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Why euro area banks stayed resilient amid rising rates: Lessons from the 2022–2023

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Abstract

Rising interest rates expose the interaction between hidden losses on long-duration assets and flighty uninsured deposits. Using granular, confidential data on 139 banks, the analysis underlying this Policy Brief demonstrates how the ECB's 2022–2023 rate hikes shaped euro area banks' joint vulnerability to interest rate and liquidity risks. While unrealised losses on loans and bonds held at amortised cost averaged about 30% of banks' equity by September 2023, roughly half of these losses had been offset by gains from the deposit franchise and interest-rate swaps. Further results indicate that banks with larger unrealised losses raised their deposit rates by less – a pattern we interpret as banks leveraging a stickier deposit base to fund longer-duration assets. Although euro area banks avoided widespread runs, several institutions nonetheless carried substantial mark-to-market losses, suggesting latent fragilities.

Disclaimer: This policy brief is based on ECB Working Paper Series No 3090. The views expressed are those of the authors and not necessarily those of the institutions the authors are affiliated with.

Introduction

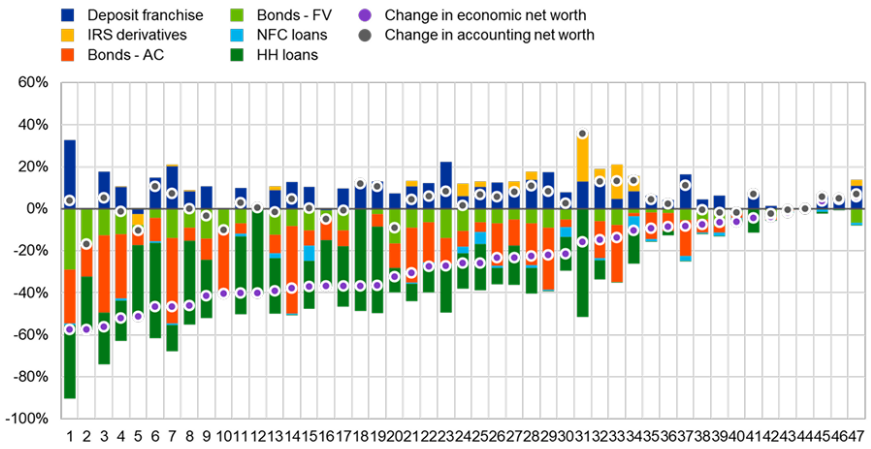
In early 2023, the collapse of several US regional banks, most notably Silicon Valley Bank, exposed how swiftly rising interest rates can erode bank solvency and trigger depositor runs. Despite facing a similar magnitude of monetary tightening, euro area banks navigated this turbulent period without significant distress. Understanding why euro area banks remained resilient – and whether this apparent stability conceals hidden vulnerabilities – is crucial for policymakers concerned with safeguarding financial stability.

In recent research (Rice and Guerrini, 2024), we leverage granular, confidential data covering 139 euro area banks to assess how rising interest rates during the 2022–2023 monetary tightening cycle affected banks' economic net worth and vulnerability to deposit runs. Unlike reported book equity and accounting net worth, economic net worth reflects the market value of a bank's assets and liabilities. While recent studies have examined US banks (e.g., Drechsler et al. (2024) and Jiang et al. (2024)), this is the first analysis which examines the joint exposure of euro area banks to interest rate and run risk during the latest monetary tightening period. Our findings highlight how the interplay between banks' asset and liability management strategies, depositor inertia, and strategic use of derivatives contributed to financial stability in the euro area, while underlining the importance of monitoring latent fragilities, which may be obscured by traditional accounting practices.

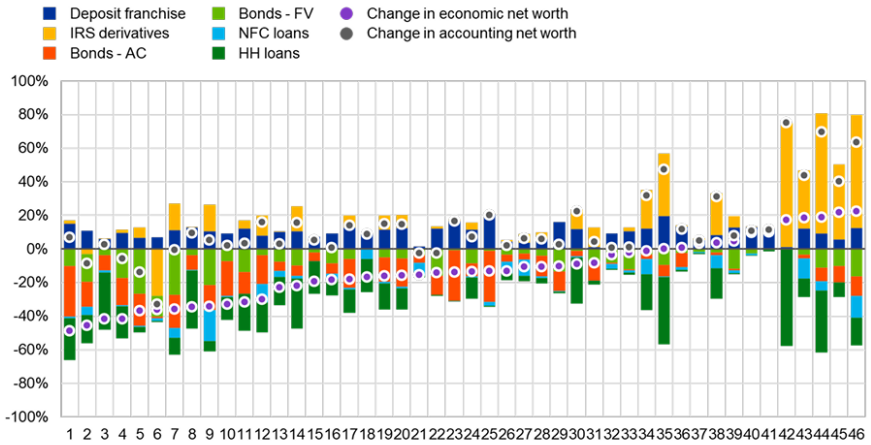
Unmasking hidden losses

A longstanding idea in banking is that banks engage in maturity transformation: they fund long-term assets, such as mortgages and loans, with short-term liabilities like deposits (Diamond and Dybvig, 1983). This mismatch leaves banks exposed to interest rate risk. When rates rise, the market value of fixed-rate assets tends to fall more sharply than that of liabilities, reducing the bank's underlying net worth, even if those losses remain unrealised on the balance sheet. Indeed, bonds and loans held at amortised cost (together constituting the vast majority of banks' assets), avoid mark-to-market accounting adjustments, allowing substantial latent losses to accumulate unnoticed. Our analysis estimates that by September 2023, euro area banks experienced unrealised losses averaging around 30% of pre-rate hike equity, with some banks with losses in excess of 60%. These losses occurred despite the large profitability gains that euro area banks were enjoying over this period. Our estimated bank-level balance sheet revaluations are shown in Figure 1 below, with banks split by size terciles (based on total assets).

Figure 1. Balance sheet revaluations as a share of pre-rate hike equity, split by bank size



(a) Small



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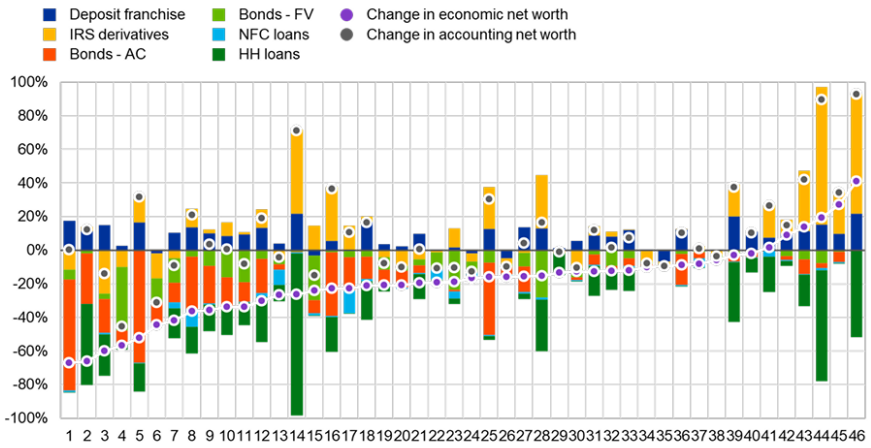


(c) Large

Notes: The figure shows revaluations for banks split by size tercile based on total assets in 2023. Each bar represents an individual bank. The figure highlights that smaller banks (a) often faced larger relative losses on household (HH) loans, while larger banks (b, c) utilised interest rate swap (IRS) derivatives more actively but had more of their significant exposure to bond (AC/FV) revaluations.

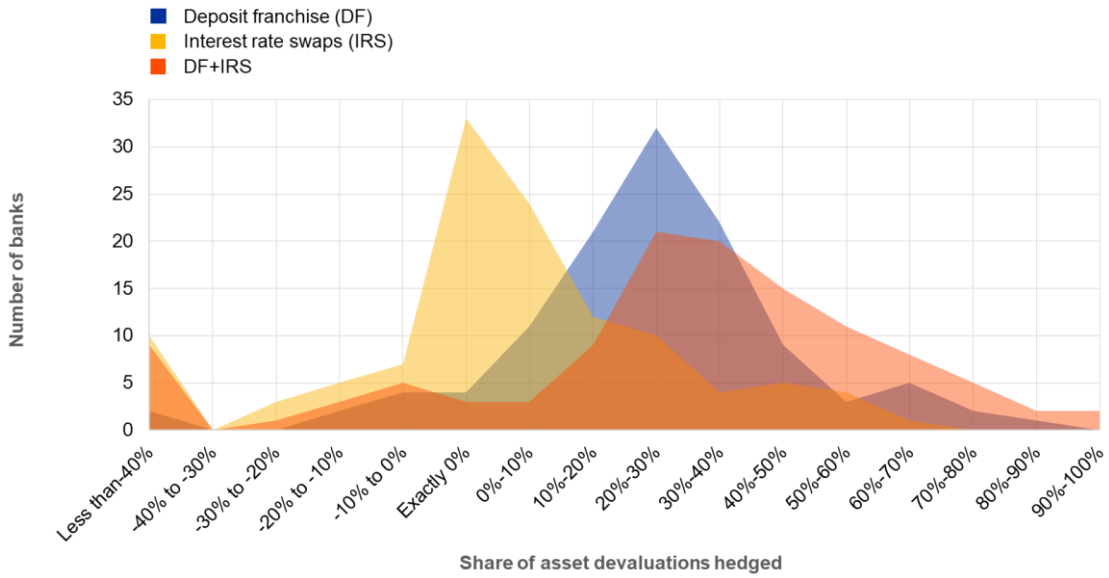
Hedging activity: The deposit franchise and derivatives

Euro area banks offset around half of these valuation losses through two key hedging mechanisms: the deposit franchise and interest rate swap (IRS) derivatives.

Deposit rates tend to adjust sluggishly to market rates. This creates a 'deposit franchise' (the present value of banks paying depositors below market rates) that gains value as market rates rise. In line with Drechsler et al. (2021, 2024), the deposit franchise therefore creates an income stream akin to an interest rate swap with negative duration: paying fixed costs to maintain it and earning a floating margin above deposit rates, therefore providing a "natural hedge" against interest rate risk. Drechsler et al. (2021) show that banks use this deposit franchise to lengthen the maturity of their assets, and that those with the stickiest deposits lengthen the most, something we also confirm for euro area banks (Rice and Guerrini, 2025). By September 2023, at the height of the rate cycle, the deposit franchise offset about one-third of euro area banks' unrealised losses. Banks with less concentrated, retail-heavy deposits benefitted most due to the relative inertia of their depositors.

Banks also make use of active hedging via interest rate swap derivatives. By the peak of the cycle, interest-rate swaps (IRS) had absorbed roughly one-fifth of euro area banks' aggregate unrealised losses (between 0% and 30% for the majority of banks), constituting an important tool for managing interest rate risk, particularly for banks with long-duration assets. This stands in contrast to evidence from the United States, where banks have generally made less use of interest rate swaps for hedging (Begenau et al., 2015; McPhail et al., 2023). One reason for this difference, as noted by Hoffmann et al. (2019), is the greater cross-country variation in loan fixation periods within the euro area. While US banks tend to share a similar exposure due to the prevalence of long-term fixed-rate mortgages, euro area banks face more diverse duration gaps depending on national mortgage market structures. This heterogeneity supports a more active hedging market in Europe, allowing risk to be redistributed across institutions. In our data, pension funds emerge as the primary counterparties to banks' interest rate swap positions, highlighting the broader system-level role of derivatives in absorbing duration risk. Combined, the two mechanisms hedged, on average, 46% of asset devaluations, though effectiveness varied substantially across banks (Figure 2).

Figure 2. Share of asset devaluations hedged by the deposit franchise and IRS derivatives at the bank level



Notes: The x-axis shows the share of asset devaluations hedged through the deposit franchise (blue), IRS derivatives (yellow) and combined (orange). Across all banks, the average combined hedge was 46%. The y-axis shows the number of banks for each hedging bucket.

A diverse landscape of risk

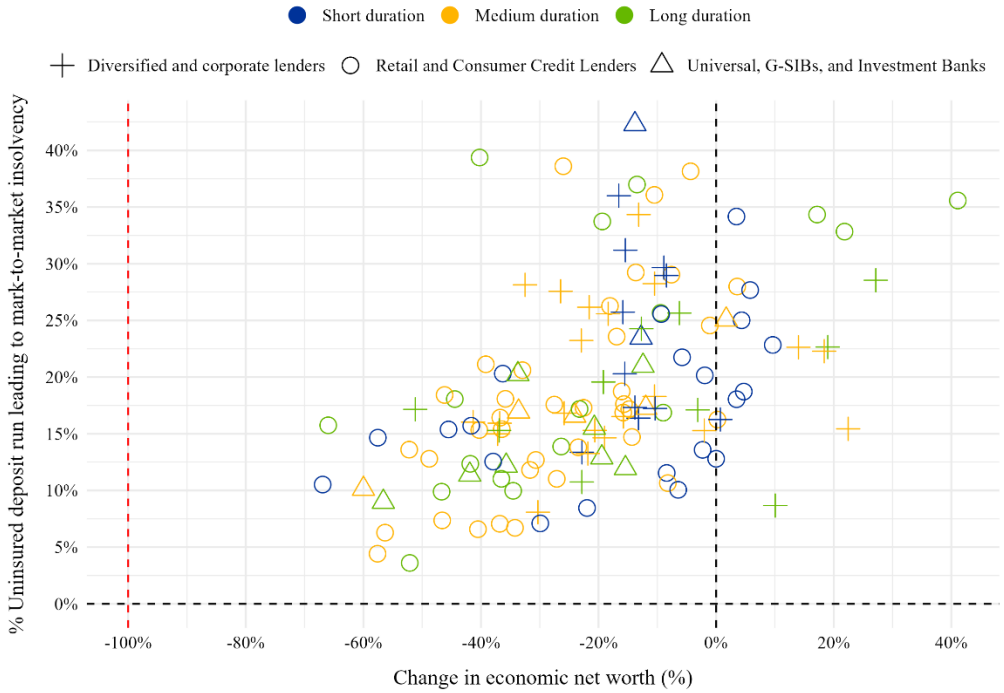
Our analysis reveals wide variation in how euro area banks were affected by rising interest rates, pointing to substantial heterogeneity in interest rate risk exposure. While some banks saw their economic net worth improve during the tightening cycle, around one in six, this was far fewer than the one-in-two figure reported in an earlier study on euro area banks based on hypothetical rate shocks (Hoffmann et al., 2019). The discrepancy likely reflects the greater magnitude of the actual rate increases in 2022–2023. These results suggest that many banks do not fully hedge the interest rate sensitivity of their assets and liabilities, contrary to the assumptions of frictionless balance sheet models. We find that bank-level mortgage fixation durations are the main explanatory factors for a bank's hedge positioning and overall level of unrealised losses, but bank size and business model also matter. Smaller, retail banks in our sample tended to suffer larger valuation losses on their mortgage portfolios and made more limited use of derivatives to hedge those exposures. Larger institutions, by contrast, were more active in using interest rate swaps but faced greater mark-to-market losses on their bond holdings.

Assessing run risk and depositor behaviour

To assess the risk of an SVB-style collapse, we simulated a deposit run. We calculated the outflow of uninsured deposits required to wipe out each bank's marked-to-market net worth (including the deposit franchise and swaps).

The results reveal a fragile tail (Figure 3). While the average bank was resilient, by September 2023, a 5% outflow of uninsured deposits would have rendered two banks insolvent on a market-value basis – a potential trigger for a cliff-edge run. A 10% outflow would have pushed thirteen banks over this threshold. While less severe than the US, where simulations showed hundreds of banks at risk, euro area banks were not immune. The failure of one vulnerable bank may have triggered a broader systemic panic under less favourable circumstances.

Figure 3. Change in marked-to-market net worth and percent of uninsured depositors running in order to make a bank mark-to-market insolvent



Notes: The figure shows the change in marked-to-market net worth as of September 2023 as a fraction of banks pre-rate-hike net worth on the x-axis. The y-axis shows the share of uninsured deposit outflows that would have caused the bank to be insolvent on a mark-to-market basis. Short, medium and long duration refer to the duration of mortgage portfolios only.

What drove banks' pricing of deposits?

Our regression analysis sheds light on how banks adjusted deposit rates during the 2022–2023 monetary tightening cycle, and how these adjustments relate to banks' underlying vulnerabilities and strategic choices. We identify several key drivers of these strategic decisions.

First, we find that banks with larger unrealised losses (relative to their pre-hike equity) raised deposit rates by significantly less. A ten-percentage-point increase in unrealised losses relative to equity is associated with a smaller increase in the average deposit rate of roughly 6–7.5 bps. This supports the idea that these banks, having extended asset duration using sticky deposits as a hedge, were able to maintain more favourable funding costs as rates rose.

Second, deposit composition played a central role. Banks with a higher share of household overnight deposits, a proxy for depositors' inertia, also raised rates by less. In contrast, a greater reliance on uninsured deposits pushed banks to increase rates by more, reflecting the need to retain more run-sensitive funding sources.

Third, the competitive environment mattered. We also find that banks operating in more concentrated domestic banking sectors raised deposit rates by less, likely due to greater market power and weaker competitive pressures. In more competitive environments, banks appear to have had less scope to delay rate increases without risking deposit outflows.

Interestingly, realised gains from interest rate swap positions did not appear to influence deposit rate decisions. This suggests that derivative hedging and the deposit franchise are complementary rather than substitutive tools in banks' interest rate risk management.

Other bank characteristics also matter. Banks with higher non-performing loan (NPL) ratios were less likely to raise deposit rates, possibly reflecting caution in preserving margins amid weaker loan book quality. Retail-oriented lenders, meanwhile, raised rates more than G-SIBs, suggesting that larger institutions have greater power in deposit markets and engage more extensively in IRS hedging, while retail banks must compete more directly for deposits.

Finally, banks with mortgage portfolios that are slower to reprice (i.e. longer fixation durations) were able to increase deposit rates by less, providing further evidence of asset-liability management strategies designed to hedge long duration assets with less price-sensitive depositors.

Taken together, these findings illustrate three key margins of adjustment: the strength of the deposit franchise, the presence of run-prone liabilities, and the competitive structure of the banking sector. The empirical evidence reinforces the view that euro area banks strategically adjusted deposit rates in response to both balance sheet constraints and depositor sensitivities, using their funding structure as a core instrument of interest rate risk management.

Policy implications and conclusion

The resilience of the euro area banking system during the 2022-2023 tightening cycle is reassuring, but vulnerabilities remain. The significant gap between accounting equity and economic net worth highlights latent vulnerabilities that require proactive policy attention:

1. **The deposit franchise is a double-edged sword.** A less concentrated, retail deposit base stabilises funding and allows banks to keep deposit rates low. However, the pricing power from a sticky deposit base also encourages banks to lengthen asset duration, heightening exposure to unrealised losses and cliff-edge runs. Supervisors should scrutinise banks relying heavily on the franchise while holding long-duration assets with limited IRS hedging in place.

2. **There is a need to complete the banking union with a fully-fledged European Deposit Insurance Scheme (EDIS).** Our simulation shows that after accounting for mark-to-market asset valuations and hedging

positions, a 10% outflow of uninsured deposits in September 2023 may have pushed thirteen euro area banks into mark-to-market insolvency. Because euro area deposit insurance funds are still organised, financed, and ultimately back-stopped nationally, their perceived credibility and speed of payout differ across member states. A completed EDIS would narrow cross border differences and dampen the first mover advantage of an uninsured run.

3. **Cross-sectoral relationships in the swap market require careful monitoring.** Swaps absorbed roughly one-fifth of unrealised losses, but the counterparties are often a small pool of pension funds. Counterparty concentrations amplify propagation of systemic risk; the UK's 2022 liability-driven investment (LDI) episode served as a warning. Macroprudential surveillance should map the network of swap positions, not just individual bank positions. Furthermore, structural shifts, such as the Netherlands' move from defined-benefit to defined-contribution pension schemes, could erode the pool of counterparties for banks as these schemes transfer duration risk to individual savers.

4. **Digital finance compresses run durations.** Mobile banking, instant transfers, and viral information flows accelerate withdrawals, as the US regional bank turmoil demonstrated (Beck et al., 2024). Real-time monitoring of retail flows and reviewing stressed-outflow assumptions in the liquidity coverage ratio are prudent next steps, which the European Banking Authority is addressing (EBA, 2025).

The euro area banking system passed a severe interest rate risk stress test without systemic bank runs. This resilience is explained by diversity in asset durations, funding mixes, hedging strategies, and market structures, which limited losses and absorbed shocks. This diversity increases overall resilience but requires monitoring of pockets of fragility. Differences in hedging via the deposit franchise and derivatives leave some euro area banks significantly more exposed than others.

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