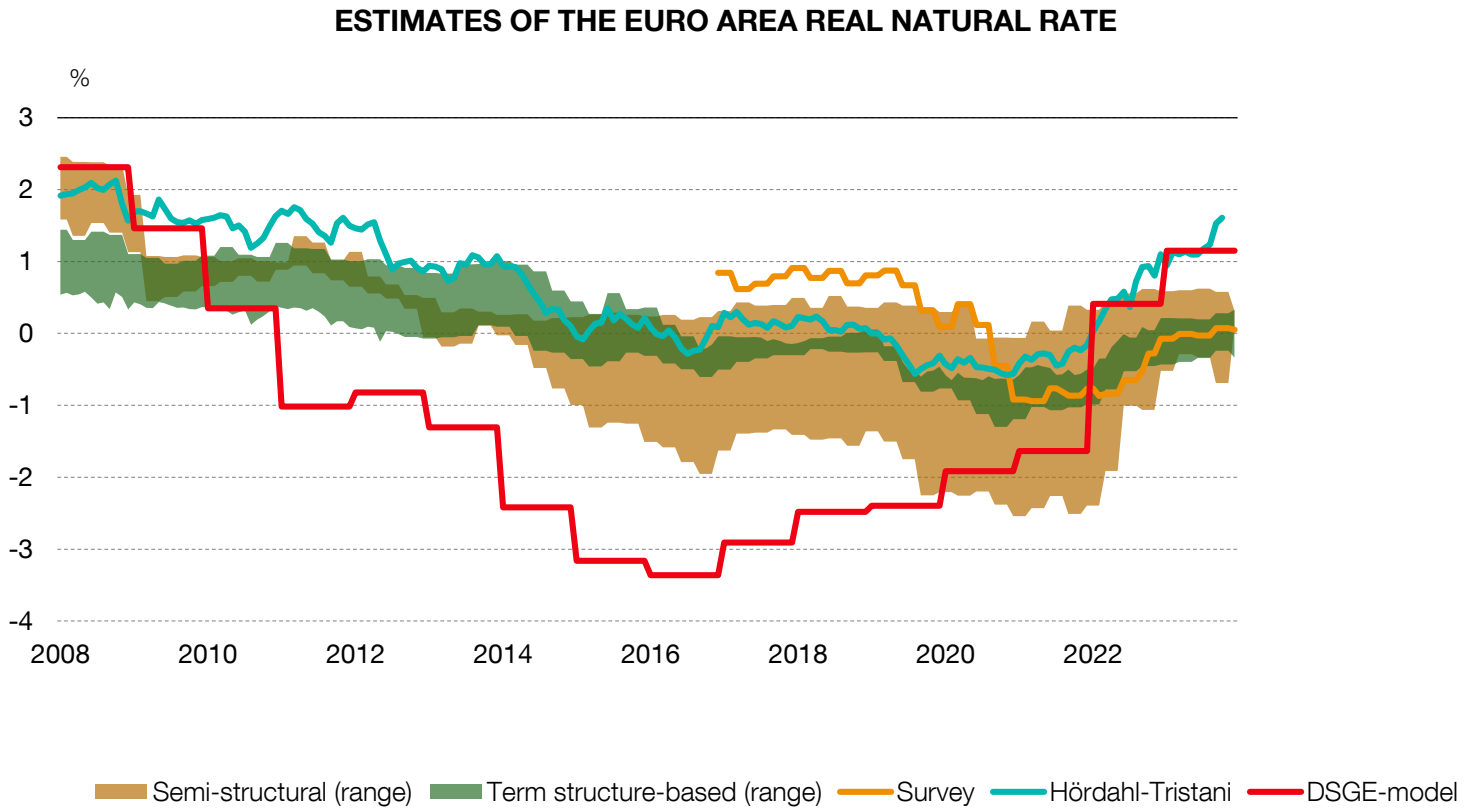


Sources: European Central Bank, Bloomberg, Refinitiv Datastream and Banco de España.
Analysis based on J. Costain, G. Nuño, y C. Thomas (2022), "The term structure of interest rates in a heterogeneous monetary union", Working Paper No. 2223, Banco de España.

a. These portfolios refers to sovereign bonds held by Eurosystem central banks under the asset purchase programme (APP) and pandemic emergency purchase programme (PEPP). Expectations on the evolution of this portfolio are obtained from surveys conducted by Bloomberg associated with each monetary policy meeting of the ECB's Governing Council. 'Core' refers to holdings of Germany and France and 'Periphery' refers to holdings of Spain and Italy.

b. The chart shows the changes in euro area sovereign bond yields attributable to the portfolio reduction announcement from the ECB's monetary policy meeting in December 2022. 'Core' refers to the average between Germany and France, 'Periphery' to the average of Spain and Italy and 'Aggregate' to the average of the 4 countries; all averages are weighted by 2022 GDP.

MOST ESTIMATES OF THE NATURAL INTEREST RATE (R*) POINT TO AN INCREASE AFTER THE PANDEMIC, BUT ITS LEVEL REMAINS LOW



Sources: Semi-structural estimates are derived from Holston, Laubach and Williams (2023), and Brand and Mazelis (2019)Hördahl and Tristani (2014); term structure-based estimates are derived from Geiger and Schupp (2018), Joslin, Singleton and Zhu (2011), Ajevskis (2020), and Brand, Goy and Lemke (2021); survey-based estimates are computed as the mean between the estimate from the Survey of Monetary Analysts (measured as the median of respondents' long-run expectations regarding the ECB's DFR less expectations of inflation in the long run), starting in mid-2021, and the Consensus Economics estimate (measured as the expected 3-month interbank rate 10 years ahead, less expectations of inflation in the long run); DSGE-based estimates are derived from Gerali and Neri (2019); Hördahl and Tristani (2014). Latest observations: Oct-2023 for Hördahl-Tristani, 2023 for DSGE-model, 3Q23 for Holston-Laubach-Williams, Jan-2024 for the survey and March 2024 for the rest.