

MONETARY POLICY TRANSMISSION AND THE BANKING SYSTEM

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THE ECB AND ITS WATCHERS XXIV

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PARTICULARITIES OF THE CURRENT MONETARY POLICY TIGHTENING CYCLE

STRUCTURAL CHANGES IN THE BANKING SYSTEM

- Banking sector: better capitalization, higher liquidity ratios and higher concentration in the sector [↓]

STRUCTURAL CHANGES IN THE FINANCING OF FIRMS AND HOUSEHOLDS

- Debt burden less sensitive to interest rate changes [↓]
- Higher gross debt to income ratios of households [↑]
- Shift from bank to bond funding [↑]

VERY ACCOMMODATIVE STARTING POSITION

- Interest rates at negative territory [↓ ↑]
- High levels of excess liquidity in the banking system [↓]

HOUSING MARKET STARTING POSITION

- Signs of overvaluation in some countries [↑]

THE ORIGIN OF THE INFLATIONARY SHOCK

- Great role of adverse supply shocks: bottlenecks and energy shock [↑]

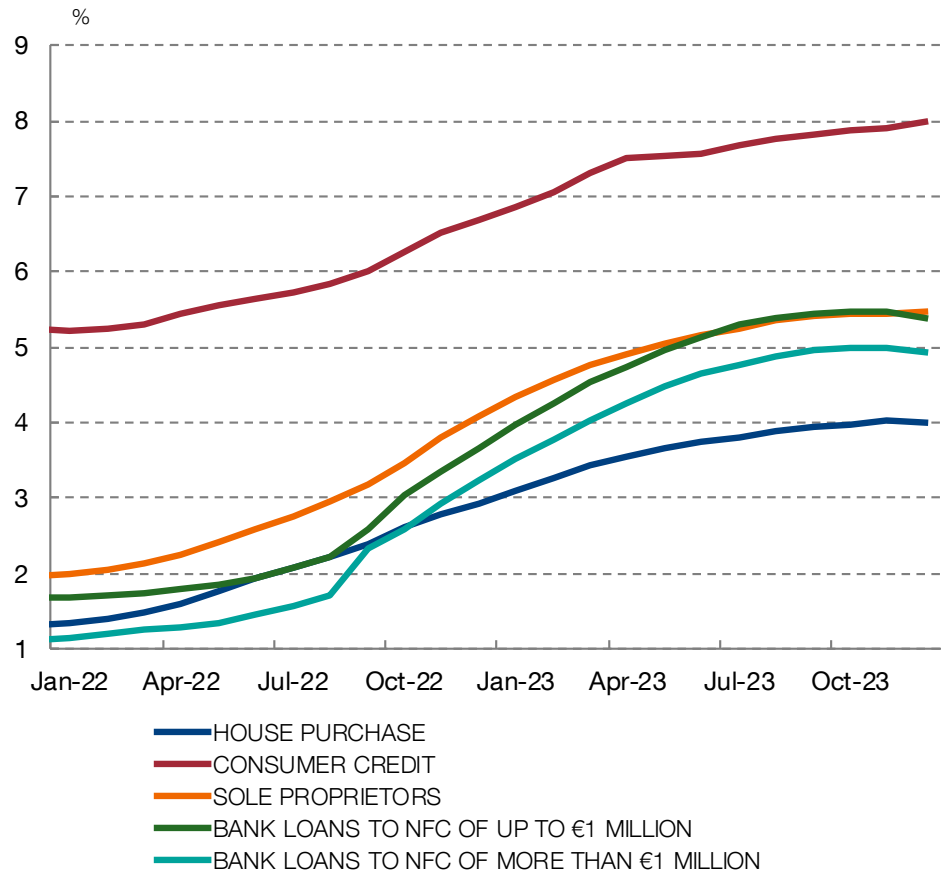
THE SPEED AND INTENSITY OF THE TIGHTENING

- Interest rates have risen 450 bps between July 2022 and September 2023 [↑ in case of non-linear effects]

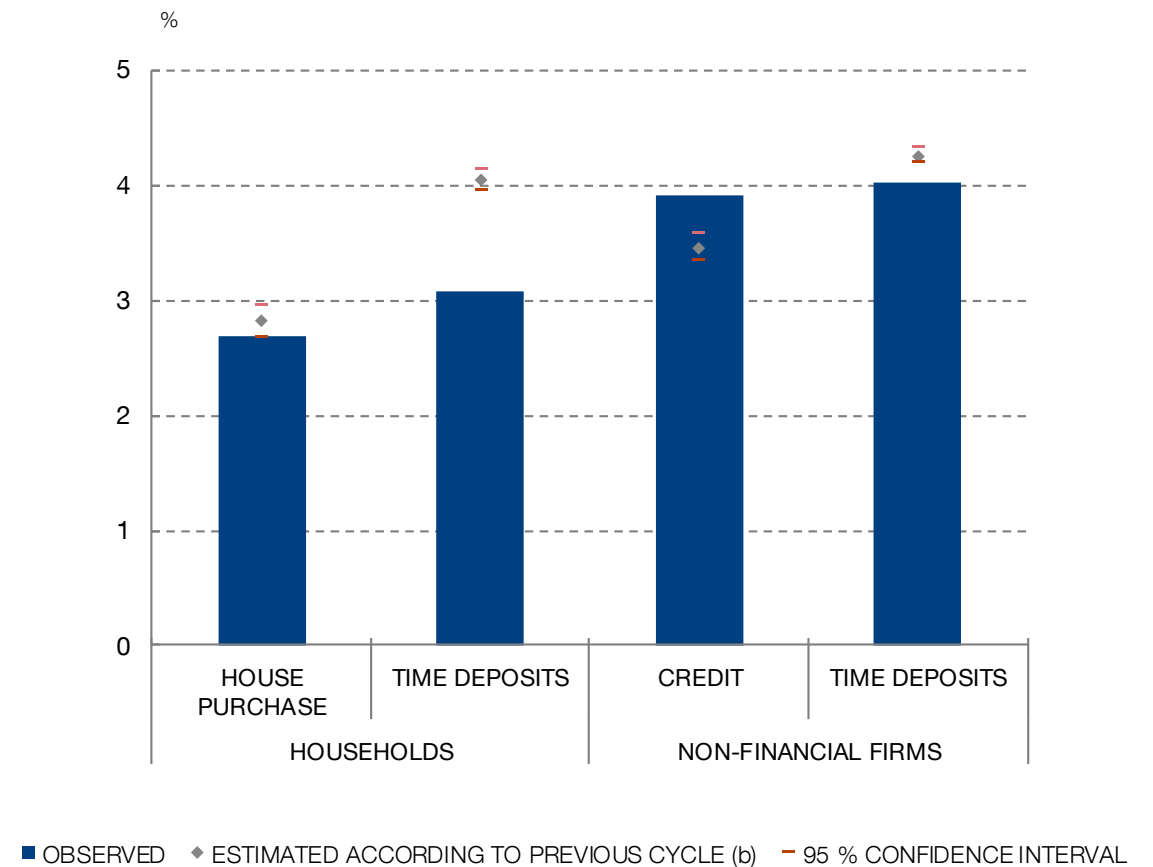
↑ potentially stronger transmission of the monetary policy tightening

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COST OF NEW LOANS TO HOUSEHOLDS AND NON-FINANCIAL FIRMS IN THE EURO AREA (a)



CUMULATIVE CHANGE IN EURO AREA BANK INTEREST RATES FROM DECEMBER 21 TO DECEMBER 23 (a)

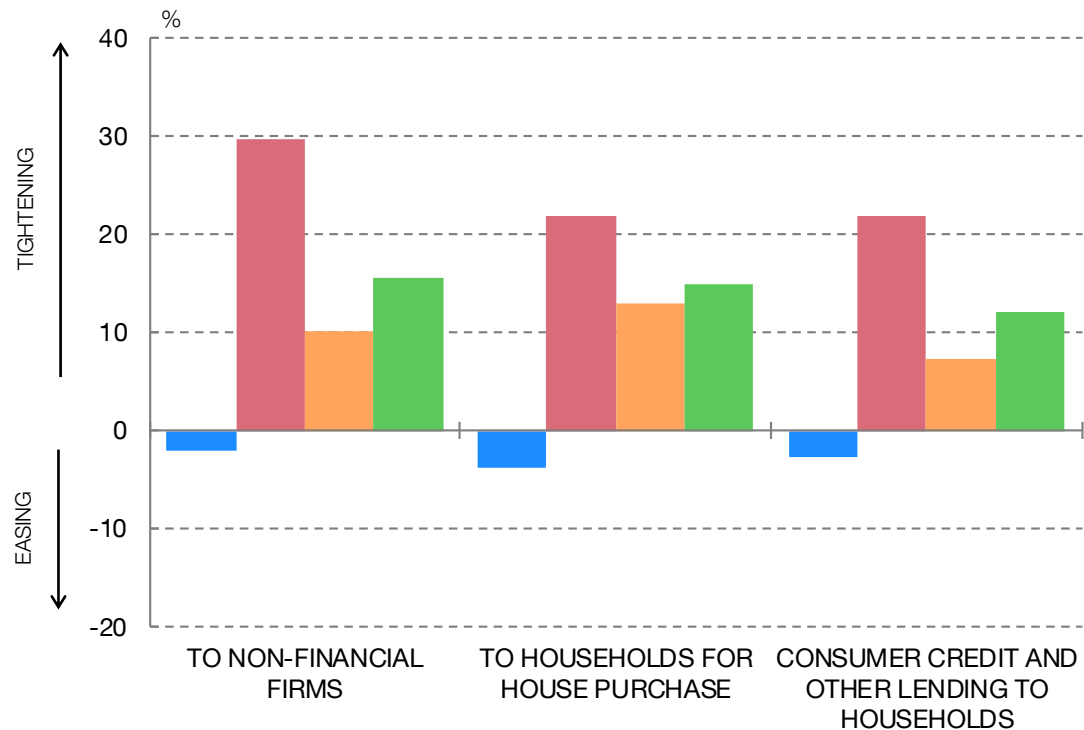


SOURCES: European Central Bank and Banco de España.

a. Narrowly defined effective rates (NDER) adjusted for seasonality and the irregular component.

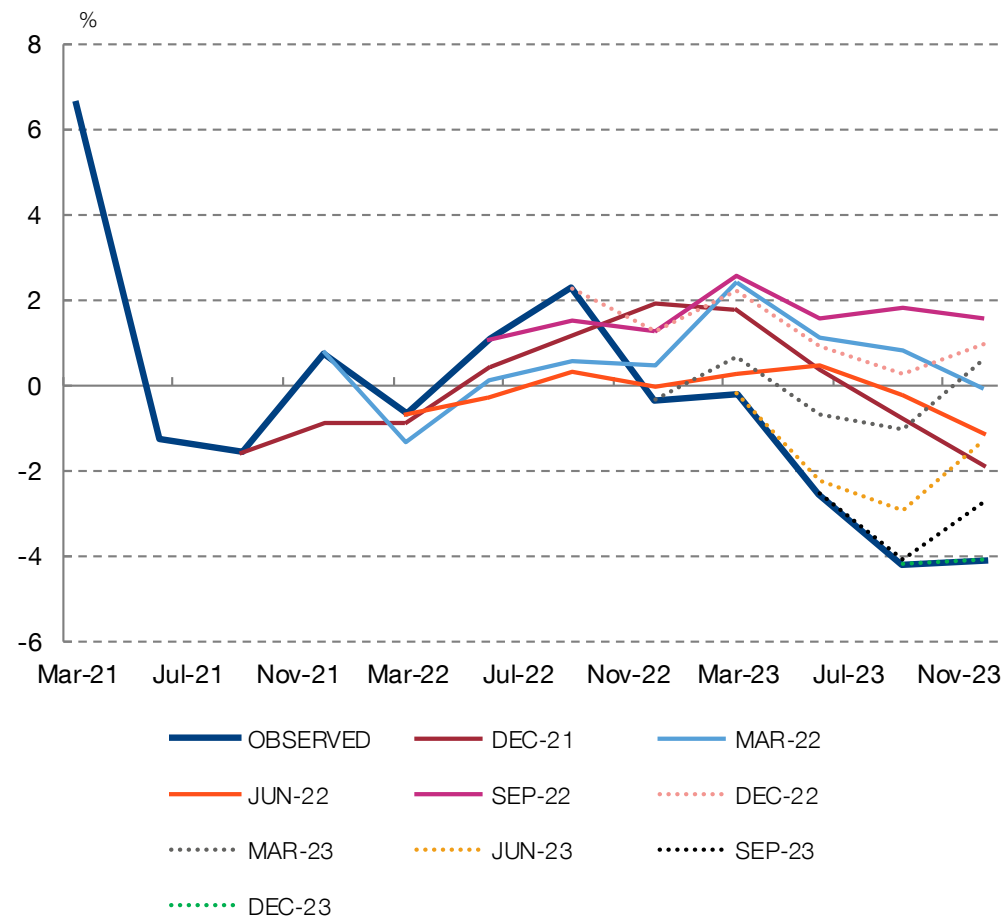
b. Bank interest rate that would result if the increase in the market interest rate in the current cycle had been passed through in a similar way to that recorded in the previous cycle as estimated by standard error correction models for the period January 2003 - August 2007.

CHANGE IN EURO AREA BANK LENDING STANDARDS (a)



- INTEREST RATE HIKING CYCLE 2005. 2005 Q3 - 2006 Q3
- GLOBAL FINANCIAL CRISIS. 2008 Q3 - 2010 Q1
- SOVEREIGN DEBT CRISIS. 2010 Q1 - 2012 Q2
- INTEREST RATE HIKING CYCLE. 2022 Q1 - 2023 Q4

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



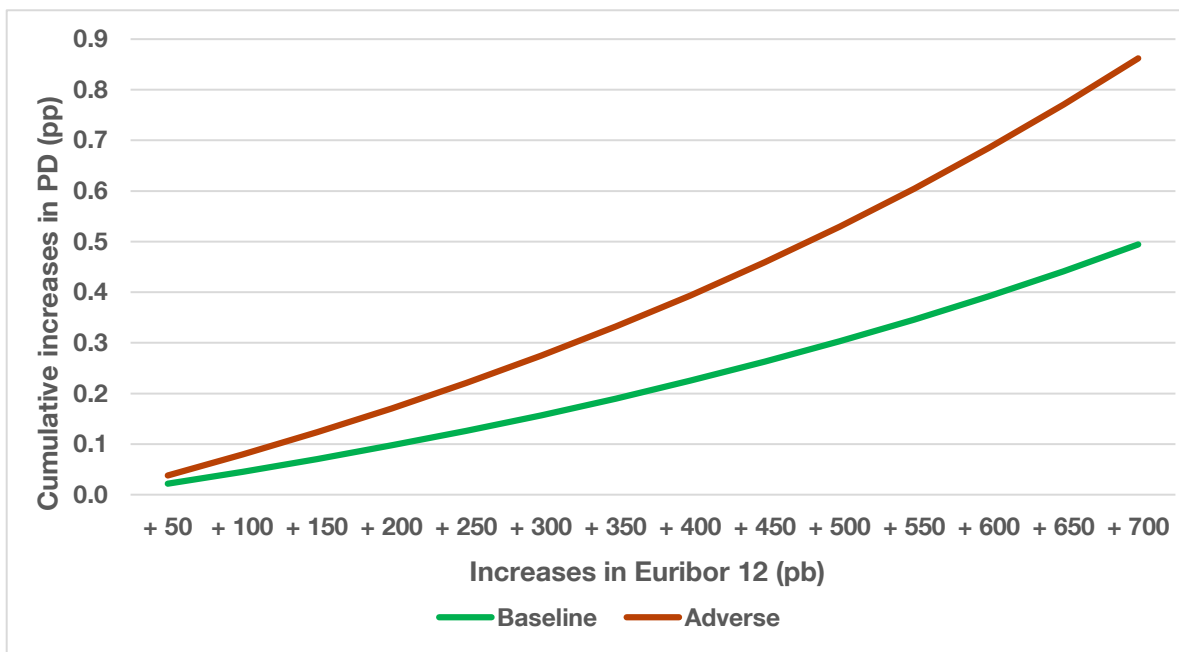
SOURCES: European Central Bank and Banco de España.

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

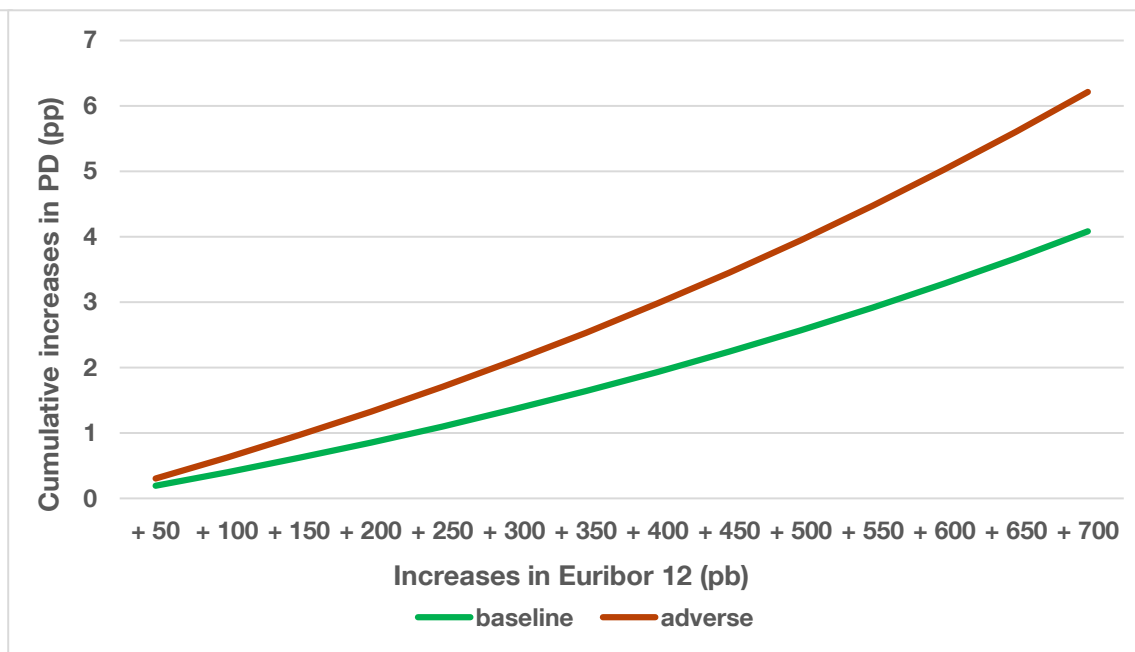
b. In all forecasting exercises the explanatory variables are those observed at December 2023.

- However, these effects are only sizeable for very high increases in interest rates or, especially, when the increase takes place under an adverse macroeconomic scenario.

Household mortgages. Spain



Loans to SMEs. Spain



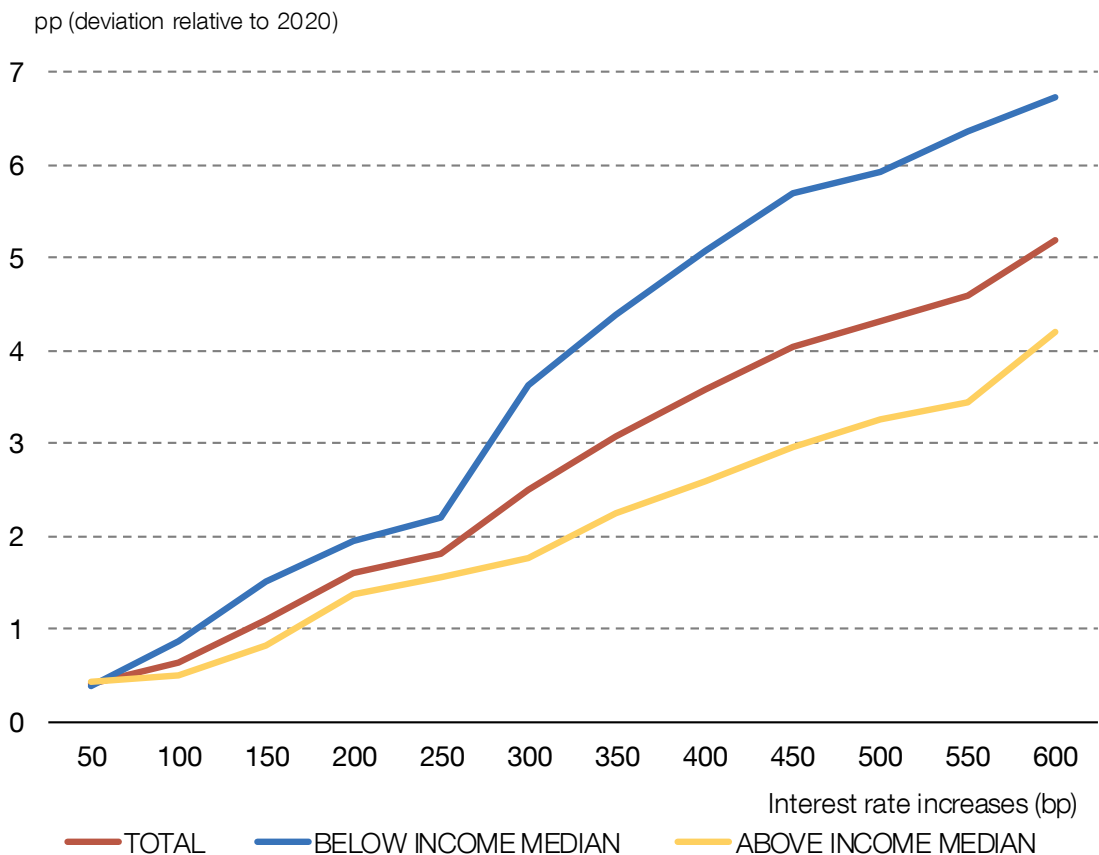
Source: Banco de España.

Notes: The charts present the probability of loans transitioning from normal situation to doubtful (PD) as a function of the level of the 12-month Euribor reference rate. The PD is modelled with an autoregressive logit specification with macro-financial controls, as in the top-down stress test model of Banco de España (FLESB). The estimation sample comprises loans of significant institutions. Under the baseline scenario, macroeconomic variables other than interest rates are fixed at values in line with baseline macroeconomic forecast, whereas under the adverse scenario, they are fixed at stressed levels in line with the 2023 FLESB and EBA stress test exercises. Household mortgages refer to loans to physical persons with housing present as real guarantee, whereas loans to SMEs refer to loans to firms that qualify for this definition in sectors of activity other than real estate development and construction.

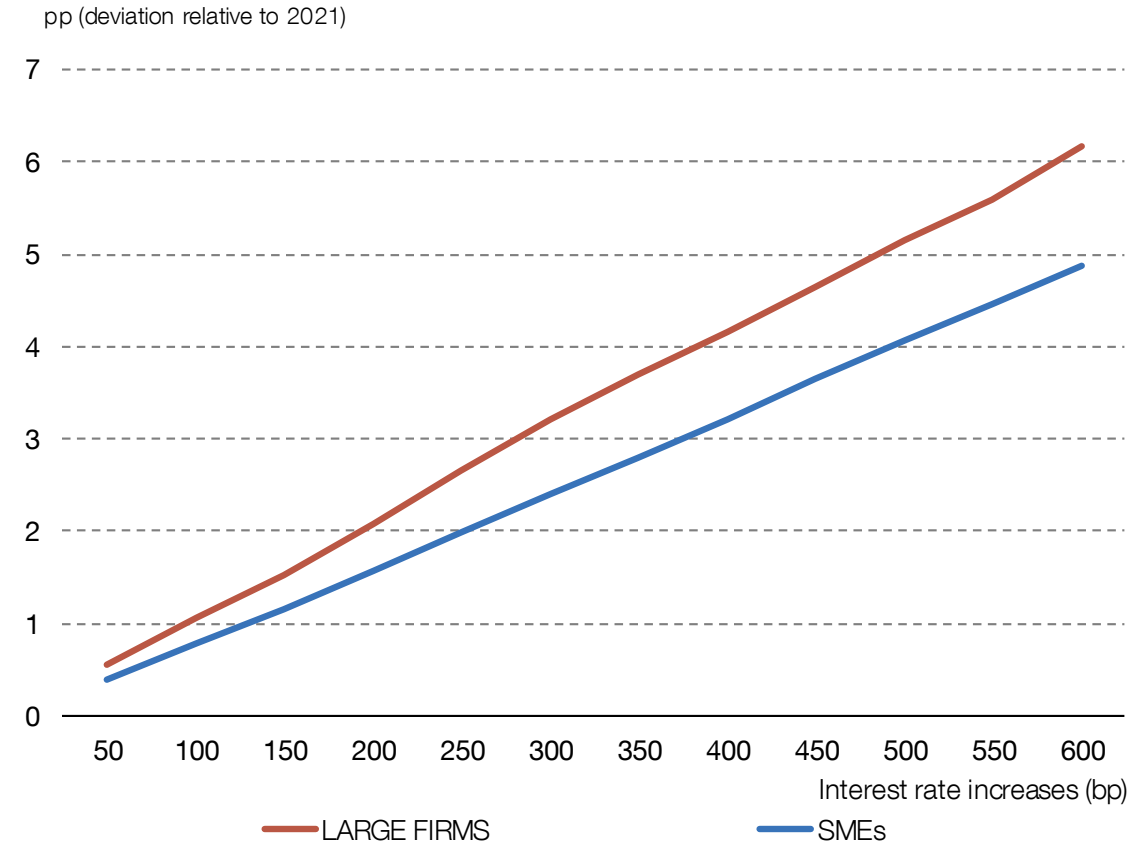
NON-LINEAR EFFECTS ARE NOT GENERALLY FOUND USING RECENT GRANULAR DATA

- **Non-linear effects are only observed in the case of indebted households with income below the median, and are not very significant.**

INCREASE IN THE PERCENTAGE OF INDEBTED HOUSEHOLDS WITH A HIGH INTEREST BURDEN DUE TO THE INCREASE IN INTEREST RATES IN SPAIN (a)



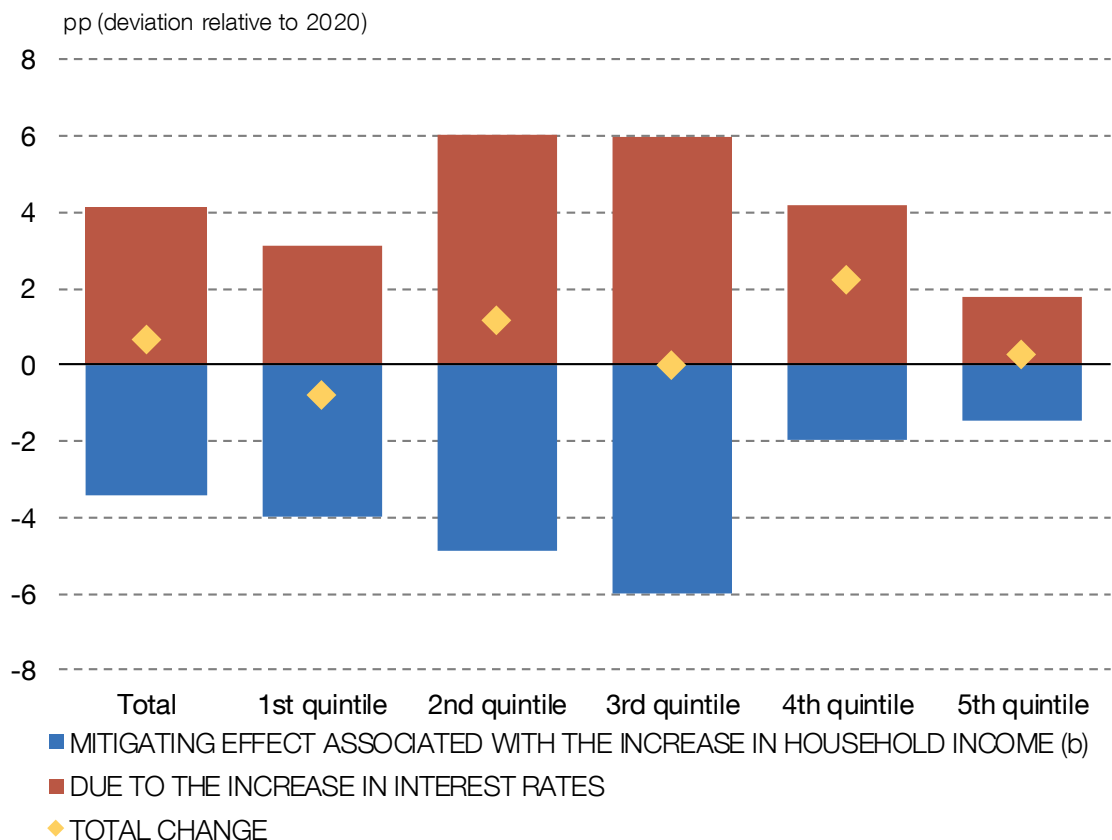
INCREASE IN THE PERCENTAGE OF INDEBTED FIRMS UNDER HIGH FINANCIAL PRESSURE DUE TO THE INCREASE IN INTEREST RATES IN SPAIN (b)



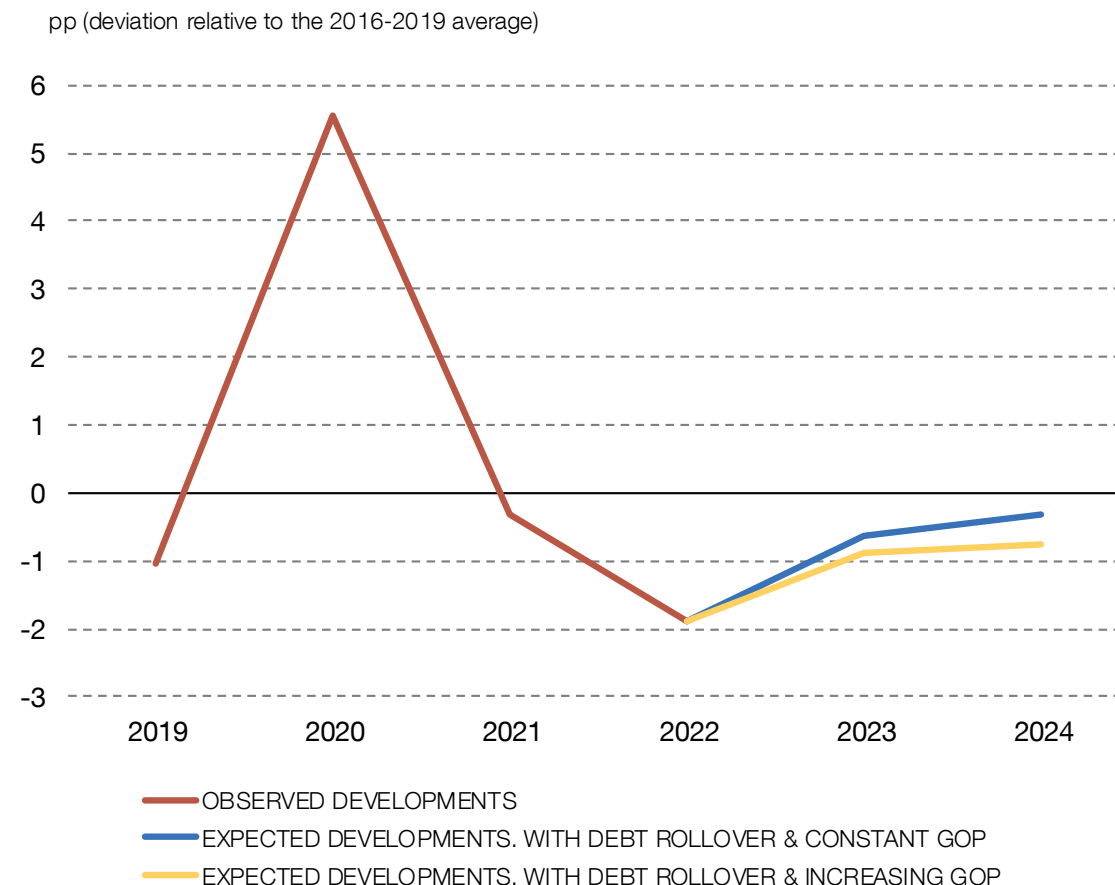
SOURCE: Banco de España.

- a. Simulations performed using data from the Spanish Survey of Household Finances (Banco de España, 2020). The interest burden is considered to be high when debt service costs exceed 40% of household income. Interest rate hikes are assumed to be fully passed through to variable-rate loans. The 50th income percentile is defined for the entire sample of households.
- b. Simulations performed using data from the Central Balance Sheet Data Office integrated database (CBI) of 2021. A firm is considered to be under high financial pressure if its interest coverage ratio (ICR) is below one. The ICR is calculated as (GOP + financial revenue) / financial costs. The increase in interest rates is fully passed through to the interest rate on short-term debt and long-term and flexible rate debts and credits. GOP and financial revenue remain constant.

CHANGE IN PERCENTAGE OF INDEBTED HOUSEHOLDS WITH A HIGH INTEREST BURDEN IN SPAIN BY INCOME QUINTILE (a)



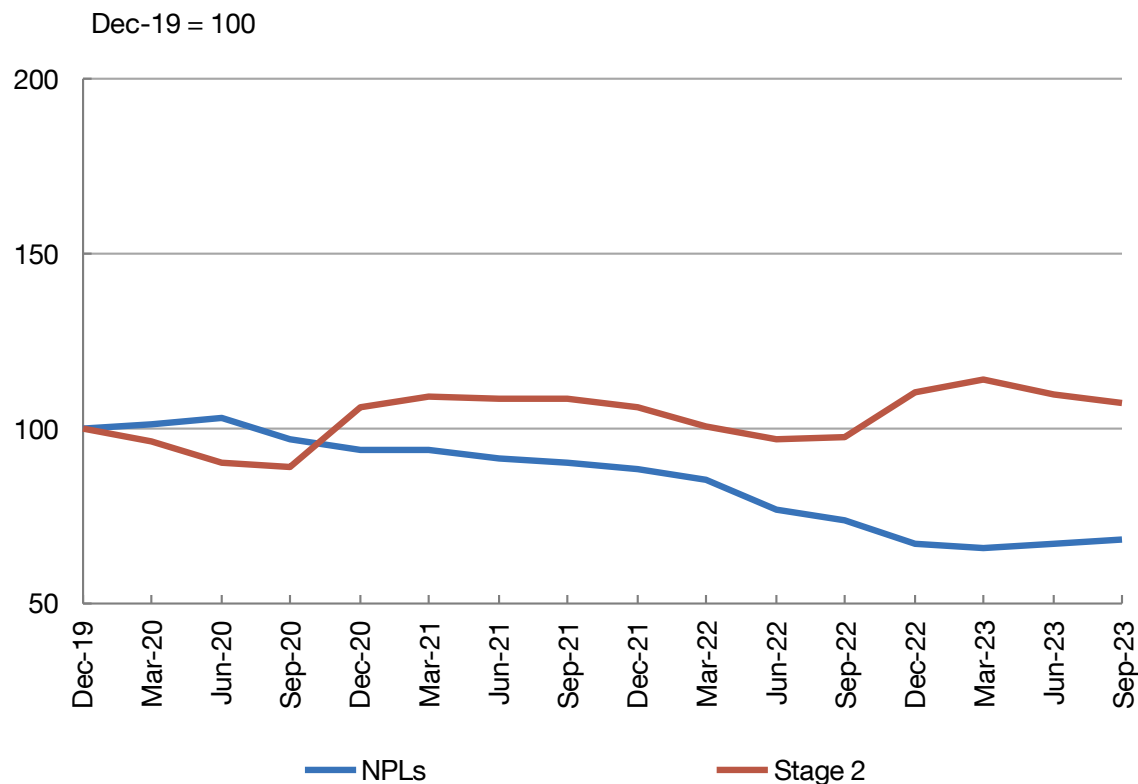
CHANGE IN PERCENTAGE OF FIRMS UNDER HIGH FINANCIAL PRESSURE IN SPAIN (c)



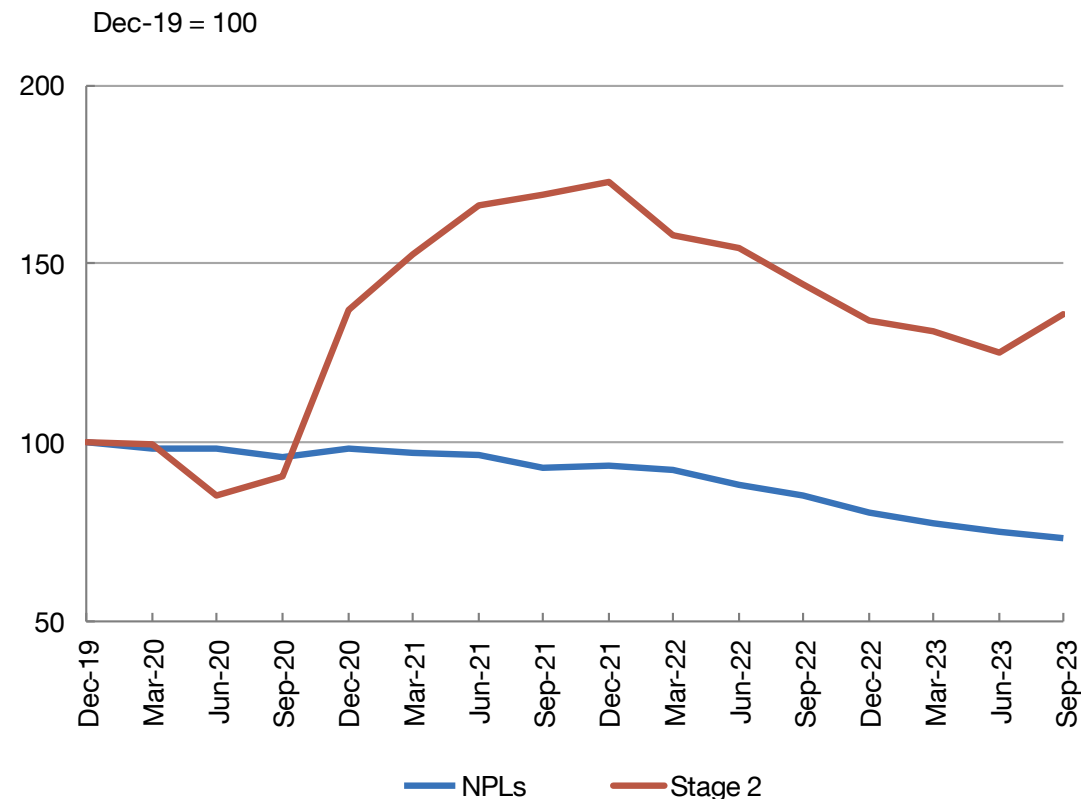
SOURCE: Banco de España.

- Simulations performed using data from the Spanish Survey of Household Finances (Banco de España, 2020). The interest burden is considered to be high when debt service costs exceed 40% of household income. To approximate the 2023 data, a 466 bps increase in interest rates and 15.6% increase in household income is assumed from 2020.
- Mitigating effect associated to the increase in household income over the change in percentage of indebted households with high interest burden due to the increase in interest rates.
- Simulations performed using data from the Central Balance Sheet Data Office integrated database (CBI) of 2022. A firm is considered to be under high financial pressure if its interest coverage ratio is below one. The interest coverage ratio is calculated as $(\text{GOP} + \text{financial revenue}) / \text{financial costs}$.

NON-PERFORMING AND STAGE 2 LOANS TO HOUSEHOLDS IN SPANISH BANKS (a)



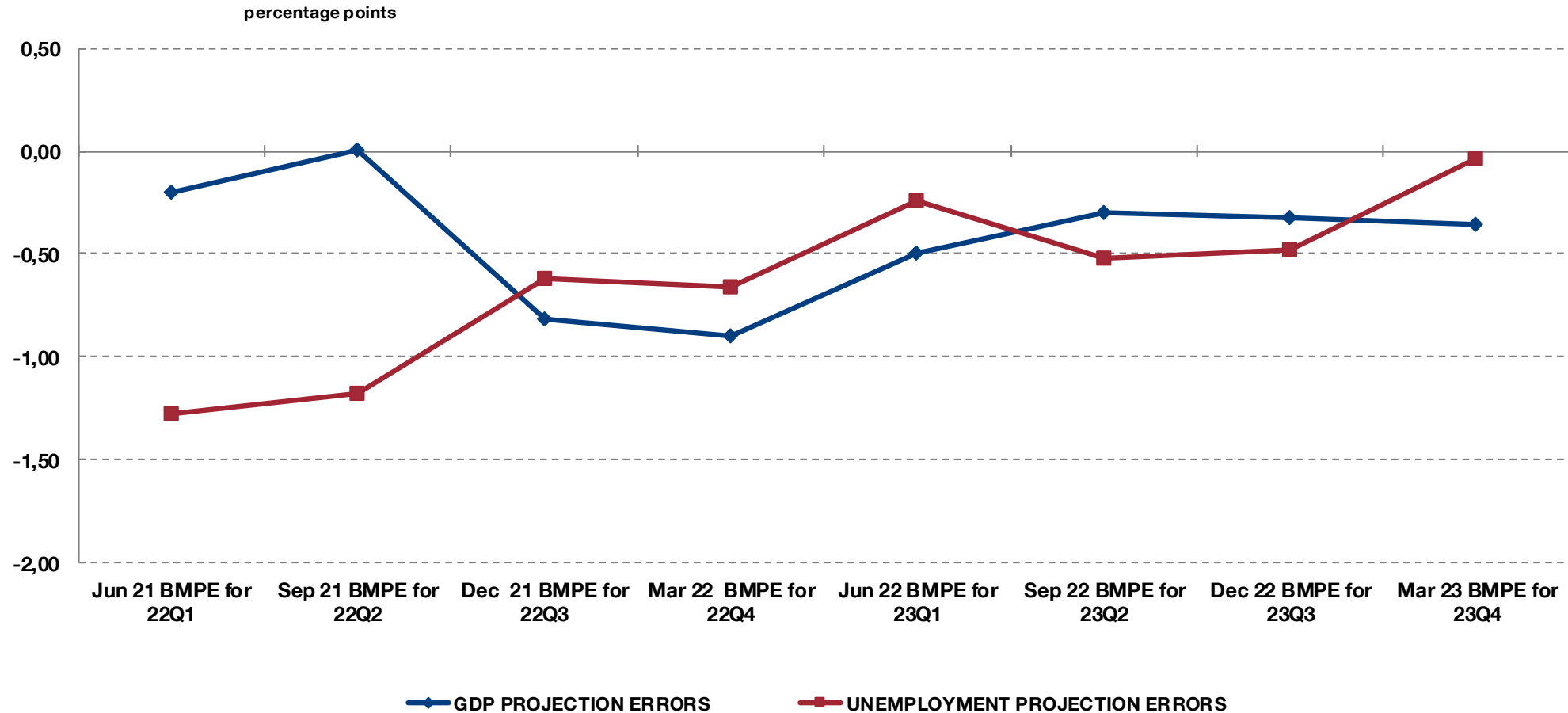
NON-PERFORMING AND STAGE 2 LOANS TO NON-FINANCIAL CORPORATIONS IN SPANISH BANKS (a)



SOURCE: Banco de España.

a. NPLs and Stage 2 loans refer to the gross carrying amount of troubled assets in deposit institutions' portfolios. Loans are classified as non-performing when they are in default (there are amounts more than 90 days past due) or when there are indications that the loan is unlikely to be paid (e.g. the equity of a firm is negative). Loans are classified as Stage 2 when their credit risk has increased significantly since initial recognition, but they do not meet the requirements to be classified as non-performing. They generally include those with amounts more than 30 days past due.

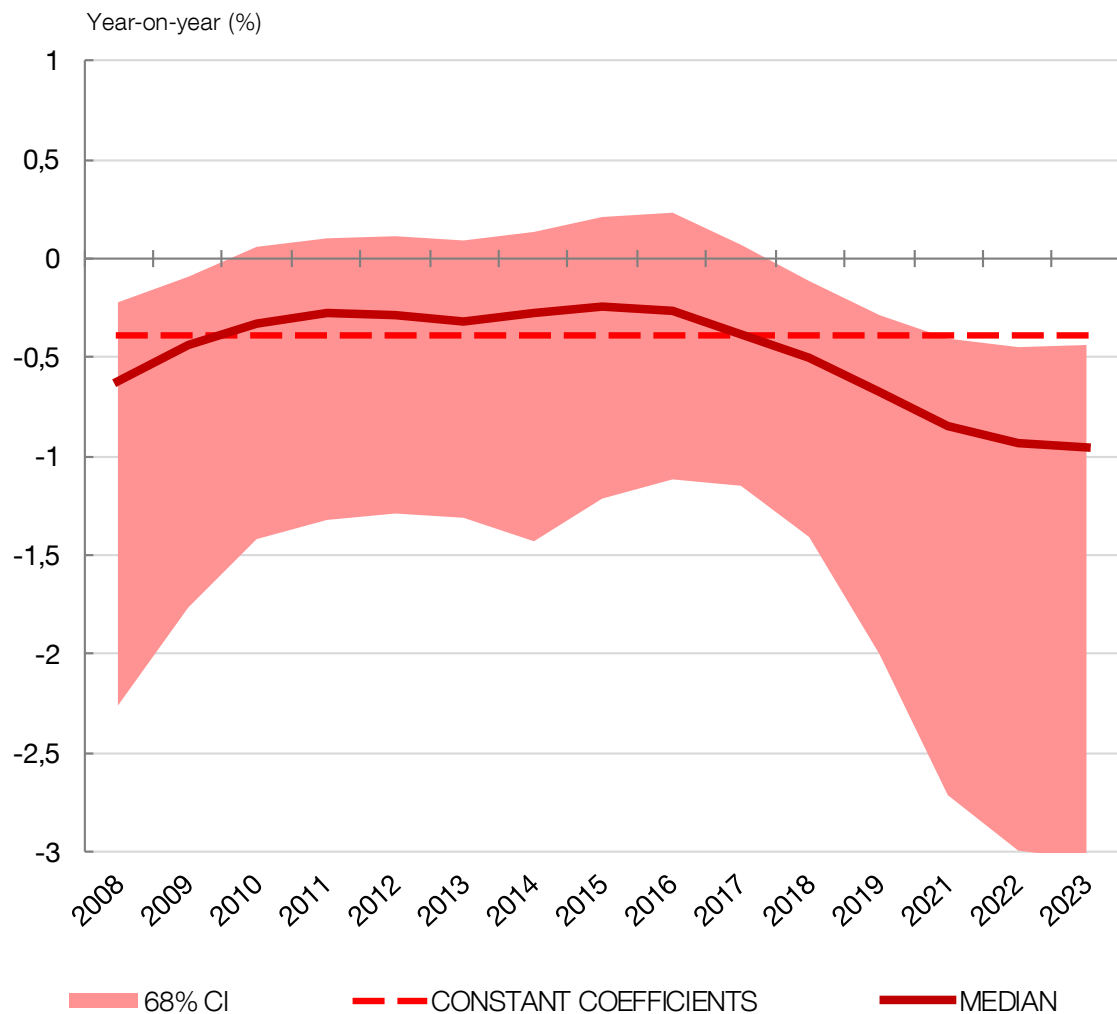
4-QUARTER AHEAD EURO AREA GDP AND UNEMPLOYMENT PROJECTION ERRORS



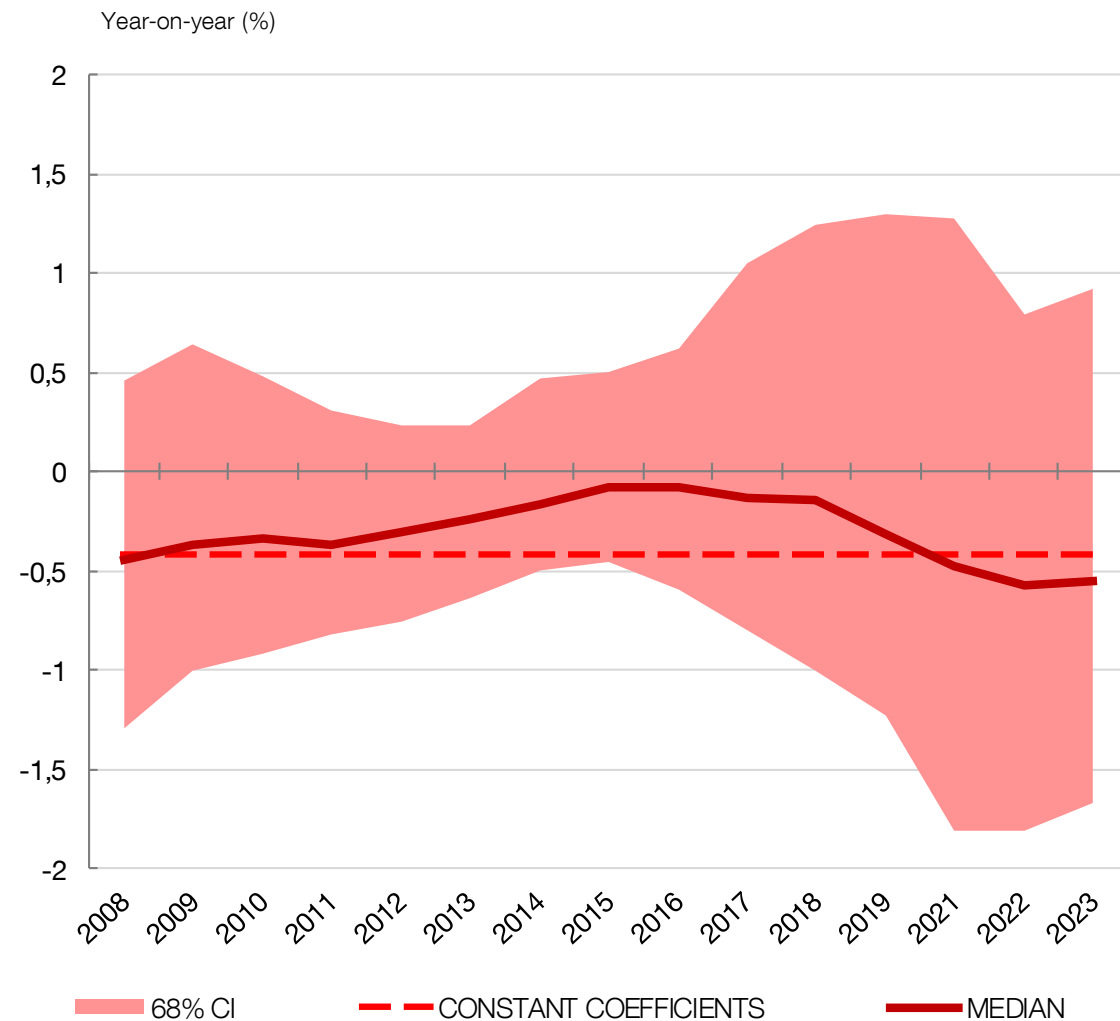
SOURCE: European Central Bank.

a. The error is obtained as the difference between the observed GDP growth and unemployment and that included in the corresponding ECB projection exercise from 4 quarters earlier.

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.