

ADJUSTMENTS TO THE SPANISH BANKING SECTOR'S FIXED-INCOME PORTFOLIO IN THE FACE OF RISING INTEREST RATES

In the current setting of rising interest rates, banks are likely to slightly restructure their balance sheets, as they seek to maximise profitability and adequately manage their risks.¹ Specifically, monetary policy tightening may lead to a decline in lending to the private sector, offset somewhat by a shift towards fixed-income securities, particularly government debt. Moreover, the fixed-income portfolio readjustment resulting from this balance sheet restructuring is likely to vary across banks, depending on their pre-existing asset/liability structures and debt portfolios.²

The serious financial difficulties faced by some medium-sized US banks in March 2023³ sparked growing concern over the interest rate risks associated with banks' fixed-income portfolios, and the interplay between such risks and liquidity risks.

Although no such episodes have materialised in the European Union, where risks are more contained,⁴ it is important to track the extent to which banks are exposed to these risk factors, particularly given the uncertainty over how long the current restrictive monetary policy cycle might last.

With this backdrop in mind, this box looks at the recent changes in the composition of Spanish banks' fixed-income portfolios, as well as the main determinants of the sales and purchases of fixed-income instruments observed. All of this in a setting in which financial tensions in the European banking sector as a whole have been kept in check. The analysis shows evidence of optimisation in these transactions, thus making unrealised losses a less

likely prospect, and no signs of stress have been detected in this portfolio. It is nonetheless important to remain vigilant since the monetary adjustment process is ongoing, and the optimisation of banks' fixed-income portfolios is thus also likely to continue. More broadly, the way fixed-income portfolios are managed could vary in macro-financial environments that differ significantly from the current one.

Composition of banks' fixed-income portfolios

In June 2023 the overall book value of Spanish deposit-taking institutions' debt securities stood at €589.8 billion, representing 14.2% of their total consolidated assets (see Chart 1). Debt holdings have increased significantly in recent years, with year-on-year growth standing at 8.6% in June 2023. This contrasts with the modest growth at consolidated level in lending to households and non-financial corporations (1.2% over the same period), and the decline in such lending in Spain. In cumulative terms, debt holdings have grown by more than 15% since June 2019, 2.3 pp higher than the growth in total assets over this period. At June 2023, government debt securities accounted for around 80% of such holdings, a figure that has held relatively stable in recent years.

In terms of the accounting treatment of fixed-income portfolios, recent times have seen an increase in holdings measured at amortised cost, rising from 42% of the total in June 2019 to 60% in June 2023.⁵ This shift can be seen in most portfolios, and in holdings of government debt in particular.⁶ This trend has gathered pace in 2022 and 2023

1 For example, Anil Kashyap, Jeremy Stein and David Wilcox. (1993). "Monetary policy and credit conditions: Evidence from the composition of external finance". *American Economic Review*, 83, pp. 78-98.

2 For example, Karol Paludkiewicz. (2021). "Unconventional monetary policy, bank lending, and security holdings: The yield-induced portfolio-rebalancing channel". *Journal of Financial and Quantitative Analysis*, 56, pp. 531-568, or Philip R. Lane. (2023). "The banking channel of monetary policy tightening in the euro area", speech, 12 July 2023.

3 See Box 1 of the Spring 2023 *Financial Stability Report* for further details of the March 2023 episode, linked to the collapse of the US institution Silicon Valley Bank (SVB) and the Swiss entity Credit Suisse. Later, in May this year, another two medium-sized US banks (Signature Bank and First Republic) were also taken over by the authorities and subsequently sold off. The financial difficulties faced by these banks drew significant comparisons with those faced by SVB.

4 See the ECB press release of 28 July 2023. The sound liquidity position of Spanish and other European banks is described in the body of Chapter 2 (see Charts 2.15 and 2.16), which also details the sector's healthy profits, driven by rising net interest income (see Chart 2.17).

5 When a fixed-income security is carried at amortised cost, any fluctuations in its value will not be reflected in the accounting valuation of the asset or the bank's income statement until it has been sold, potentially generating unrealised gains or losses. By contrast, when a fixed-income security is recognised at fair value, such variations immediately impact the bank's balance sheet in the form of the unrealised gains (or losses) generated. Financial assets recognised at fair value generally tend to be short-term instruments.

6 The classification and recognition of debt securities at amortised cost or fair value does not depend on subjective managerial intentions, which may change regularly or frequently in order to cater to or address changing market circumstances, but rather must be backed by a specific business model aimed at recovering the principal and interest, which is not expected to change frequently, and the characteristics of the instruments themselves must also be factored in.

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(with year-on-year increases of 5.8 pp and 5.3 pp, respectively), revealing its importance as a mechanism for managing market risk.

Specifically, government debt holdings measured at amortised cost accounted for 7% of banks' total assets at June 2023, as compared with 4.2% four years earlier. This trend has also been true of holdings of debt securities issued by credit institutions, non-financial corporations and, more recently, other financial corporations, although these portfolios account for a much less significant share of banks' total assets: 0.5%, 0.5% and 0.4%, respectively, at June 2023 (see Chart 1).

Determinants of the likelihood of buying or selling debt instruments among banks

An econometric exercise drawing on data on the ten Spanish significant institutions⁷ was conducted to analyse the determinants of purchases and sales of debt instruments by banks amid rising interest rates. Specifically, the likelihood of buying or selling debt instruments is analysed based on granular data from the European Central Bank's Securities Holdings Statistics Group.

Data on holdings in December 2021 (before the monetary policy interest rate hiking process began) are used to identify purchases and sales and are compared with holdings in March 2023. Each debt instrument on the start date is analysed to see whether, by the end date, it had been sold or purchased or was still held. To this end, two dependent dichotomous variables are defined: one for sales and one for purchases.⁸

There are two types of explanatory variables. First, variables at instrument/bank level are considered, such as the accounting treatment (amortised cost or fair value)

afforded by each bank to each debt instrument and the associated unrealised loss (as a percentage of the bank's exposure to the instrument).⁹ Second, a series of variables that capture bank characteristics have been considered, including unrealised losses at bank level (as a percentage of the portfolio at amortised cost), the size of a bank's assets, the liquidity of its portfolio, its CET1 ratio and return on equity. The analysis also incorporates instrument-level fixed effects, to control for heterogeneity in the specific features of debt securities that do not change over time.

Chart 2 shows the impact of changes in the determinants on the likelihood of selling or buying debt instruments. The estimations suggest that the larger the unrealised loss, at both instrument and bank level, the less likely such assets are to be sold. This could be attributed to the need to recognise this additional loss if the assets are sold. Instruments recognised at amortised cost being less likely to be sold (although the effect is not significant on the average for the period analysed) is also consistent with the business model whereby the assets are held with a view to recovering the associated contractual cash flows.

These findings confirm a sales optimisation strategy that should be borne in mind when assessing analyses of unrealised losses such as the one conducted by the European Banking Authority (EBA) in 2023.¹⁰ Banks' capacity, provided the accounting requirements are met, to optimise their sales in the face of shocks means that they are less likely to realise significant unrealised losses.

Meanwhile, in terms of bank characteristics, no patterns that might constitute a clear warning signal have been identified. A sounder solvency position appears to be associated with fewer sales. Conversely, the better a

7 In the case of sales, one of the significant institutions was not included in the analysis, as the unrealised losses on its holdings could not be calculated on a granular basis in some periods. In any event, no signs of stress were observed in the data on unrealised losses available at a more aggregate level.

8 These variables take a value of 1 if, in the case of sales, a specific bond that featured in a bank's portfolio on the start date is no longer present on the end date (otherwise, they take a value of 0), and, in the case of purchases, if it was not present on the start date but does feature on the end date (otherwise, they take a value of 0). Any bonds maturing before the end date of the analysis that are eliminated from the database are not flagged as sales.

9 By definition, instruments at fair value have zero unrealised losses, and only the amortised cost portfolio may take a value of 1.

10 EBA. (2023). "Ad-hoc analysis of unrealised losses on EU banks' bond holdings".

Box 2.1

ADJUSTMENTS TO THE SPANISH BANKING SECTOR'S FIXED-INCOME PORTFOLIO IN THE FACE OF RISING INTEREST RATES (cont'd)

Chart 1
Breakdown by accounting portfolio of the book value of the debt securities held by banks. Consolidated data (a)

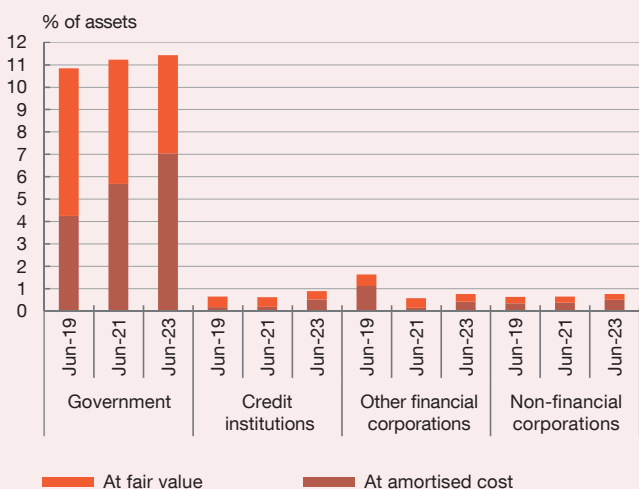


Chart 2
Determinants of banks' bond purchases and sales between 2021 Q4 and 2023 Q1 (b)

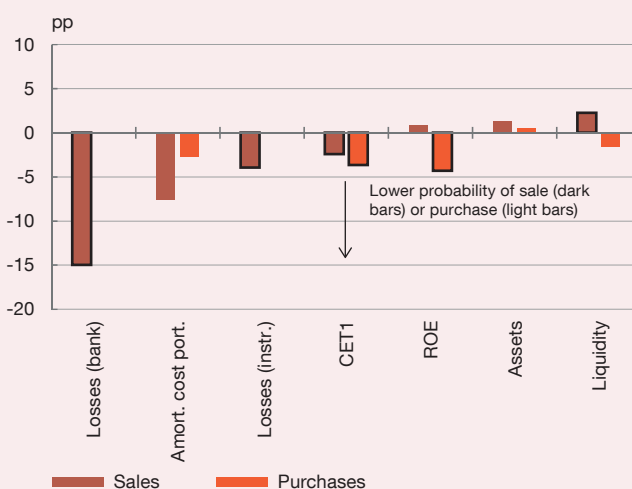
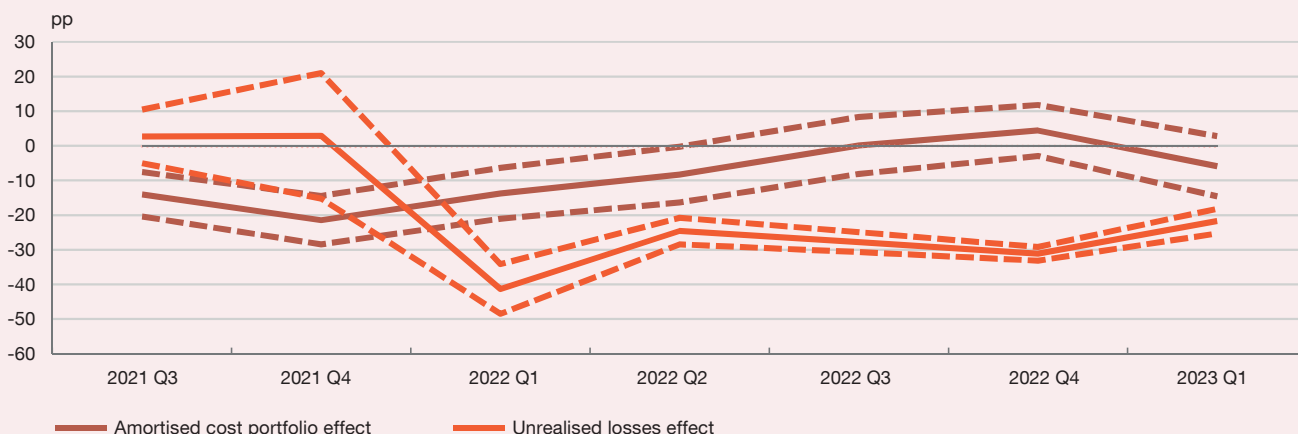


Chart 3
Sales. Impact of inclusion in the amortised cost portfolio and of unrealised losses on the probability of sale (c)



SOURCES: Banco de España and Securities holdings by reporting banking groups (SHS-G; European Central Bank).

- a The chart does not include central bank debt securities as these represent a residual share of banks' overall debt holdings.
- b Change in the likelihood of a bank selling or purchasing bonds in the event of a one standard variation shock to different explanatory variables, based on a linear regression model for two dates. The start date of the analysis is 2021 Q4 and the end date is 2023 Q1. Two dependent variables are considered: "sale" and "purchase", where "sale" is equal to 1 if the bond held on the start date is sold, and 0 otherwise. The variable "purchase" is 1 where the bond was purchased in the period considered. The explanatory variables are unrealised losses at bank level (as a % of the value of the amortised cost portfolio), a binary variable indicating whether the instrument is classified in the amortised cost portfolio (here, a change in the likelihood of sale/purchase is shown where this variable is equal to 1), and unrealised losses at instrument level (% of the value of the exposure to the instrument). Also included as bank explanatory variables are the CET1 ratio, the ROE, the natural logarithm of the assets and a liquidity ratio. The models include fixed bond-level effects. Significant variations in the likelihood of sale/purchase are bordered by a black line.
- c Changes in the probability of sale over time are estimated when the amortised cost instrument dummy variable is 1 and in the event of a one standard deviation shock to a bank's unrealised losses. These changes in the probability of sale are estimated using the sales probability model used in Chart 2, but with a fixed initial start date of 2021 Q2 (the first period available) and an end date that varies across all of the quarters from 2021 Q3 to 2023 Q1. The dotted lines represent the 95% confidence intervals for the explanatory variables.

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bank's liquidity position, the more likely it is to sell an instrument (see Chart 2).

These findings are not consistent with delaying sales to prevent an adverse impact on solvency or being forced to accelerate such sales due to liquidity considerations. Moreover, all these effects are less significant than the impact of unrealised losses.

Lastly, it should be noted that none of the banks displayed any signs of financial stress during the period studied, which could limit the extent to which their financial metrics influence their fixed-income portfolio management. This influence could be greater in stressed scenarios.

The exercise was also fleshed out with estimations for different periods, considering a set of pairs of reference dates. The first date is fixed (June 2021), and the second date can fall any time between September 2021 and March 2023. This captures the periods before and after the start of the interest rate hikes.

Chart 3 shows how the impact of unrealised losses and inclusion in the amortised cost portfolio on the probability of sale changed over this period. At the start of the sample, before the monetary policy tightening process began, securities in the amortised cost portfolio were less likely to be sold. Over time, however, this effect becomes immaterial. Conversely, unrealised losses can be seen to have a greater impact when explaining decisions (not) to sell, particularly since 2022 Q1, when market rates began to rise.

At the start of the sample (late 2021), unrealised losses were very small. It is therefore natural that their impact on banks' selling decisions was limited, with the amortised-cost fixed effect capturing the nature of a portfolio designed to pool securities that are intended to be held to maturity. As unrealised losses grow with rising interest rates, they create a more compelling incentive for banks not to sell debt securities, but also a greater incentive to

discriminate between different amortised cost instruments with different levels of loss.

As for the determinants of debt instrument purchases (see Chart 2), the estimations suggest that bonds are less likely to be purchased and recognised at amortised cost, as opposed to fair value (although, as in the case of sales, the estimated effect is not statistically significant on the average for the period studied). As regards the extent to which bank characteristics influence purchases, banks with a more profitable business or a sounder solvency position appear less likely to purchase these instruments.¹¹ This last finding should be compared with the finding for sales, where it was found that more solvent banks were less likely to sell. Thus, net variations in holdings (in terms of positions purchased versus positions sold) could be similar across banks with more or less capital.

Conclusions

This box looks at evidence on how banks have been adjusting their fixed-income portfolios in the face of rising interest rates. This new environment may create incentives for increasing such exposures, whether by purchasing new securities in a bid to improve profitability or solvency, or by avoiding the sale of securities carrying unrealised losses. In turn, the fact that such securities are increasingly recognised at amortised cost limits the potential losses in the event of additional interest rate hikes.

Banks' capacity to optimise their debt portfolios should be borne in mind to ensure a more comprehensive assessment of the existence of unrealised losses and liquidity risks. It should also be borne in mind that optimisation at individual bank level does not guard against the build-up of systemic risks, and macroprudential oversight of such developments must therefore continue, even though so far no warning signals have been detected. Moreover, the way in which fixed-income portfolios are managed could change in a scenario of greater financial stress.

¹¹ It is worth clarifying that, when estimating the likelihood of purchasing debt, unrealised loss variables are not included since, by definition, securities cannot be impaired on the date on which they are purchased.