

# FINANCIAL STABILITY REPORT

NOV 2023



BANCO DE  
PORTUGAL  
EUROSYSTEM



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**BANCO DE PORTUGAL**  
EUROSYSTEM

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# Content

Executive summary | 5

## I Financial Stability outlook | 7

1 Vulnerabilities, risks and macroprudential policy | 9

1.1 Main risks and vulnerabilities | 9

1.2 Macroeconomic and market environment | 11

1.3 Sectoral risk analysis | 16

1.4 Macroprudential policy | 48

2 Banking system | 53

2.1 Profitability | 53

2.2 Credit standards | 57

2.3 Credit quality of assets | 64

2.4 Concentration of exposures | 66

2.5 Financing and liquidity | 69

2.6 Capital | 70

**Box 1** • The reduction in household deposits in the first quarter of 2023: determinants and implications | 72

**Box 2** • Developments in real estate investment funds in Portugal | 74

**Box 3** • Net interest income – the impact of balance sheet adjustments since the international financial crisis | 77

**Box 4** • Pass-through of ECB interest rates to household deposit rates in Portugal | 80

**Box 5** • Sovereign Loan Guarantees and Financial Stability | 86

## II Special issue | 89

Interest rate risk in the banking book | 91

The importance of management capital buffers in lending to firms | 98



# Executive summary

Risks to financial stability have increased. Monetary policy tightening and the slowdown in economic activity are behind these developments, despite the downward trend in inflation, which is still above the European Central Bank's medium-term objective. The situation may be worsened by the consequences of the ongoing military conflicts in Ukraine and, more recently, in the Middle East, which may add complexity to policy-making, given the potential effect on inflation and economic activity. They may also lead to asset devaluations and increases in risk premia in international financial markets.

The risks arising from currently heightened uncertainty bring to the fore the merits of the Portuguese economy's adjustment over the last decade across the various institutional sectors and give grounds for remaining on this path. The recent political uncertainty experienced in Portugal is a new source of risk, albeit mitigated by the expected approval of the State Budget 2024 as proposed by the current government.

The main risks and vulnerabilities to financial stability are:

- Increased pressure on government accounts due to a slowdown in economic activity, together with a reversal of the cycle of decreasing interest expenditure, in a context of still high indebtedness.
- Rising default of the most vulnerable households due to the combined effect of an additional rise in short-term interest rates and a worsening of the unemployment rate.
- Firms' difficulty in servicing their debt, particularly the most vulnerable firms, constrained by continued high interest rates coupled with expectations of subdued economic growth.
- A price correction in the residential real estate market.

The main risk to the Portuguese banking system stems from a potential extension of the slowdown in economic activity combined with persistent inflationary pressures in the euro area that would warrant maintaining monetary policy tightening. Were it to become a reality, such a scenario would be likely to contribute to the materialisation of credit risk for firms and households.

In recent years, the resilience of the Portuguese banking sector has been reinforced by favourable developments in liquidity, asset quality, solvency and, more recently, profitability. It is crucial that the sector continues to foster its resilience to possible adverse shocks by retaining organically generated capital and actively incorporating digitalisation and climate transition into its risk analyses, while also considering the associated regulatory developments.

In an environment characterised by signs of a reversal in the financial cycle and a reduction in cyclical systemic risk, the Banco de Portugal decided to maintain the countercyclical buffer rate at 0% during the fourth quarter of 2023. However, due to the fact that financial stability risks in some segments are still high – in a context characterised by geopolitical uncertainty, the cycle of interest rate hikes and the gradual transmission of monetary policy to the economy, on 15 November 2023 the Banco de Portugal announced the implementation of a 4% systemic risk sectoral buffer on the risk-weighted exposure amount of households' portfolio secured by residential real estate located in Portugal for institutions using internal rating models (IRB) to calculate own funds requirements, with effect from 1 October 2024. This measure was implemented in consideration of banks' current and future management buffers, mitigating the risk of procyclicality, i.e. potential negative effects on their ability to supply credit. In addition, under the macroprudential Recommendation, and in order not to hinder the granting of credit during a negative stage of the financial cycle, the Banco de Portugal has decided to reduce the shock to the interest rate used to calculate the DSTI ratio for new credit to households with a maturity of more than 10 years by 150 b.p., with proportional reductions being made over the remaining maturities.





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# I Financial Stability outlook

- 1 Vulnerabilities, risks and macroprudential policy
- 2 Banking system



# 1 Vulnerabilities, risks and macroprudential policy

## 1.1 Main risks and vulnerabilities

Risks to financial stability have increased. Despite its downward trend, inflation is still above the medium-term objective of the European Central Bank (ECB), which has tightened monetary policy. Additionally, signs of a slowdown in economic activity are increasing. In addition to the war in Ukraine, a new military conflict has emerged in the Middle East, the scale of which is still uncertain. These developments add complexity to policy-making. The geopolitical environment has a potential inflationary effect, namely through energy prices, as well as a slowdown effect on economic activity. Disruptive effects may also be felt on international financial markets, leading to asset devaluations and increases in risk premia.

The risks arising from the current environment of heightened uncertainty bring to the fore the merits of the Portuguese economy's adjustment over the last decade. The adjustment has had positive consequences on the financial situation of the various institutional sectors. However, the scope of current challenges and risk factors shows the need to consolidate the results obtained and even make further adjustments. The recent political uncertainty experienced in Portugal is a new source of risk, albeit mitigated by the expected approval of the State Budget for 2024 as proposed by the current government.

In this context, the main risks and vulnerabilities to financial stability in the various sectors are:

- Increased pressure on **government** accounts. A more intense slowdown in economic activity, coupled with a reversal of the cycle of decreasing interest expenditure, in an environment of still high indebtedness, could put pressure on government accounts. In addition, in a context of gradual reduction in the Eurosystem's balance sheet, potential adverse impacts on demand for Portuguese public debt could materialise. Positive external assessments, the ECB's commitment to preserving an effective transmission of monetary policy and the highly gradual nature of the impact on the average cost of the public debt stock act as mitigating factors in the short term. Maintaining a credible plan of fiscal consolidation that is consistent with the reduction in the indebtedness ratio is extremely relevant;
- Rising default of the most vulnerable **households** against a backdrop of continuing high inflation, higher short-term interest rates and a potential worsening of the unemployment rate. Given the large share of variable rate loans for house purchase, the interest rate hikes have resulted in a higher debt burden. However, there are mitigating factors, such as: (i) the ongoing reduction in the household indebtedness ratio, to below the euro area average; (ii) the progressive concentration, initiated more than a decade ago, of the stock of loans for house purchase in higher-income households; (iii) the improvement in the risk profile of new borrowers as a result of the macroprudential Recommendation; (iv) labour market supply shortages will tend to limit the rise in the unemployment rate that may arise from a more pronounced slowdown in economic activity; and (v) the implementation of government measures to support households, including help in the repayment of instalments on loans for house purchase;
- **Firms'** difficulty in servicing their debt, particularly those most vulnerable, conditioned by persistently high interest rates and expectations of a moderation in economic growth. Nonetheless, firms' financial situation is, in general, robust, reflecting the economy's marked

recovery after the pandemic and the recent pass through to consumers of the shock caused by the increase in input costs. The decline in firms' indebtedness and the increase in their capital ratio observed since the sovereign debt crisis have contributed to their structural resilience;

- A price correction in the **residential real estate market** driven by the materialisation of the macroeconomic scenario described above. However, the limited supply of new dwellings and lack of an accumulated stock of available houses mitigate the impact on prices in the case of a decrease in demand.

The current cycle of interest rate hikes occurred against a background of the post-pandemic recovery of the Portuguese economy. Low unemployment has contributed to the limited materialisation of credit risk and Portuguese banks have recorded an improvement in profitability and capital levels. Considering the identified risks, the main risk factor for the Portuguese **banking system** is therefore a potential, more significant slowdown in economic activity that may be associated with new inflationary pressures that, in turn, justify maintaining tight monetary policy for a longer period of time. Were it to become a reality, such a scenario would be likely to contribute to the materialisation of credit risk for firms and households.

The predominance of loans with a variable interest rate or with a short repricing period increases the banking sector's exposure to credit risk; however, this is offset by a lower exposure to interest rate risk in the banking book.

The Portuguese banking system is highly exposed to the residential real estate market. A devaluation of collateral on loans for house purchase, due to a potential fall in residential real estate prices, would be mitigated by the fact that the loan portfolio for house purchase has a low share of credit with high loan-to-value (LTV) ratios. Implementing a sectoral systemic risk buffer complements the recently revised macroprudential Recommendation. This new buffer enhances resilience against a potential reversal of the business cycle and/or a significant and unexpected correction in residential real estate prices. It is a precautionary measure that aims to address a potential tail risk, fosters more resilience in the banking sector and has been introduced in a period when the sector is more robust.

The materialisation of a more adverse economic and financial scenario could trigger sharp devaluations in financial assets. However, over the last few years, a growing share of these securities has been held at amortised cost, making the balance sheet value less vulnerable to market fluctuations, except in a situation of asset sales. It is unlikely that this possibility will materialise for liquidity reasons, given the generally comfortable environment in terms of liquidity in the sector. These securities are integrated in the pool of highly liquid assets and can be used as collateral in securities repurchase transactions with the ECB and in interbank operations. The size of this pool (around 30% of customer deposits) makes the system resilient to shocks in its funding sources. Portuguese banks have been little exposed to financing in international wholesale debt markets and consequently, to changes in risk perception by international investors.

Parallel to the identified risks, banks must also consider the challenges associated with growing digitalisation in financial activity and the climate transition. Banks should be prepared to incorporate these dimensions into their risk analyses, while also considering the associated regulatory developments.

In the last decade, the resilience of the Portuguese banking sector was reinforced on account of favourable developments in liquidity, asset quality, solvency and, more recently, profitability, increasing its ability to maintain financial intermediation functions in a context of potential risk materialisation. In the current context of high economic and geopolitical uncertainty, it is key that institutions implement prudent provisioning and capital conservation policies so they can use part of the profits to increase their resilience to adverse shocks and fund the economy.

## 1.2 Macroeconomic and market environment

In the euro area, economic activity was virtually stagnant in the first three quarters of 2023. In Portugal, following the dynamics at the beginning of 2023, economic activity stagnated in the second and third quarters and growth is expected to remain subdued up to the end of the year. The geopolitical environment weighs on the confidence of economic agents. The economic slowdown in Portugal reflects the weaker momentum in its major trading partners, the cumulative effects of inflation, and greater monetary policy tightening, leading to a deterioration in financing conditions.

**The outlook for economic activity deteriorated in Portugal and the euro area (Table I.1.1).** According to September ECB projections, GDP growth in the euro area is projected to stand at 0.7% in 2023, 1.0% in 2024 and 1.5% in 2025. In Portugal, the Banco de Portugal expects a growth at a pace below potential over the projection horizon, with GDP rates of change standing at 2.1% in 2023, 1.5% in 2024 and 2.1% in 2025. Compared with the euro area, the Portuguese economy will continue to show higher growth in the period 2024-25, with an average annual differential of 0.5 p.p.<sup>1</sup>

**Table I.1.1 • GDP and inflation projections for 2023-25 | Annual rate of change, per cent**

	2022	2023 <sup>(p)</sup>	2024 <sup>(p)</sup>	2025 <sup>(p)</sup>
<b>Gross domestic product</b>				
Portugal	6.8	2.1	1.5	2.1
Euro area	3.4	0.7	1.0	1.5
<b>Inflation (HICP)</b>				
Portugal	8.1	5.4	3.6	2.1
Euro area	8.4	5.6	3.2	2.1

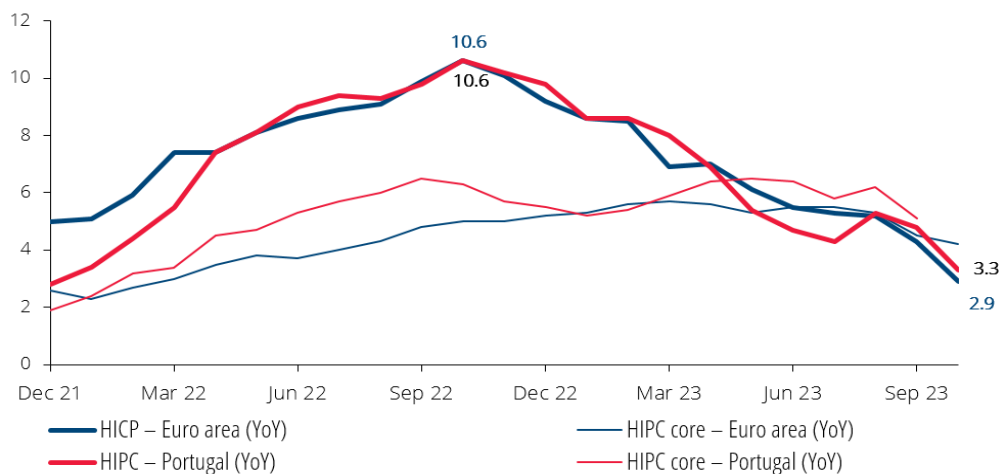
Sources: ECB and Banco de Portugal.

**Inflation remains above target in the euro area, despite recent declines.** In the euro area, inflation reached 2.9% in October. Underlying inflation (a measure excluding energy, food, alcohol and tobacco) also declined in the second half of the year, reaching 4.2% in October. In Portugal, inflation decelerated to 3.3% in October. Inflation has been falling sharply, despite differentiated developments in the main components. The goods component has reflected a reduction in external inflationary pressures, but the services component, in particular those related to tourism, has contributed to the persistence of underlying inflation (Chart I.1.1).

**Inflation projections point to a gradual decline in the euro area, reaching figures consistent with the ECB's price stability objective in 2025.** September ECB projections indicate average inflation of 5.6% in 2023, 3.2% in 2024 and 2.1% in 2025. October projections of the Banco de Portugal point to average inflation of 5.4% in 2023, 3.6% in 2024 and 2.1% in 2025. The persistence of underlying inflation in Portugal reflected domestic pressures from wages and profits, but these pressures are expected to decrease over the projection horizon (from 5.6% in 2023 to 2.9% in 2024 and 2.2% in 2025), as a result of the gradual transmission of the tightening of monetary policy and the maintenance of anchored inflation expectations.

<sup>1</sup> According to the projections for the Portuguese economy published in the October 2023 issue of the *Economic Bulletin* and the September 2023 Eurosystem staff projections for the euro area.

Chart I.1.1 • Inflation in the Euro area and Portugal | Per cent



Source: Eurostat. | Notes: Underlying inflation excludes energy, food and beverages, alcohol and tobacco. The October figure is the flash estimate.

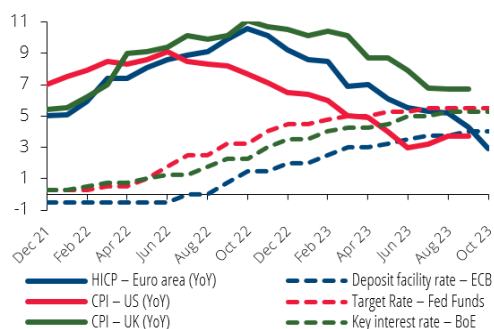
The risks to economic growth in the euro area and Portugal are on the downside. The international and financial environment entails downside risks to activity, namely (i) the possibility of an escalation of geopolitical tensions, (ii) a more pronounced slowdown in China due to the housing crisis, (iii) additional impacts from the current worsening of financial conditions and (iv) greater or longer monetary policy tightening amid more persistent inflation.

Regarding euro area inflation, there are both upside and downside risks, with the Banco de Portugal assessing that risks are balanced for Portuguese inflation. Upside risks include increasing pressures on energy and food costs. A persistent increase in inflation expectations above the target, or higher than anticipated increases in wages or profit margins, could drive inflation up, including over the medium term. On the other hand, demand constraints due to stronger monetary policy transmission or deteriorating external economic environment to the euro area could lead to lower price pressures, especially in the medium term.

Economic outlook may be aggravated by the ongoing military conflict in Ukraine and the Middle East, whose dimension remains uncertain. These conflicts have a potential upward effect on prices, notably through higher energy prices, and on economic activity, with adverse consequences for international trade.

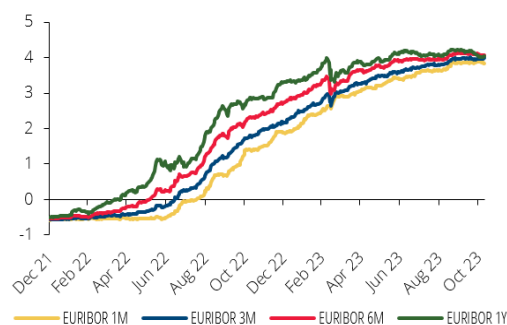
Uncertainty about the length of monetary policy tightening remains, and a sustained reduction in inflation in the euro area will remain the priority of the ECB, which will act to maintain long-term inflation expectations anchored to the price stability objective.

**Chart I.1.2 • Inflation and central bank interest rates in the euro area and UK**  
| Per cent



Sources: ECB, Eurostat, Fed, BoE and U.S. Bureau of Labor Statistics.

**Chart I.1.3 • Euro interbank interest rates: 1-month, 3-month, 6-month and 1-year Euribor**  
| Per cent



Source: Refinitiv. | Note: Latest observation: 10 November 2023.

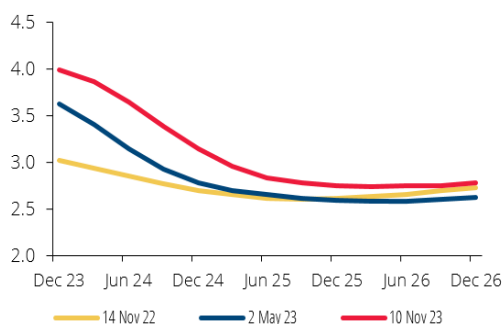
The ECB's monetary policy has taken the form of an increase in interest rates and a gradual reduction in the Eurosystem's balance sheet (Chart I.1.2). Between July 2022 and September 2023, the ECB raised key interest rates by 450 b.p.. Following the Governing Council meeting on 14 September, the key ECB interest rates (applicable to the main refinancing operations, the marginal lending facility and the deposit facility) are 4.5%, 4.75% and 4.00% respectively. The rates were left unchanged at the October meeting. At the same time, the ECB ended its net asset purchases under purchase programmes and reduced its reinvestments – with those related to the asset purchase programme (APP) ending in July 2023, but keeping the reinvestments of the pandemic emergency purchase programme (PEPP) until the end of 2024. The ECB also changed the terms and conditions of the third series of the outstanding targeted longer-term refinancing operations (TLTRO III). In July 2022, the ECB announced the creation of a new transmission protection instrument (TPI).

The ECB considers that interest rates have reached levels that, if maintained for a sufficiently long period, will make a substantial contribution to ensuring a timely return of inflation to the 2% target. Rate increases are being transmitted to economic agents' spending decisions, which is an important factor for inflation to return to the target. The ECB's decisions will continue to be based on its assessment of the inflation outlook considering incoming economic and financial data, the dynamics of underlying inflation, and the intensity of monetary policy transmission. Financial stability is a precondition to price stability. The ECB has instruments at its disposal to provide liquidity to the euro area financial system, if needed, and to preserve an effective transmission of monetary policy.

Maintained inflationary pressures has also been conditional on monetary policy tightening in the United States and the United Kingdom (Chart I.1.2). Since March 2022, the Federal Reserve (Fed) has raised policy rates by 525 b.p. to a range between 5.25% and 5.50%. Since the beginning of 2022, the Bank of England has raised the benchmark interest rate by 500 b.p. to 5.25%.

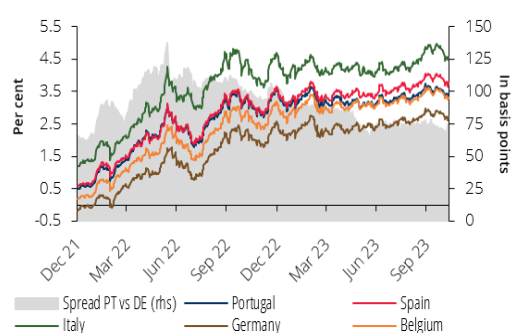
The increases in key interest rates in the euro area are being transmitted to financing conditions. The tightening of financing conditions is reflected in developments in interbank interest rates (Chart I.1.3). Investors' expectations about ECB interest rates, as implied in EURIBOR futures contracts, suggest that the future decline in interest rates will occur in a more gradual and protracted manner over time than in May 2023 (Chart I.1.4).

**Chart I.1.4 • Interest rate implied in three-month EURIBOR futures contracts | Per cent**



Source: Refinitiv (Banco de Portugal calculations).

**Chart I.1.5 • 10-year sovereign debt yields**



Source: Refinitiv. | Note: Latest observation: 10 November 2023.

**Further repricing of risk premia on financial assets issued by the public and private sectors remains possible.** Uncertainty regarding the length of monetary policy remains, and the transmission process of the adopted measures is ongoing. According to market expectations, interest rates are expected to peak, notably in the euro area. However, exogenous supply-side shocks, including those related to geopolitical issues and adverse weather conditions impacting on commodity prices, or a possible slowdown in international trade may lead to more persistent inflation and/or additional global economic deceleration. Should these risks materialise, the possibility of a deeper repricing of financial assets is not excluded.

**International financial markets seem to be slowly reflecting the less benign results of the economic indicators that are released.** In the euro area alongside the continued rise in ECB interest rates, sovereign debt yields continued to increase, but credit risk premia have remained contained, and stock indices, albeit declining recently, maintain gains compared with the beginning of the year.

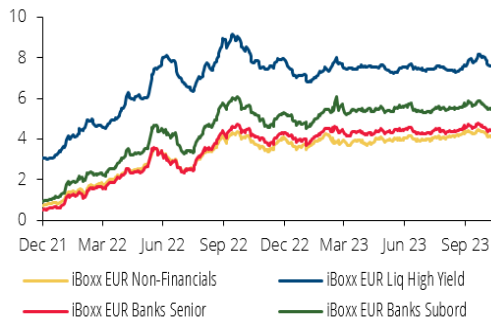
**Government debt yields continued to increase, albeit at a slower pace than the increase in key interest rates in the euro area (Chart I.1.5).** Since May, while ECB interest rates have risen by 100 b.p., German yields have risen by 46 b.p. at ten-year maturity and 49 b.p. at two-year maturity, contributing to a slight increase in the slope of the yield curve. In the case of Portuguese government debt, developments in yield spreads in relation to Germany have been more moderate than in other countries (decreasing by 13 b.p.), being already close to countries with higher credit ratings.

**The private sector's market financing costs have followed the increase in the ECB's interest rates (Charts I.1.6 and I.1.7).** Since May, euro area firms' market debt yields have increased (41 b.p.), in line with developments in German sovereign debt yields. The cost of debt of high yield firms, following the significant increase after the outbreak of the conflict in Ukraine, has hardly worsened since May. **For euro area banks,** the risk premium measured by asset swap spreads reveals a very slight increase in the price of risk. In the case of subordinated debt, premia applicable in the euro area moved closer to those of US banks' debt, exceeding the levels before the turmoil in March 2023, related to problems with US and Swiss banks.

**Investors may perform a "flight for safety" to the extent that firms' market refinancing occurs in an environment of economic slowdown and higher interest rates, with an impact on their recurring operating results.** This could lead to corrections in corporate debt markets, especially for riskier segments, which appear not to be evolving in line with the key segments.

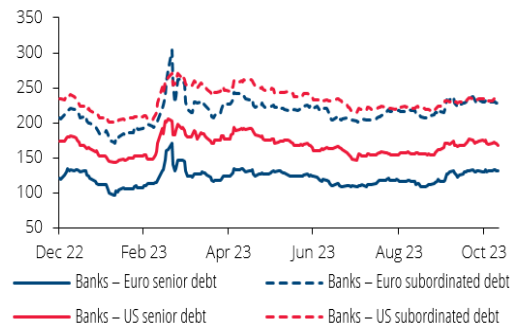


**Chart I.1.6 • NFC and bank bond yields in the euro area | Per cent**



Source: Refinitiv. | Notes: Average yield of iBoxx indexes. Latest observation: 10 November 2023.

**Chart I.1.7 • Asset swap spreads of bank debt securities of the euro area | Basis points**

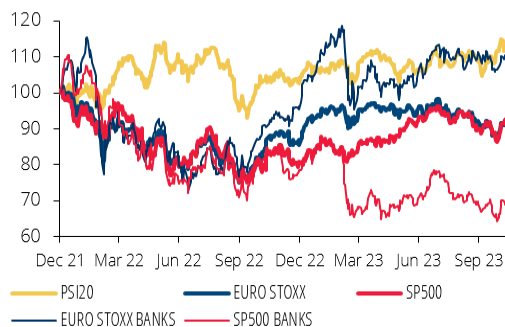


Source: Refinitiv. | Notes: Asset swap spreads of Markit iBoxx indices. Latest observation: 10 November 2023.

The stock market has not yet reflected the prospects for an economic slowdown (Chart I.1.8). The US market has appreciated since May, with fluctuations reflecting market interpretations of the outlook for monetary policy and its implications for economic growth. Part of this appreciation was due to the exuberance of bigtechs but is also being supported by favourable expectations for the resilience of economic activity. Developments since May show some depreciation in the euro area, after stronger earlier appreciations, while the PSI appreciated slightly. Should optimistic expectations about issuers' future outcomes not materialise, there is a risk of future price corrections.

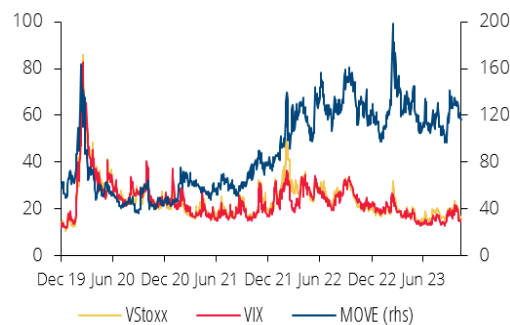
Equity valuations of euro area listed banks have been recovering since the turmoil in March, related to problems in US and Swiss banks (Charts I.1.7 and I.1.8). In the euro area the index rose until mid-summer and since then has remained relatively stable, at a lower level than before the turmoil. In the United States, bank valuations remain far from recovering from the levels observed before the turmoil of March, as the recovery in the index up to mid-summer was followed by a subsequent fall.

**Chart I.1.8 • Stock indices | Points**



Source: Refinitiv. | Notes: Stock indices with a base value of 100 on 31 December 2021. Latest observation: 10 November 2023.

**Chart I.1.9 • Equity and debt market volatility | Points**



Source: Bloomberg. | Notes: Option-implied volatility. "VSTOXX" refers to Euro Stoxx 50, "VIX" to S&P500, "MOVE" to the US Treasury curve. Latest observation: 10 November 2023.

In bond markets, volatility has been combined with lower market liquidity, with a potential for adjustments in case of unexpected events (Chart I.1.9). While stock market optimism has been reflected in low volatility, it has remained high in the bond market, in line with investors' reactions to evolving expectations about inflation paths and key interest rates. In the bond market, the previous period of low interest rates led investors to increase leverage to boost the return on

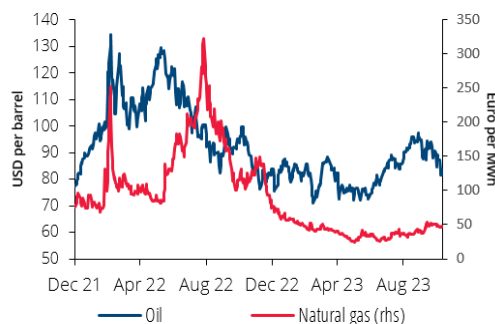
trading strategies, such as “basis trading” (which takes advantage of spreads between the prices of futures and comparable bonds). The increased volatility may lead to the unravelling of bond market positions, which have the potential to trigger significant effects in financial markets, particularly in a lower market liquidity environment. At overall level, market liquidity conditions have deteriorated as a result of, among other factors, the difficulty for financial intermediaries operating in these markets, notably primary dealers, to keep pace with the surge in sovereign debt issuances, while central banks have been reducing their balance sheets.

**Chart I.1.10 • Commodity prices | Index**



Source: Datastream. | Notes: S&P Commodity Index. Basis 100 on 31 December 2021. Latest observation: 10 November 2023.

**Chart I.1.11 • Price of oil and natural gas | USD per barrel and Euro per MWh**



Sources: Refinitiv e Datastream. | Notes: BFO Dated FOB Northsea Crude and EEX Natural Gas Trading Hub Europe Index. Latest observation: 10 November 2023.

**Commodity prices have fallen from previous peaks (Charts I.1.10 and I.1.11).** Falling prices of some food (notably agricultural) and energy commodities have contributed to reducing inflation. While energy prices rose during the third quarter, they have since fallen back to figures below the beginning of the year. For oil, the path was similar, with prices falling back to levels similar to those at the beginning of the year. The slowdown in overall activity, which has since been offset by supply-side adjustments, contributed to these developments. Natural gas prices have been well below their 2022 peaks, reflecting the storage and supply of LNG and pipeline from Norway and North Africa, but since late June 2023, they have restarted an upward trend (albeit well below the prices observed at the beginning of the year).

**There is still a risk of supply disruptions again resulting in an increase in energy commodity prices, with a potential impact on inflation and economic growth.** Geopolitical tensions in the Black Sea and the Middle East, major regions in the oil and natural gas supply chain, may prove instrumental in these developments. An energy commodity price shock could lead to a higher persistence of inflation at elevated levels and a slowdown in economic activity.

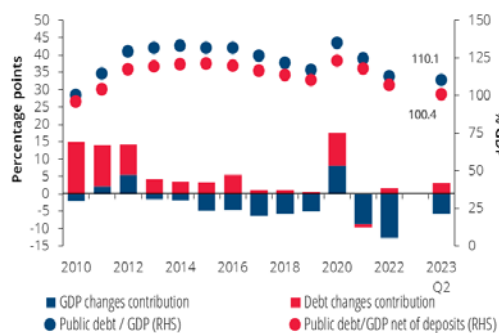
## 1.3 Sectoral risk analysis

### 1.3.1 General government

**In the first half of 2023, the Portuguese public debt ratio remained on a downward path, falling to 110.1% of GDP, 2.3 p.p. less than in 2022.** This reduction reflected the contribution of GDP growth (-5.3 p.p.), which more than offset the effect of an increase in nominal debt (+3.0 p.p.). Considering public debt net of deposits, the public debt ratio stood at 100.4% of GDP, down by 6.3 p.p. from the end of 2022, which also resulted from a decrease in value in the numerator (Chart I.1.12). In the third quarter of 2023, public debt totalled 107.5% of GDP, a 2.6 p.p. decrease from the end of the previous quarter, with the ratio net of deposits standing at 96.5%.

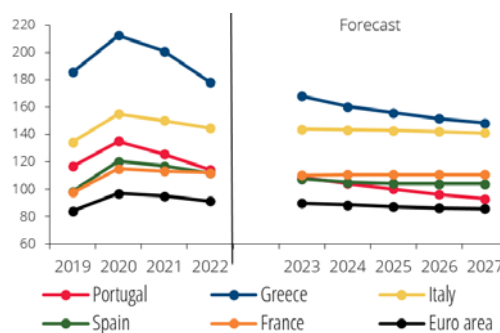
The public debt ratio is projected to decline further in the coming years, and Portugal is expected to be one of the European countries where this reduction will be most pronounced. The draft State Budget for 2024 forecasts a 103.0% ratio in 2023, down to 98.9% in 2024. The Portuguese Public Finance Council points to an 89.4% ratio in 2027 (-25 p.p. compared to 2022), with an average annual reduction of 4.9 p.p., most notably in 2023, where GDP is expected to decrease by 9.2 p.p. In its October 2023 projections, the IMF anticipates a reduction in the ratio and a convergence towards the euro area average in the coming years (Chart I.1.13).

Chart I.1.12 • Portuguese public debt ratio



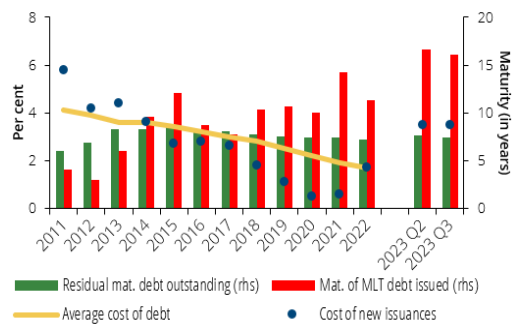
Sources: Banco de Portugal and Statistics Portugal.

Chart I.1.13 • IMF projections for public debt developments | As a percentage of GDP

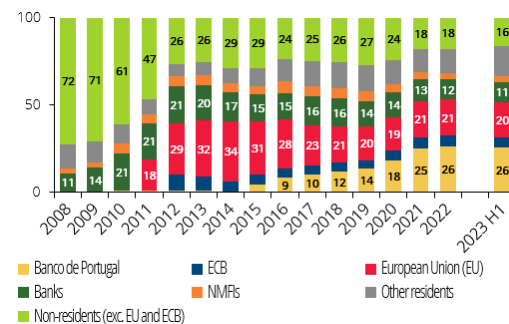


Source: IMF. | Notes: October 2023 projections. Projections from 2023 onwards.

The costs of new public debt issuance have increased as a result of rising interest rates in the euro area, although yield differentials vis-à-vis Germany have stabilised (Charts I.1.14 and I.1.5). For short-term debt, the average interest rate on Treasury bills for tenders conducted in July was 3.3% and 3.5% for six-month and one-year maturities (those planned for September were cancelled). For longer maturities, the average rate on Treasury bonds in the last allotments in September was 3.4% and 3.6%. It should be noted, however, that the Portuguese Treasury and Debt Management Agency has revised the funding plans for 2023, resulting in a downward revision of Treasury bond issuance needs owing to an increase in the collection of savings certificates. In the case of Treasury bills, net issuances have been negative and should remain so until the end of the year.

**Chart I.1.14 • Cost and maturity of Portuguese public debt**


Source: Portuguese Treasury and Debt Management Agency. | Notes: The implicit average cost of the debt stock corresponds to the ratio of interest expenditure to average debt stock. The cost of debt issued in each period is weighted by amount and maturity and includes Treasury bills, Treasury bonds, floating rate Treasury bonds and medium-term notes issued in the corresponding year. The average maturity of medium and long-term debt comprises Treasury bonds and medium-term notes issued in the corresponding year.

**Chart I.1.15 • Structure of Portuguese public debt holders | Per cent**


Sources: ECB, Banco de Portugal and Portuguese Treasury and Debt Management Agency (Banco de Portugal calculations). | Note: End-of-period data.

**Most debt has long maturities, and issuances in 2023 have contributed to an increase in average maturity.** At the end of 2022, 54% of the stock of debt had a residual maturity of over five years. According to Portuguese Treasury and Debt Management Agency data, the average residual maturity of debt is 7.2 years, with medium and long-term issued debt posting an average maturity of 16.1 years until September, above its 2022 stock and issuances, which had stood at 7.6 and 11.3 years respectively.

The pass-through of rising interest rates on new issuances to interest expenditure is gradual, given both the large amount of stock issued at lower fixed rates and the long average maturity. New issuances have higher costs than those implied by the stock, but over the next two years significant amounts of Treasury bonds will mature, some with an average interest rate exceeding that of the latest issuances. Accordingly, while the average cost of debt stock is expected to increase somewhat over the coming years, it is expected to remain historically low and not to curb a favourable dynamic effect (the differential between the interest rate on debt and the rate of change in nominal GDP) on public debt ratio developments.

**Table I.1.2 • Annual schedule of Portuguese public debt redemptions | EUR billions and per cent**

	2023	2024	2025	2026	After 2026
<b>Stock of debt maturing</b>	10.9	13.1	17.0	19.3	173.0
Treasury bills	0.0	2.7	0.0	0.0	0.0
Official loans	1.5	1.8	1.5	5.0	46.6
Other medium and long-term debt	9.4	8.5	15.5	14.3	126.4
<b>Weight in total stock of debt (%)</b>	4.7	5.6	7.3	8.3	8.4
<b>Weight in 2022 GDP (%)</b>	5.1	6.1	7.9	9.0	9.2

Source: Portuguese Treasury and Debt Management Agency. | Notes: The maturity of loans under the European Financial Stabilisation Mechanism will be extended by seven years on average. Each loan will be effectively extended close to its maturity. Updated on 10 November.

The ongoing improvement of the fiscal situation, reflected in a reduction in the public debt-to-GDP ratio, has materialised in more benign developments in secondary market yields relative to other European countries.

However, there are risks that may adversely affect the financial position of the sovereign in the future:

- **A sharper slowdown in economic activity will put further pressure on public accounts.** Limiting structural primary public expenditure growth is important to sustain the reduction in the ratio in a less favourable cyclical environment;
- **Contagion of exogenous disruptions affecting international financial markets.** The budgetary difficulties already experienced by other sovereigns may prompt investors to refocus on fiscal imbalances, penalising sovereign risk;
- **Uncertainty about the duration of monetary policy tightening,** which could put additional pressure on financing costs. The reduction in the Eurosystem's balance sheet, which currently holds a significant share of the stock of sovereign debt (31.5% in June 2023), is also relevant in this framework (Chart I.1.15).

These risks are mitigated by:

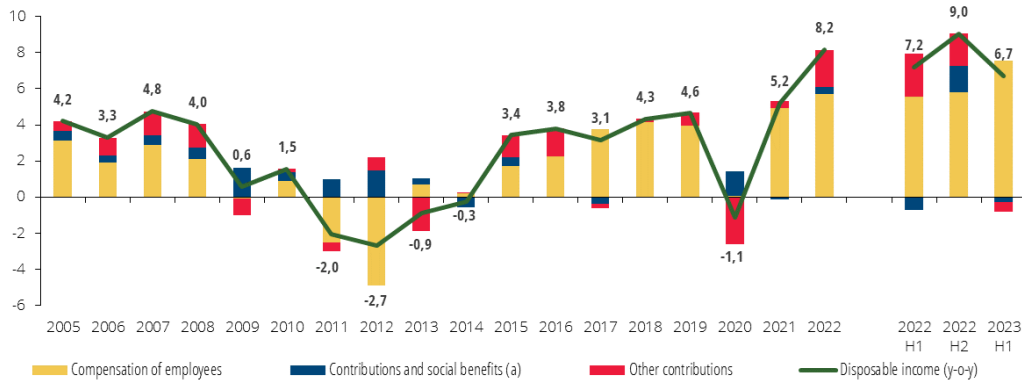
- **the prospect of a continued reduction in the public debt ratio.** Official forecasts point to a path of fiscal consolidation. At the same time, there was an upgrade in credit ratings by major international rating agencies: DBRS Morningstar (July 2023 from A-low to A), Fitch (in September 2023 from BBB+ to A-) and S&P (which in September 2023 revised the outlook to positive, following an upgrade to BBB+ in September 2022);
- **the high stock of debt with low fixed interest rates.** Despite the above-mentioned increase in the costs of the most recent issuances, the implicit interest rate on debt is expected to be around 2.1% in 2023, and in the coming years some issuances with relatively high costs will be amortised, mitigating the higher costs of new issuance;
- **contained refinancing risk in the short term.** The average residual maturity of debt is seven and a half years. Active debt management during the period of low interest rates, through the issuance of debt securities with longer maturities and bond swap operations, facilitated an increase in the average maturity and a smoothing of the time profile of redemptions (Table I.1.2). Also, the Portuguese Treasury is in a comfortable liquidity position: large government deposits (11% of GDP in September 2023) provide an additional margin;
- **the ECB's stabilising role.** The Eurosystem still has a large stock of Portuguese sovereign debt, and the current disinvestment policy has been gradual and predictable. In addition, the ECB has committed to safeguarding an effective transmission of monetary policy to all jurisdictions, particularly in view of the possibility of unwarranted, disorderly sovereign yield disruptions, not based on country-specific fundamentals, for which there is also a new instrument (TPI) in place.

Despite these mitigants acting as drivers of the sovereign's resilience and creditworthiness, it is of utmost importance to maintain a credible fiscal consolidation plan.

### 1.3.2 Households

**While the inflation rate remains above target, the strength of the labour market has made a positive contribution to household income.** Household nominal disposable income grew by 6.7% year on year in the first half of 2023 (8.2% in 2022), owing to the contribution of labour compensation (Chart I.1.16). Real disposable income is expected to grow by around 1% in 2023 (0.9% in 2022), 1.8% in 2024 and 1.9% in 2025, amid higher employment (albeit with lower gains than in the recent past), real wage growth and household support measures.

**Chart I.1.16 • Changes in household nominal disposable income and contributions**  
| Per cent and percentage points

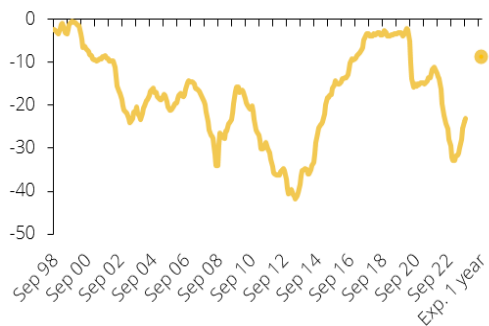


Sources: Banco de Portugal and Statistics Portugal. | Note: (a) Net of transfers in kind.

The positive labour market performance, with the unemployment rate remaining low as a reflection of labour supply shortages, supports the resilience of household income against the background of a slowdown in economic activity. According to the Qualitative Consumer Survey, the households' financial situation has improved in recent months, with consumers expecting their financial situation to improve further over the next few months (Chart I.1.17).

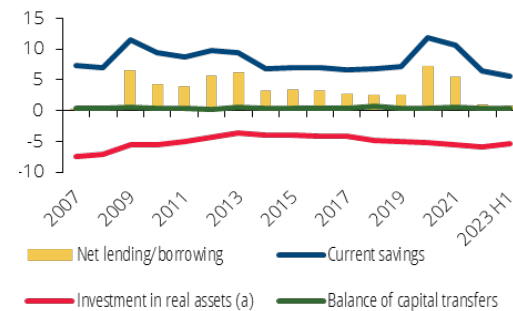
Between June 2022 and June 2023, household net lending stood at 0.8% of disposable income, down by approximately 0.3 p.p. from the previous year. This is lower than that observed during the pandemic (2020 and 2021) and also in 2019, reflecting the lower saving rate (Chart I.1.18). In terms of investment of household savings, investment in real assets – largely in housing – continued to stand out, amounting to 5.2% of disposable income in the first half of 2023 (-0.6 p.p. compared to 2022 as a whole, +0.2 p.p. compared to 2019).

**Chart I.1.17 • Household financial situation**  
| Index



Source: Statistics Portugal. | Notes: Actual values (non-seasonally adjusted) of the balance of respondents (b.r.). The chart includes an expectation component for the period between October 2023 and September 2024 ("Exp. 1 year").

**Chart I.1.18 • Savings, investment and net lending/net borrowing of households**  
| As a percentage of disposable income



Source: Statistics Portugal (Banco de Portugal calculations). | Notes: (a) Corresponding to the sum of gross fixed capital formation, changes in inventories, acquisitions less disposals of valuables, and acquisitions less disposals of non-produced non-financial assets. Figures for the year ending in June 2023.

**The saving rate has remained at historically and internationally low levels.** The household saving rate fell to 5.7% of disposable income in the year ending in June 2023, below its 2019 levels (7.2%) and 2022 (6.5%), after the strong increase observed during the pandemic (11.9% in 2020 and 10.6% in 2021) (Table I.1.3). The purchase of financial assets decreased to 0.1% of disposable income (5.0% in 2022H1), with a reallocation of investment in deposits (down by 8.7% of disposable income) towards savings certificates (Box 1). Throughout the first half of 2023 there was disinvestment in shares and other equity other than investment fund units (-2.8% of disposable income) and in insurance and pension funds (-4.4% of disposable income). Investment in investment fund units also grew (0.7% of disposable income).

**Table I.1.3 • Sources and uses of funds by households | As a percentage of disposable income**

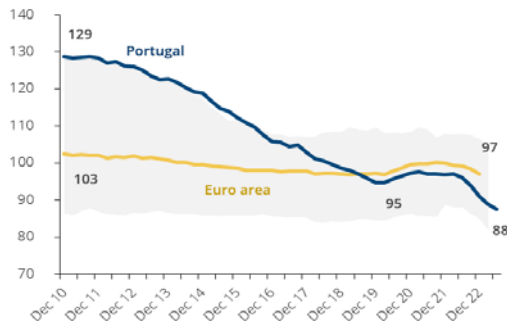
	2019	2020	2021	2022	22 H1	23 H1
<b>Current savings in Portugal</b>	7.2	11.9	10.6	6.5	5.9	4.0
<b>Assets</b>	8.4	14.6	13.4	9.7	10.4	4.9
Investment in real assets <sup>(a)</sup>	5.0	5.1	5.6	5.8	5.7	5.2
Balance of capital transfers	-0.4	-0.4	-0.5	-0.4	-0.3	-0.4
Net acquisition of financial assets	3.8	9.9	8.2	4.3	5.0	0.1
o.w. Currency and deposits with resident banks	3.6	8.3	6.9	5.7	9.5	-8.7
o.w. Savings/Treasury certificates	0.5	0.5	0.3	2.7	0.0	12.5
<b>Liabilities</b>	1.2	2.8	2.8	3.2	4.5	0.9
Financial debt <sup>(b)</sup>	1.0	1.5	3.1	2.6	3.4	-0.8
Other financial liabilities <sup>(c)</sup>	0.2	1.2	-0.4	0.6	1.1	1.8

Sources: Banco de Portugal and Statistics Portugal. | Notes: Consolidated figures in nominal terms. The last two columns correspond to the six-month figure. (a) Corresponds to the sum of gross fixed capital formation, changes in inventories, acquisitions net of disposals of valuables and acquisitions net of disposals of non-produced non-financial assets. (b) Corresponds to the sum of loans and debt securities. (c) Other financial liabilities include liabilities associated with all financial instruments, as defined in national financial accounts, except loans and debt securities (financial debt). It also includes the statistical discrepancy between the balances of net lending/net borrowing in the capital account and in the financial account.

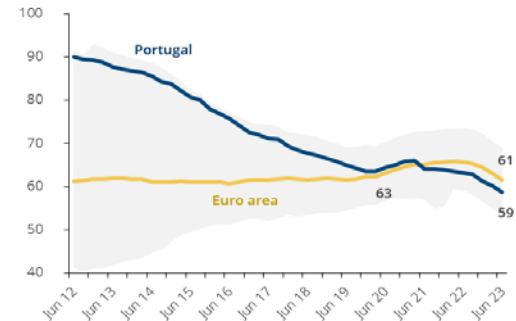
**The household indebtedness ratio as a percentage of disposable income decreased by 3 p.p. in the first half of 2023, to 88%, below the euro area average (Chart I.1.19).** These developments reflected the increase in nominal disposable income and a slowdown in lending to households in early 2023. The stock of loans for house purchase contracted, and consumer credit growth also slowed down. The increase in early repayments of loans for house purchase contributed to the reduction in the stock of housing loans. However, where early repayments are associated with credit transfers between banks, the impact on the stock is nil (Section 2.2).

**In Portugal, the share of loans for house purchase in disposable income is below the euro area average (59% in Portugal and 61% in the euro area) (Chart I.1.20).**

**Chart I.1.19 • Household indebtedness in the euro area and in Portugal | As a percentage of disposable income**



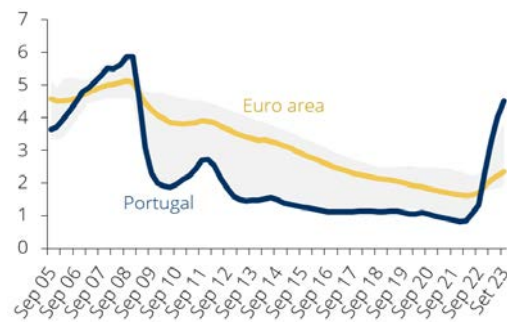
**Chart I.1.20 • Ratio of the stock of loans for house purchase to disposable income | Per cent**



Sources: Banco de Portugal and Eurostat (Banco de Portugal calculations). | Notes: Non-consolidated figures for total debt. The shaded area corresponds to the range between the third and the first quartiles of the distribution for a set of euro area countries (Belgium, Germany, Ireland, Spain, France, Italy, Netherlands, Austria, Portugal, Slovenia and Finland).

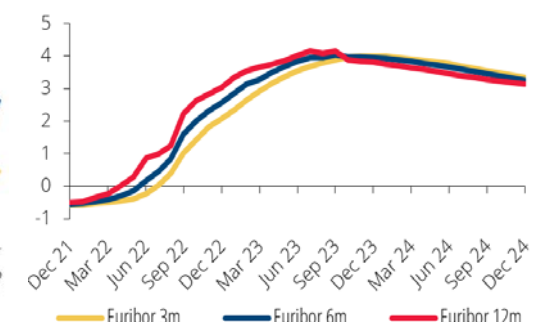
Despite a reduction in the inflation rate and a contained increase in the unemployment rate, the rise in short-term interest rates has heightened the risk of households defaulting. Given that the stock of loans for house purchase with a variable rate stands at around 85%, the increase in interbank interest rates has resulted in an increased debt burden (Chart I.1.21). So far, the materialisation of credit risk for households has been contained (Section 2.3). The index on variable-rate agreements has already increased across the board. Given market expectations, in the case of 3-month Euribor agreements, the current instalment will be very close to its peak. In the case of 6-month Euribor agreements, part of these should still increase slightly, while for some 12-month Euribor agreements the increase may still be substantial. Market participants expect Euribor rates to fall in the course of 2024, but only gradually, after a 4.5 p.p. increase from the beginning of 2022; the decline is expected to be between 0.7 p.p. and 1 p.p. (depending on their maturity) from their peak, to just above 3% in December 2024 (Chart I.1.22).

**Chart I.1.21 • Developments in the average interest rate on the stock of loans for house purchase | Per cent**



Source: ECB (Banco de Portugal calculations). | Notes: The shaded area corresponds to the range between the 10<sup>th</sup> and 90<sup>th</sup> percentiles of the distribution for a set of euro area countries (Belgium, Germany, Ireland, Spain, France, Italy, Netherlands, Austria, Portugal, Slovenia and Finland). Latest observation: September 2023.

**Chart I.1.22 • Market expectations for developments in Euribor rates | Per cent**



Source: Refinitiv (Banco de Portugal calculations). | Notes: Information up to September 2023 refers to hard data. From October 2023 onwards, the series refer to market agents' expectations as at 13 October 2023.



The higher debt service burden of loans for house purchase contributed to the 4.9 p.p. rise in the average loan service-to-income (LSTI) ratio between June 2022 and August 2023, to 21.6%. To quantify the impact of changes in Euribor rates on the debt service of loans for house purchase, expected developments in 3, 6 and 12-month Euribor rates up to December 2024 are considered. This is based on market expectations in 3-month Euribor futures as at 13 October 2023. For each agreement, income was projected since the most recent update date, for 2023 and 2024, based on the growth rate of average compensation per employee (macroeconomic projections published in the October 2023 issue of the *Economic Bulletin*). The average LSTI is estimated to increase slightly to 22.2% in December 2023 and to decrease to 20.4% in 2024. However, around 76% of agreements are expected to continue to have an LSTI of 30% or less in December 2023 (80% in December 2024). The share of stock with an LSTI of over 50% is estimated to increase to 9% in December 2023 (4.3% in June 2022) and to decrease to 6.8% in December 2024. This share is expected to be 48% for loans in the 1<sup>st</sup> income quintile (41% in December 2024, Table I.1.4). However, in August 2023 these agreements accounted for only 9% of the stock of loans for house purchase.

**Table I.1.4 • Stock of loans for house purchase by LSTI class and income quintile | Per cent**

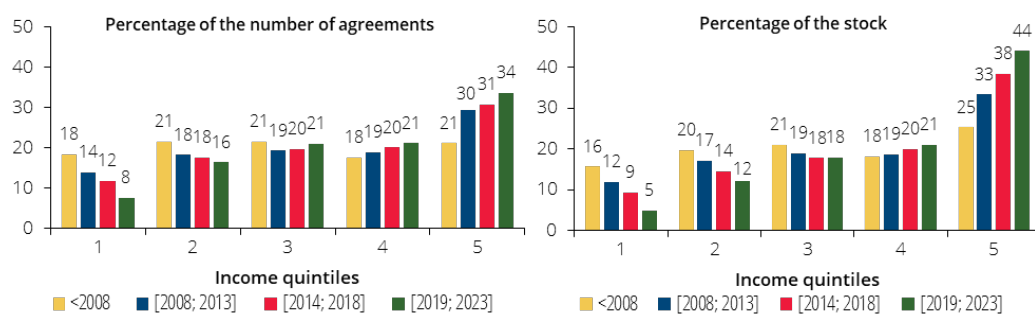
		LSTI class					Average debt amount	Average agreed amount	Memo items:	
		<=20 %	]20%;30%]	]30%;40%]	]40%;50%]	>50%			Share in stock	Number of agreements
1 <sup>st</sup> quintile	Jun 22	11.5	26.3	23.5	14.2	24.5	50 300	73 513	10.6	141 331
	Aug 23	4.4	11.8	19.8	18.3	45.6	48 383	73 171	8.6	125 139
	Dec 23	4.0	10.6	18.7	18.4	48.3	47 883			
	Dec 24	5.3	13.9	21.6	18.0	41.2	46 328			
2 <sup>nd</sup> quintile	Jun 22	33.0	37.5	17.0	6.6	6.0	58 142	79 964	16.6	191 174
	Aug 23	12.6	27.6	26.4	16.8	16.5	56 984	78 980	14.6	181 519
	Dec 23	11.3	25.9	26.2	17.9	18.7	56 483			
	Dec 24	15.1	30.2	26.6	14.9	13.3	54 921			
3 <sup>rd</sup> quintile	Jun 22	58.1	28.9	8.4	2.5	2.1	64 581	87 550	19.1	197 997
	Aug 23	27.1	34.1	23.3	9.7	5.7	65 155	88 150	18.6	202 323
	Dec 23	24.7	33.0	24.5	11.0	6.7	64 604			
	Dec 24	31.2	35.4	21.4	7.6	4.3	62 890			
4 <sup>th</sup> quintile	Jun 22	76.2	17.8	4.0	1.1	0.9	72 422	96 408	19.1	175 833
	Aug 23	43.5	33.8	15.5	4.9	2.3	74 636	98 463	20.0	189 534
	Dec 23	40.4	34.3	16.9	5.7	2.8	74 029			
	Dec 24	48.3	33.3	13.2	3.5	1.7	72 138			
5 <sup>th</sup> quintile	Jun 22	90.5	7.3	1.5	0.4	0.4	93 287	122 858	34.5	247 510
	Aug 23	73.5	18.4	6.0	1.5	0.7	97 573	127 716	38.2	276 712
	Dec 23	71.3	19.5	6.7	1.7	0.8	96 743			
	Dec 24	76.8	16.8	4.8	1.0	0.5	94 168			
Total	Jun 22	63.6	20.5	8.2	3.4	4.3	69 811	94 588	100.0	953 845
	Aug 23	44.0	25.2	15.3	7.4	8.1	72 523	97 752	100.0	975 227
	Dec 23	41.9	25.1	15.9	8.1	9.0	71 897			
	Dec 24	47.5	25.3	14.2	6.2	6.8	69 954			

Sources: Banco de Portugal and Statistics Portugal. | Notes: The LSTI corresponds to the ratio of the instalment of the loan for house purchase to the borrowers' average monthly income (annual income divided by 12 months). It considers only 73% of the stock of loans for house purchase. It excludes agreements linked to exceptions to the DSTI ratio limit provided for in the macroprudential Recommendation. The sources of information on income are Instruction of the Banco de Portugal No 33/2018 or the Central Credit Register where not reported in the former. It should be noted, however, that developments in individual income over the borrowers' life cycle have not been taken into account, which is relevant given the long original maturities of loans for house purchase. Updated income between the latest update date and what is expected to be in force by 2024 for each agreement, based on the growth rate of the average compensation per employee (indicated in the macroeconomic projections released in the October 2023 issue of the *Economic Bulletin*).

The identified default risk is mitigated by the following set of factors:

- The indebtedness ratio is below the euro area average. The reduction was broadly based across all income brackets, but more marked for lower-income households;
- The improvement in the risk profile of new borrowers as a result of the macroprudential Recommendation introduced in 2018 relating to new credit for house purchase and consumer credit;
- Loans for house purchase are concentrated in higher-income households, which can more easily accommodate higher loan instalments. The share of lower-income households in the stock of loans for house purchase is low in Portugal, in line with other euro area countries. For loans for house purchase granted in recent years, there is a lower share of households in the lowest income quintile compared with loans for house purchase granted in previous years (Chart I.1.23);
- Consumer credit is also relatively concentrated in higher-income households, although less so than in the case of loans for house purchase, and is predominantly composed of fixed-rate agreements;
- Despite a possible increase in the unemployment rate, labour market shortages will tend to limit that increase;
- The implementation of government measures supporting households to cope with the increased cost of living, including instalments on loans for house purchase.

**Chart I.1.23 • Agreements and stock of loans for house purchase by income quintile and year of loan initiation | Per cent**



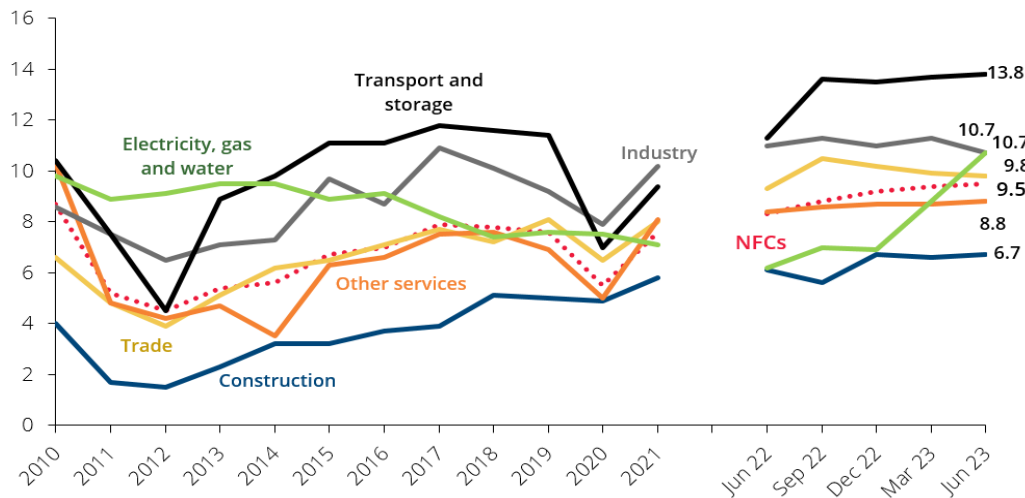
Sources: Banco de Portugal and Statistics Portugal. | Notes: Figures based on 73% of the stock of loans for house purchase in August 2023, excluding agreements linked to exceptions to the DSTI ratio limit stipulated in the macroprudential Recommendation. The bars correspond to the share in the number of agreements/stock of loans (outstanding as at August 2023) for each class of year of loan initiation.

### 1.3.3 Non-financial corporations

The financial position of non-financial corporations (NFCs) remains robust, despite successive negative shocks to activity in recent years. It has benefited from the sharp recovery of the economy after the pandemic shock and the ability to pass through rising production costs to consumers. The decline in indebtedness since the sovereign debt crisis (which continued after the pandemic period), increased liquidity and a higher capital ratio are structural factors contributing to the resilience of NFCs.

In the year ending in June 2023, average corporate profitability stood at 9.5%, the highest figure in the 2006-23 historical series (and 1.2 p.p. higher than in the same period of the previous year). The increase in profitability compared to June 2022 was broadly based across all sectors of activity, except for industry (Chart I.1.24). The most substantial increase occurred in the electricity, gas and water sector (+4.5 p.p.), reflecting the reversal of energy costs in 2023. NFC profitability was also higher than in 2019 across all sectors of activity.

**Chart I.1.24 • NFCs' return on assets, by sector of activity | Per cent**

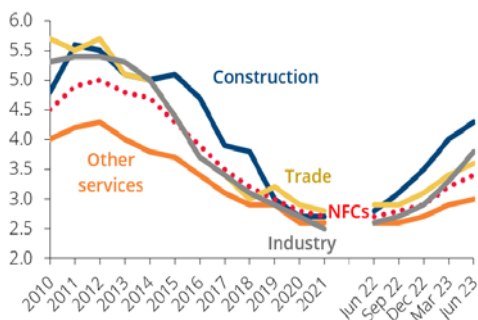


Source: Banco de Portugal. | Notes: Average return on assets defined as the ratio of EBITDA to average assets for the period. EBITDA is an acronym for earnings before interest, taxes, depreciation and amortisation. Quarterly data refer to return in the year ending in the respective quarter. Other services include services except trade and transport and storage (identified in the chart). Industry includes mining and quarrying, and manufacturing.

**In an adverse environment, corporate profitability was resilient, to which contributed the pass-through of rising production costs to consumers.** Overall, the rise in intermediate costs and staff costs was reflected in prices, leading to a slight increase in aggregate profit margins. The increase in intermediate costs was more substantial in the electricity, gas and water, industry and construction sectors. In turn, the increase in staff costs appears to have put greater pressure on profitability in the industry and trade sectors.

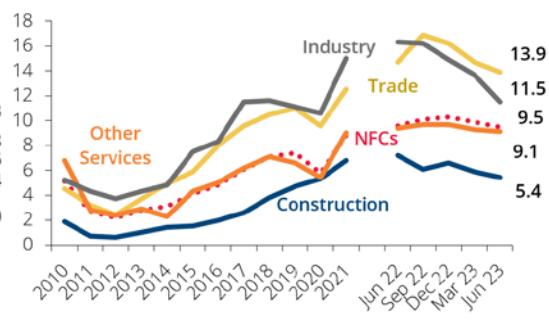
**The increase in interest rates has translated into a rise in firms' financing expenses.** The average interest rate on the stock of bank loans to NFCs more than doubled between June 2022 (2.2%) and 2023 (5.0%). In September 2023, it stood at 5.5%. This increase contributed to the increase in firms' financing expenses across all sectors of activity, but was more substantial in the construction, industry, and transport and storage sectors (Chart I.1.25).

**Chart I.1.25 • Cost of obtained funding, by sector of activity | Per cent**



Source: Banco de Portugal. | Notes: The dotted line corresponds to total NFCs. The costs of obtained funding include costs associated with bank loans, debt securities and other loans. The quarterly ratio corresponds to the value obtained for the year ending in the quarter.

**Chart I.1.26 • Financing expenses coverage ratio, by sector of activity | In number of times**



Source: Banco de Portugal. | Notes: The dotted line corresponds to total NFCs. The quarterly ratio corresponds to the value obtained for the year ending in the quarter.

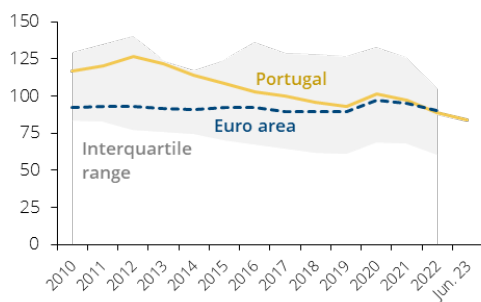
The substantial increase in the cost of obtained funding resulted in a reduction in the financing expenses coverage ratio, albeit mitigated by the improvement in profitability (Chart I.1.26). The reduction in this ratio was more marked in the construction and industry sectors and in micro, small and medium-sized enterprises (SMEs). However, in June 2023 financing expenses coverage ratios were still above those observed in December 2019 across all sectors of activity.

The firms' debt-to-GDP ratio declined further, to stand slightly below that in the euro area at the end of 2022 (Chart I.1.27). The indebtedness ratio stood at 84.0% in June 2023 (Chart I.1.28), -4.5 p.p. compared to December 2022 (-8.6 p.p. compared to December 2019). Nominal GDP growth (-4.1 p.p.) and a decrease in loans from the resident financial sector (-0.4 p.p.) and credit by non-residents (-0.3 p.p.) contributed to this reduction. The increase in financing costs, the outlook for subdued demand and the high level of deposits are likely to have contributed to a dampening of firms' demand for loans since mid-2022.

In the first half of 2023, there was a decline in indebtedness in tandem with a larger decrease in firms' deposits. The debt ratio net of deposits decreased to 56% of GDP in June 2023, -1.8 p.p. than in December 2022 (-12 p.p. than in December 2019), notably due to a contribution from nominal GDP. Despite the reduction in deposits, they were 42% higher than at the end of 2019, reflecting a build-up in recent years. In June 2023 most firms' deposits with financial institutions were demand deposits (70%) with low remuneration.

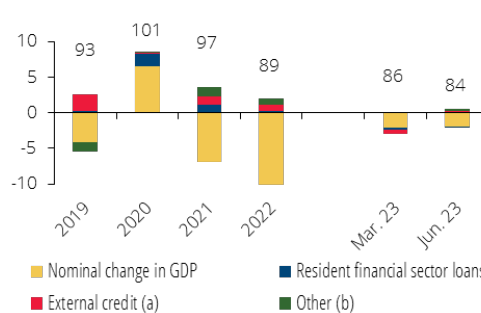
The reduction in deposits in the first half of 2023 varied across sectors of activity (Chart I.1.29). Taking firms' deposits with the largest credit institutions as a reference, there was a more marked reduction in the accommodation and food services, and trade sectors, which had increased significantly compared with 2019. In manufacturing, total deposits remained virtually unchanged.

**Chart I.1.27 • Developments in the indebtedness ratio of NFCs in Portugal and in the euro area | As a percentage of GDP**



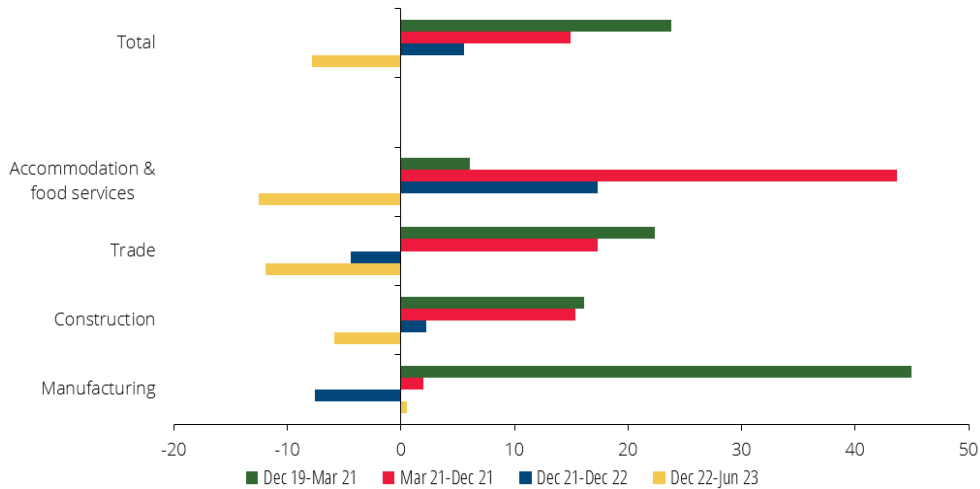
Sources: Banco de Portugal and Eurostat. | Notes: Consolidated figures. Latest observation for Portugal: June 2023. The euro area series is released annually. Latest observation for the euro area series: December 2022. The "interquartile range" corresponds to the area defined by the value of the country identified as in the 75<sup>th</sup> percentile and the value of the country identified as in the 25<sup>th</sup> percentile.

**Chart I.1.28 • Contributions to changes in the NFCs' indebtedness ratio | Percentage points**



Source: Banco de Portugal. | Notes: Consolidated figures. The NFCs' indebtedness ratio as a percentage of GDP is shown at the top of each bar. (a) External credit includes liabilities on account of loans and debt securities held by non-residents. (b) Includes debt securities held by residents, credit written off from assets in the balance sheet of resident monetary financial institutions, loans from households, trade credits and advances and other changes in volume and value.

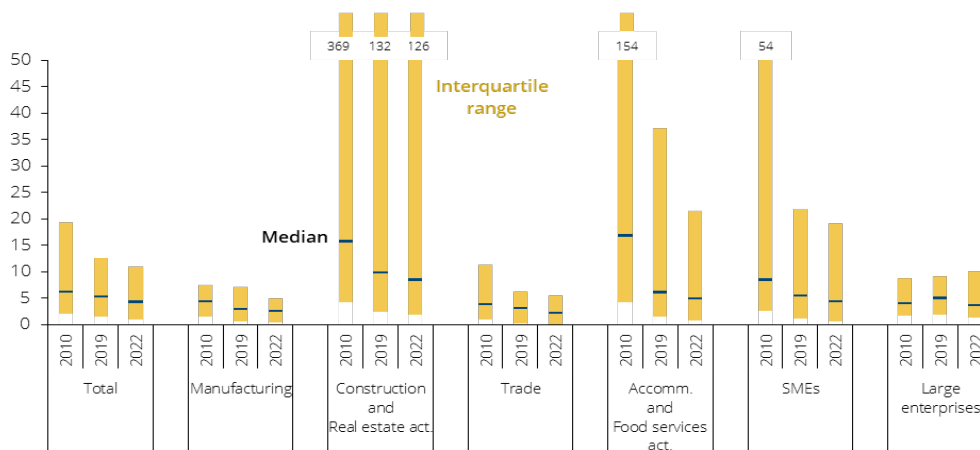
**Chart I.1.29 • Changes in NFC deposits with G8, by sector of activity | Per cent**



Source: Banco de Portugal. | Note: Deposits with the eight most significant institutions (G8) account for around 85% of OMI deposits.

The debt-to-GDP ratio decreased in tandem with firms' lower indebtedness in relation to their operating income. Since the end of the sovereign debt crisis, firms' indebtedness has been declining. These developments were interrupted only during the pandemic crisis. At the end of 2022 the median of the ratio of financial debt net of deposits to EBITDA was 4.0, lower than at the end of 2019 and 2010. This was broadly based across the various sectors of activity. Construction and real estate activities had the highest median ratio (8.3). The manufacturing (2.3) and trade (2.1) sectors have the lowest median values. SMEs posted a more marked reduction in this ratio (4.2 in 2022 from 8.3 in 2010), comparing with large enterprises, whose median in 2022 was similar to that observed in 2010 (3.5 and 3.8 respectively) (Chart I.1.30).

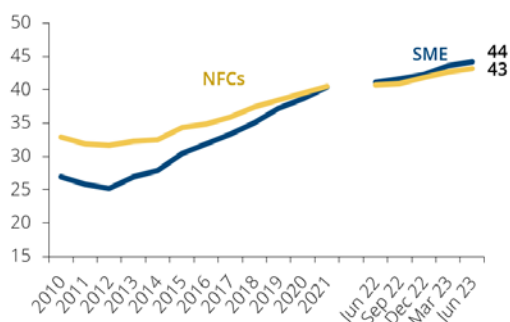
**Chart I.1.30 • Median and interquartile range of the ratio of financial debt net of cash and deposits to EBITDA | In number of times**



Source: Banco de Portugal. | Notes: Information from the Central Balance-Sheet Database of the Banco de Portugal. Asset-weighted figures. Only firms with financial debt above €5,000 were considered. The ratio value has been adjusted in two situations: (i) for firms with negative EBITDA in 2022 it was assumed that the firm's ratio was at the 99<sup>th</sup> percentile of the ratio's historical distribution and (ii) for firms with a positive EBITDA where cash value exceeded financial debt, the ratio was assumed to be 0. In 2022, total financial debt associated with manufacturing corresponded to 13% of total financial debt, 23% to construction and real estate activities, 11% trade and 7% to accommodation and food services. Total financial debt associated with SMEs accounted for 65% of total financial debt and 35% related to large enterprises. Head offices and NFCs whose sector of activity corresponds to financial and insurance activities were excluded from the analysis. The "Interquartile range" corresponds to the area defined between the 75<sup>th</sup> percentile and the 25<sup>th</sup> percentile. The 75<sup>th</sup> percentile values are presented where they exceed the maximum considered for the vertical axis.

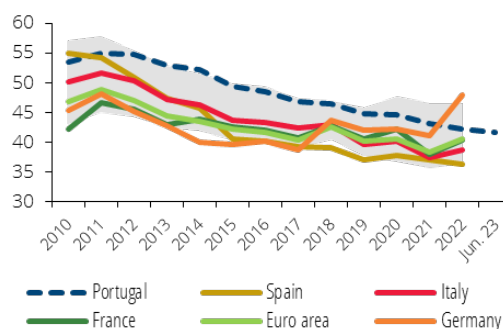
The capital ratio continued to increase in the first half of 2023, a trend that started in 2013 (Chart I.1.31). Year on year, the NFCs' capital ratio increased by 2.5 p.p. and 3.1 p.p. if only SMEs (excluding head offices) are considered. By sector of activity, the largest increases are associated with transport and storage and electricity, gas and water (3.5 p.p. and 5.6 p.p. respectively). The SMEs' capital ratio has increased consistently since the sovereign debt crisis, including during the pandemic crisis. Compared to December 2019, this ratio widened by 7.0 p.p. in SMEs and 2.2 p.p. in large enterprises (1.9 p.p. for head offices). The leverage ratio narrowed further (Chart I.1.32). In 2022 it remained above that of the euro area, but the differential narrowed between 2018 and 2022.

**Chart I.1.31 • NFCs' capital ratio | As a percentage of assets**



Source: Banco de Portugal. | Notes: The capital ratio corresponds to the ratio of equity to assets. In June 2023 head offices – not considered in the SME series – had a capital ratio of 62.4%.

**Chart I.1.32 • Leverage ratio, distribution in the euro area | Per cent**



Source: Banco de Portugal. | Notes: Leverage ratio defined as the quotient of financial debt and the sum of equity and financial debt. The shaded area represents the interquartile range, calculated on the basis of the distribution of leverage ratios of NFCs in euro area countries. The value of financial debt corresponds to the stock of loans and debt securities, while the value of equity corresponds to the stock of shares and other equity (liabilities) of NFCs. Figures are calculated on the basis of the National Financial Accounts. Quoted financial instruments, according to the National Account methodology, are measured at market value.

**Firms' insolvencies increased in the first half of 2023, but remain below their 2018-19 average.** The rise resulted from larger contributions from manufacturing and construction. For the latter sector, the number of insolvencies in the first half of 2023 exceeded its 2018-19 average. This was also observed in the accommodation and food services sector throughout the pandemic period, continuing into the first half of 2023. The end of the exceptional measures adopted during the pandemic (Law No 31/2023 of 4 July 2023) reintroduced the deadlines for applying for insolvency provided for in the Portuguese Insolvency Code, with practical effect from August 2023.

**Despite the resilience of firms, risks to their financial position in the short to medium term remain, especially for the most vulnerable firms, notably due to continued high interest rates coupled with expectations of subdued economic growth.** Uncertainty about the level and duration of higher interest rates poses risks to the creditworthiness of the most indebted firms.

**The share of financially vulnerable firms – weighted by firms' assets – is estimated to increase in 2023 and 2024, when it could reach 18% of firms (14% in 2022) (Table I.1.5).** The share of financially vulnerable firms (with a financing expenses coverage ratio below 2) declined in 2022, reflecting favourable developments in activity and the fact that the rise in interest rates only started in the second half of the year. The continued rise in rates during 2023, and their effective pass-through to the cost of the stock of financial debt, should contribute to the increase in the share of financially vulnerable firms towards the end of the year and, to a lesser extent, in 2024. A slight reduction in market interest rates is possible this year, but the average rate on the stock is still expected to be higher than in 2023. This increase is estimated to be broadly based across all sectors of activity.

However, it will be more marked in construction and real estate activities, where 30% of firms may be financially vulnerable by the end of 2024.

**The increase in the share of financially vulnerable firms is more substantial among more highly leveraged firms.** The share of vulnerable firms in the construction and real estate activities sector in the quintiles associated with the highest leverage, measured by the ratio of financial debt net of cash and deposits to EBITDA, is high and exceeds that observed in other sectors of activity. Sectoral heterogeneity in the share of vulnerable firms, as well as within each sector, will warrant particular attention from credit institutions to the financial situation of these firms.

**Table I.1.5 • Share of financially vulnerable firms: total and per quintile of the ratio of financial debt net of cash and deposits to EBITDA | Per cent**

	Weight in total financial debt net of deposits	2022 Actual	2023 Estimated	2024 Estimated
<b>Total</b>	<b>100</b>	<b>14</b>	<b>17</b>	<b>18</b>
1 <sup>st</sup> quintile	0	3	2	0
2 <sup>nd</sup> quintile	9	1	0	0
3 <sup>rd</sup> quintile	25	1	1	2
4 <sup>th</sup> quintile	41	4	11	18
5 <sup>th</sup> quintile	25	69	83	80
<b>Manufacturing</b>	<b>20</b>	<b>10</b>	<b>11</b>	<b>11</b>
4 <sup>th</sup> quintile	6	1	9	11
5 <sup>th</sup> quintile	4	49	61	60
<b>Construction and real estate activities</b>	<b>15</b>	<b>22</b>	<b>29</b>	<b>30</b>
4 <sup>th</sup> quintile	5	30	47	45
5 <sup>th</sup> quintile	8	78	94	92
<b>Trade</b>	<b>15</b>	<b>7</b>	<b>8</b>	<b>8</b>
4 <sup>th</sup> quintile	6	2	16	17
5 <sup>th</sup> quintile	3	38	48	44
<b>Accommodation and food services</b>	<b>5</b>	<b>12</b>	<b>13</b>	<b>12</b>
4 <sup>th</sup> quintile	2	2	8	8
5 <sup>th</sup> quintile	2	58	68	63

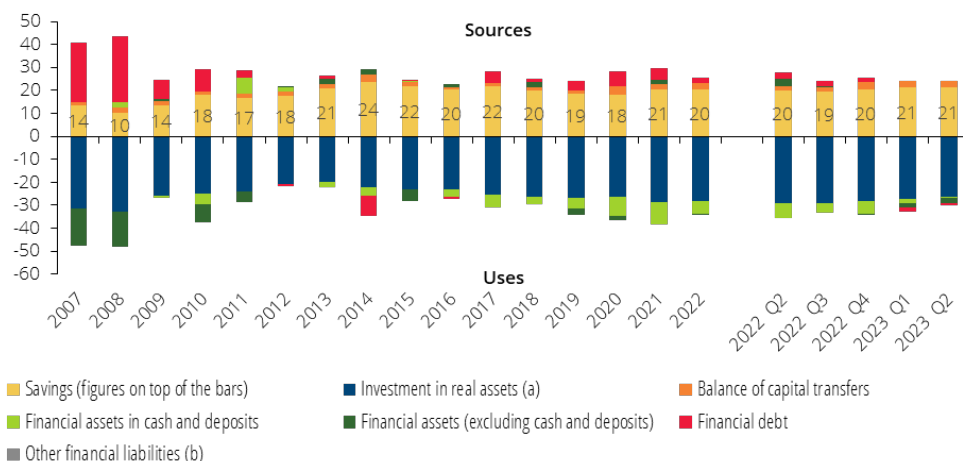
Source: Banco de Portugal. | Notes: Values of quintiles weighted by firms' assets. The figures for 2022 combine the values observed for each firm at the Central Balance-Sheet Database in 2022 with the estimate of the financial situation of firms for which there was no information reported in 2022, but for which there was information in 2021. Firms are considered in the analysis if they have positive equity and debt at the beginning of the projection period. Head offices and NFCs whose sector of activity corresponds to financial and insurance activities were excluded from the analysis. The simulation exercise is based on the economic scenario described in the October 2023 issue of the *Economic Bulletin* and is structurally equivalent to the exercise presented in the November 2022 issue of the *Financial Stability Report* (Special issue "The impact of rising interest rates on firms' debt service"). A firm is considered to be financially vulnerable when its financing expenses coverage ratio – defined as the ratio of EBITDA to financing costs – is below 2.

**The negative effects of high interest rates, where combined with subdued demand, may also affect resilient firms, particularly in terms of investment.** With reference to the year ending in the second quarter of 2023, firms' investment fell by 2.6 p.p. of their GVA year on year, to a level similar to that observed in 2018 (Chart I.1.33). Lower corporate investment could contribute to a decline in their future profitability, weakening their financial situation. The corporate investment rate is expected to slow down in 2023, returning to an upward path in 2024-25, which the recovery in external

demand and the implementation of European funds will contribute to (October 2023 issue of the *Economic Bulletin*).

After the sovereign debt crisis, corporate investment has been financed with greater recourse to internal funds, to which contributed a lower average profit distribution rate than before the crisis. Indeed, the NFCs' average aggregate savings (as a percentage of GVA) since the sovereign debt crisis (2013-22) outperforms by 6 p.p. the 2001-10 average.

**Chart I.1.33 • Sources and uses of funds by NFCs | As a percentage of NFCs' GVA**



Sources: Banco de Portugal and Statistics Portugal. | Notes: Quarterly figures are based on quarterly national accounts figures and refer to figures for the year ending in the quarter. (a) Corresponding to the sum of gross fixed capital formation, changes in inventories, acquisitions less disposals of valuables, and acquisitions less disposals of non-produced non-financial assets. (b) Discrepancy-adjusted of net lending computed within national financial and non-financial accounts.

**Expectations of economic moderation may have a negative impact on business activity.** The decline in external demand, and to a lesser extent, private consumption and public GFCF, led to a downward revision of economic growth over the horizon 2023-25 (October 2023 issue of the Banco de Portugal's *Economic Bulletin*).

The deterioration stemming from the materialisation of a less favourable than expected scenario is expected to be small, but the persistence of negative factors for an extended and uncertain period may have an impact on firms with the poorest financial performance. Despite the current robust financial position of firms, the current economic period is marked by great uncertainty. For this reason, credit institutions should remain vigilant and cautious when assessing firms' credit risk.

### 1.3.4 Residential and commercial real estate market

#### Residential real estate market

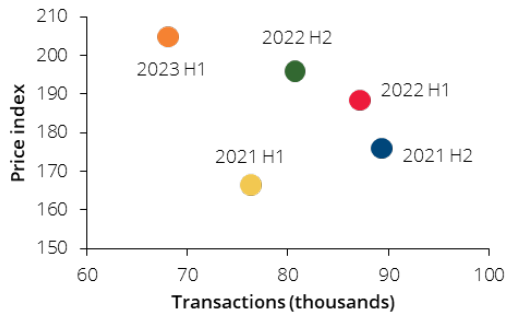
Residential real estate prices continued to grow above the inflation rate, by 8.7% in the first half of 2023. Nevertheless, this is a deceleration from the levels observed in previous periods (Charts I.1.34 and I.1.35).

The median value of bank appraisals on housing increased further, albeit less markedly, with a growth rate of 11% on the average of the first half of 2023, year on year (14.7% in the second half of 2022).

The number of transactions decreased in the first half of 2023, down by 22% year on year (-10% in the second half of 2022).

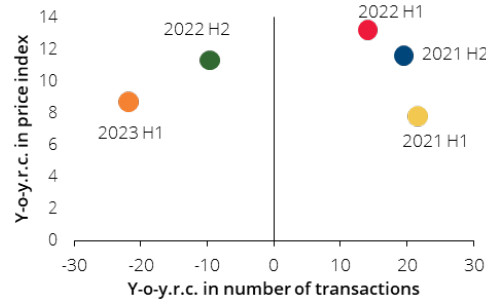


**Chart I.1.34 • House price index and number of transactions, 2021 to 2023**



Source: Statistics Portugal.

**Chart I.1.35 • Year-on-year change in the house price index and the number of transactions, 2011 to 2023 | Per cent**

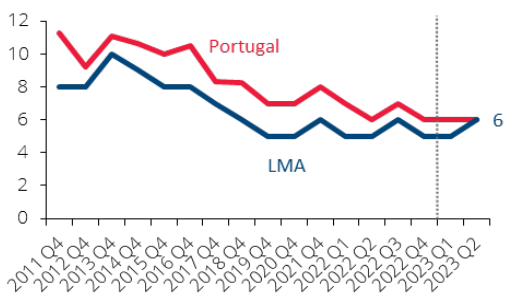


Source: Statistics Portugal.

The average time it takes to sell real estate properties stabilised at around 6 months in the first half of 2023, following a reduction in 2022 (Chart I.1.36). Thus, in Portugal, the absorption speed in 2023 remained unchanged from 2022. In the Lisbon Metropolitan Area (LMA), the absorption speed decreased by 1 month in 2023, despite remaining close to that observed in recent years. The LMA accounted for 42% of the amount traded in the first half of 2023, corresponding to 29% of the number of transactions. In general, supply shortages relative to demand persist, contributing to higher prices and a reduction in the number of transactions.

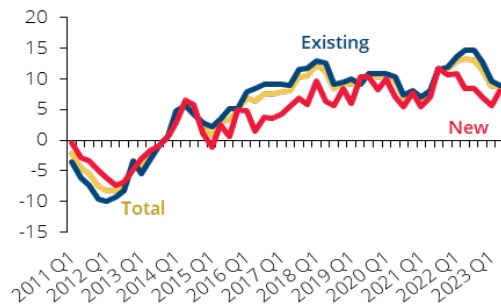
In the second quarter of 2023, the year-on-year growth rates for existing building prices (9 per cent) and new building prices (8 per cent) were closer than in previous quarters. The year-on-year rate of change decreased for used buildings (-0.7 p.p.) but increased for new buildings (+2.3 p.p.) (Chart I.1.37). In the second quarter of 2023, transactions in used dwellings accounted for 72% of the amount traded and 80% of the number of transactions in dwellings in Portugal. The average value per transaction of €282 thousand for new buildings exceeds the €186 thousand for existing buildings. In aggregate terms, the average value was €205 thousand.

**Chart I.1.36 • Average number of months it takes for a listed property to be sold | In months**



Source: Confidencial Imobiliário (Banco de Portugal calculations). | Notes: This data includes only transactions carried out through real estate agents. No data is available for Alentejo between 2011 and 2013. Latest observation: 2023 Q2.

**Chart I.1.37 • Year-on-year change in the house price index, new and used buildings | Per cent**



Source: Statistics Portugal. | Note: Latest observation: 2023 Q2.

Developments in the rental market have kept pace with developments in residential property transaction prices. In the second quarter of 2023 the median value per square metre of new rental agreements rose by 11% year on year (Table I.1.6). The number of new rental agreements decreased by 1.2% from the second quarter of 2022. The highest rents were in Lisboa, Porto, Lisboa Metropolitan Area (AML as the Portuguese acronym), the Algarve and the Porto Metropolitan Area (AMP as the Portuguese acronym), which also showed higher year-on-year growth than the country as a whole. The increase in the median rent for new agreements was greater in locations where prices are higher, in particular Lisbon (20.8%) and Porto (17.7%).

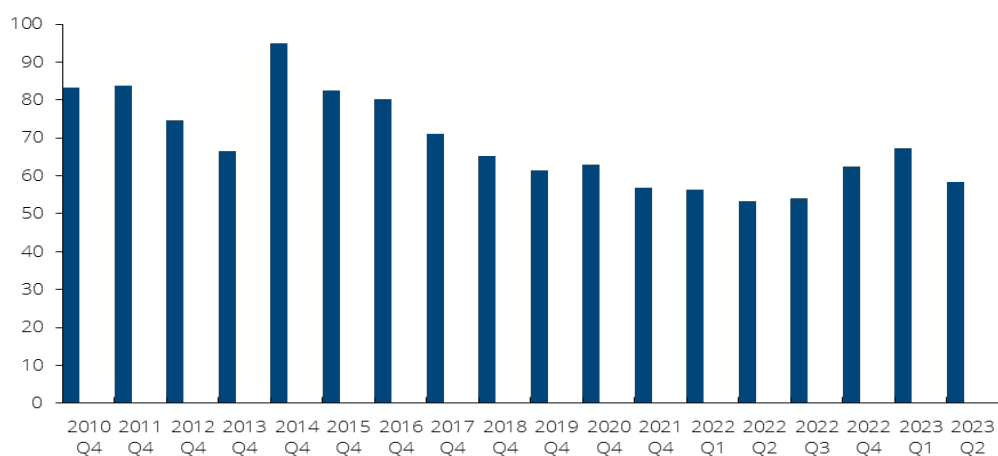
**Table I.1.6 • Median price and rent per square metre, by region | In euro and per cent**

	Sale price €/m <sup>2</sup>	Year-on-year rate of change in the median price/m <sup>2</sup>					Y-o-y.r.c. in the number of transactions		Rent €/m <sup>2</sup>	Year-on-year rate of change in median rent/m <sup>2</sup>					Y-o-y.r.c. in rental agreements	
		2020	2021	2022	2023 Q1	2023 Q2	2023 Q1	2023 Q2		2023 Q2	2021	2022	2023 Q1	2023 Q2	2023 Q1	2023 Q2
<b>Portugal</b>	<b>1629</b>	<b>9.8</b>	<b>10.0</b>	<b>10.7</b>	<b>7.6</b>	<b>8.3</b>	<b>-20.8</b>	<b>-22.9</b>	<b>7.3</b>	<b>8.3</b>	<b>10.6</b>	<b>9.6</b>	<b>11.0</b>	<b>2.1</b>	<b>-1.2</b>	
Norte	1390	10.4	8.2	13.2	7.6	10.2	-19.8	-19.5	6.3	8.4	9.8	9.5	11.0	5.9	0.9	
AMP	1802	12.2	10.2	17.3	11.1	15.0	-21.8	-22.6	7.9	7.7	11.4	10.4	11.5	4.4	-0.9	
Porto	2857	13.8	7.9	12.7	6.3	11.3			12.0	7.5	16.3	22.9	17.7	4.7	1.3	
Centro	1032	6.6	4.5	9.8	5.8	6.7	-12.2	-16.9	5.2	6.2	14.9	16.0	15.0	4.4	2.3	
AML	2306	11.1	9.8	15.6	15.2	13.6	-27.5	-27.3	11.0	6.1	12.8	12.6	10.9	-3.5	-7.5	
Lisboa	4275	3.9	3.4	9.7	9.2	10.2			15.2	3.9	22.4	21.0	20.8	-8.4	-19.0	
Alentejo	913	8.6	4.1	9.0	9.3	8.7	-17.2	-23.6	4.9	2.0	11.7	11.8	11.8	7.4	6.3	
Algarve	2583	7.1	10.1	17.0	16.6	13.5	-25.4	-29.3	8.4	5.4	14.0	10.6	12.7	1.2	4.0	
RAA	1085	12.2	3.3	14.5	7.2	10.7	-17.0	-24.1	4.9	12.6	14.4	5.5	8.6	4.7	30.0	
RAM	1916	7.3	10.2	9.4	7.0	12.2	-12.3	-27.7	8.0	8.9	12.5	8.7	9.4	-2.2	-18.0	
Memo item: Y-o-y r.c. of the price index		8.0	11.6	11.3	8.7	8.7										

Source: Statistics Portugal. | Notes: (1) Dwelling sales median value per m<sup>2</sup>; (2) Median value per m<sup>2</sup> of new rental agreements for dwellings; (3) New rental agreements for dwellings; (4) Developments in the median price per square metre may differ from developments captured by the house price index, which, among other methodological differences, controls for changes in the characteristics/quality of the property trade. Porto Metropolitan Area; Lisboa Metropolitan Area; AAR: Azores Autonomous Region; MAR: Madeira Autonomous Region.

The number of dwellings put on the market for sale increased in the first half of 2023 compared with 2022, after a reduction between 2014 and 2021 (Chart I.1.38). The low supply elasticity to the sustained price increase in recent years has contributed to maintaining the pressure on prices.

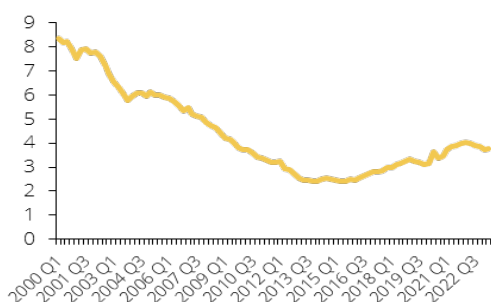
**Chart I.1.38 • Number of listed dwellings | Thousands**



Source: Confidencial Imobiliário. | Notes: This data includes only transactions carried out through real estate agents. No data is available for Alentejo between 2010 and 2013. Latest observation: 2023 Q2.

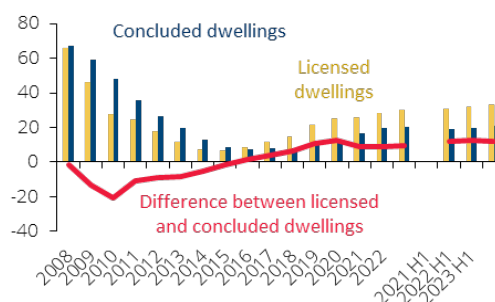
**Constraints in the supply of new housing contribute to the increase in residential real estate prices.** After the sharp decline during the sovereign debt crisis (2008-14), the number of buildings built per year has been slowly increasing. The share of construction in GVA decreased from 6.1% in the fourth quarter of 2009 to 4.2% in the second quarter of 2023. Gross fixed capital formation in housing as a percentage of GDP (3.8% in the second quarter of 2023) has been recovering from a low in 2014 (2.3% in the first quarter), in line with developments in the number of built dwellings. In the first half of 2023 (Chart I.1.39), the number of household dwellings, licensed and built, increased by 3% and 8% respectively compared with the same period one year earlier (Chart I.1.40).

**Chart I.1.39 • Gross fixed capital formation in housing | As a percentage of GDP**



Source: Statistics Portugal. | Note: Latest observation: 2023 Q2.

**Chart I.1.40 • Licensed and concluded dwellings | Thousands**



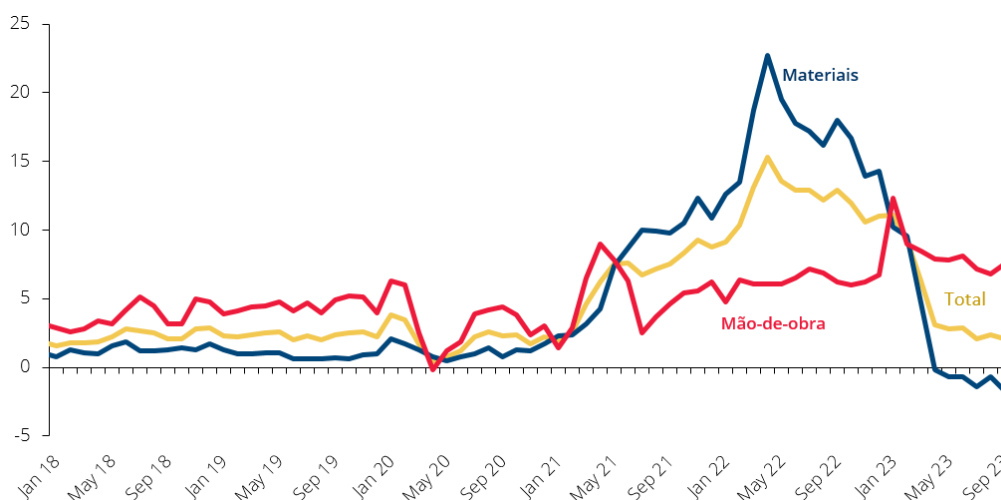
Source: Statistics Portugal. | Notes: Half-year figures are multiplied by two to allow comparison with annual figures. Household dwellings in new buildings.

According to the September 2023 survey of obstacles to construction activity, the most notable constraints on construction activity include **labour shortages (32% of firms)**, the **interest rate level (16%)** and the **lack of materials (13%)**. The share of firms highlighting labour shortages has remained relatively stable, while the share of firms pointing to a lack of materials decreased (-14 p.p. compared to September 2022).

The share of construction companies pointing to insufficient demand as an obstacle to activity remained low and on a downward path.

**Construction costs remained high, albeit decelerating in recent months.** Reflecting the time it takes to build/renovate real estate, the impact of increased construction costs on the selling prices of real estate tends to lag, so these may continue to be reflected in the price of real estate transactions and, in particular, new buildings. In September 2023, construction costs increased by 2.1% year on year, down from September 2022 (12.9%) (Chart I.1.41). The change in labour costs amounted to 7.5%, while costs related to materials decreased compared to September 2022 (-1.7%).

Chart I.1.41 • Year-on-year change in construction costs | Per cent



Source: Statistics Portugal.

**The importance of interest rates as an obstacle to construction activity has increased.** Growth in financing costs will tend to limit the construction of new buildings and the rehabilitation of used dwellings (NFC section for impact on the financing expenses coverage ratio). A slight tightening of credit standards for loans to construction (July 2023 Bank Lending Survey) may contribute somewhat to these dynamics. The share of firms identifying the difficulty in obtaining credit as an obstacle to activity remained contained in September 2023, and so far loans to the construction sector have yet to decline markedly.

**Some factors contribute to continued demand for residential real estate as an investment asset, although alternatives for investing savings have recently become more attractive.** Against the background of financial market volatility and economic uncertainty, this asset is still relevant for portfolio diversification. In addition, higher inflation may promote demand for residential real estate as a store of value.

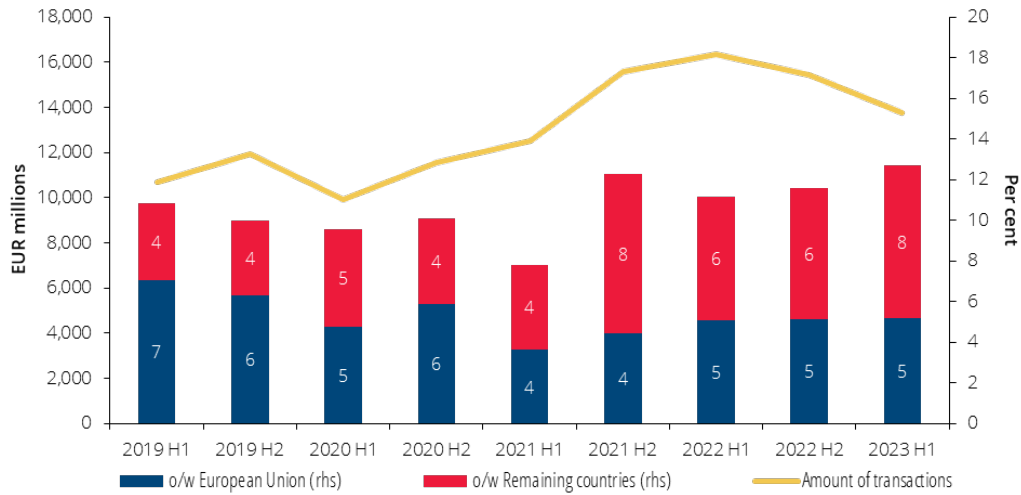
**Portugal's geographical location and the security and stability conditions that have made it a desirable destination continue to support demand from non-residents and foreign citizens residing in Portugal.** Over the past ten years, the increase in the participation of non-resident buyers has characterized the residential real estate market in Portugal. Given housing supply constraints, the impact of the slight increase in the resident population in recent years has been reinforced by this factor.

**In the first half of 2023, participation in the residential real estate market of buyers with tax residence outside Portugal (hereinafter non-residents) increased by 2 p.p. compared to the same period in 2022, to 12.7% of the amount of transactions.** The value traded by non-residents fell by 5% (-17% for the total) and the number of transactions decreased by 6% (-23% for the total). The average transaction value for non-resident buyers rose by 1% to €347 thousand and was 82% higher than the average amount of resident buyers (€190 thousand).

**In terms of the origin of non-resident buyers, there was an increase in the participation of buyers from non-EU countries.** This was the only buyer segment where the amount and number of transactions increased in the first half of 2023, year on year, by 4 p.p. and 10 p.p. respectively. Thus, the share of transactions by non-residents from outside the European Union rose by 2 p.p. compared to 2022 (Chart I.1.42). Indeed, in the first half of 2023, investors from the United Kingdom (12%), the United States (10%) and China (8%) were the main residential and commercial

real estate investors in Portugal. Investors from the European Union mainly originated in France (8%) and Germany (7%).

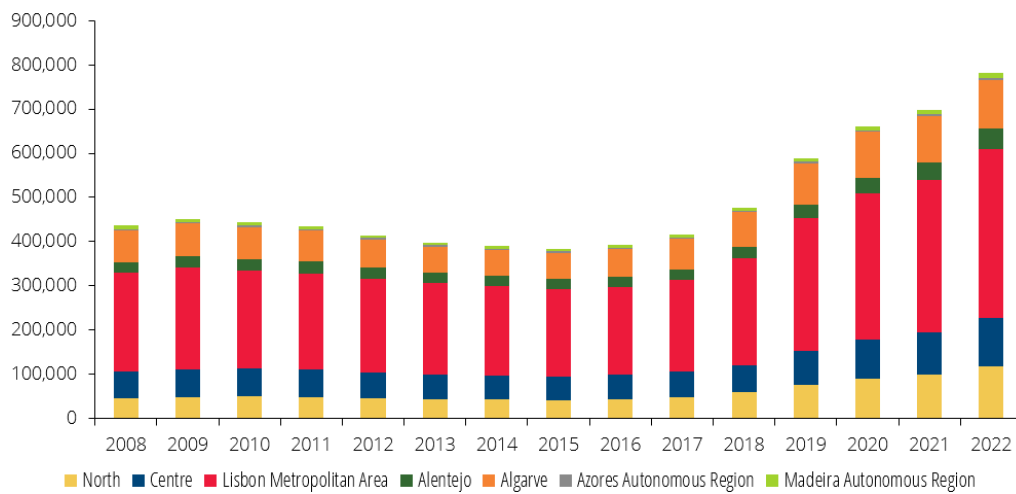
**Chart I.1.42 • Housing transactions in Portugal and share of non-residents**



Source: Statistics Portugal. | Notes: Including transactions by natural and legal persons. The term “non-residents” refers to citizens having their tax domicile outside Portugal. In the case of natural persons, the tax domicile is the place of habitual residence. In the case of legal persons, the tax domicile is the place of the head office or effective management or, in the absence thereof, their permanent place of establishment in Portugal.

Information on purchases by non-residents tends to underestimate the importance of foreign citizens for the residential real estate market, as many become residents in Portugal (tax domicile in the case of households). From 2017 onwards, net migration turned positive and there was a significant increase in the number of people in this situation, spread across the country, but with particular relevance in the LMA (49% of the total in 2022), Centre (15%) and Algarve (14%), where prices are higher and the pressure associated with tourism is also higher (Chart I.1.43).

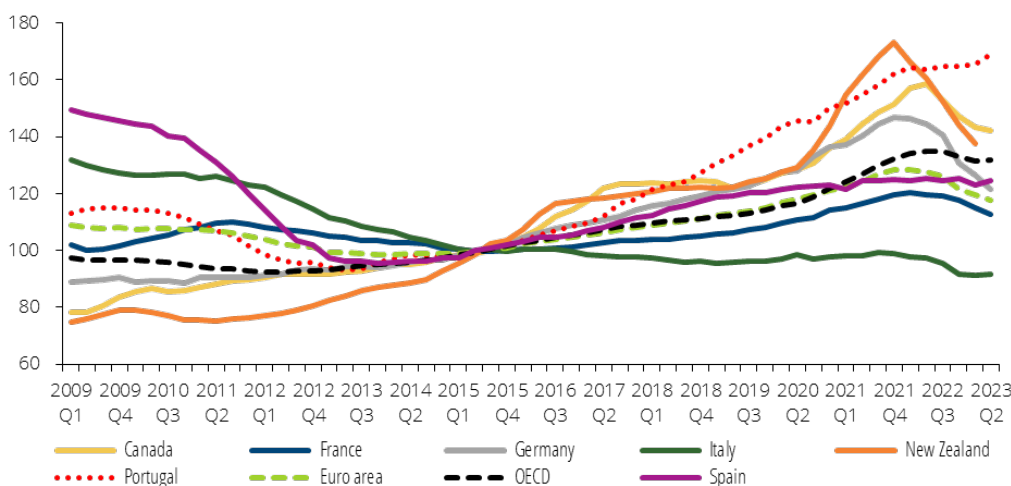
**Chart I.1.43 • Foreign citizens with resident status | Number of individuals**



Source: Pordata.

The house price index in real terms increased further in Portugal up to the second quarter of 2023, while in the euro area it decreased from the first quarter of 2022 onwards (Chart I.1.44). The slowdown in 2022 reversed in the second quarter in 2023, reflecting price growth in nominal terms exceeding the private consumption deflator. Some countries such as Germany, New Zealand and Canada have posted a reduction of between 10% and 21% in real terms since a peak in 2022, as well as a decrease, albeit smaller, in nominal terms.

Chart I.1.44 • Developments in the real housing price index | Index 2015=100

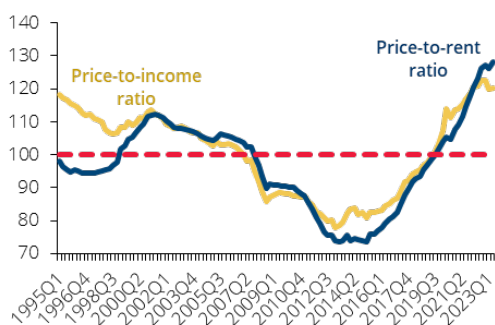


Sources: OECD and Statistics Portugal (Banco de Portugal calculations). | Notes: Price indices deflated by the private consumption deflator. Latest observation: Second quarter of 2023 (in the case of New Zealand, the latest observation available is for the first quarter of 2023).

**Signs of overvaluation in the Portuguese residential market decreased from the fourth quarter of 2022 onwards.** The concept of house price overvaluation or undervaluation refers to the notion of imbalance in the price setting mechanism, showing a deviation from what is deemed to be an equilibrium value. This imbalance may be due to market imperfections and frictions that hinder the adjustment between housing supply and demand. Two different approaches are considered, namely: (i) statistical indicators; and (ii) models that consider structural factors determining house prices, among others, the disposable income of households participating in the housing market and the interest rate.

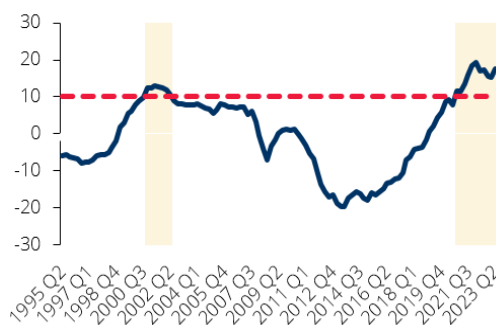
In the second quarter of 2023, statistical indicators remained above the values taken as a benchmark to signal potential episodes of overvaluation (Charts I.1.45 and I.1.46). However, from the end of 2022 the price-to-income ratio and the deviation from its long-term trend narrowed slightly. Yet the ratio of prices to rentals of total rented housing (main residence dwellings) widened further.

**Chart I.1.45 • Standardized ratios of house prices to income and rents**



Source: OECD. | Notes: (1) Developments in rents reflect the index of actual rents paid by prime residence tenants (COICOP 04.1) included in the calculation of the Consumer Price Index. Overvaluation periods are considered to be those in which standard ratios exceed the 100 threshold. Latest observation: 2023 Q2.

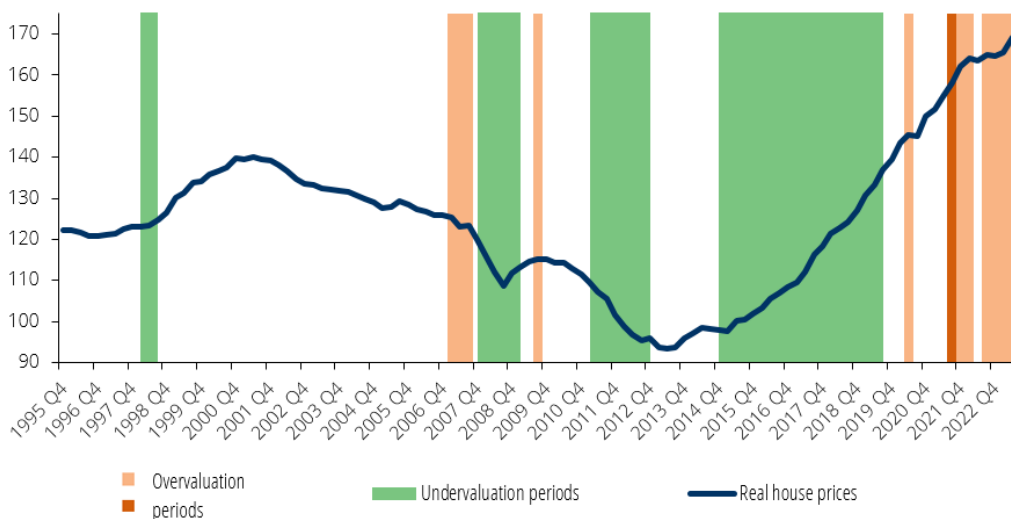
**Chart I.1.46 • Deviation from the long-term trend of real house prices**



Source: OECD (Banco de Portugal calculations). | Notes: Long-term trend obtained using the HP filter. Overvaluation periods are those in which the index is 10% above its long-term trend. Latest observation: 2023 Q2.

Since the third quarter of 2022, at least two models based on macroeconomic determinants point to an overvaluation in the residential real estate market (Chart I.1.47). Nevertheless, these estimates should be interpreted with special care due to methodological limitations and consequent uncertainty associated with the results. In particular, they might not appropriately capture the participation of non-residents in the market and the role played by tourism in determining housing supply and demand. Both factors have evolved considerably in Portugal in the past few years. However, treating them as fundamental determinants of residential real estate prices is uncertain.

**Chart I.1.47 • House prices and valuation measures in real terms | Index 2015=100**



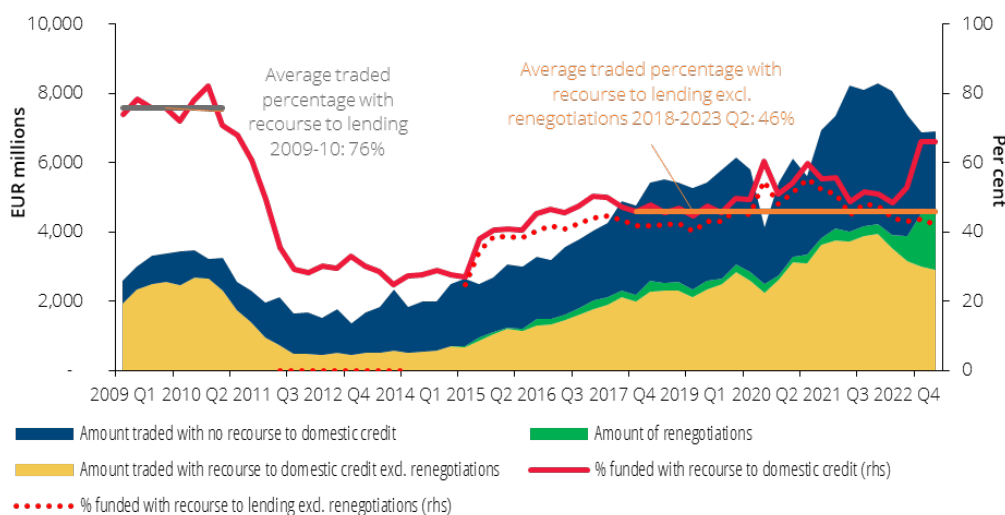
Sources: ECB and OECD (Banco de Portugal calculations). | Notes: Overvaluation and undervaluation periods correspond to situations in which at least two models out of three identify an imbalance in house prices. For further details on this methodology, see the Special Issue entitled "Housing price assessment methodologies applied to Portugal" in the December 2019 issue of the Banco de Portugal's *Financial Stability Report*. Latest observation: 2023 Q2.

According to the 2021 census, 38% of households that own their housing have a mortgage on it, corresponding to 27% of total households. The share of households owning their main residence (70%) reinforces the importance of developments in this market for household wealth. However, this share has been on the decline over the last two decades (from a peak of 76% in 2001). Loans to households secured by real estate continued to have a significant weight on the Portuguese banking system's assets, standing at 26.2% in June 2023 (25.3% in 2011).

In an international environment characterised by heightened geopolitical tensions, uncertainty about the duration of monetary policy tightening and a deteriorating economic outlook, the likelihood of a price correction in the residential real estate market tends to increase despite mitigants in place. The materialisation of this scenario increases the credit risk of the housing loan portfolio.

The share of transactions financed with recourse to credit (excluding renegotiations) decreased further in the second quarter of 2023, to 40%, below the average in the period from the beginning of 2018 to the second quarter of 2023 (-6 p.p.) (Chart I.1.48). This indicator stood at 76% in the period before the sovereign debt crisis.

**Chart I.1.48 • Transactions in dwellings vs. new loans for house purchase between 2009 Q1 and 2023 Q2**



Sources: Banco de Portugal and Statistics Portugal. | Notes: Information available up to December 2014 does not make it possible to isolate new loans associated with renegotiations. However, these loans are estimated to account for a residual share of the total volume of new business and therefore have no impact on the historical comparison presented. In the recent period, there has been a substantial volume of credit transfers (Section 2.1), which are accounted for as new loans for house purchase, helping to inflate the share of transactions financed with recourse to credit. Latest observation: 2023 Q2.

From a medium-term perspective, the cumulative price growth rate between the fourth quarter of 2016 and the third quarter of 2022 was 76%, compared with a 6% change in the stock of loans to households for house purchase. This limits the impact of a possible correction in house prices on the economy and the banking system. Many empirical studies have documented that, in situations of marked house price growth, the impact of a reversal on the banking system and the economy tends to be stronger when such growth occurred in tandem with a substantial increase in the stock of loans for house purchase.

The limited supply of new dwellings and the lack of an accumulated stock of available dwellings mitigates the impact on prices if demand wanes. The banking sector's exposure to the construction sector is also lower; loans for construction accounted for 8% of total loans to NFCs in August 2023, down from 23% in December 2009.



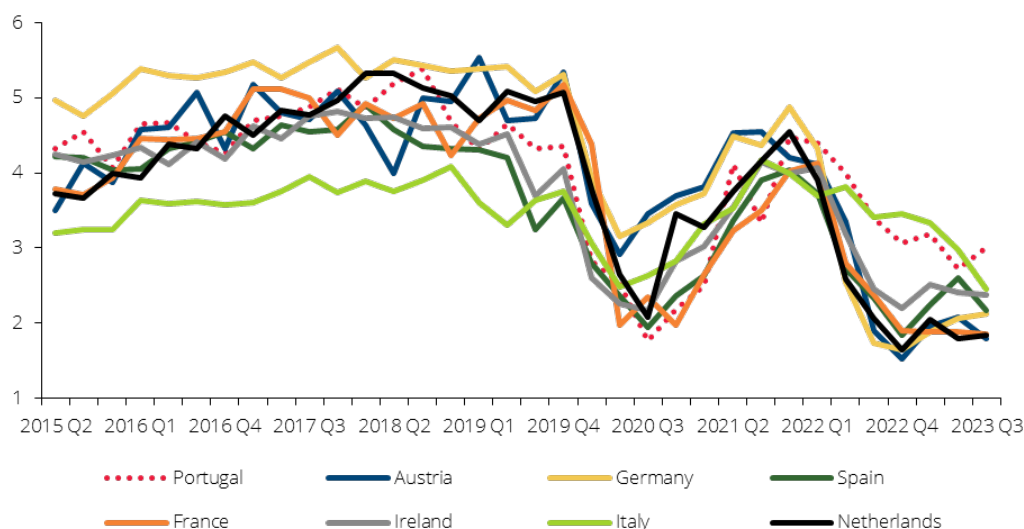
According to the survey of residential real estate agents and promoters,<sup>2</sup> business and price expectations over the three-month horizon indicate a stabilisation, albeit surrounded by uncertainty. Within 12 months, a slight increase in prices is expected, driven by developments in the Lisbon area. In the rental market, it is expected that demand and supply will continue to rise, which so far has resulted in a continuous increase in prices. This increase is also expected to continue.

In February 2023 the government released proposals targeting housing, to increase real estate supply in the market, simplifying licensing procedures and boosting the rental market. Support was announced on the same date for the payment of rent and instalments on loans for house purchase, provided that the beneficiaries meet income and debt service requirements, measures already implemented and recently extended in terms of coverage and maximum amounts. Additionally, in early November 2023 a measure temporarily reducing instalments on loans for house purchase entered into force for a period of up to 24 months, to be offset in instalments payable at a later stage in the life-cycle of the loan.

### Commercial real estate market

The perception of market agents points to a contraction in the commercial real estate market that started in 2022 and did not worsen in 2023. Developments in Portugal were in line with those in other euro area countries, albeit with a less sharp contraction (Chart I.1.49). Supply shortages seem to have contributed to price resilience in Portugal in the recent period.

Chart I.1.49 • Perceptions on the stage of the commercial real estate cycle | Weighted average



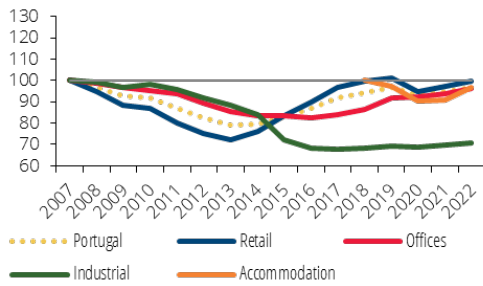
Source: Royal Institution of Chartered Surveyors – RICS. | Notes: The values on the vertical axis correspond to the average of survey responses (1-6). Low values correspond to a higher share of responses that the commercial real estate market cycle is in a downturn, while higher values correspond to the opposite situation, i.e. a higher share of responses according to which the cycle is expanding.

In the Portuguese market, cumulative growth in commercial real estate prices over the last ten years has been subdued and much lower than that in residential real estate. Similarly, this growth

<sup>2</sup> Portuguese Housing Market Survey, August 2023, Confidencial Imobiliário.

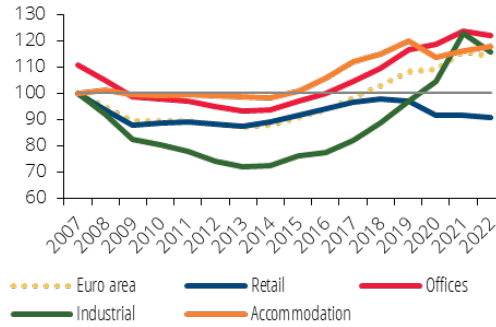
was lower than for a set of euro area countries (Charts I.1.50 and I.1.51). From 2020 onwards, most commercial real estate segments in Portugal almost recovered from their losses following the financial and sovereign debt crises, except for the industrial and logistics segment. In the euro area, excluding retail, the price increase was more marked and broadly based across segments.

**Chart I.1.50 • Developments in commercial real estate prices in Portugal, by segment**  
| Index 2007=100



Source: Morgan Stanley Capital International (MSCI). | Note: Data for the accommodation segment available from 2018 onwards.

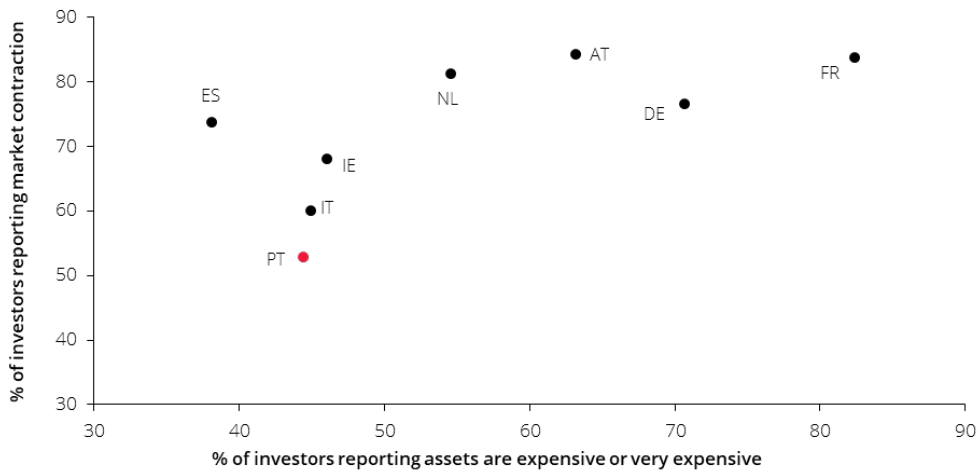
**Chart I.1.51 • Developments in commercial real estate prices in the euro area, by segment**  
| Index 2007=100



Source: Morgan Stanley Capital International (MSCI).

The share of market participants assessing commercial real estate as expensive or very expensive is lower than in other euro area countries, with the same being true for the share of those assessing that the market will contract (Chart I.1.52).

**Chart I.1.52 • Views from market participants as to commercial real estate prices** | Per cent



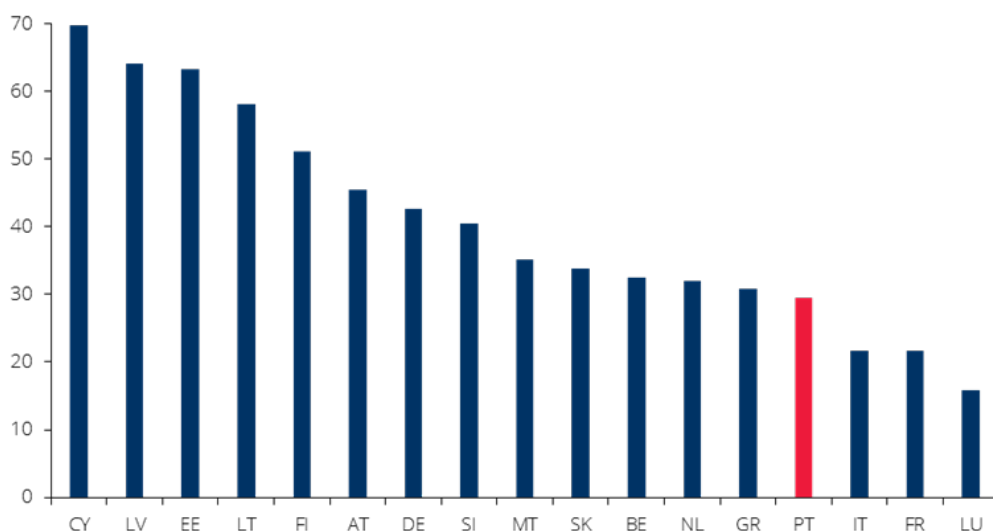
Sources: Global Commercial Property Monitor, Royal Institution of Chartered Surveyors – RICS. | Note: Data for the third quarter of 2023.

**Uncertainty has led to investment decisions being postponed.** By the end of the first half of 2023, the amount of commercial real estate transactions fell in Portugal,<sup>3</sup> by -8% from the first half of 2022. Transactions with non-residents continued to account for a dominant share of the total in the first half of 2023 (81%), with US-based capital standing out in this market. In the euro area, transactions decreased (-47% in the first half of 2023 compared to the same period in 2022).

**Rising interest rates and the slowdown in economic activity are expected to continue to constrain activity in this sector.** In turn, the completion of transactions delayed during the phase of heightened uncertainty may translate into some price correction, with potential heterogeneity across market segments.

**The banking sector's exposure to commercial real estate is limited and considerably lower than that of residential real estate.** In addition, as capital requirements for this type of credit are higher than those for residential real estate, any adverse developments in this segment will tend to have little impact on financial stability. In June 2023 loans to NFCs secured by real estate (€25 billion) accounted for around 30% of total loans to NFCs on a consolidated basis, a muted level compared with the euro area (Chart I.1.53). This exposure compares with around €114 billion in the form of loans to households secured by real estate, mostly loans for house purchase (Section 2.4).

**Chart I.1.53 • Loans to NFCs secured by real estate in Portugal and in the euro area – June 2023** | As a percentage of total loans to NFCs



Sources: ECB and Banco de Portugal. | Notes: Consolidated data. Ratio obtained from figures net of impairments. Includes loans to NFCs secured by (commercial or other) real estate. Data not available for Spain or Ireland.

**Risks related to real estate investment funds (REIFs) holding commercial real estate assets are also assessed as low.** In Portugal, 63% of the shares issued by REIFs relate to closed-ended funds, which have low liquidity risk (Box 2).

**Overall, the balance of risks and vulnerabilities in the commercial real estate market remains low, in particular with regard to potential impacts on the financial sector.** In addition, as the future path

<sup>3</sup> JLL – Market Pulse Portugal – Q2 2023.

of interest rates becomes clearer, uncertainty may decline, contributing to a more positive outlook for this market.

### 1.3.5 Non-banking financial sector

The marked rise in key interest rates in major economies such as the United States and the euro area has led to a reduction in risk exposure in the portfolios of the international non-bank financial system. With the rise in short-term and long-term interest rates, the search for yield – which prevailed in the period of very low interest rates – has eased. More recently, the sector has favoured (re-)investment in higher-quality debt instruments. Despite the ongoing risk reduction process, some subsectors remain vulnerable to liquidity risks.

Prospects of an economic slowdown, more persistent inflation and tighter monetary conditions may contribute to lowering the creditworthiness of the sector's assets, leading to credit rating downgrades and value losses, reflecting the increased probability of issuers' default. The materialisation of a more adverse macro-financial scenario most clearly affects issuers that are more sensitive to cyclical developments, be they firms or sovereigns, more indebted and/or with revenue levels more exposed to economic slowdown. Adverse developments in the financial position of these agents, both actual and/or expected, are leading to an increased frequency of downgrades in credit ratings and, more significantly, a negative rating outlook in non-bank financial sector bond portfolios.

Value losses already affect real estate portfolios in several European countries, as opposed to Portugal. The loss of attractiveness of investment in real estate assets, also driven by higher interest rates on low-risk assets, may lead to a retrenchment in these investments, thereby amplifying adverse price developments.

Given the decreasing value of the non-bank financial sector's underlying assets, redemptions could increase, making liquidity risk more substantial. In a context of write-downs, an intensification of redemptions could put additional pressure on prices. For investment funds, this is a structural vulnerability of the business model, which has intensified in recent years, owing to the lower share of liquid assets in total assets. Should market developments be adverse, the non-bank financial sector will make a procyclical contribution, enhancing the materialisation of market risk for all sectors sharing the affected exposures.

The systemic effect of the sector's liquidity risk (in particular, investment funds) is linked to its leverage levels. Either through borrowing (e.g. through securities repurchase transactions) or derivatives exposures (synthetic leverage), increased leverage may originate contagion effects (perhaps at a systemic level) of adverse developments in the sector to its counterparty sectors.

The sector is exposed to liquidity risk stemming from requirements to meet margin and collateral requirements in derivatives contracts, which may give rise to negative feedback loops across the financial market. Market participants may be forced to sell assets during times of distress, putting additional pressure on their prices and thereby requiring enhanced hedges, potentially making localised liquidity tensions systemic. This was the case in September 2022, when a sudden increase in yields on UK sovereign debt securities drove UK pension funds to sell long-term Treasury bonds in illiquid markets, forcing the Bank of England to intervene.

Overall interest rate developments benefit the performance of the insurance and pension fund sectors in terms of profitability and capital. This reflects, on the one hand, a higher return on assets and, on the other hand, a negative maturity gap – the maturity of liabilities exceeds that of assets. Any asset devaluations, as occurred in 2022, are more than offset by write-downs on liabilities.

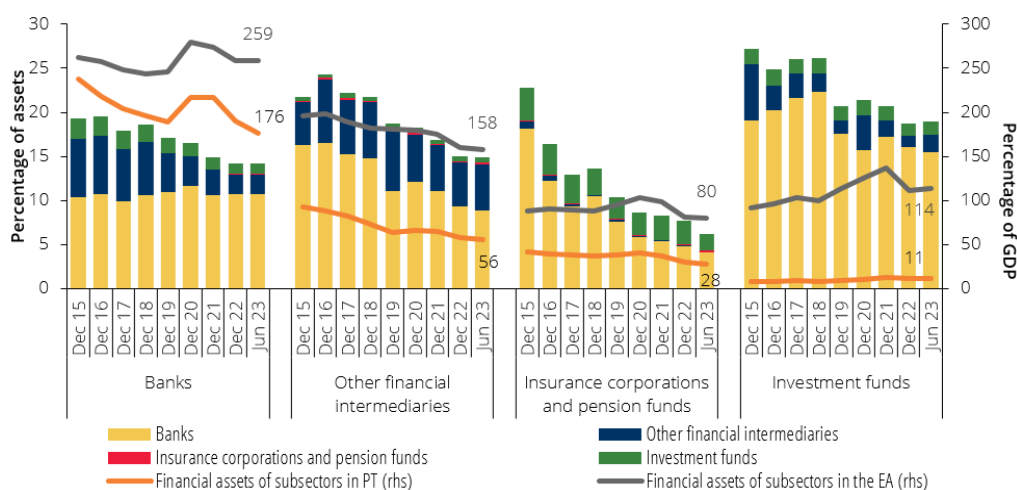
The European insurance sector is resilient, but developments in economic and financial conditions pose challenges. The sector has adapted to changing monetary conditions, amid robust economic activity. However, the slowdown in economic activity and the increase in interest rates tend to weigh on the sector's activity and to magnify the non-rollover of products subscribed to by

customers. In life insurance, this may occur if the return offered by insurance companies does not keep pace with rising interest rates. In the longer term, the sector will have to adapt to the impact of materialising effects of climate change on its costs, by implementing policy initiatives to foster a narrower gap in the protection against climate events.

The materialisation of risks affecting the non-bank financial sector in the euro area is likely to have adverse effects on international financial markets and the Portuguese financial sector.

In Portugal, the non-bank financial sector continued to account for a small share in the economy (94% of GDP), compared with 352% in the euro area (Chart I.1.54). In particular, investment funds account for only 11%, while in the euro area they represent a share of 114%. In addition, intra-sectoral exposure has been on the decline, which could mitigate contagion risk. Over time, exposure to the banking sector, a component that is most significant within each subsector, became less prominent in the remaining subsectors of the financial sector, with the exception of the banking sector itself.

**Chart I.1.54 • Relative size of the financial system in Portugal and in the euro area**  
| As a percentage of assets and GDP



Sources: ECB and Banco de Portugal. | Notes: Total non-consolidated assets of each sector were considered. In the case of banks, the latest figure for financial assets as a percentage of GDP available for the euro area refers to December 2021. The following financial assets were considered in the calculation of exposure: deposits, debt securities, loans, shares and other investment funds units and listed shares. For simplification purposes, other financial intermediaries refer to the sum of the following subsectors: S125 – Other financial intermediaries except ICPFs, S126 – Financial auxiliaries and S127 – Captive financial auxiliary institutions and lenders. In Portugal, this sector is mostly made up of captive financial institutions and lenders. For more details on this classification, see “Institutional sectors breakdown – ESA2010”.

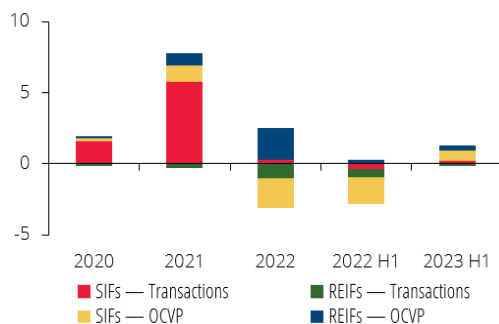
In the first half of 2023 the growth trend in fund assets that started at the end of 2022 continued, reflecting the increase in value of securities investment funds (SIFs) and, to a lesser extent, real estate investment funds (REIFs) (Chart I.1.55). The increase in value of SIFs was broadly based across the different types of funds, as a result of equity and bond market gains in the first half of the year. This increase in value was most substantial in SIFs investing in equity. The continued price increase in the real estate market will sustain the further increase in value of REIFs.

The increase in net subscriptions of SIFs was similar to that in REIF redemptions. These developments in SIFs stem from the marked increase in net subscriptions of bond funds compared to the amount of mixed fund redemptions.

The stress test conducted by the Portuguese Securities Market Commission on SIFs domiciled in Portugal, with reference to October 2022, concluded that most SIFs are resilient to potential liquidity stress situations. The exercise concluded that most of these funds have sufficient liquid

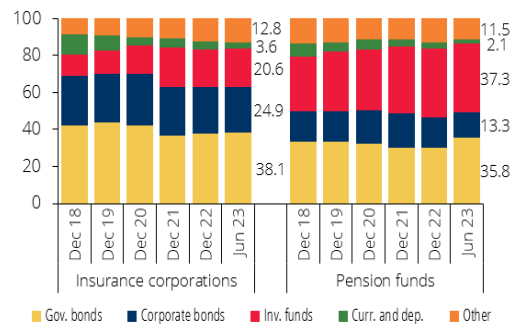
assets to cope with abnormal redemption volumes, similarly to that observed during the 2008 financial crisis (in the month following the collapse of Lehman Brothers) or the outflows observed in March 2020 during the COVID-19 pandemic. Furthermore, given that the portfolio of these institutions is relatively smaller and mostly composed of foreign instruments, the possibility of contagion to other subsectors of the Portuguese financial system, through fire sales of assets, would also be limited.

**Chart I.1.55 • Total shares/units issued by investment funds: transactions and other changes in value and price | EUR billions**



Source: Banco de Portugal. | Note: SIFs — securities investment funds, REIFs — real estate investment funds, OCVP — other changes in value and price.

**Chart I.1.56 • Composition of assets and technical provisions | As a percentage of the total insurance or pension fund portfolio**



Source: Insurance and Pension Funds Supervisory Authority. | Notes: Gov. bonds – Government bonds; Inv. funds – Investment funds; Curr. and dep. – Currency and deposits. ‘Other’ also includes real estate, derivatives, mortgages and structured products.

The assets of insurance companies and pension funds are highly exposed to sovereign and private debt markets as well as to investment fund shares. In June 2023 the share of private and public debt in the investment portfolios of insurance companies and pension funds accounted for 63% and 49% respectively, resulting in exposures to market risk associated with losses in case of sale (Chart I.1.56). Exposure to investment funds, albeit smaller, is still somewhat considerable, accounting for 21% and 37% of the insurance and pension fund portfolio respectively. Exposure to fund units mostly translates into real estate risk, given that 70% of the portfolio comprised of fund units corresponds to real estate funds. In addition, for insurance companies, debt securities accounted for 85% of the non-linked life insurance investment portfolios and 49% of the non-life insurance portfolios.

In recent years, the creditworthiness of insurance and pension fund portfolios has improved more discernibly. In particular, insurance companies reduced the representativeness of BBB-rated securities in 2022 from 56% to 37%, while increasing that of AA-rated securities from 10% to 26%. As regards pension funds, there was also a reduction in the share of BBB-rated securities (-8.8 p.p.) in favour of AA- and AAA-rated securities. However, the risk of devaluation of the investment and counterparty portfolios is still substantial, although the current environment of higher interest rates makes it possible to mitigate the risk of reinvestment of their portfolios. According to Insurance and Pension Funds Supervisory Authority data, it can also be concluded that the insurance sector has increased the concentration of its investment portfolios on shorter maturities, slightly reducing the overall duration of the bond portfolio and thus its exposure to interest rate risk in this way.

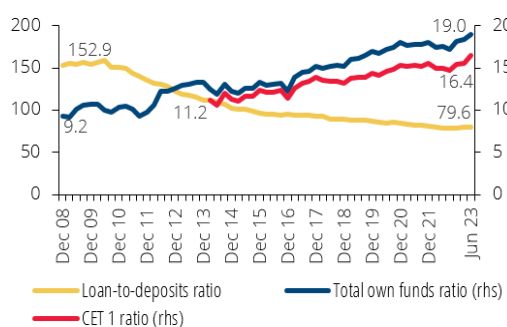
According to the Insurance and Pension Funds Supervisory Authority, the relatively comfortable solvency levels of the insurance and pension fund sectors in 2022 provide some leeway against future adverse developments.

### 1.3.6 Banking system

The banking sector has improved its liquidity, asset quality, solvency and, more recently, profitability. The sector's resilience has been strengthened, fostering the ability to maintain financial intermediation functions amid a possible materialisation of risks (Charts I.1.57 and I.1.58).

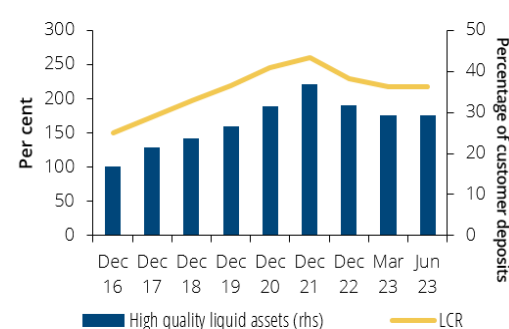
Against a background of economic growth, high employment, rising prices and interest rates, profitability has increased, largely reflecting the rise in net interest income, thereby facilitating organic capital generation.

**Chart I.1.57 • Loan-to-deposit, total own funds and CET1 ratios | Per cent**



Source: Banco de Portugal.

**Chart I.1.58 • Liquidity coverage ratio and highly liquid assets**



Source: Banco de Portugal.

**Net interest income is the most important component behind the Portuguese banking system's profitability.** The level reached reflects the asymmetry in the pass-through of rising interbank interest rates to interest rates on loans and deposits and the balance sheet adjustment of the past decades, with a strengthening in the structure of deposit funding to the detriment of funding in international wholesale financial markets (Box 3).

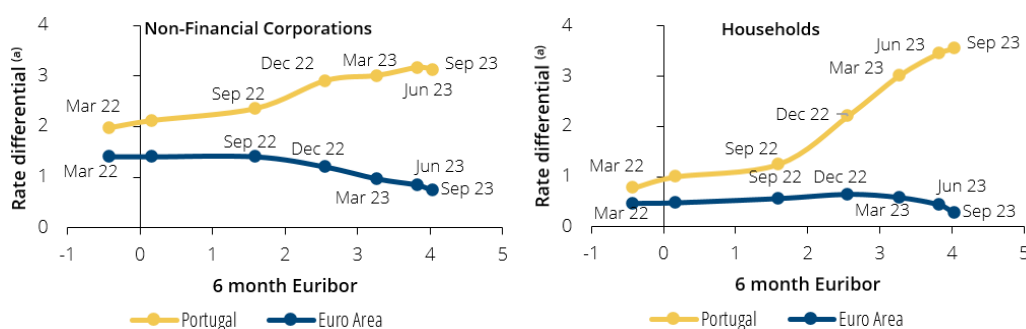
The pass-through of rising interbank interest rates to interest rates on loans was faster than for time deposits, with Portugal being one of the euro area countries where rates on household time deposits have been stickier (Chart I.1.59). However, given the relatively higher share of time deposits in the funding structure of Portuguese banks, the impact of rising interest rates on the total cost of deposits is closer to that observed in the euro area (Box 4).

In Portugal, most loans tend to reflect the rise in interbank interest rates, given the share of variable interest rates in loans to households for house purchase and the share of transactions with NFCs with an initial rate reset period of up to one year. This pattern differs from that observed in most euro area countries, where the pass-through is less complete in the near term.

The spread between lending and deposit rates is expected to narrow as the pass-through to deposit rates intensifies. On the other hand, rising interest rates increase the opportunity cost of holding demand deposits, so a shift to time deposits and other assets is expected. However, the level already reached by interbank interest rates is compatible with the maintenance of net interest income at historically high levels.

Over the past few years, spreads on new loans for house purchase have narrowed. This reduction started in 2014 and was also accompanied by lower dispersion. In 2023 (up to August), spreads of the lowest percentiles in the distribution remained still above those observed before the international financial crisis. As would be expected, spreads on new loans to firms continued to be larger for firms in the highest risk class. It is crucial that spreads on new loans adequately reflect debtors' credit risk.

Chart I.1.59 • Spread between interest rates on outstanding loans and deposits and the 6-month Euribor | Per cent and percentage points



Sources: ECB and Banco de Portugal. | Notes: (A) Spread between the interest rate on loans and the interest rate on time deposits. For households, the interest rate on loans refers to loans for house purchase.

The rise in interest rates translates into an increase in the debt service burden of households and firms, contributing to potentially higher materialisation of credit risk. This risk has been mitigated by robust economic activity, the resilience of the labour market, government initiatives and the solutions proposed by banks to bring the loan burden into line with borrowers' ability to pay. While the non-financial private sector's NPL ratio remained stable in the first half of 2023 (in gross terms and net of impairments), developments were mixed among NFCs and households. The NFCs' gross NPL ratio narrowed to 6.2%, while the households' ratio widened by 0.1 p.p. to 2.4%, owing to an increase in non-performing loans for house purchase and consumption and other purposes. These mixed developments were associated with the differing impact on the financial position of both sectors, the environment of high inflation and the increase in interest rates, which has been more substantial for households (Section 2).

The deterioration in the quality of loans to households in the first half of 2023 was limited, resulting in an increase in the share of stage 2 loans and forbore loans (Section 2.3). Looking ahead, a scenario of more persistent inflation warranting tight monetary conditions for a more protracted period, coupled with a slowdown in economic activity and an increase in unemployment, will tend to translate into a more marked materialisation of credit risk. A less favourable macro-financial scenario may also be associated with a devaluation of the real estate assets held by banks and of collateral for loans, although this risk is mitigated by the low share of loans with an LTV ratio above 80%.

Given the possibility of adverse developments in international financial markets, with an impact on long-term interest rates, there is a risk associated with the devaluation of fixed-rate debt securities in the banks' portfolio. However, these securities are mostly measured at amortised cost and, as such, their balance sheet value does not reflect market fluctuations. As of December 2022, if debt securities recorded at amortised cost were to be settled, they would have a -2.5 p.p. impact on the CET1 ratio of the seven major banks in the system.

Banks do not need to sell fixed-rate debt securities for liquidity purposes, given that the latter can serve as collateral either in transactions with the Eurosystem or in interbank transactions (e.g. repurchase agreements). This possibility was explored by banks in the course of the second quarter through operations with non-resident banks, followed by a reduction in both funding and net investment with the central bank. However, regulatory liquidity ratios could also be affected by potential value losses on debt securities since, for the purposes of liquidity requirements, debt securities are measured at market value, reflecting price changes independently of the accounting portfolio. In the case of the Portuguese banking system, several factors mitigate the impact on liquidity of recognising possible losses, namely the stability of the funding structure, which relies on retail deposits, and liquidity buffers that contribute to the high liquidity coverage ratio (LCR)



level. Notably, Portuguese banks hold a stock of high-quality liquid assets at market prices corresponding to 30% of customer deposits.

**Portuguese banks managed to accommodate a significant decrease in household deposits in early 2023 by reducing their investments with the Eurosystem (Box 1).** The deployment of funds for the subscription of savings certificates and the early repayment of loans for house purchase contributed to the €7.6 billion reduction in household deposits in the first quarter of 2023. This had a small impact on the banking system's loan-to-deposit ratio, which remained low within the European context. However, the reduction in deposits has illustrated the importance of banks keeping liquidity robust to cope with unexpected events, both via investments with the Eurosystem and by holding highly liquid assets to be used as collateral in securities repurchase agreements.

**In a scenario of parallel changes in the interest rate curve, be it upward or downward, the impact on the economic value of own funds will tend to be limited for the banking sector.** The distribution of net interest income is concentrated in positive changes in a scenario of rising interest rates, with the opposite applying under a downside scenario (Special issue "Interest rate risk in the banking book"). These results show that Portuguese banks, which mostly grant variable-interest rate loans, are little exposed to interest rate risk in the banking book, but, conversely, are more exposed to credit risk materialising.

In late July 2023, the EBA published the results of a stress test exercise conducted every two years. The exercise consists of projecting banks' solvency over a three-year horizon under a baseline scenario and an adverse macroeconomic and financial scenario. The results for Portuguese banks participating in the exercise confirm the resilience of the largest Portuguese institutions against the hypothetical materialisation of adverse scenarios. This result is partly due to the better starting position in terms of credit quality and solvency compared to previous exercises.

**To foster resilience from a more structural perspective, financial institutions must also address the challenges arising from digitalisation and climate change. In addition, anti-money laundering and counter-terrorism financing is a crucial part of its risk management.**

As regards the digitalisation of financial services, recent events highlight: (i) the possible implications of using digital platforms on the speed of deposit withdrawals, (ii) the prospects for investing in artificial intelligence tools and (iii) the need for enhanced operational resilience to tackle cyber incidents.

**The potential systemic materiality of cyber-attacks underscores the importance of national and European competent authorities continuing to invest in building a regulatory and supervisory framework that fosters the financial sector's operational resilience.** The European Supervisory Authorities (ESAs) continue to work towards the implementation of Regulation (EU) 2022/2554 on digital operational resilience for the financial sector (DORA), including looking into various regulatory technical standards (RTS) in key areas such as information and communication technology (ICT) risk management, reporting and management of ICT-related incidents, digital operational resilience testing and management of ICT third-party risk. They are also preparing for the gradual development of a pan-European systemic cyber incident coordination framework (EU-SCICF), in line with the Recommendation of the European Systemic Risk Board (ESRB). The ESRB has also continued its work to put in place a macroprudential framework for cyber risks, and in February 2023 it released its latest report "Advancing macroprudential tools for cyber resilience". Also, the Single Supervisory Mechanism (SSM) sees cyber resilience as one of its supervisory priorities. Among other supervisory actions, work is currently under way to develop a Cyber Resilience Stress Test.

**The Governing Council has decided to move to the preparation phase of the digital euro project.** The project should include the necessary financial stability safeguards, notably regarding its impact on bank deposits.

**As part of the effort to improve the regulatory framework for environmental, social and governance (ESG) factors, institutions are now subject to increased sustainability reporting requirements (e.g.**

**Pillar 3, European sustainability reporting standards (ESRS)), especially from an environmental point of view.**

Increasing market transparency is of particular importance for consumers/investors given that, by promoting an informed choice about the “green credentials” of financial instruments marketed by institutions, it helps consumers/investors guided by their own preferences and goals to contribute to an orderly transition towards meeting international climate commitments.

Greenwashing practices,<sup>4</sup> or the mere perception thereof, pose financial risks for credit institutions (including reputational and litigation risks) and, to the extent that they broadly affect confidence in institutions and lead to a significant and disorderly outflow of funds, could undermine financial stability.

**Therefore, mitigating greenwashing risks is a key concern in the (still under development) legislative and regulatory architecture in the area of sustainability.** Examples of recent relevant initiatives targeting this objective include: (i) the adoption by the European Commission in July 2023 of the first set of ESRS under the Corporate Sustainability Reporting Directive<sup>5</sup> to create a harmonised minimum disclosure framework for green bonds and (ii) the political agreement reached in October 2023 on the Regulation to establish a voluntary high-quality standard in the EU for the issuance of green bonds (EU Green Bond Regulation).

**The Banco de Portugal has continued to work on anti-money laundering and counter-terrorism financing (AML/CTF) on three fronts: follow-up to European legislative proposals, on-site supervision and off-site supervision.** The Banco de Portugal has continued to participate in the negotiation process of the European package of legislative proposals known as the ‘AML Package’ (submitted by the European Commission in July 2021) and has started monitoring the ‘Single Currency Package’, published by the European Commission on 28 June 2023. As regards on-site supervision, the Banco de Portugal followed up on the second stage of the thematic cycle on the monitoring of the procedures implemented by supervised entities to address the ML/TF risk associated with the granting of the Residence Permits for Investment Activity. Turning to off-site supervision, actions to verify compliance with supervisory measures issued and the Banco de Portugal’s participation in AML/CFT supervisory colleges were particularly noteworthy. Also, the technical advice project of the European Commission/Council of Europe aimed at strengthening the risk-based supervisory methodology has been completed, to lead to the redrafting of the AML/CTF Report and, subsequently, of the model for allocating risk to supervised entities. Finally, there was also an intensive exercise of the so-called market entry functions, namely the monitoring of processes for setting up financial entities and acquiring qualifying holdings, as well as the registration of two new entities carrying out activities involving virtual assets.

## 1.4 Macropprudential policy

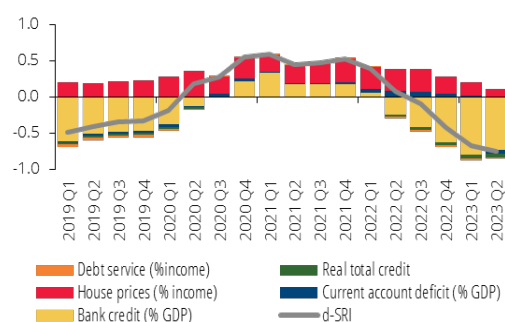
**Since the beginning of the year, the financial cycle has shown signs of reversal and is currently characterised by a reduction in cyclical systemic risk.** In fact, the indicator for the build-up of domestic cyclical systemic risk indicator (d-SRI), after almost three years in positive territory, returned to negative values as of the third quarter of 2022 (Chart I.1.60). This reflected the combined effect of a decline in the positive contribution of real estate prices and an increase in the negative contribution of bank credit. The positive contribution of residential real estate

<sup>4</sup> In this regard, see the proposed definition of greenwashing, developed by the three ESAs (EBA, ESMA and EIOPA) and published on 31 May 2023 in their progress reports, in response to a request from the European Commission – [https://www.esma.europa.eu/sites/default/files/2023-06/ESMA30-1668416927-2498\\_Progress\\_Report\\_ESMA\\_response\\_to\\_COM\\_RfI\\_on\\_greenwashing\\_risks.pdf](https://www.esma.europa.eu/sites/default/files/2023-06/ESMA30-1668416927-2498_Progress_Report_ESMA_response_to_COM_RfI_on_greenwashing_risks.pdf)

<sup>5</sup> Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.

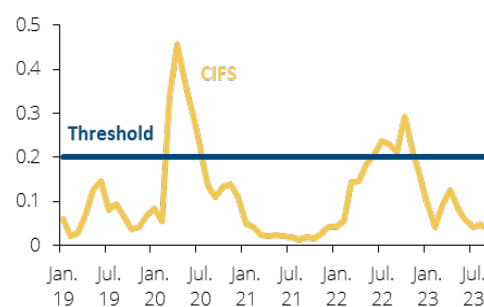
continues to reflect the historically high price growth rate in this market. The negative contribution of bank credit reflects the reduction in lending to non-financial corporations (NFCs), the deceleration in lending to households and, above all, the increase in GDP. The composite indicator of financial stress, concurrently signalling the deterioration in financing conditions, has gradually decreased since the beginning of 2023, reflecting the decrease in volatility in the bond market, money market and financial intermediaries market segments (Chart I.1.61). **In this context, the Banco de Portugal decided to maintain the countercyclical capital buffer rate at 0% during the fourth quarter of 2023.**

**Chart I.1.60 • Domestic cyclical systemic risk indicator | Standard deviations from the median**



Sources: ECB and BIS (Banco de Portugal calculations). | Notes: The d-SRI, developed by Lang et al. (2019), is an aggregate indicator aimed at identifying the accumulation of cyclical imbalances created in the domestic non-financial private sector. For further details on the d-SRI for Portugal, see the June 2019 issue of the *Financial Stability Report*.

**Chart I.1.61 • Composite indicator of financial stress | Index**



Source: Banco de Portugal. | Notes: Latest observation: August 2023. The composite indicator of financial stress (Braga et al., 2014) aggregates a set of indicators from five market segments: money market, bond market, equity market, financial intermediaries and foreign exchange market. The indicator aims at identifying the most relevant stress events affecting the Portuguese financial markets. The threshold corresponds to that identified in Braga et al. (2014) as the value of change to a high-stress regime.

The reversal of the financial cycle, albeit smooth, coupled with an international environment of high uncertainty and tight monetary policy, poses challenges to macroprudential policy. Against this background, macroprudential policy makes the financial system more resilient to adverse shocks and able to continue providing financial intermediation services to the economy. However, since there are signs of a reversal in the financial cycle, macroprudential policy action should consider potential procyclical effects that may imply a reduction in credit supply beyond what would occur only due to a slowdown in demand.

**Adequate capitalisation of financial institutions allows for the absorption of adverse shocks without a significant decline in the supply of credit to the economy.** The experience during the pandemic has highlighted the importance of building up capital buffers so that they can be used in periods of materialisation of systemic risk. According to the Special issue “The importance of management capital buffers in lending to firms”, banks with a larger management capital buffer provided more credit to firms than banks with a lower buffer after the COVID-19 shock. In the current environment, characterised by global uncertainty, preserving capital is particularly important. More resilient banks are better able to provide refinancing options to their customers facing hardship, as well as to keep supplying credit during a period of risk materialisation.

Following the most acute phase of the pandemic crisis until now, several European countries opted to increase banks’ capital buffers by introducing new macroprudential measures. A number of countries have increased countercyclical buffer rates (CCyB): 2.5% in Denmark and Norway; 2% in Bulgaria, Czechia, Iceland and Sweden; 1.5% in Slovakia; 1% in Estonia, Lithuania, Netherlands and

Romania; 0.75% in Germany; 0.5% in Croatia, France and Ireland.<sup>6</sup> At the same time, several European macroprudential authorities opted for the introduction of a sectoral systemic risk buffer (sSyRB) applied to exposures secured by residential property: 9% in Belgium, meanwhile reduced to 6% (effective as of 1 April 2024, combined with an increase in the countercyclical capital buffer to 0.5% in April 2024 and 1% in October 2024), 2% in Germany and Lithuania, 1.5% in Malta and 1% in Slovenia.

**Risks to financial stability remain high amid geopolitical uncertainty, rising interest rates and the gradual transmission of monetary policy to the economy.** While there are mitigating factors (Chapter 1.3.2 Households) for the risks associated with the residential real estate sector, a measure based on own funds, such as an sSyRB, complements the existing macroprudential Recommendation in Portugal. This reserve consists of a precautionary measure to deal with the possible future materialisation of a potential tail risk. This measure aims to increase resilience to a potential reversal of the economic cycle and/or an unexpected significant correction in residential real estate prices. The banking sector's exposure to loans to households collateralised by residential real estate, reached 26.2% of the banking system's assets in June 2023.

**The average risk weights applied by institutions using the IRB approach to retail exposures secured by residential property (18.5% in the second quarter of 2023) are low compared to those used by institutions following the standardised approach (35%).** This may reflect the low default rates of this segment in the recent period. The application of an sSyRB is preventive and aims to increase the resilience of institutions using the IRB approach to the potential materialisation of systemic risk in the future in the residential property market in Portugal.

In this context, on 15 November 2023 the Banco de Portugal, in its capacity as macroprudential authority, announced the implementation of a 4% sSyRB on the risk-weighted exposure amount of households' portfolio secured by residential real estate located in Portugal for banks using the IRB approach. The measure<sup>7</sup> will enter into force on 1 October 2024. The build-up of such a capital buffer allows it to be released at a time of risk materialising. Given the current and forward-looking levels of management buffers, the introduction of this buffer is expected to be easily accommodated by the institutions. This mitigates the potential negative effects that the introduction of a new reserve could have on credit supply capacity. In addition, this sectoral buffer is a further strengthening factor for banks, in addition to complementing the macroprudential Recommendation, which was recently revised with regard to the calculation of stress rates.

**The macroprudential Recommendation has dampened the impact of the increase in ECB interest rates, especially given the dominance of variable-rate housing loans in Portugal.** This measure, in force since July 2018, sets limits on some of the main credit standards used in assessing borrowers' creditworthiness and aims to mitigate excessive risk-taking at the time of granting credit, strengthening the resilience of the financial system and promoting the sustainability of households' access to finance. In particular, the Recommendation provides for the consideration of an increase in interest rates in the calculation of the DSTI ratio. For this purpose, the reference rate used for loans with mixed and variable interest rates was raised according to the original credit maturity. In the case of loans with a maturity of more than ten years, the Recommendation defined in 2018 that the calculation of the DSTI ratio should consider an increase in the reference rate of 300 b.p.

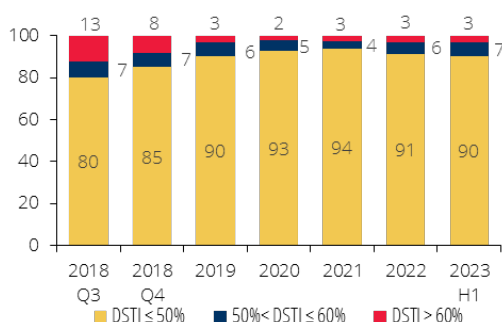
**In the first half of 2023 institutions continued to broadly comply with the limits of the macroprudential Recommendation.** The amount of credit granted with a DSTI ratio between 50% and 60% and a DSTI above 60%, as defined by the Recommendation, i.e. taking into account an

<sup>6</sup> Implemented until 31 October 2023 according to the ESRB (Countercyclical capital buffer (europa.eu))

<sup>7</sup> For further details, see the press release published on the Banco de Portugal's website.

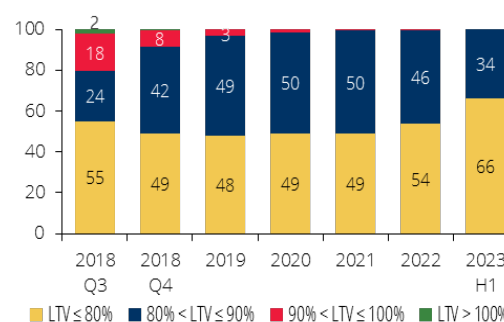
increase in the interest rate index, was below the limit of the exceptions provided for in the Recommendation. However, the use of exceptions increased slightly, namely for DSTI ratios between 50% and 60% (Chart I.1.62). As regards the LTV ratio, all new loans for house purchase recorded an LTV ratio of 90% or less (Chart I.1.63). In August 2023, the average maturity of new housing loans was 30.6 years, 2.8 years below what it was in March 2018 (Chart I.1.64). In the first half of 2023, in a context of rising interest rates, the distribution of the actual DSTI ratio shifted to higher levels (Chart I.1.65). Thus, the average actual DSTI ratio for new loans to households reached 26.4%, up from 2022 (25%). However, the 90<sup>th</sup> percentile of the actual DSTI ratio distribution in the first half of 2023 (43.7%) remains below that of the third quarter of 2018 (47.4%).

**Chart I.1.62 • Distribution of new housing loans and new consumer credit by DSTI ratio | Per cent**



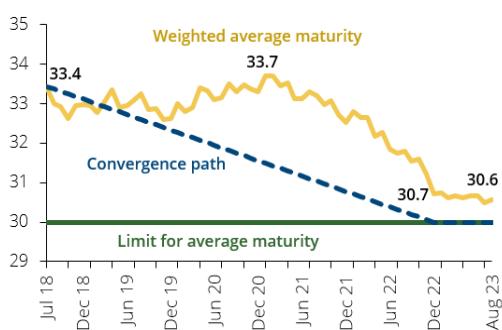
Source: Banco de Portugal. | Note: Based on information reported by a sample of nine banks that accounted for around 97% of the housing credit market in 2022.

**Chart I.1.63 • Distribution of new housing loans by LTV ratio | Per cent**



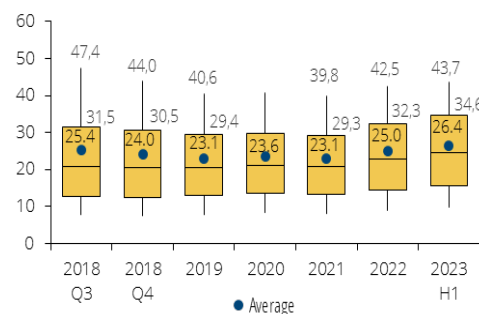
Source: Banco de Portugal. | Note: Based on information reported by a sample of nine banks that accounted for around 97% of the housing credit market in 2022.

**Chart I.1.64 • Weighted average maturity of new housing loans | In years**



Source: Banco de Portugal. | Notes: Based on information reported by a sample of nine banks that accounted for around 97% of the housing credit market in 2022. The average maturity is weighted by the amount of credit granted.

**Chart I.1.65 • Distribution of the actual DSTI ratio for new loans to households | Per cent**



Source: Banco de Portugal. | Note: The lower and upper ends correspond to the 10<sup>th</sup> percentile and the 90<sup>th</sup> percentile, while the bottom and top of the boxes correspond to the 25<sup>th</sup> and 75<sup>th</sup> percentiles.

The macroprudential Recommendation was introduced with a view to establishing prudent credit standards throughout all the phases of the financial cycle. However, elements of flexibility and shocks considered in the design of the measure could be adjusted for the phase of the financial

cycle so as not to hinder lending at a negative stage of the cycle, but without jeopardising prudence in credit standards.

**Given the current levels of ECB key interest rates, the Banco de Portugal decided to reduce the interest rate shock used to calculate the DSTI ratio by 150 b.p. for new loans to households with maturities exceeding ten years, with proportional reductions being made across other maturities.** The interest rate shock considered in calculating the DSTI ratio was reduced to 150 b.p. for contracts with a maturity of over ten years, to 100 b.p. for contracts with a maturity of between five and ten years and to 50 b.p. for contracts with a maturity of less than five years. The purpose of considering an interest rate shock is to test borrowers' ability to service debt if interest rates rise in new loans with a variable interest rate and is particularly relevant due to the predominance of lending in Portugal under this interest rate regime and with long maturities. The shock initially set reflects the historically low interest rate environment at the time of the introduction of the macroprudential Recommendation in 2018. Given the 450 b.p. increase in key interest rates by the ECB from the start of the monetary policy normalisation process until the end of September, it became relevant to adjust this shock to prevent an excessively restrictive approach to assessing borrowers' creditworthiness. The reduction of the shock to 150 b.p. for new operations with a maturity of more than ten years is equivalent to considering the maximum Euribor rates observed since the start of the euro area.<sup>8</sup>

## References

Braga, J., Pereira, I., and Balcão Reis, T. (2014), "Composite indicator of financial stress for Portugal". *Financial Stability Papers*, Banco de Portugal.

Lang, J. H., Izzo, C., Fahr, S., and Ruzicka, J. (2019), "Anticipating the bust: a new cyclical systemic risk indicator to assess the likelihood and severity of financial crises". *ECB Occasional Paper Series*, No 219.

<sup>8</sup> For further details, see press release published on the Banco de Portugal website (Press release of the Banco de Portugal on the application of new values to be used in the extreme scenario simulation for the interest rate index to the macroprudential Recommendation | Banco de Portugal (bportugal.pt))

## 2 Banking system

In the first half of 2023, banks continued to operate in an environment of rapidly rising interbank interest rates, which had a favourable impact on the sector's profitability and capital, as in 2022. However, rising interest rates, combined with a slowdown in economic activity after the first quarter, tend to foster an increase in the materialisation of credit risk.

**Amid a decline in the banking system's assets (of 1.8%), its return on assets increased to 1.16% in the first half of the year.** This mainly reflected the contribution of net interest income due to the faster pass-through of rising interest rates to loans than to the remuneration of deposits. This asymmetry in the pace of monetary policy transmission, faster for loans with variable interest rates than for deposits, largely justified the higher profitability of the Portuguese banking system compared with the euro area. These developments **allowed for an increase in the total capital and CET 1 ratios to 19% and 16.4%, respectively, by retaining earnings.**

The gross NPL ratio of the non-financial private sector (NFPS), which includes NFCs and households, remained stable in gross and net of impairments terms. The gross NPL ratio of NFCs continued a downward trend, declining by 0.3 p.p., while that of households increased slightly, by 0.1 p.p. There was also a small increase in forbore and stage 2 loan ratios in housing loans.

**The stock of loans for house purchase followed a declining path.** In addition to the decline in credit demand, an increase in early repayments contributed to this. Given the rise in the debt servicing burden and a significant differential compared with the remuneration rates of deposits, many households with accumulated savings partly or fully repaid their housing loans. In turn, new loans (excluding renegotiations) fell year on year in the first eight months of the year. Overall, the banking system's housing loan portfolio has a low share of loans with high LTV ratios, mitigating the impact of hypothetical future declines in residential real estate prices.

**The Portuguese banking system continues to exhibit a concentration in real estate and debt securities, accounting for 50% of total assets.** Exposure to real estate represented 35.4% of assets in June 2023, with loans to households secured by real estate continuing to be the most relevant component (26.2% of assets). In turn, the sovereign debt securities portfolio accounted for 15.5% of assets. The share of domestic debt has been declining over the past few years. In June 2023, Portugal accounted for 40% of the overall sovereign debt portfolio, although it remains above euro area figures as a percentage of total assets.

**The loan-to-deposit ratio stood at 80% in June 2023, remaining below the euro area average.** Although the significant decrease in deposits observed in the first quarter had an impact on the loan-to-deposit ratio, the banking system's current liquidity framework is more favourable than before the great international financial crisis. Regulatory liquidity ratios have remained high despite a recent decline in the liquidity coverage ratio (LCR) resulting from a decrease in central bank reserves. The liquidity buffer remains largely composed of public debt instruments and central bank reserves and, in June 2023, accounted for 30% of customer deposits.

**More generally, in the current environment of high geopolitical uncertainty, banks must pursue prudent provisioning and capital conservation policies to safeguard their resilience in the face of future adverse shocks, and the ability to fund the economy.**

### 2.1 Profitability

In the first half of 2023, return on assets (ROA) increased by 0.44 p.p. compared with the same period in 2022, standing at 1.16% (Chart I.2.1). The dispersion of ROA across institutions, measured

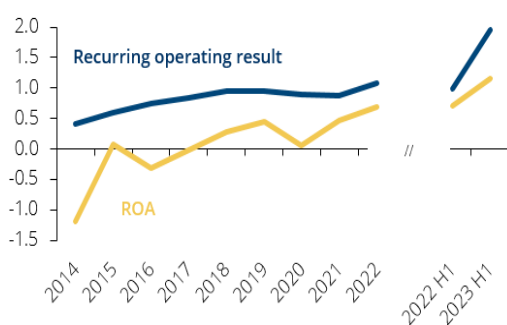
by the difference between the 90<sup>th</sup> and 10<sup>th</sup> percentiles, decreased slightly. Return on equity (ROE) rose by 4.8 p.p., standing at 13.7%.

The improvement in ROA resulted from a sharp increase from 1.49% to 2.58% (a contribution of 1.01 p.p.) in net interest income as a percentage of assets, owing to a considerable rise in interbank market interest rates and a differentiated pass-through to interest rates on loans and deposits, with the latter undergoing a more gradual and partial adjustment (Table I.2.1).

Conversely, increases in net provisions and impairments and, to a lesser extent, operating costs and taxes on profits contributed to dampen the increase in ROA. These developments tended to occur across the system's main institutions.

Net interest income shaped the evolution of the recurring operating result, which increased by 0.96 p.p. as a percentage of total assets compared with the same period a year earlier (1.95% of assets in June 2023). Operating costs increased and net fees and commissions stabilised. The recurring operating result reached the highest level in the past ten years, a period when, given the low interest rate environment, net interest income made a relatively small contribution (Chart I.2.1).

**Chart I.2.1 • ROA and recurring operating result** | As a percentage of average assets



**Table I.2.1 • Profitability** | As a percentage of average assets

	2021	2022	2022 H1	2023 H1
Recurring operating result	0.88	1.08	0.99	1.95
o.w. Net interest income	1.42	1.65	1.49	2.58
Income from financial operations	0.15	0.10	0.15	0.16
Net provisions and impairments	-0.49	-0.33	-0.19	-0.55
Taxes on profits	-0.21	-0.24	-0.31	-0.47
Other results	0.13	0.10	0.07	0.08
<b>ROA</b>	<b>0.46</b>	<b>0.69</b>	<b>0.71</b>	<b>1.16</b>
10 <sup>th</sup> percentile	0.03	0.14	0.13	0.69
90 <sup>th</sup> percentile	0.77	1.21	1.21	1.70
ROE	5.41	8.71	8.89	13.71

Source: Banco de Portugal. | Notes: Return on assets (ROA) consists of the net result as a percentage of average assets. The recurring operating result corresponds to net interest income plus net fees and commissions less operating costs. Annualised figures.

Source: Banco de Portugal. | Notes: Return on assets (ROA) consists of the net result as a percentage of average assets. Return on assets (ROA) consists of the net result as a percentage of average assets.

Developments in net interest income as a percentage of average assets were mainly driven by the component of interest on loans, especially loans to households and NFCs (with year-on-year increases of 0.73 p.p. and 0.44 p.p. respectively) and, to a lesser extent, by the debt securities portfolio, particularly securities issued by the general government (a 0.13 p.p. increase). This effect on net interest income was partly offset by a rise in interest on deposits of the various institutional sectors, in particular NFPS and central bank deposits (Table I.2.2).

Amid declining average assets, the price effect was decisive in developments in net interest income. Given that in Portugal a large share of the credit portfolio has a variable rate, namely housing loans (where variable interest rate loans account for 85% of the total), and/or a rate repricing period of up to one year, the pass-through of interbank market interest rates to these operations was faster, albeit affected by the repricing period. In turn, a large share of deposits are overnight (68% of total NFC deposits and 50% of total household deposits), which are non-interest bearing. However, rising interest rates on term deposits result in an increase in the opportunity cost of holding overnight deposits, explaining the shift towards term deposits, which already led to an increase of 6% in customer deposits with an agreed maturity or redeemable at notice in the first half of the year.



**Table I.2.2 • Net interest income | As a percentage of average assets**

	2021	2022	2022 H1	2023 H1
<b>Total</b>	1.42	1.65	1.49	2.58
<b>Derivatives</b>	0.00	-0.02	0.00	-0.06
<b>Debt securities</b>	0.27	0.35	0.31	0.55
General government	0.15	0.22	0.18	0.31
Non-financial corporations	0.08	0.08	0.08	0.14
Other sectors	0.04	0.06	0.06	0.11
<b>Loans</b>	1.29	1.59	1.34	2.69
Non-financial corporations	0.53	0.60	0.54	0.98
Households	0.67	0.83	0.71	1.45
Other sectors	0.09	0.15	0.09	0.26
<b>Other assets</b>	0.00	0.03	0.01	0.24
<b>Deposits</b>	-0.03	-0.17	-0.06	-0.63
Central banks	0.05	0.04	0.07	-0.09
Non-financial corporations	-0.02	-0.06	-0.04	-0.10
Households	-0.05	-0.09	-0.06	-0.23
Other sectors	-0.01	-0.06	-0.02	-0.21
<b>Debt securities issued</b>	-0.07	-0.10	-0.09	-0.15
<b>Other liabilities</b>	-0.04	-0.03	-0.03	-0.05

Source: Banco de Portugal. | Note: Annualised figures.

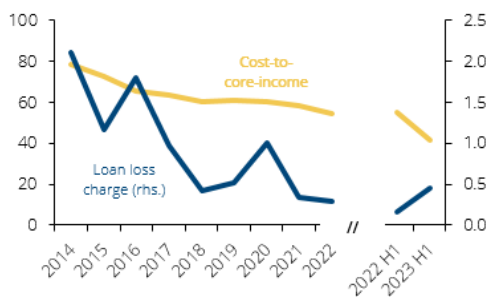
In the first half of 2023, operational efficiency improved significantly, reducing the cost-to-core income ratio to 41.4% (-13.8 p.p.) (Chart I.2.2). This improvement reflected a significant increase in net interest income (a contribution of -18.2 p.p.), partly offset by an increase in operating costs (a contribution of 4 p.p.). The increase in operating costs (9.5%) was broad-based across the main institutions and reflected the pass-through of inflation to software spending, compensation of employees and other administrative expenses.

In this period, the loan loss charge reversed the downward trend that started in 2021, increasing by 0.3 p.p. to 0.46% year on year, similarly to 2018 (Chart I.2.2). This change reflects an increase in credit impairment flows (Section 2.3), due to banks' higher expectations of credit risk materialising.

Credit impairments and net provisions contributed equally (0.27 p.p. and 0.26 p.p. respectively) to the increase in provision and impairment flows in year-on-year terms (Chart I.2.3), accounting for 0.55% of assets in the first half of 2023.

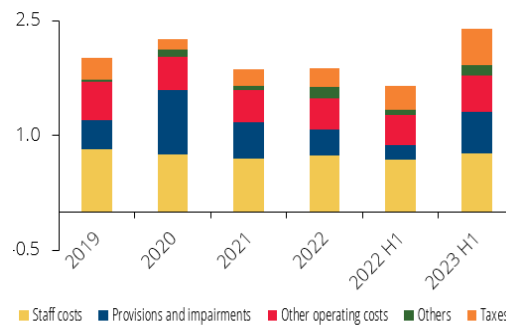
In the first quarter of 2023, the Portuguese banking system's ROA was 0.48 p.p. higher than the euro area average (Table I.2.3), owing to the higher contribution from net interest income. Year on year, ROA in Portugal and the euro area increased by 0.41 p.p. and 0.25 p.p. respectively. Moreover, while in Portugal net provisions and impairments hampered ROA, they made a marginal contribution in the euro area.

**Chart I.2.2 • Cost-to-core income and loan loss charge | Per cent**



Source: Banco de Portugal.

**Chart I.2.3 • Developments in cost components | As a percentage of average assets**



Source: Banco de Portugal. | Note: Annualised figures.

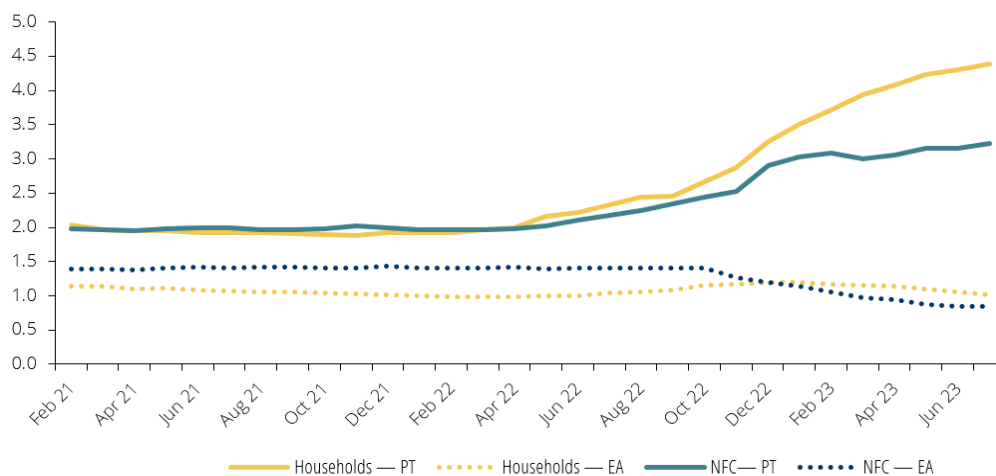
**Table I.2.3 • Profitability – International comparison | As a percentage of average assets**

2023 H1	Figures as a % of assets		Contribution to Δ ROA (y-o-y)	
	PT	EA	PT	EA
Net interest income	2.58	1.37	1.01	0.29
Net fees and commissions	0.74	0.65	0.00	0.00
Income from financial op.	0.16	0.19	0.00	0.05
Operating costs	-1.37	-1.24	-0.12	-0.07
Net provisions and imp.	-0.55	-0.16	-0.34	-0.01
Other results	0.08	0.09	0.00	0.06
Taxes on profits	-0.47	-0.22	-0.15	-0.06
ROA	1.16	0.68	0.41	0.25

Sources: ECB and Banco de Portugal. | Note: Annualised figures.

The difference in developments in net interest income between Portugal and the euro area was mainly explained by a higher increase, in Portugal, in the spread between the interest rate on credit granted and the deposit interest rate both for households and NFCs (Chart I.2.4). This is due to developments in both lending and deposit rates. Indeed, unlike other euro area countries, variable interest rates on most housing loans in Portugal recorded more pronounced increases and exceeded the rates observed in the euro area. In turn, deposit interest rates for NFCs rose sharply in the euro area, in contrast to Portugal.

**Chart I.2.4 • Developments in net interest income for the non-financial private sector (outstanding amounts of loans in PT and EA) | Percentage points**



Sources: ECB and Banco de Portugal. | Notes: The non-financial private sector includes NFCs and households. The series refer to reporting on an individual basis of other monetary financial institutions resident in Portugal and reflect the spread between the interest rates on loans and term deposits.

## 2.2 Credit standards

### 2.2.1 Households

The annual rate of change in the stock of bank loans to households decreased to **-0.3% in September 2023**, mostly reflecting a deceleration in housing loans (Chart I.2.5). The stock of loans for house purchase recorded an annual rate of change adjusted for securitisation and loan transfers of **-0.9%** in September (3.4% in December 2022). The rate unadjusted for securitisation and loan transfers stood at **-0.6%** in September, remaining below the 0.2% observed in the euro area (Chart I.2.6).

**An increase in early repayments since the end of 2022 contributed to the slowdown in the stock of loans for house purchase.** In particular, there was an increase of around 62% in early repayments of loans for house purchase between January and September, compared with the same period in 2022. This has been boosted by a considerable spread between the cost of loans and the remuneration of deposits. The increase in early repayments was most pronounced in partial early repayments, which quadrupled, although total early repayments represented 82% of the overall value. However, data on total early repayments also include credit transfers between banks that have no impact on the banking system’s stock of loans for house purchase.

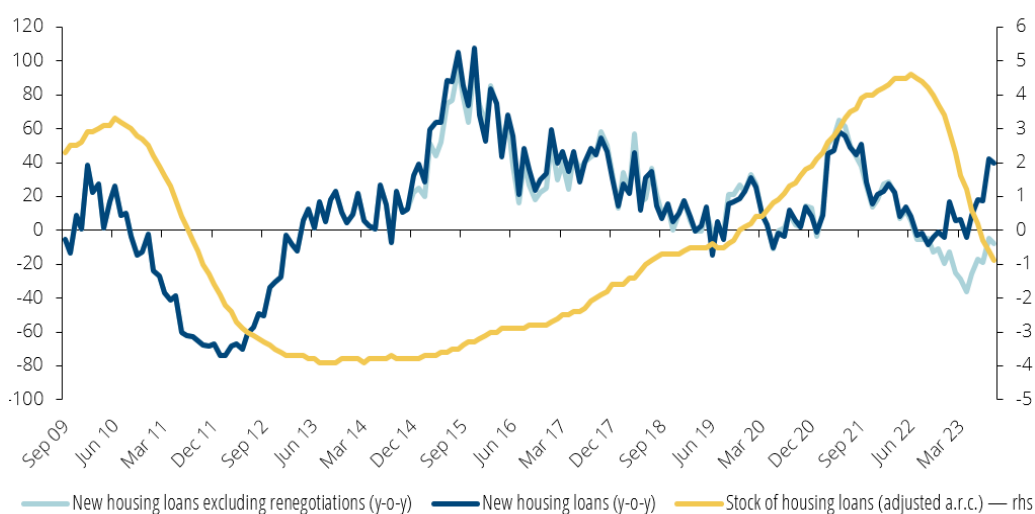
Compared with the total stock of housing loans, early repayments are on average associated with more recent agreements, higher-income borrowers and lower LTV ratios.

**New loans for house purchase (excluding renegotiations) fell year on year in the first nine months of the year.** New loans for house purchase (excluding renegotiations) fell by 20% year on year between January and September 2023. However, in the third quarter of 2023, the average monthly amount of new loans for house purchase (excluding renegotiations) was €1,054 million, up from €944 million in the fourth quarter of 2019. Between January and September 2023, credit transfers accounted for around 15% of new loans for the purchase of own and permanent residence. The decline in new loans for house purchase was more pronounced in the euro area (39%) (Chart I.2.6).

This development was broad-based across most countries, with decreases close to 50% in a number of them, such as Germany (-45%), Austria (-60%) and Slovakia (-64%).

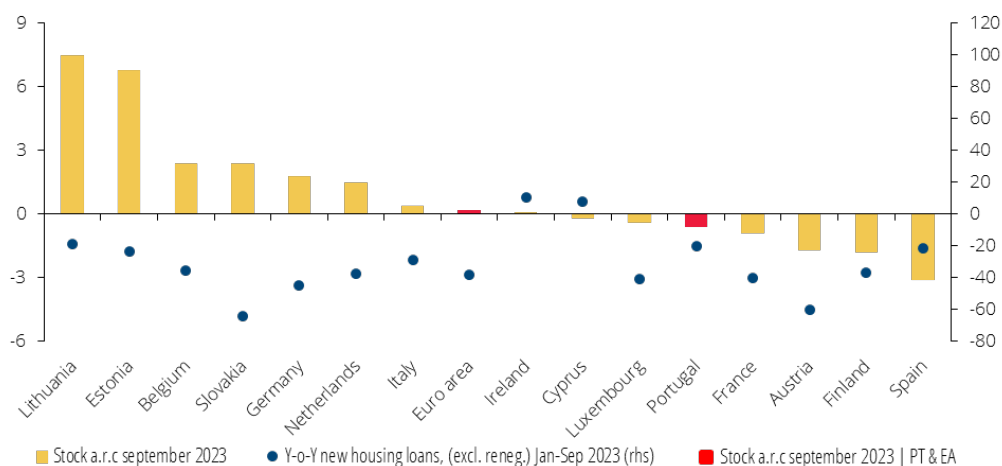
In September 2023, the average interest rate (annualised agreed rate – AAR) on new loans for house purchase stood at 4.3%, 0.3 p.p. above the euro area average and 3.4 p.p. higher than the rate observed in Portugal at the end of 2021. The annual percentage rate of charge (APRC), which includes charges other than interest, has also been rising. Comparing September 2023 with the end of 2021, the APRC on housing loans increased by 3.8 p.p., standing at 6.2%, 1.9 p.p. above the euro area average.

**Chart I.2.5 • Annual rate of change in the stock of loans for house purchase and year-on-year rate of change in new loans for house purchase | Per cent**



Source: Banco de Portugal. | Notes: Annual rates of change (ARCs) are calculated on the basis of end-of-month changes in stocks of bank loans, adjusted for changes not defined as transactions, namely, reclassifications, write-offs and exchange rate and price revaluations. ARCs are also adjusted for securitisation and loan transfers. Latest observation: September 2023.

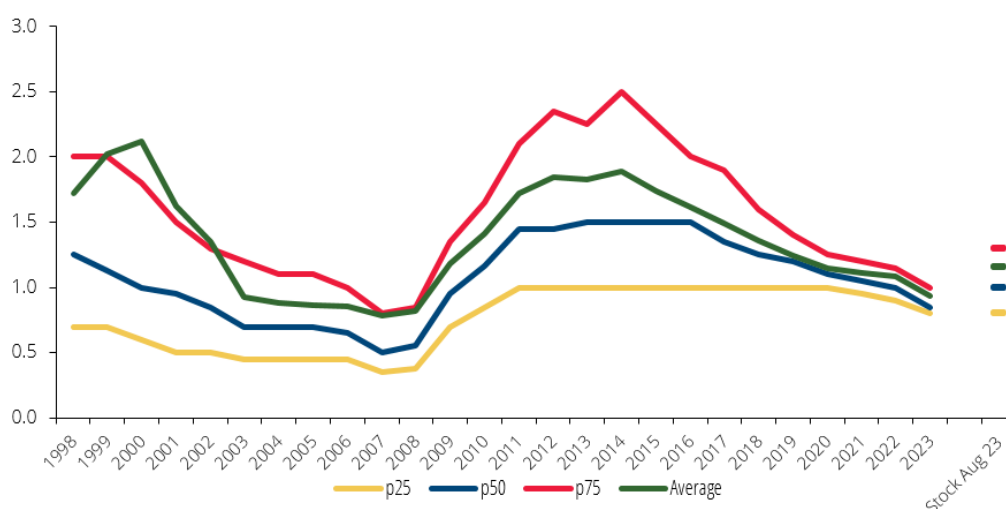
**Chart I.2.6 • Annual rate of change in the stock of loans for house purchase in September 2023 and year-on-year rate of change in new loans for house purchase between January and September 2023 | Per cent**



Source: Banco de Portugal. | Note: The red bars highlight the values of the year-on-year rate of change in the stock of loans for house purchase in September 2023 in Portugal.

In recent years, there has been a gradual decrease in the spread on new loans for house purchase (Chart I.2.7). This decrease, which began in 2014, was accompanied by a lower spread dispersion across concluded agreements. In 2023 to August, the spreads associated with the lower percentiles of the distribution nevertheless remained above those observed before the international financial crisis.

Chart I.2.7 • Spread on the housing loan stock by year of loan initiation

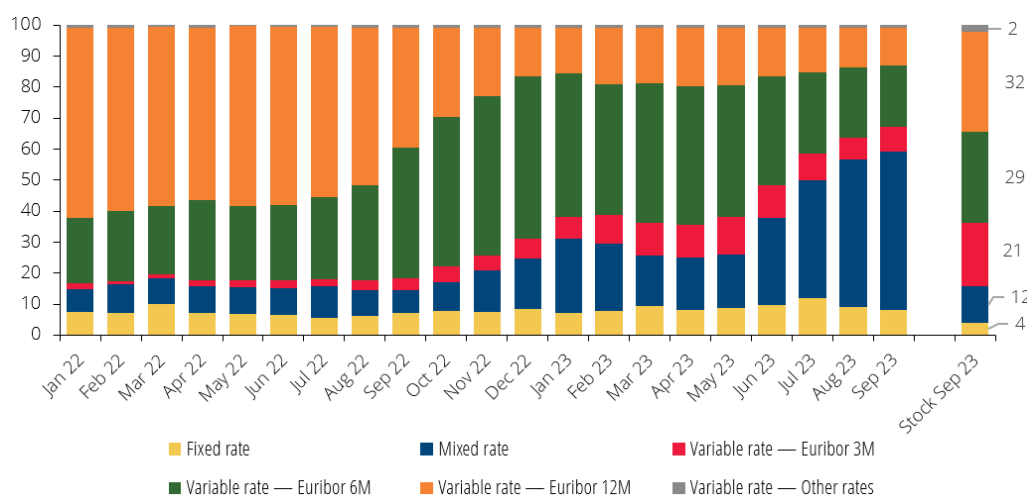


Source: Banco de Portugal. | Notes: Current spread on outstanding variable or mixed rate agreements as at August 2023 by year of loan initiation. The current spread might not coincide with the spread when credit is granted due to renegotiation or changes of spread provided for in the agreement, e.g. where a set of services is subscribed or certain criteria with the bank are met.

New loans for house purchase with a fixed or mixed interest rate have increased, accounting for 39% of the amount of new loans between January and September 2023. Lending for house purchase with a fixed or mixed interest rate differs across credit institutions. New loans for house purchase with fixed or mixed interest rates have the largest share in some banks, while in others variable rates remain predominant. In the case of mixed rates, about 60% of the amount of new loans has an initial rate fixation period of up to and including 2 years and 20% an initial rate fixation period of between 2 and 5 years. However, the stock of variable rate loans for house purchase is still predominant, with 84% (Chart I.2.8).

New consumer loans declined by 4.7% year on year in the first nine months of 2023, after growing by 19.9% in 2022. The stock of consumer credit has gradually decelerated since September 2022, with the annual rate of change standing at 4.7% in September 2023. The average interest rate and APRC on consumer loans increased by 1.1 p.p. and 1.2 p.p. in September 2023, year on year, standing at 9.0% and 11.3% respectively (7.9% and 8.5% in the euro area). In contrast to loans for house purchase, most of these agreements have a fixed interest rate. As at September 2023, variable rate agreements accounted for only 16.5% of the consumer credit stock.

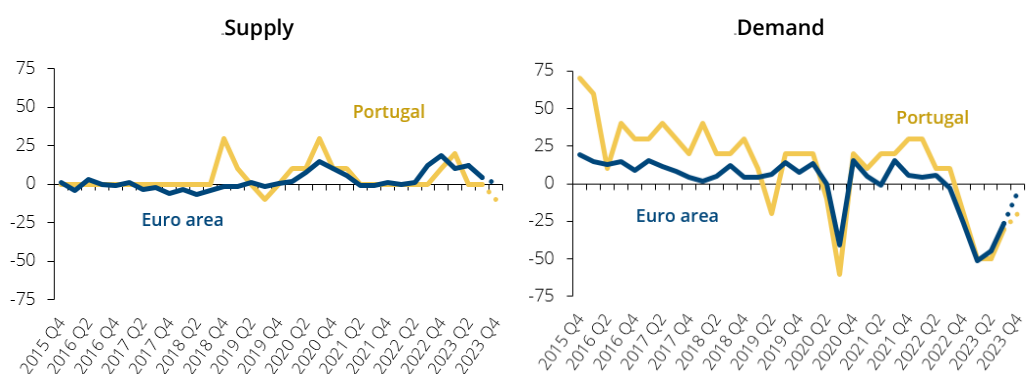
**Chart 1.2.8 • Monthly flow of new loans and stock of loans for house purchase by type of rate and reference rate | Per cent**



Source: Banco de Portugal. | Notes: The 'mixed rate' classification is based on the date the agreement is signed, from which a fixed rate period is in force that differs from one agreement to another. The share of the mixed rate stock may include agreements that are already within the variable rate period or close to the end of the fixed rate period.

**Credit standards for loans to households remained broadly unchanged in the second and third quarters of 2023**, according to the July and October 2023 Bank Lending Survey (Chart 1.2.9). In Portugal, there was a decline in demand for loans for house purchase in the second quarter, due to a drop in consumer confidence, rising interest rates and prospects for the residential real estate market. As for the third quarter, demand for housing loans remained broadly unchanged. Also in the euro area, demand declined and credit standards tightened in the second and third quarters of 2023. For the fourth quarter of 2023, in Portugal and the euro area, banks anticipate broadly unchanged credit standards on loans to households (for house purchase and consumption) and a slight decline in demand for housing loans.

**Chart 1.2.9 • Supply and demand for housing loans | Diffusion index**



Sources: ECB and Banco de Portugal. | Notes: Credit supply corresponds to credit standards reported by banks. An increase (decrease) in the net percentage means tighter (looser) credit standards by institutions and an increase (decrease) in demand in the credit segment. The last observation for each variable corresponds to the institutions' expectations for the fourth quarter of 2023 (dashed part).

## 2.2.2 Non-financial corporations

The stock of bank loans to firms declined by 2.8% in September 2023 compared with the same period a year earlier (Table I.2.4). The stock of loans has decelerated across all sectors of activity since the beginning of 2023 and, in September, most sectors recorded a year-on-year fall, most notably Industry (-9.3%) and Accommodation and food services (-5.8%). Also by firm size, there were significant reductions in the stock of loans, particularly for large firms (-5.9% in September 2023, after 0.7% in December 2022).<sup>9</sup> The stock of loans to micro-enterprises continued to grow but showed a moderating trend (2.9% in September 2023 from 6.7% in December 2022), with a contribution from developments in real estate activities. Firms' debt financing takes place through different instruments, not only loans from resident banks. The rate of change in total credit to firms adjusted for securitisation and loan transfers was -0.1% in August 2023, with loans decreasing (by -1.8%) and debt securities increasing (by 7.8%) (Section I.1.3.3).

The euro area also saw a decline in loans granted by banks to NFCs (-0.4% in September 2023). However, growth in the stock of loans was still substantial in countries where loan growth was more significant in mid-2022, reflecting in particular the replacement of market funding with bank loans (e.g. Germany and France).

The rise in interest rates triggered a drop in corporate demand for loans. According to the Bank Lending Survey, this drop was considerable in the first three quarters of 2023, continuing the trend beginning in the third quarter of 2022, following the start of the ECB's interest rate hiking cycle (Chart I.2.10). In addition to the negative contribution from interest rates, there was a decline in financing for investment, reflected in lower demand for long-term loans. For the fourth quarter of 2023, financial institutions expect a moderation in the fall in demand. The rise in interest rates also contributed to a drop in corporate demand for loans in the euro area.<sup>10</sup>

**Table I.2.4 • Annual rate of change in loans to NFCs, domestic activity | Per cent**

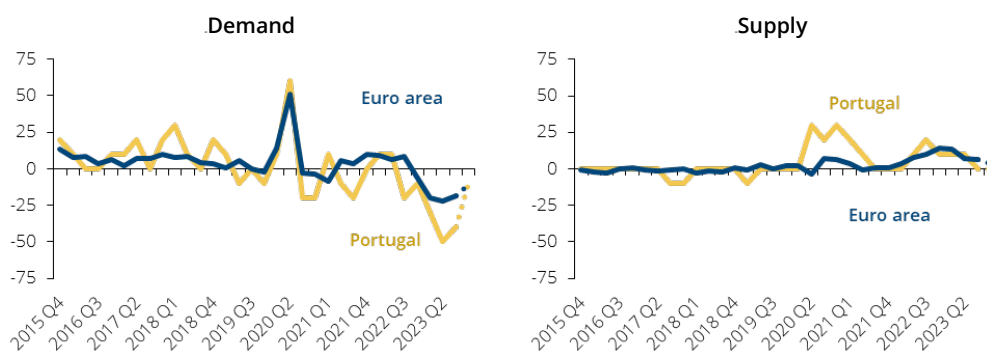
	Dec 17	Dec 18	Dec 19	Dec 20	Dec 21	Dec 22	Sep 23
Euro area	2.0	2.9	2.6	6.5	3.8	5.5	-0.4
<b>Portugal</b>	<b>-2.0</b>	<b>0.2</b>	<b>0.4</b>	<b>9.7</b>	<b>4.2</b>	<b>0.6</b>	<b>-2.8</b>
Micro-enterprises	0.5	4.5	6.2	13.9	7.7	6.7	2.9
Small enterprises	0.8	-1.9	-1.1	13.3	4.2	-2.4	-4.8
Medium-sized enterprises	-6.5	-3.4	-1.9	6.1	2.1	-2.3	-6.0
Large enterprises	-4.0	0.6	-3.1	3.8	2.1	0.7	-5.9
Industry	0.8	3.7	0.1	9.6	10.3	1.9	-9.3
Trade	1.6	-2.2	2.2	9.5	5.1	5.6	1.4
Transportation and storage	-10.6	-3.1	-9.3	0.4	0.1	-2.5	-4.4
Accommodation and food services	2.6	4.8	2.3	25.3	7.6	-6.7	-5.8
Construction	-6.6	-4.5	-2.0	7.6	-0.4	0.3	-2.1
Real estate activities	5.9	0.4	5.3	3.6	0.2	7.0	3.5
Portugal <sup>(a)</sup>	-0.1	1.7	1.1	10.0	4.5	0.9	-2.7

Source: Banco de Portugal. | Notes: Annual rates of change are calculated on the basis of end-of-month stock changes in bank loans, adjusted for changes not defined as transactions, namely, reclassifications, write-offs and exchange rate and price revaluations. They refer to loans granted by resident monetary financial institutions to resident NFCs. Industry, accommodation and food services and trade correspond, respectively, to the following sectors: "Manufacturing and Mining and quarrying", "Accommodation and food service activities" and "Wholesale and retail trade; repair of motor vehicles and motorcycles". (a) Series adjusted for loan transfers.

<sup>9</sup> As at September 2023, the stock of loans by firm size was broken down as follows: 31% micro-enterprises, 25% small enterprises, 24% medium-sized enterprises, 17% large enterprises and 3% head offices.

<sup>10</sup> ECB July 2023 Bank Lending Survey, in particular Chart 6.

Chart I.2.10 • Demand and supply of loans to NFCs | Diffusion index



Sources: ECB and Banco de Portugal. | Notes: Credit supply corresponds to credit standards reported by banks. A positive (negative) figure in the diffusion index means tighter (looser) credit standards by institutions and an increase (decrease) in demand by firms. The last observation (dashed) corresponds to the institutions' expectations for the fourth quarter of 2023.

**New bank loans to firms declined in the first half of 2023 but increased in the third quarter.** In line with lower demand for new loans by firms, new loans to NFCs declined by 6.2% year on year in the first half of 2023 and by 5.8% compared with the second half of 2022. However, new loans increased more significantly in the third quarter of 2023, by 23.1% year on year. With this rise, total new loans to firms between January and September 2023 increased in year-on-year terms.

**New loans continued to be granted mostly to lower risk or intermediate risk firms, despite a slight decrease in the lower risk class (Table I.2.5).** The lower risk class accounted for 47% of new loans in this period between January and September 2023, -1 p.p. compared to 2022. In turn, the share of new loans in the intermediate risk class increased by 1 p.p., accounting for 37% of new loans. There was also an increase in the share of new loans to riskier firms in the construction and real estate activities sector.

**The share of the lower risk class continued to be higher in new loans to medium-sized and large firms, as opposed to the lower weight of this category among micro-enterprises.** By sector of activity, the share of new loans in lower risk firms remains higher in trade and manufacturing and lower in construction and real estate activities.

**The share of the lower risk class in the stock of loans increased.** In September 2023, more than 80% of the exposure was associated with lower risk or intermediate risk firms.

**The average interest rate on new bank loans to NFCs continued to rise until September 2023.** The average rate reached 5.4% between January and September 2023, a 3.2 p.p. increase from the same period in 2022. In the third quarter of 2023, the average interest rate increased further to 5.8%. The difference between the average interest rate on new loans in Portugal and the average euro area rate was 0.8 p.p. in the third quarter of 2023, lower than in the fourth quarter of 2022 (1.1 p.p.), but still higher than in June 2022 (0.4 p.p.).

**In the surveys for the first and second quarters of 2023, Portuguese banks identified a slight tightening in credit standards for loans to firms. These standards remained unchanged in the third quarter of 2023.** The tightening was more pronounced for long-term loans and is the result of an increased perception of risks associated with the general economic situation and outlook, as well as specific sectors of activity. Institutions reported that the tightening is likely to have resulted in widening spreads for riskier firms, a strengthening of collateral required by banks and, more recently, tighter restrictions on the maturity of loans. For the fourth quarter of 2023, financial institutions expect credit standards to remain the same.

**Spreads on new loans reflect risk differentiation and remained higher for riskier firms.** Firms with more years of activity have a lower average spread on new loans than younger firms (Table I.2.6).



The maturity and interest rate resetting structure for loans to firms led to a rapid pass-through of the increase in interbank interest rates to the cost of loans to firms. The average interest rate on the stock of loans to NFCs was 5.5% in September 2023, the highest since the sovereign debt crisis. The interest rate on the stock of loans more than doubled compared to June 2022 (2.2%).

The share of loans to NFCs at a fixed or mixed rate remained virtually unchanged. In September 2023, around 18.4% of the stock was linked to fixed or mixed rate loans, a 0.8 p.p. increase compared to June 2022. In turn, the share of loans indexed to the 6 and 12-month Euribor decreased by 3.3 p.p. over the same period, corresponding to 60% of total loans. At the same time, there was an increase in the share of loans indexed to the 3-month Euribor. This is also visible when considering only loans with a maturity of over one year.

The average original maturity of the stock of loans continued to decline between December 2022 and September 2023. This decline was most pronounced for large firms and firms in the lower risk class.

**Table I.2.5 • Loans to NFCs by risk class | Per cent**

		Class 1 (low risk)	Class 2	Class 3 (high risk)
New loans	2019	48	36	16
	2020	53	33	14
	2021	45	38	17
	2022	48	36	16
	2023: Jan to Sep	47	37	16
Stock of loans	Dec 19	38	38	24
	Dec 20	40	38	22
	Dec 21	37	41	22
	Dec 22	43	38	19
	Sep 23	46	38	16

Source: Banco de Portugal. | Notes: Exposure of loans to NFCs and new loans to NFCs according to the Central Credit Register. Credit risk, as measured by probability of default (PD), is based on credit ratings available in the In-house Credit Assessment System (ICAS) of the Banco de Portugal. New loans refer to new loans to firms with available credit risk information. The lower risk class (risk class 1) corresponds to firms with a one-year PD below or equal to 1%; risk class 2 corresponds to firms with a one-year PD above 1% and below or equal to 5% and the higher risk class (risk class 3) corresponds to firms with a one-year PD above 5%.

**Table I.2.6 • Average spread on stock and new loans to NFCs by risk class and firm age | Per cent**

	2021			2022				2023		
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>Stock</b>	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0
Class 1 (low risk)	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Class 2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1
Class 3 (high risk)	2.9	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5
<b>New loans</b>	1.9	2.1	2.0	1.8	1.7	1.8	1.9	1.9	1.8	1.8
By risk class										
Class 1 (low risk)	1.6	1.6	1.5	1.4	1.4	1.5	1.5	1.5	1.4	1.6
Class 2	2.1	2.2	2.2	2.1	2.0	2.1	2.1	2.0	1.9	2.0
Class 3 (high risk)	2.3	2.4	2.5	2.4	2.0	2.3	2.7	2.3	2.6	2.1
By firm age										
Up to 2 years	2.1	2.2	2.3	2.1	2.0	2.0	2.3	2.1	1.9	2.0
Between 2 and 5 years	2.0	2.2	2.1	2.0	1.9	2.0	2.0	2.0	1.9	1.9
Over 5 years	1.9	2.0	2.0	1.8	1.7	1.8	1.8	1.8	1.7	1.8

Source: Banco de Portugal. | Notes: Information from the Central Credit Register. Spread on variable rate loans. Amount-weighted figures.

## 2.3 Credit quality of assets

In the first half of 2023, the total gross NPL ratio interrupted the downward path of previous years, driven by a decline in the denominator, with a decrease in non-performing loans (NPLs) (Table I.2.7). This ratio amounted to 3.1%, a 0.1 p.p. increase from December 2022. The largest contribution to the decline in the gross value of loans (the ratio's denominator) was the decline in cash balances at central banks. NPLs declined slightly (-1.7%) thanks to the decrease in the component unlikely to pay or past due less than 90 days, despite an increase in the component more than 90 days past due.

The gross NPL ratio of the NFPS, which includes NFCs and households, remained stable at 3.9% (Table I.2.7). In June 2023, both performing loans and NPLs declined compared to December 2022. Heterogeneity across institutions, measured as the difference between the 90<sup>th</sup> and 10<sup>th</sup> percentiles, decreased to 2.4 p.p. (-0.6 p.p.).

Developments in the gross NPL ratio were differentiated between NFCs and households, with the gross NPL ratio for NFCs decreasing. This reflected a reduction in NPLs that are unlikely to pay or less than 90 days past due. This fall was due to lower flows of new NPLs than cures in the half-year, as well as write-offs (Table I.2.8). The decrease in performing loans helped to dampen the decline in the NPL ratio. The quality of the portfolio of loans to NFCs continues to benefit from the sovereign guarantees granted during the pandemic. These guarantees help to increase lending to the economy, reduce risks to the financial sector and, more generally, boost economic activity (Box 5).

For loans to households, the gross NPL ratio increased to 2.4% due to a rise in NPLs. The rise in the NPL ratio resulted from an increase in new NPLs net of cures in the house purchase and consumption and other purposes segments. NPLs that were unlikely to pay or less than 90 days past due contributed the most to the increase in NPLs for housing loans, while loans that were more than 90 days past due featured most prominently in the increase seen in consumption and other purposes.

The NPL impairment coverage ratio increased in loans to firms but decreased in loans to households. In June 2023 the NPL impairment coverage ratio of the NFPS increased by 1.2 p.p. to 56.8%, mostly due to a reduction in NPLs and, to a lesser extent, an increase in impairments. In loans to NFCs, the reduction in impairments was more than offset by the decrease in NPLs, resulting in an increase in the NPL coverage ratio to 58.4% (+2.5 p.p.). In the case of households, the higher value of NPLs in the housing and consumption and other purposes segments contributed to the decline in the coverage ratio, which stood at 54.4% (-0.8 p.p.).

In June 2023 the NPL ratio net of impairments of the NFPS remained unchanged at 1.7%. In NFCs, the ratio decreased to 2.6% (-0.3 p.p.), as opposed to the household ratio, which was stable at 1.1%. In the housing and consumption and other purpose segments, the NPL ratio net of impairments remained at 0.7% and 2.5% respectively.

**Table I.2.7 • Gross NPL ratio<sup>(a)</sup> | Per cent**

	Dec 19	Dec 20	Dec 21	Dec 22	Jun 23
<b>Total<sup>(a)</sup></b>	<b>6.2</b>	<b>4.9</b>	<b>3.7</b>	<b>3.0</b>	<b>3.1</b>
Non-financial private sector	7.0	5.8	4.9	3.9	3.9
Non-financial corporations	12.3	9.7	8.1	6.5	6.2
Households	3.7	3.4	2.8	2.3	2.4
House purchase	2.4	2.0	1.6	1.1	1.2
Consumption and other purposes	8.2	8.5	7.5	6.9	7.0

Source: Banco de Portugal. | Notes: (a) Corresponds to the ratio of gross NPLs to total gross loans. Includes loans and cash balances at central banks and credit institutions, loans to the general government, other financial corporations, non-financial corporations and households.

**Table I.2.8 • Gross NPL ratio – contributions to the change | Per cent and percentage points**

	Total	NFCs	Households		
			Total	House purchase	Consumption and other purposes
Gross NPL ratio, Dec. 22	3.0	6.5	2.3	1.1	6.9
Write-offs	-0.09	-0.13	-0.06	-0.01	-0.25
NPL sales	-0.04	-0.05	-0.06	-0.01	-0.23
New NPLs, net of cures	0.08	-0.14	0.22	0.07	0.77
Other denominator effects	0.12	0.06	0.00	0.01	-0.11
<b>Gross NPL ratio, Jun. 23</b>	<b>3.1</b>	<b>6.2</b>	<b>2.4</b>	<b>1.2</b>	<b>7.0</b>

Source: Banco de Portugal. | Notes: NPL sales include securitisations. The 'New NPLs, net of cures' item reflects all the other NPL inflows and outflows, including inflows of loans as NPLs (net of outflows), amortisations and foreclosures. The 'Other denominator effects' item reflects changes in the stock of loans that are not related to the NPL stock (e.g. net flows of performing loans).

**Total forbore loans of the NFPS increased by 1.5%, with this being dominated by a 3.3 p.p. contribution from performing loans.** For this reason, the forbore loan ratio increased slightly in June 2023, to 3.5% (Table I.2.9).

**For households, the increase in the forbore loan ratio came from the housing loan segment.** Forbore housing loans increased by 27.7% compared to December 2022, with a more significant contribution from performing loans than NPLs (25.0 p.p. and 2.7 p.p. respectively). The latter saw an increase in the share of forbore loans due to changes in terms and conditions (from 63% to 69%), rather than debt refinancing. The context of rising interest rates, together with the predominance of variable rates in housing loans, is likely to have contributed to the increase in the share of forbore agreements with changes in terms and conditions. For NFCs, the forbore loan ratio decreased to 5.2% following a decline in performing and non-performing forbore loans.

**The NFPS' impairment coverage ratio of forbore loans dropped to 35.9% (-0.6 p.p.).** While it increased to 43.1% for NFCs (+2.7 p.p.), the coverage ratio of forbore loans for households decreased to 26.7% (-3.5 p.p.). Both the housing and consumption and other purposes segments contributed to the decline in the household ratio. The decrease in the coverage ratio in each of these segments is due to impairments recording a smaller increase than forbore loans.

**Table I.2.9 • Forbore loan ratio<sup>(a)</sup> | Per cent**

	Dec 19	Dec 20	Dec 21	Dec 22	Jun 23
NFPS	5.9	5.6	4.8	3.4	3.5
o.w.: performing	2.2	2.4	2.2	1.5	1.6
o.w.: non-performing	3.7	3.2	2.6	1.9	1.9
NFCs	10.3	9.4	7.6	5.6	5.2
Households	3.1	3.2	3.0	2.1	2.4
House purchase	2.8	2.7	2.6	1.6	2.0
Consumption and other purposes	4.3	4.9	4.5	4.0	3.9

Source: Banco de Portugal. | Note: (a) Corresponds to the ratio of total gross loans with forbearance measures to total gross loans.

**The total ratio of stage 2 loans increased to 10.7% (Table I.2.10).** Although for NFCs the ratio of stage 2 loans continued to decline, it rose by 1.3 p.p. to 9.5% for households. This reflected an increase in stage 2 loans in the housing segment. The impairment coverage ratio of total stage 2 loans continued on an upward path, reaching 7.0% in June 2023. The increase in this ratio was broad-based across NFCs and households.

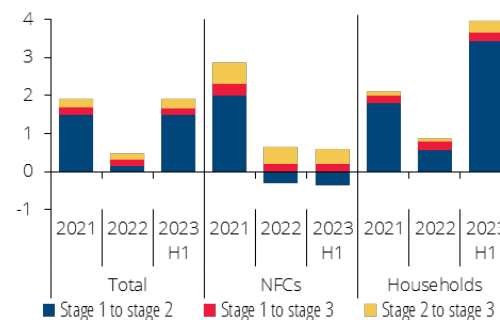
In the first half of 2023, there was a net transfer of loans to higher credit risk categories, in particular stage 1 to stage 2 transitions (Chart I.2.11). The deterioration was relatively contained in NFCs (0.2% of loans) and was linked to transitions to stage 3. This was mitigated by higher outflows of stage 2 to stage 1 loans than from stage 1 to stage 2. In turn, 4.0% of household loans saw an increase in credit risk, 3.4 p.p. of which corresponding to stage 1 to stage 2 transitions.

**Table I.2.10 • Stage 2 loan ratio | Per cent**

	Dec 19	Dec 20	Dec 21	Dec 22	Jun 23
Total <sup>(a)</sup>	9.4	11.2	11.6	10.3	10.7
NFCs	12.6	18.6	18.7	16.0	14.8
Households	7.7	7.8	8.5	8.2	9.5
House purchase	n.a.	7.0	7.9	7.5	9.1
Consumption and other purposes	n.a.	10.5	10.7	10.8	10.7
Stage 2 coverage ratio <sup>(b)</sup>	5.0	6.1	6.6	6.8	7.0

Source: Banco de Portugal. | Notes: (a) Corresponds to the ratio of total gross stage 2 loans to total gross loans. (b) Corresponds to the ratio of accumulated impairments to gross stage 2 loans.

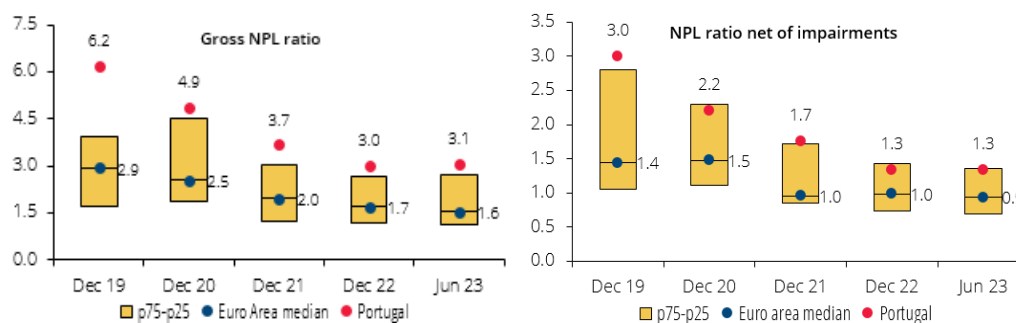
**Chart I.2.11 • Loan transfers between impairment stages (net of outflows) | Per cent of the gross loan value**



Source: Banco de Portugal. | Notes: Annualised figures. Bars with a negative value imply the existence of a higher value of transactions in the opposite direction to the chart's legend, i.e. from stage 2 to stage 1, stage 3 to stage 1 or stage 3 to stage 2 respectively.

Rising interest rates and a decelerating economic activity, together with the predominance of variable rates on loans to the NFPS, will tend to contribute to an increase in the materialisation of credit risk. Despite a convergence towards the euro area median in recent years, in June 2023 the differential vis-à-vis the euro area increased by 0.2 p.p. to 1.5 p.p. in the gross NPL ratio and remained unchanged in the NPL ratio net of impairments (0.4 p.p.) (Chart I.2.12).

**Chart I.2.12 • NPL ratios | Per cent**



Sources: ECB and Banco de Portugal.

## 2.4 Concentration of exposures

In the first half of 2023, the banking system's assets decreased by 1.8% to stand at 434 billion euros (Table I.2.11). This reduction was mainly observed in cash balances at central banks and, to a lesser extent, in other assets (particularly loans to central banks and other demand deposits). Loans to customers also contributed to reducing assets, with loans to NFCs and to households contributing -0.3 p.p. and -0.1 p.p. respectively. Conversely, debt securities helped to dampen the decline in assets.

**Table I.2.11 • Banking system assets, year-on-year rate of change and contributions**  
| Per cent and percentage points

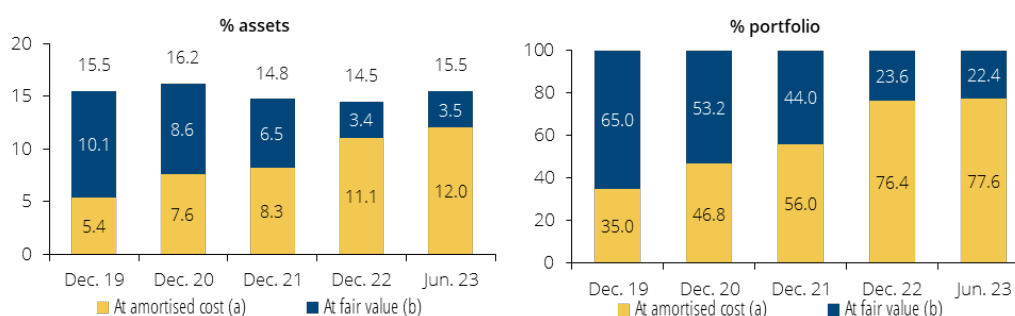
	Dec 19	Dec 20	Dec 21	Dec 22	Jun 23	Memorandum items: share of assets (Dec 22)	Por memória: peso no ativo (dez. 22)
Assets (EUR billions)	390	412	445	443	434		
Assets (year-on-year rate of change)	1.5	5.5	8.0	-0.5	-1.8 <sup>(a)</sup>		
Cash balances at central banks	1.4	3.1	6.7	-2.5	-2.1	11.2	11,2
Loans to credit institutions	0.3	-0.3	0.1	0.2	-0.1	2.1	2,1
Loans to customers	0.8	1.2	2.4	1.4	-0.3	57.2	57,2
Debt securities	0.9	1.6	0.1	0.0	1.2	20.8	20,8
Equity instruments	-0.3	-0.1	-0.1	-0.2	0.0	1.2	1,2
Other assets	-1.5	0.1	-1.0	0.6	-0.6	7.5	7,5

Source: Banco de Portugal. | Notes: (a) Rate of change and contributions compared with December 2022. "Other assets" include cash, loans to central banks, cash balances at other credit institutions, derivatives, tangible assets and intangible assets and other assets.

The sovereign debt securities portfolio, in consolidated terms, increased by 1 p.p., to 15.5% of assets, reflecting the increase in debt securities and the reduction in total assets, with contributions of 0.8 p.p. and 0.2 p.p. respectively. Debt securities at amortised cost continued to increase (6.4%), and now account for around 78% of the total portfolio, meaning that potential losses will only have to be recognised in the event of sale (Chart I.2.13). In contrast, securities valued at fair value decreased by 0.8%, although those with an impact on profit or loss increased. The latter account for 3.7% of the sovereign debt portfolio (+0.7 p.p. compared with December 2022).

The share of sovereign debt securities in assets is heterogeneous across institutions, with a 1.2 p.p. increase in the differential between the 10<sup>th</sup> and 90<sup>th</sup> percentiles. In June 2023, these stood at 5% and 23% respectively. While the share of sovereign debt securities at amortised cost in the portfolio is heterogeneous, they are the most representative in most institutions, with the 10<sup>th</sup> and 90<sup>th</sup> percentiles at 67% and 97% respectively.

**Chart I.2.13 • Sovereign debt securities by portfolio**



Source: Banco de Portugal. | Notes: (a) including debt securities recorded in assets held to maturity and other accounts receivable (IAS39), as well as amortised cost (IFRS9); (b) including debt securities held for trading (IAS39), as well as debt securities at fair value through Other Comprehensive Income (IFRS9), debt securities recorded as held for trading and at fair value through profit or loss (IAS39/IFRS9), as well as non-trading assets at fair value through results (IFRS9).

The new composition of the sovereign debt securities portfolio in terms of geographical counterparty continued to be observed. Based on information from domestic activity, there was an increase in the share of Spanish, Belgian and, especially, European Commission sovereign debt in total debt, while the share of Italian debt decreased. The weight of domestic debt in total sovereign debt securities has been declining over recent years (Table I.2.12), standing at 40.5% in June 2023 (58.5% in December 2019), although it remains above the euro area values as a percentage of assets (5.7% vs. 2.7% in June 2023).

Regarding domestic activity, in the first half of 2023, the average residual maturity of sovereign debt securities of the banking system's main institutions decreased from 5.4 to 5.0 years (Chart I.2.11). This decrease reflected the lower share of debt securities with original maturity of more than two years. The heterogeneity in the average residual maturity of the securities portfolio across credit institutions remained stable, with major institutions recording reductions. This lower average duration of the portfolio contributed to greater sensitivity to fluctuations in the market value of debt securities.

**Table I.2.12 • Sovereign debt securities – domestic activity**

	Dec 19	Dec 20	Dec 21	Dec 22	Jun 23
<b>Total (% assets)<sup>(a)</sup></b>	<b>13.7</b>	<b>14.6</b>	<b>13.5</b>	<b>13.4</b>	<b>14.0</b>
<b>% of sovereign debt securities portfolio</b>					
Portugal	58.5	54.7	47.5	41.7	40.5
Spain	18.6	22.5	24.7	26.1	26.5
Italy	16.4	16.2	15.1	9.6	9.5
France	1.2	1.4	4.0	8.4	8.3
Other	5.3	5.2	8.7	14.3	15.3
o.w. Ireland	1.5	1.7	3.2	3.4	3.3
o.w. Belgium	0.3	0.1	1.2	2.8	2.9
o.w. European Commission	0.0	0.0	0.1	1.8	2.6
o.w. USA	0.7	0.5	1.5	1.9	1.9

Source: Banco de Portugal. | Notes: (a) As a percentage of other monetary financial institutions total assets. The series refers to the reporting on an individual basis of the other monetary financial institutions resident in Portugal.

As of June 2023, real estate exposure represented 35% of assets. Most components showed a slight increase in importance due to the reduction in assets. Despite declining 1.1%, loans to households secured by real estate continue to account for the largest share in assets at 26.2% (Table I.2.13).

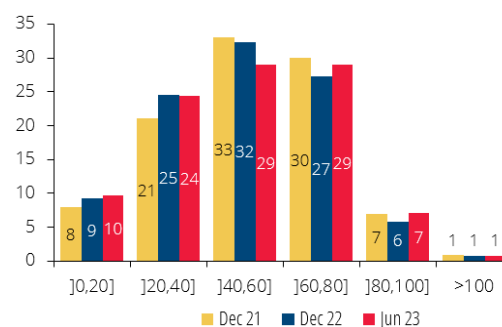
In June 2023, 92% of the stock of housing loans to households had a loan-to-value (LTV) ratio of 80% or less (Chart I.2.14). This share of loans is in line with that observed in December 2021, but decreased by 1.3 p.p. from December 2022. Total or partial repayments of agreements with lower LTV ratios are likely to have contributed to this reduction. Despite this decrease, the low share of high LTV housing loans in the portfolio mitigates the impact of a potential reduction in residential real estate prices.

**Table I.2.13 • Exposure to real estate**  
| As a percentage of assets

	Dec 19	Dec 20	Dec 21	Dec 22	Jun 23
Loans to households collateralised by RE	27.1	26.1	25.1	26.0	26.2
Loans to NFCs of construction and RE activities <sup>(a)</sup>	4.9	4.6	4.0	4.2	4.3
Loans to NFCs collateralised by RE <sup>(b)</sup>	3.5	3.5	3.4	3.2	3.6
Real estate funds <sup>(c)</sup>	1.1	1.0	0.9	0.9	0.9
Real estate owned <sup>(d)</sup>	1.1	0.9	0.6	0.4	0.5
<b>Total</b>	<b>37.7</b>	<b>36.0</b>	<b>34.1</b>	<b>34.7</b>	<b>35.4</b>

Source: Banco de Portugal. | Notes: (a) not excluding loans granted to projects not related to the real estate sector, such as public works; (b) excluding loans to NFCs in the construction and real estate activities sectors; (c) including loans and mutual funds shares; (d) gross values. There was a change in methodology in one of the main institutions when reporting loans to NFCs secured by real estate as of 2023, which led to a break in the series.

**Chart I.2.14 • Current LTV of housing loans stock**  
| As a percentage of the portfolio



Source: Banco de Portugal. | Notes: Indicator based on granular data at loan level from the Central Credit Register. Whenever the date of the last valuation of the property is prior to 2023 Q1, its current value is estimated using Statistics Portugal Housing Price Index.

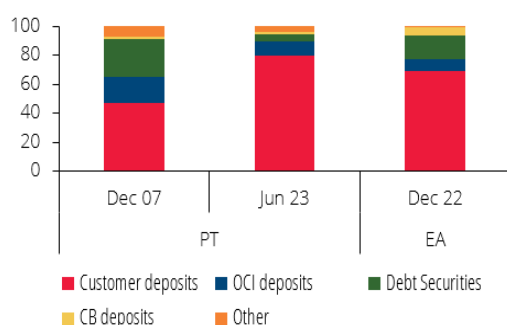
In June 2023, banks' exposure to assets that have as counterparty entities in different sub-sectors of the financial system stood at 14.3% of assets. The exposure between resident banks continued to be the most relevant component (10.8 p.p.). The reduction of direct interlinkages in recent years reduces the potential for transmission and amplification of adverse shocks impacting the sector. This decline is particularly relevant in the current context of rising interest rates and deteriorating economic prospects (Section 1.3.5).

## 2.5 Financing and liquidity

The current liquidity framework of the banking system is more favourable than that observed in the period before the great global financial crisis. Between December 2007 and June 2023, the share of customer deposits increased by 32 p.p. to 80% (above the euro area at 69%). In contrast, the share of deposits of other credit institutions and liabilities represented by securities decreased to 10% (-8 p.p.) and 5% (-22 p.p.) respectively (Chart I.2.15). This structural change reduced banks' sensitivity to changes in risk perception by international investors.

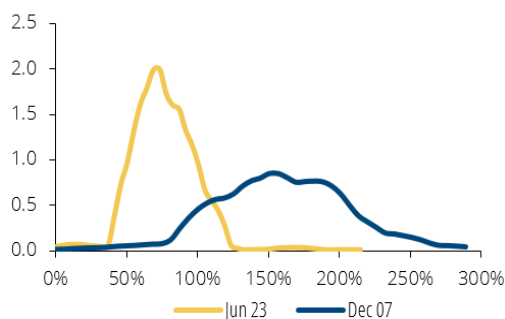
In the first half of 2023 there was a reduction in household deposits, offset by the reduction in liquidity deposited with the Eurosystem. At the same time, there was an increase in interbank funding using repurchase agreements involving securities with non-resident banks (Box 1). The reduction in deposits had a minor impact on the banking system's loan-to-deposit ratio, which stood at 80% in June 2023, remaining low compared with the euro area average (95% in December 2022). Analysis of the individual data also shows that the distribution of the loan-to-deposit ratio of the Portuguese banking system is currently centred around the average, with lower dispersion than in 2007 (Chart I.2.16).

Chart I.2.15 • Liabilities structure



Source: Banco de Portugal. Note: OCI: other credit institutions; CB: central banks.

Chart I.2.16 • Distribution of the loan-to-deposit ratio



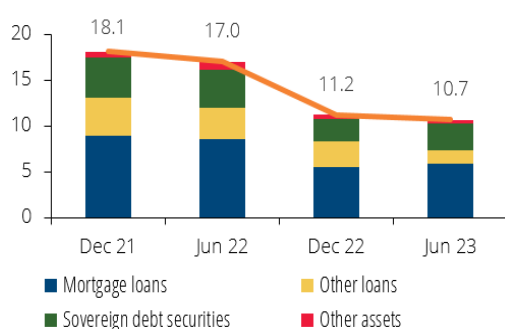
The share of funding from the Eurosystem in the funding structure of the banking system has decreased since September 2022 following the reversal of measures adopted by the ECB during the pandemic to provide favourable credit conditions. At the end of 2021, the share of funding from the Eurosystem reached 9.4% of total assets. By June 2023, as monetary policy changed, banks repaid TLTRO III loans early, reducing them to 1.4%. These developments were reflected in the reduction of the asset encumbrance ratio, mainly mortgage loans, to 10.7% in June 2023 (Chart I.2.17).

Regulatory liquidity ratios have remained high. The regulatory changes introduced minimum requirements for two complementary liquidity indicators, the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR), which are above the regulatory minimum of 100% on average. However, there has been a reduction in the LCR since June 2022 (-44 p.p.) driven by a decrease in reserves with central banks. The distribution is currently concentrated closer around the average (218%, Chart I.2.18). The NSFR, in turn, remained broadly unchanged, standing at 144% in June 2023. The liquidity buffer

(LCR numerator) remains largely composed of public debt instruments (measured at market value for the ratio, irrespective of whether they are recorded at amortised cost or at fair value on the balance sheet) and reserves with central banks, representing around 30% of customer deposits.

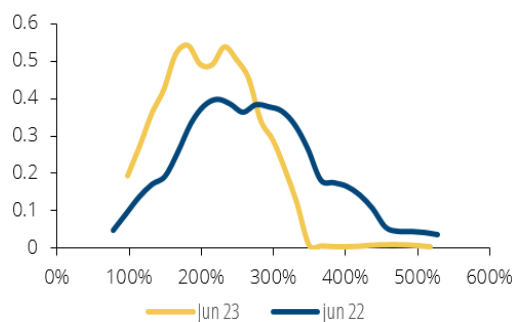
Over the course of 2023, some of the main credit institutions in the Portuguese banking system issued instruments eligible for compliance with the minimum requirement for own funds and eligible liabilities (MREL), totalling around €1.3 billion (€3.7 billion in 2022). According to the Bank Lending Survey, several institutions reported a deterioration in the conditions of access to funding through debt securities over the first half of 2023. In October, only one bank reported a slight worsening in access conditions, while another bank reported a slight improvement, and a similar situation is expected over the next three months.

**Chart I.2.17 • Asset encumbrance ratio**  
| Per cent



Source: Banco de Portugal.

**Chart I.2.18 • LCR distribution**



Source: Banco de Portugal.

**Deposit protection mechanisms are a pillar of financial stability.** The improvement in the Portuguese banking system's liquidity (and also solvency) indicators over the past decade led the country to a better position. Nevertheless, it is also important to have credible deposit protection mechanisms that foster confidence in banks. According to the Deposit Guarantee Fund (DGF), as at 31 December 2022, the total amount of deposits eligible for the FGD guarantee was €259 billion, of which 69% were covered by the guarantee. <sup>11</sup> Furthermore, the FGD covered all the deposits held by 98% of eligible depositors.

## 2.6 Capital

In the first half of 2023 the total capital ratio and the Common Equity Tier 1 (CET1) ratio increased to 19.0% (+0.8 p.p.) and 16.4% (+1.0 p.p.) respectively (Table I.2.14). These compare with 19.4% and 16.0% for the euro area. This development was almost exclusively determined by the CET 1 component (+1.1 p.p.). Tier 2 capital made a negative contribution to the total capital ratio (-0.3 p.p.) from December 2022, standing at 1.7% of risk-weighted assets. This development was mainly explained by the early amortisation of Tier 2 instruments by a large credit institution to fully pay off the funding obtained under a recapitalisation process while also reducing its average cost of funding. There was also a reduction in the heterogeneity of the total capital ratio.

<sup>11</sup> Deposits from eligible depositors, up to €100,000.

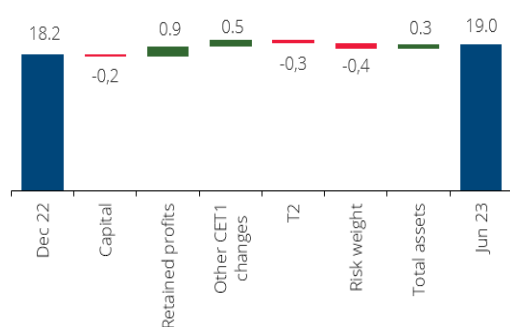


The average risk weight increased, particularly resulting from the reduction in cash balances at central banks (zero risk weight) in the first quarter of the year (Table I.2.14). In June 2023, the average risk weight stood at 44.2%, 1.0 p.p. up from the end of 2022, remaining above the average euro area risk weight (35.6%).

There has been an increase in credit/counterparty risk exposures (corporate and retail) of risk-weighted assets, partly offset by a reduction in market risk exposures, namely foreign exchange risk, and other risk exposures.

The increase in own funds was broadly based across the system's largest credit institutions, and largely resulted from the organic generation of capital (through retained earnings) (Chart I.2.19).

**Chart I.2.19 • Total own funds – level and contributions to changes | Per cent and percentage points**



Source: Banco de Portugal.

**Table I.2.14 • Capital ratios and average risk weight**

% of risk-weighted assets	Dec 19	Dec 22	Jun 23
Total capital ratio <sup>(a)</sup>	16.9	18.2	19.0
10 <sup>th</sup> percentile <sup>(b)</sup>	13.9	12.3	14.5
90 <sup>th</sup> percentile <sup>(b)</sup>	19.5	21.1	22.2
CET1 Ratio <sup>(c)</sup>	14.3	15.4	16.4
% of total assets	Dec 19	Dec 22	Jun 23
Average risk weight <sup>(d)</sup>	53.3	43.2	44.2
Euro area	39.3	35.8	35.6

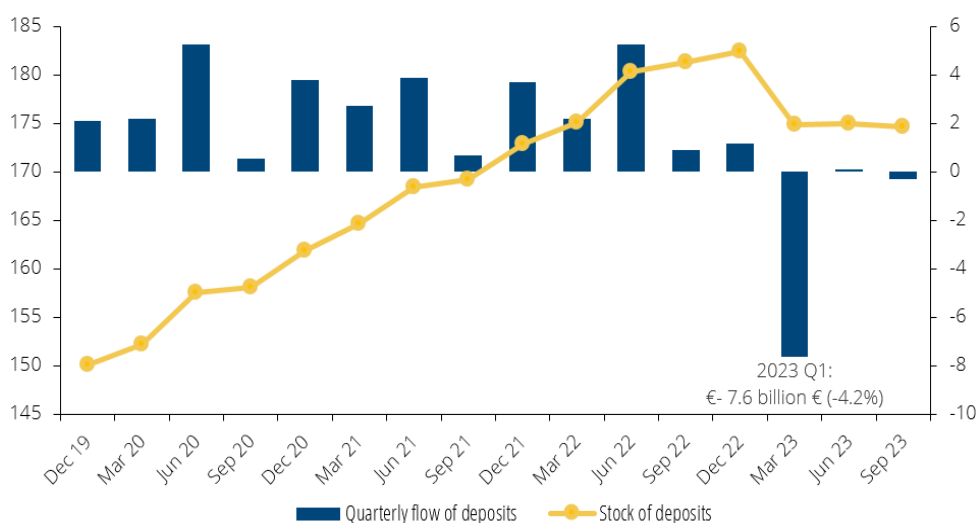
Sources: ECB and Banco de Portugal. | Notes: (a) Ratio of total capital to risk-weighted assets. (b) Percentiles obtained from the weighted distribution of risk-weighted assets of total capital ratio. (c) Ratio of Common Equity Tier 1 capital to risk-weighted assets. (d) Ratio of risk-weighted assets to total assets. (e) Percentiles obtained from asset-weighted distribution of average risk weight.

The leverage ratio increased by 0.6 p.p. to 7.3%, staying above the minimum requirement of 3%. This development was mainly the result of a rise in Tier 1 capital, which contributed 0.5 p.p. to the change in this ratio plus a slight reduction in total exposures considered for the leverage ratio.

**Box 1 • The reduction in household deposits in the first quarter of 2023: determinants and implications**

The first quarter of 2023 was marked by a sharp decline in household deposits with banks resident in Portugal, after a significant increase in their value in the years following the pandemic shock. This movement was not repeated in the subsequent months and flows stabilised. Until September 2023, the stock of deposits decreased by €7.8 billion (-4.3%), with the first quarter contributing €7.6 billion (-4.2%) (Chart B1.1).

**Chart B1.1 • Stock and quarterly flow of household deposits | EUR billions**



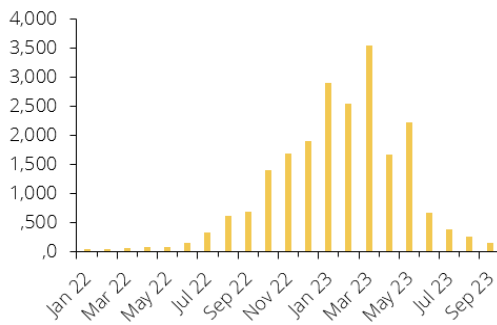
Source: Banco de Portugal. | Note: Domestic activity with resident households including emigrants.

A significant part of the decline in household deposits was channelled towards the subscription of savings certificates. Developments in interbank market interest rates led to a quick and significant increase in the remuneration of Series E savings certificates,<sup>12</sup> in contrast to a somewhat slow pass-through to deposits. Given the spread between the remuneration rates of these two products and their equivalent levels of risk and liquidity, there was an increase in subscriptions of savings certificates that began in the second half of 2022 and peaked in March 2023 (Chart B1.2).

Since the end of 2022, households have also channelled part of their savings to total or partial early prepayments of loans for house purchase (Chart B1.3). The spread between the cost of loans and the remuneration of deposits is likely to have contributed to this. The measures that entered into force in November 2022 (Decree-Law No 80-A/2022) have also contributed to this early prepayment movement in credit agreements for house purchase, as they included a temporary suspension of partial or total early prepayment fees on those agreements. However, total prepayment data include, among others, house moves and transfers of loans to other institutions, which are not reflected on household deposit developments.

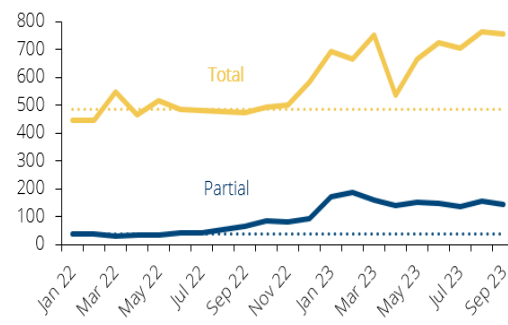
<sup>12</sup> This series' interest rate was calculated on a monthly basis on the third to last working day of the month, to be in force during the following month, according to the formula  $E3+1\%$ , where E3 is the average of the three-month Euribor in the previous ten working days. The application of this formula could not result in a base rate higher than 3.5% or lower than 0%.

**Chart B1.2 • Net subscriptions of savings certificates | EUR millions**



Source: Portuguese Treasury and Debt Management Agency.

**Chart B1.3 • Early prepayments of loans for house purchase | EUR millions**

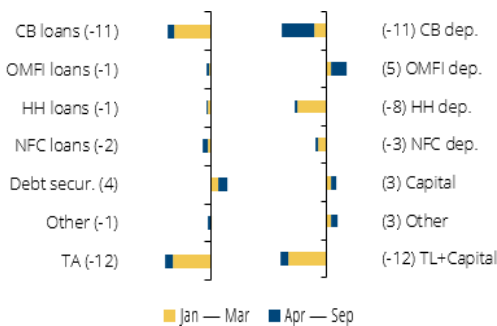


Source: Banco de Portugal (estimated figures). | Note: The dashed lines correspond to the series' average in the first six months of 2022.

The most recent data point to some stabilisation, with stock remaining broadly unchanged between March and September, yet still contrasting with the dynamics prior to the second half of 2022. The declining difference in the remuneration of savings certificates and deposit interest rates offered by the banking system contributed to these recent developments.

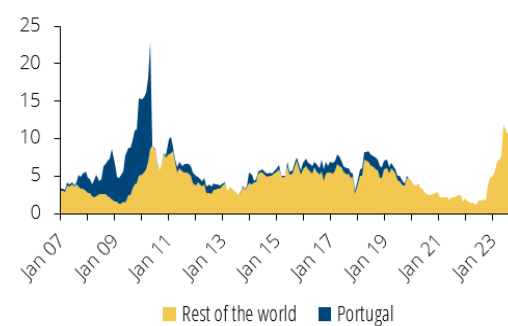
The decrease in household deposits with resident banks resulted in a reduction in liquidity with the Eurosystem. In 2023 there were material changes in the banking system's balance sheet, namely, in the first quarter, a reduction in liquidity with the Eurosystem (€-9.7 billion) that accommodated the €7.7 billion decrease in the stock of household deposits with resident banks (in addition to €2.3 billion from NFCs) (Chart B1.4). Moreover, financing obtained from central banks fell, especially between April and September (to a total accumulated amount of €11.5 billion), reflecting the early prepayment and maturity of TLTRO III operations (Section 2.5). In 2023 banks intensified their recourse to interbank funding, with deposits (and similars) of other credit institutions increasing by €5.1 billion since the beginning of the year. These developments were driven by repurchase agreements, i.e. short-term collateralised loans with non-resident banks (Chart B1.5). Recourse to this type of financing decreased continuously since June 2018.

**Chart B1.4 • Changes in the balance sheet of OMFIs | EUR billions**



Source: Banco de Portugal. | Notes: Domestic activity. CB: central banks; OMFIs: other monetary financial institutions; TA: total assets; TL: total liabilities; Dep.: deposits and similars (including repurchase agreements).

**Chart B1.5 • Repurchase agreements with monetary financial institutions | EUR billions**



Source: Banco de Portugal. | Note: Domestic activity.

### Box 2 • Developments in real estate investment funds in Portugal

International institutions, such as the European Central Bank and the European Systemic Risk Board, have been paying special attention to real estate investment funds (REIFs) recently due to their potential to amplify the materialisation of risks in the commercial real estate market, and because they may also be affected and/or contribute to adjustments in the residential real estate market.

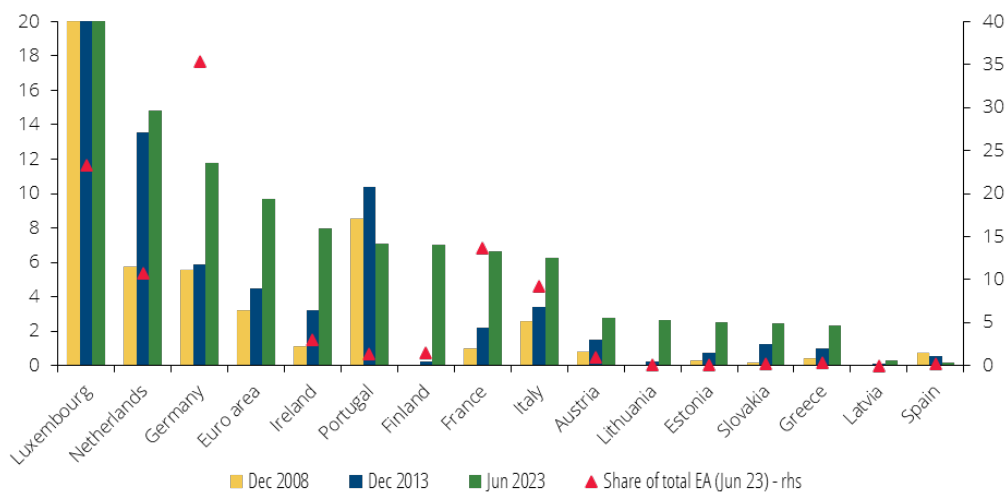
Investment fund activity has features that also increase risks to financial stability, particularly the mismatch between the liquidity of the funds' assets and the conditions for the redemption of units (liquidity risk), leverage and (direct or indirect) interlinkages with other financial sectors, in particular the banking sector.

However, the importance of the sector is very heterogeneous across countries and reflects the relevance of other entities holding/managing or developing real estate assets. In addition to real estate firms with various characteristics, whether listed or unlisted, Real Estate Investment Trusts (REITs) are significant because they are material in countries with no REIFs, such as Belgium, or where these funds are negligible, such as Spain.

In the euro area, there has been very significant growth in assets managed by REIFs in recent years, reflecting the valuation of real estate assets and the increase in the volume of assets under management. Between December 2013 and June 2023, total assets of REIFs in the euro area tripled to around 10% of GDP. Growth was broadly based across most countries, but the aggregate increase mainly reflected the contribution of a limited set of countries – Germany (179%), France (283%), the Netherlands (54%) and Luxembourg (503%).

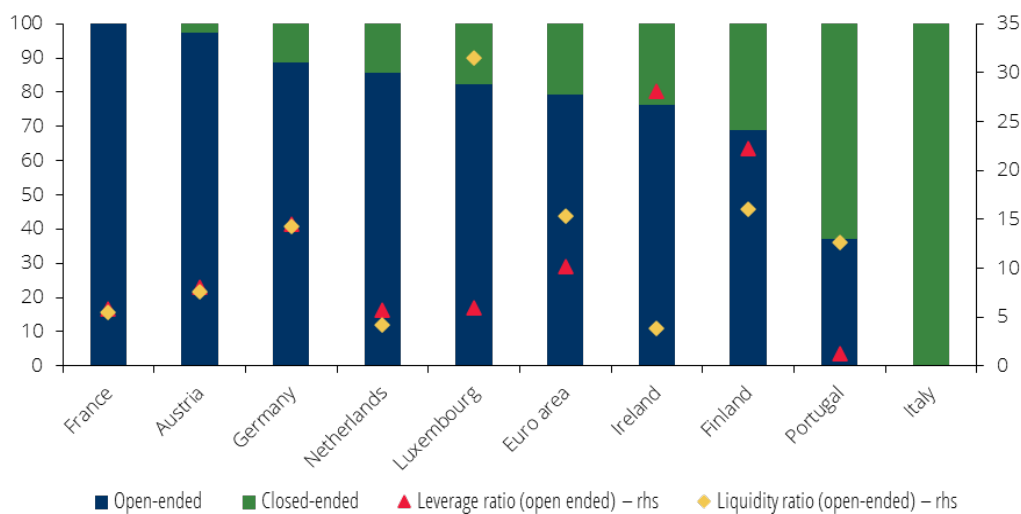
In Portugal, REIFs have lost some weight (Chart B2.1). In most euro area countries, open-ended REIFs take the lead. In Portugal and Italy, closed-ended REIFs have a greater weight (Chart B2.2).

Chart B2.1 • Assets in real estate investment funds | As a percentage of GDP



Source: ECB. | Notes: Countries ordered by share of total assets in June 2023. For ease of reading the chart is truncated at 20%, leaving Luxembourg out in December 2008 (81% of GDP), December 2013 (105% of GDP) and June 2023 (around 378% of GDP).

**Chart B2.2 • Weight of open and closed-ended REIFs, leverage and liquidity – June 2023**  
| Per cent



Source: ECB. | Notes: The chart includes the nine euro area countries where real estate investment funds are more significant for the economy. Relative weight of open and closed-end funds in total units issued.

**Open and closed-ended funds have different risk profiles.** Open-ended funds typically offer daily liquidity to investors, who can buy or sell units at market value and thus manage the asset portfolio with greater flexibility to match the flow of investors. In contrast, in times of stress, in the event of significant redemption requests, these funds may be forced to sell assets at unfavourable prices, helping to reinforce price drops. In turn, closed-ended REIFs are less sensitive to changes in market conditions because they issue a fixed number of units that are not tradable continuously.

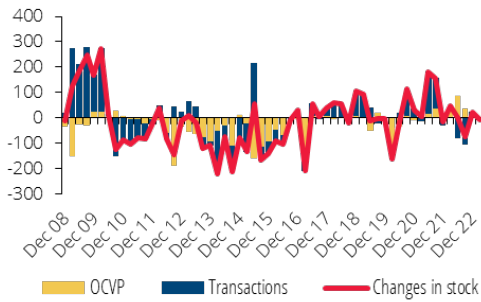
**In Portugal, the total assets of REIFs have decreased in nominal terms over the past ten years.** This drop was observed in both open and closed-ended REIFs. In the case of open-ended REIFs, after a period of net redemptions from 2014 to mid-2017, the sector has been characterised mainly by positive net subscriptions, albeit to a small extent (Chart CB.3). In the last ten years, the balance was virtually nil. This contrasts with the euro area as a whole, where significant net subscriptions of open-ended REIFs of around €300 billion were recorded. In the case of closed-ended REIFs, there have been negative net subscriptions in Portugal in recent years. However, this effect was offset by the incorporation of fixed capital real estate investment companies (Sociedades Imobiliárias de Capital Fixo – SICAFI), in most cases associated with entities previously classified as companies in the real estate activities sector.

**Holding liquid assets to face unexpected redemptions mitigates liquidity risk.** The liquidity ratio of open-ended REIFs was very low during the sovereign debt crisis (2%) but has since increased to stand at 12.5% in June 2023, just below the euro area average (15.3%). In turn, there is only residual financing of open-ended REIFs through debt. From a peak of 11.5% in October 2014, the leverage ratio declined to close to 1%, well below that of the euro area as a whole, 10%.

**The connection between the REIF sector and the banking sector has declined.** In 2012/2013 banks replaced households as the major holders of units, incorporating the assets taken as payment for non-performing loans and preventing the forced sale of real estate in their portfolios to cope with the significant amount of redemptions. In the case of open-ended REIFs, banks' holdings peaked at 45% of the units issued (+35 p.p. compared to June 2011). At the end of 2015, as the real estate market recovered, banks began to divest their non-core assets, reducing exposure to the real estate sector, including units in REIFs. In June 2023, banks held around 20% of the units issued by

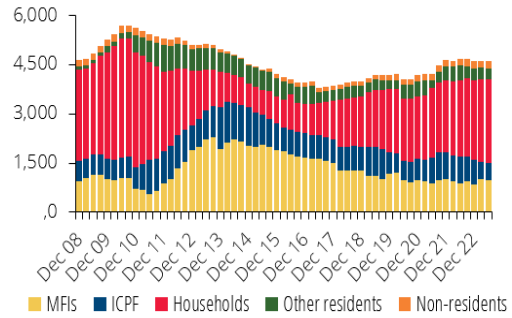
REIFs (Chart B2.4). This was also the case, albeit less pronounced, for the insurance and pension fund sector, with households holding more than 50% of the units issued by open ended REIFs.

**Chart B2.3 • Changes in units issued by open-ended REIFs: transactions and other changes in volume and price | EUR millions**



Source: Banco de Portugal. | Notes: OCPV – other changes in volume and price. Latest observation: June 2023.

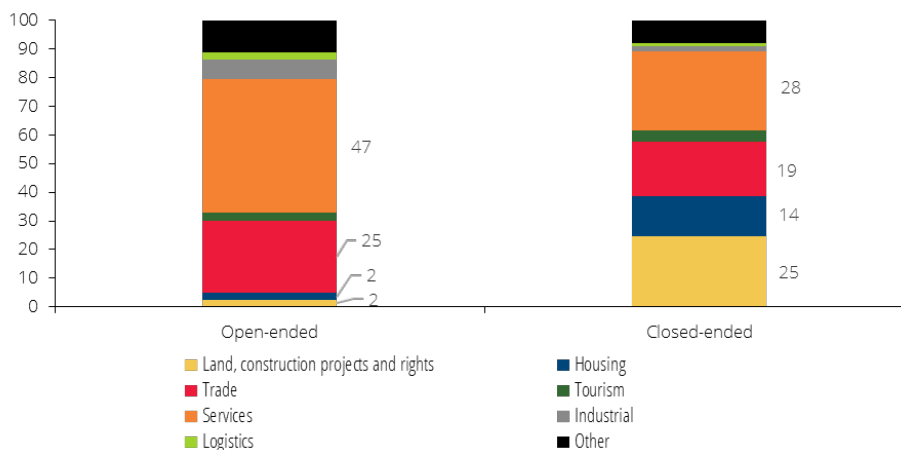
**Chart B2.4 • Holders of units in open-ended REIFs | EUR millions**



Source: Banco de Portugal. | Notes: MFI's refers to monetary financial institutions (i.e. resident banks). ICPF are insurance corporations and pension funds. Latest observation: June 2023.

As of September 2023, there were 14 open-ended REIFs operating in Portugal, compared to 227 closed-ended REIFs. Real estate properties make up 81% of the assets of the open-ended REIFs. Almost all these properties are completed and located in Portugal. This differs from the euro area, where financial assets stand for 47%, mostly shares and other equity, including investment fund units, which are typically associated with cross-border investments. In Portugal, the real estate properties owned by open-ended REIFs are mainly in the services (47%) and trade (25%) sectors (Chart B2.5). These are also the dominant sectors in terms of real estate properties held by closed-ended REIFs, although land and construction and renovation projects, as well as of residential properties, have a higher share. In recent years there have been no significant changes in the purpose of real estate assets under management in both types of funds.

**Chart B2.5 • Type of real estate property in the REIFs portfolio – August 2023 | Per cent**



Source: Portuguese Securities Market Commission - CMVM.

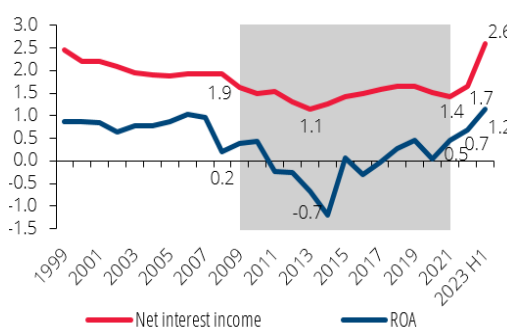
### Box 3 • Net interest income – the impact of balance sheet adjustments since the international financial crisis

Net interest income is the most important component of the Portuguese banking system's profitability, accounting for between 50% and 70% of income over the last two decades. Its relevance is associated with the nature of the banks' intermediation function, which is reflected in the composition of the sector's balance sheet, with a high share of interest-bearing assets/liabilities, including loans and deposits, securities (held and issued) and positions vis-à-vis central banks and other credit institutions. Banks obtain income via other channels, among others, from the valuation of assets (whether or not associated with their disposal) or by charging for services provided. However, those channels are, respectively, more volatile or smaller.

Since the international financial crisis, the Portuguese banking sector has experienced a major balance sheet adjustment, helping to improve net interest income compared with 2008, when official interest rates were close to their 2023 level. The strengthening of deposits in the funding structure, to the detriment of debt securities, is associated with a lower pass-through of interest rate increases to the total cost of funding, thereby enhancing the positive effect of the recent rise in interest rates by the ECB on net interest income. This effect outweighs the shift in assets, which is relatively less favourable in terms of generating interest receivable.

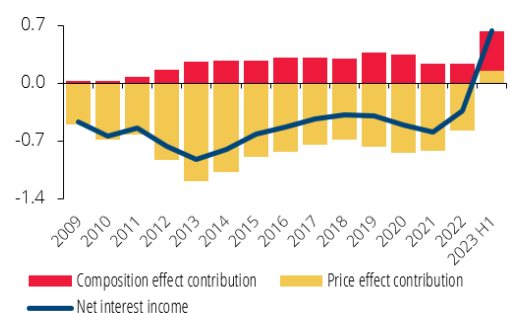
In the first half of 2023, the contribution of net interest income (the difference between interest received and paid) to return on assets (ROA) reached 2.6 p.p. (Chart C3.1). Compared to the same period in 2022, there was a 1.1 p.p. increase as a result of monetary policy normalisation, following a protracted period of very low interest rates. The contribution of net interest income was 1.9 p.p. of total assets in 2008, before falling to a 1.1 p.p. low by 2013, and remaining below 2008 levels until 2022. This was due to developments in interest rates (price effect) and in the composition of the banking system's balance sheet (composition effect) (Chart B3.2).

**Chart B3.1 • Net interest income and ROA**  
| As a percentage of average assets and per cent



Source: Banco de Portugal. | Note: The grey area represents the period of low interest rates.

**Chart B3.2 • Cumulative contribution of net interest income to ROA since 2008**  
(excluding derivatives) | In percentage points of average assets



Source: Banco de Portugal.

In cumulative terms compared to 2008, overall interest rate developments resulted in a negative price effect from 2009 onwards, which picked up by 2013 and continued to be substantial until 2022. The international financial crisis was behind the swift and marked decrease in official interest rates. This decline spilled over to bank lending rates and, to a lesser extent, deposit interest rates. During this period, and aggravated by the sovereign debt crisis, the interest rate on liabilities was constrained by difficulties in accessing international market funding, which contributed to the increase in the cost of bank deposits. The pass-through to deposit rates during the protracted

period of low interest rates in particular reflected stable near-zero interest rates on demand deposits, which increased their share in total liabilities.

**The price effect was particularly positive in the first half of 2023, making it possible to reverse the cumulative negative effect observed until 2022.** This reflected the monetary policy normalisation process that started in mid-2022 and was also the result of a more intense and swifter pass-through to lending rates than to deposit rates. From end-2021 to June 2023, the increase in the interest rate on new loans to the non-financial private sector regarding domestic activity was 3.2 p.p., compared with a 2.9 p.p. increase in the rate on outstanding amounts. Over the same period, the interest rate on new time deposits rose by 2.1 p.p., while the rate on outstanding amounts of time deposits increased by 0.7 p.p.

**The rapid pass-through in lending rates is associated with the high share of loans with a(n) (indexed) variable rate and a resetting period of up to one year.** The lower impact on the interest rate on total deposits reflects, on the one hand, a slower pass-through to interest rates on time deposits and, on the other hand, the maintenance of a near-zero interest rate on demand deposits. Against this background, by reflecting different stages in the pass-through of monetary policy to lending and deposit rates, the results from the first half of 2023 are expected to be partially reversed, also considering that the continuation of this pass-through is likely to have some impact on the balance sheet structure. In particular, there should be a more marked reallocation of demand deposits into time deposits.

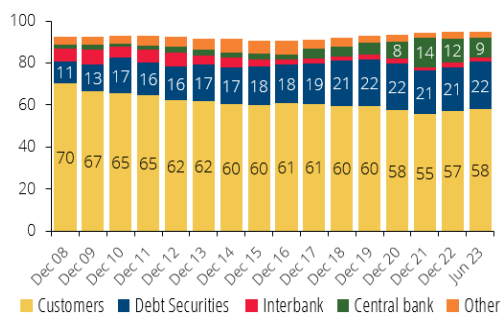
**The international financial crisis also prompted adjustments in the financial position of the various resident sectors, given the then high debt of households, firms and general government.** In the case of the banking sector, in addition to the impact of customer adjustment, there was a need for gradual and orderly deleveraging, safeguarding the stable financing of the economy. The need to reduce firms' and households' indebtedness has constrained credit portfolio dynamics, whose share in assets has decreased (Chart B3.3). At the same time, Portuguese banks have increased their debt securities portfolios, in particular sovereign debt. Between 2009 and 2013, growth was linked to Portuguese debt, whose outstanding amount remained stable until 2020, declining thereafter. From 2013 onwards the sovereign debt securities portfolio has grown vis-à-vis other geographies, particularly those of the euro area. In recent years, exposure to central banks has also increased, even more so following the monetary policy measures adopted in reaction to the pandemic crisis.

**Customer deposits have increased their share in the funding structure, counterbalancing the reduction in funding via debt securities and obtained from other credit institutions (Chart C3.4).** This change initially stemmed from the difficulty for domestic issuers to access international financial markets and even central bank funding (in light of adverse developments in the credit ratings of Portuguese issuers). Thereafter, the resilience of deposit growth has contributed to an environment of abundant liquidity, reinforced in recent years by non-standard monetary policy measures.

**In parallel to its increased importance, there has been a shift in the structure of customer deposits, with a growing share of demand deposits.** In a context of very low interest rates, the opportunity cost of holding demand deposits compared with alternative investments has decreased. Hence, its share increased from 30% of total deposits in 2008 to a maximum of 61% in 2021. In June 2023, despite the rise in interest rates, it remained at 55%.

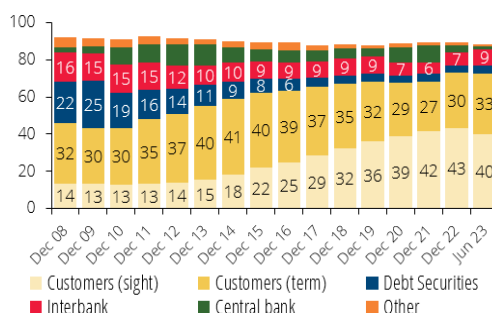


**Chart B3.3 • Interest-bearing assets**  
| As a percentage of total assets



Source: Banco de Portugal. | Note: “Customers” means net customer loans; “Interbank” means loans to other credit institutions; “Central bank” means cash balances and loans to central banks; “Other” includes, among others, derivatives and cash balances at CIs.

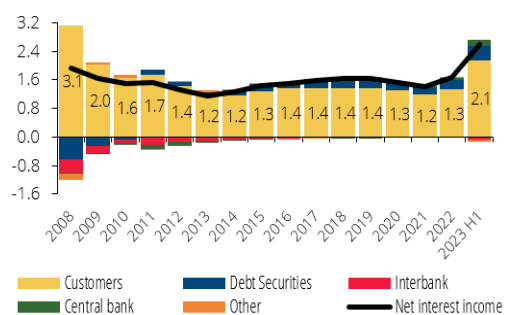
**Chart B3.4 • Interest-bearing liabilities**  
| As a percentage of total assets



Source: Banco de Portugal. | Note: “Customers (demand)” means customer demand deposits; “Customers (fixed-term)” means customer time deposits; “Interbank” means deposits from other credit institutions; “Central bank” means central bank deposits; “Other” includes, among others, derivatives.

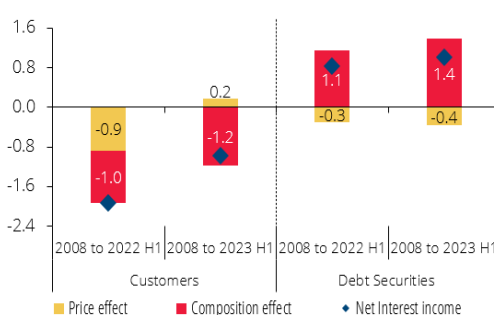
The margin on operations with customers, the main component of net interest income, is below that observed in 2008 (Chart B3.5). In the first half of 2023 the contribution of operations with customers to net interest income stood at 2.1% of average assets, below that seen between 2005 and 2008 (on average, 2.8%, peaking at 3.1% in 2008). This lower contribution compared with 2008 is due to the above-mentioned increase in the share of deposits and a reduction in the share of loans. In net terms, this resulted in a negative composition effect, slightly mitigated by the positive price effect, reflecting developments in the interest rate differential over the past year (Chart B3.6).

**Chart B3.5 • Breakdown of net interest income**  
| As a percentage of average assets



Source: Banco de Portugal.

**Chart B3.6 • Change in the contribution of net interest income from customers and securities to ROA**  
| Percentage points



Source: Banco de Portugal.

In contrast to the negative change in the relationship with customers, there was an opposite development in operations with debt securities, which made a positive contribution to net interest income. This development was due, on the one hand, to the reduction in the share of debt securities in total financing from 2009 onwards, which made it possible to cut the total cost of financing, as this is the liability with the highest interest rate. On the other hand, it also benefited from the expansion of the debt securities portfolio, in particular sovereign debt. In addition to these effects, there was a less negative contribution to changes in net interest income from interbank transactions (of 0.3 p.p.) and a positive contribution (of 0.2 p.p.) from the relationship with central banks, which had been negligible in 2008.

#### Box 4 • Pass-through of ECB interest rates to household deposit rates in Portugal

The ECB's key interest rates play a crucial role in the formation of short-term interest rates in the euro area interbank money market and determine the rates on banking transactions with other economic agents, notably the remuneration of household deposits. In Portugal, deposits are the largest share of households' financial assets (47% in June 2023), reinforcing the impact that changes in deposits' interest rates have on disposable income and saving decisions.

**The pass-through of changes in official interest rates to deposit rates is not complete or immediate and depends on the characteristics of the financial systems.** The remuneration rate on time deposits tends to track, with a positive or negative gap, interbank market interest rates, which are in turn determined by the key interest rates.

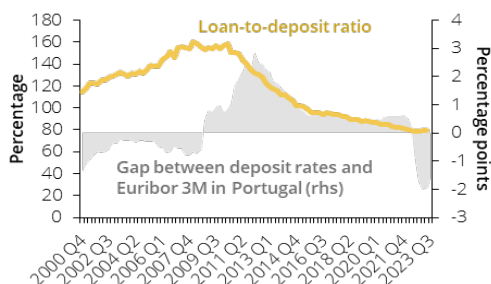
**The deposit remuneration gap tends to be negative when institutions' financing needs can be met by drawing on other sources of funding, with more favourable characteristics.** This occurred between the creation of the euro and the start of the international financial crisis (2008), despite the significant financing needs of the Portuguese banking system, largely associated with the increase in the loan-to-deposit ratio (which reached 161% in March 2008). The share of assets funded in the wholesale market peaked at 29% in November 2009.

**In turn, between 2009 and 2022 the gap between the rate of return on deposits and the reference rate was reversed.** At the beginning of the sovereign debt crisis, the loss of access to the interbank and securities markets, together with the reductions in the rating of the Portuguese Republic, prompted credit institutions to focus on financing through the collection of deposits, which became the main source of financing of the Portuguese banking system. At the same time, interest rates on deposits and the remuneration gap vis-à-vis Euribor increased and prudential measures were adopted in order to avoid excessive growth in the interest rates on deposits. From 2012 onwards, the deleveraging of the non-financial sector led to a reduction in the loan-to-deposit ratio and the gap in the remuneration of deposits declined in a sustained manner. Nevertheless, the legal impossibility of reflecting negative interest rates in the remuneration rates on household deposits contributed to a permanent positive gap.

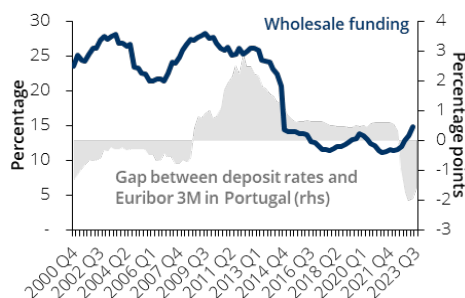
**In the current cycle of rising key interest rates, there is also a negative gap, as credit demand and institutions' funding needs are contained alongside an environment of abundant liquidity** (Charts B4.1 and B4.2).

One way of gauging the speed and completeness of monetary policy transmission is to compare the cumulative change in the interest rate on deposits with the cumulative change in the reference rate, which can be summarised by calculating the ratio between the two changes over the same horizon ( $\beta$ ). The impact can also be assessed with some lag compared to the change in the reference rate (cumulative  $\beta$ ).

**Chart B4.1 • Loan-to-deposit ratio and deposit remuneration gap**



**Chart B4.2 • Wholesale funding and deposit remuneration gap**



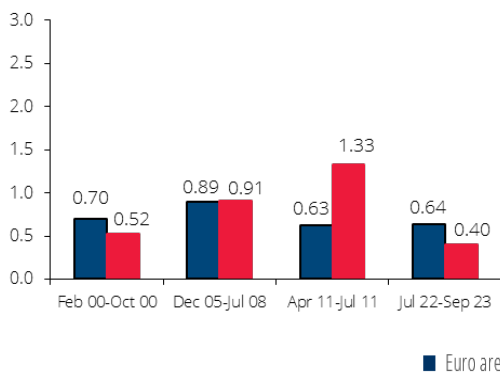
Source: Banco de Portugal. | Notes: The loan-to-deposit ratio corresponds to loans net of impairments over deposits. The gap in the remuneration of deposits is the difference between the interest rate on new deposits and the 3-month Euribor. Latest observation: Loan-to-deposit ratio: 2<sup>nd</sup> quarter 2023; Gap: 3<sup>rd</sup> quarter 2023.

Source: Banco de Portugal. | Notes: Wholesale funding is the sum of interbank funding and securities issued. The gap in the remuneration of deposits is calculated as the difference between the interest rate on new deposits and the 3-month Euribor. Wholesale funding share: 2<sup>nd</sup> quarter 2023; Gap: 3<sup>rd</sup> quarter 2023.

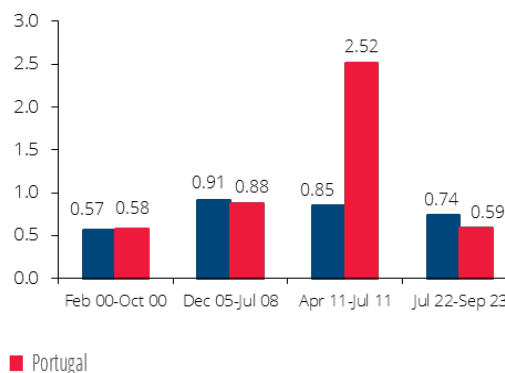
In June 2023, 40% of the increase in the 3-month Euribor observed as of July 2022 had been passed through to the interest rate on new household time deposits in Portugal ( $\beta = 1.51 \text{ p.p.} / 3.78 \text{ p.p.}$ ). After three months, in September 2023, 59% of that increase was reflected in new term deposit rates (cumulative  $\beta$ ). In the euro area,  $\beta$  and cumulative  $\beta$  for the same periods stood at 64% and 74% respectively (Charts B4.3. and B4.4).

During the sovereign debt crisis, the transmission of monetary policy was disrupted, reflecting the macroeconomic and financing conditions of Portuguese credit institutions. Thus, when interest rates were raised in 2011,  $\beta$  and cumulative  $\beta$  showed abnormal values (1.33 and 2.52 respectively), as they did not exclusively reflect the reaction to the change in monetary policy.

**Chart B4.3 •  $\beta$  at the end of the upward cycle | Per cent**



**Chart B4.4 • Cumulative  $\beta$  three months after the end of the upward cycle | Per cent**



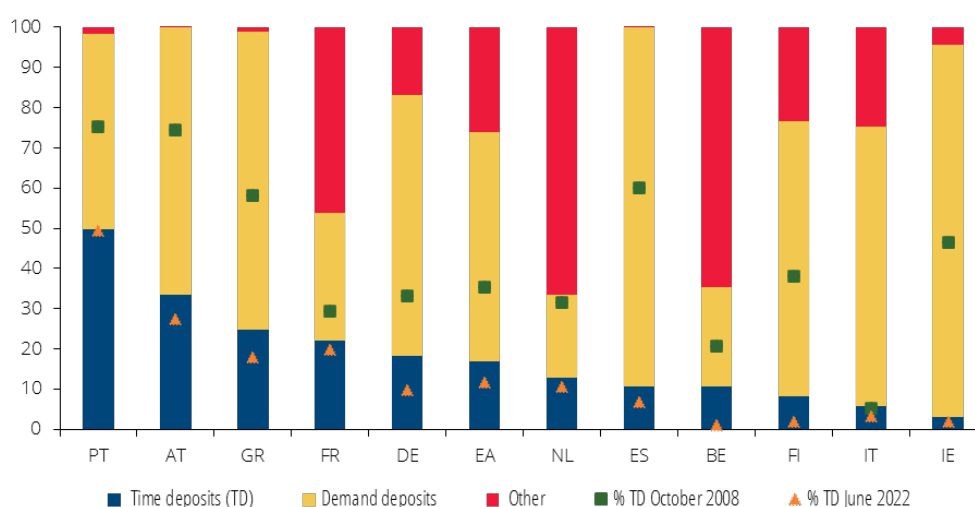
Source: ECB. | Notes: In the upward cycle ending in July 2008, it is not correct to calculate the impact after three months, as the ECB started the downward cycle in October 2008, so the cumulative impact is shown after two months. The cycle starting in 2022 includes increases in the Euribor 3M until June 2023 to make it possible to show the cumulative impact after three months (September 2023). However, the changes between June and September also reflect rises in the official rate that occurred in the meantime.

In periods of interest rate rises, time deposits increase. However, in the current cycle, between June 2022 and September 2023, the recomposition of the deposit portfolio has been very slow, with the share of time deposits far from that observed before the prolonged period of very low

interest rates. This behaviour can be explained by the very gradual pass-through of rising interest rates to deposit rates, among other factors. Reflecting the spreads on the remuneration of different types of savings, many deposits were also withdrawn (Section 1.3.2 and Box 1).

The slow recomposition of the deposit portfolio is also observed in most euro area countries. The share of time deposits in total deposits is heterogeneous across countries, rising above the euro area average in Portugal. In addition, the characteristics of deposits falling within the same category may differ materially across countries, helping to ensure that the remuneration rates applied react differently to monetary policy (Chart B4.5).

Chart B4.5 • Composition of household deposits in September 2023 | Per cent



Sources: ECB and Banco de Portugal. | Note: "Other" mainly comprises deposits redeemable at notice.

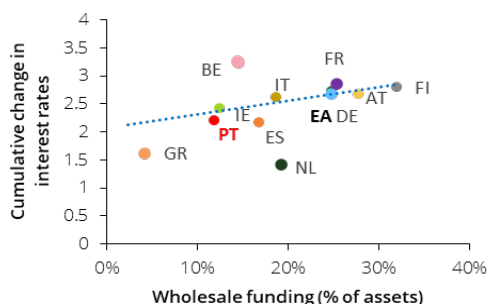
Banking systems more exposed to funding in the interbank and securities markets (wholesale funding) whose remuneration rates react more promptly and strongly to rises in key rates will also tend to be quicker to adjust the remuneration of deposits to maintain or attract that stable funding source as an alternative to market funding. In the current cycle of rising interest rates, Portuguese banks' low recourse to this type of financing may partly explain the lag from the euro area average in the pass-through of the change in the reference rates to the interest rates on new time deposits (Chart B4.6).

Heterogeneity in the composition of deposits also contributes to changes in the remuneration of time deposits being reflected differently in institutions' cost of financing, influencing the reaction to monetary policy changes. One way of considering cross-country heterogeneity in terms of time deposits to total deposits is to look into the change in the average rate of the stock of household deposits. In this case, the pass-through of the change in the 3-month Euribor rate between July 2022 and September 2023 ( $\beta$ ) is 10% for Portugal and 18% for the euro area. A positive correlation is observed between the average interest rate on the stock of total household deposits and the relevance of wholesale funding in each banking system, and Portugal follows the sample of euro area countries considered. This relationship is greater than if the interest rate on new time deposits is considered relative to the importance of wholesale funding. However, the analysis presented is partial, not considering the simultaneous effect of all relevant factors (Charts B4.6 and B4.7).

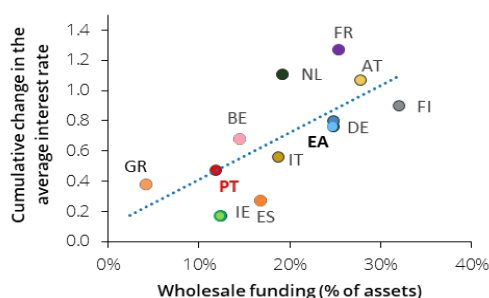
Two additional factors that may contribute to different responses of deposit interest rates to changes in the reference rates are the loan-to-deposit ratio and the level of concentration of the banking systems. A higher loan-to-deposit ratio translates into higher financing needs and

potentially a faster and more complete pass-through of changes in the ECB's key interest rates. On the other hand, in more concentrated systems pass-through will tend to be less intense.<sup>1</sup>

**Chart B4.6 • Wholesale funding and cumulative change in the interest rate on new household time deposits**



**Chart B4.7 • Wholesale funding and cumulative change in the average interest rate of the total stock of household deposits**



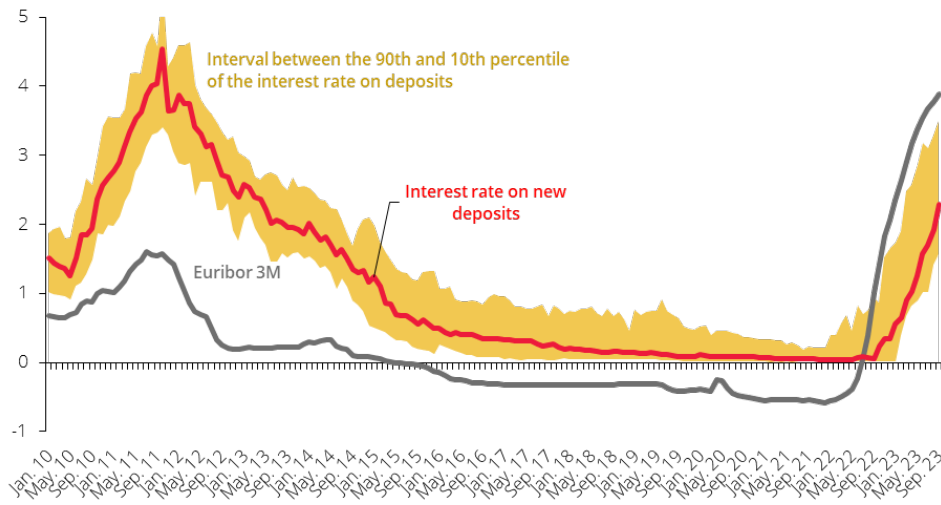
Source: ECB. | Notes: (a) Cumulative change in the average interest rate in the stock of total household deposits between July 2022 and September 2023. (b) The analysis presented is partial and does not contemplate the simultaneous effect of all the determinants of the reaction of interest rates on deposits to changes in reference rates.

**In Portugal, the remuneration of time deposits varies across credit institutions, with a significant interval.** In the Portuguese banking system, in June 2023 the difference between the 90<sup>th</sup> and 10<sup>th</sup> percentile of the average interest rates applied by credit institutions was 2.15 p.p., the highest since January 2010. By September 2023 this difference had narrowed to 1.92 p.p. (Chart B4.8).

**The spread between the remuneration rates may come from heterogeneity across credit institutions in terms of liquidity buffers and the characteristics of deposits.** The reduced availability of financing alternatives will tend to increase the remuneration offered. The different business strategies pursued by the credit institutions contribute to differences in interest paid, among other. The definition of minimum periods, the (im)possibility of early withdrawals and interest payment periods on deposits are some of the aspects that condition their remuneration. However, the liquidity requirements governing all institutions constrain their demand for deposits that enable them to comply with these requirements.

<sup>1</sup> This connection is documented in the literature for several banking systems. For example, Messer, T. and Niepmann, F. (2023), "What determines passthrough of policy rates to deposit rates in the euro area?", *FEDS notes*, Board of Governors of the Federal Reserve System and Gödl-Hanisch, I. (2022), "Bank Concentration and Monetary Policy Pass-Through", FDIC CFR WP 2022-06.

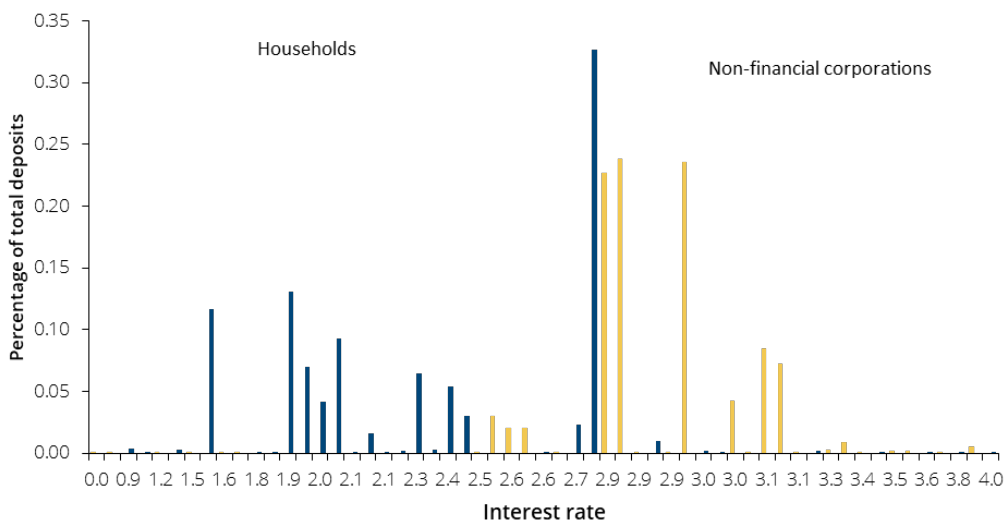
**Chart B4.8 • Interest rates on new time deposits of households and the Euribor 3M, between 2010 and 2023 | Per cent**



Sources: ECB and Banco de Portugal. | Notes: Includes credit institutions operating in Portugal at any moment in time. Latest observation: September 2023.

Institutions may also offer different interest rates to different customers. The remuneration rates on new time deposits to firms are higher than those paid to households. In periods of rising key interest rates, the pass-through to interest paid on firms' deposits tends to be faster and more complete than for households. This may reflect the greater bargaining power of firms, including the possibility of more active participation in international financial markets. In contrast, in the case of households, deposit holders are more dispersed, the average amount per deposit is smaller and the ability to negotiate rates is limited (Chart B4.9).

**Chart B4.9 • Distribution of interest rates on new time deposits to households and non-financial corporations – September 2023 | Per cent**



Source: Banco de Portugal. | Note: The chart illustrates the distribution of average interest rates, by credit institution.

Households continue to invest largely in deposits, reflecting their preference for this type of savings and the perception that, except for savings certificates, there are few alternatives with a similar degree of risk and liquidity. Passive management of financial investments by some households often leads to deposits being rolled over automatically, resulting in a slow and incomplete convergence of interest rates on new deposits with the interest rates on the stock of deposits. When this coincides with rising interest rates, roll-over conditions are less favourable than those of new deposits. The reverse occurs during interest rate decreases.

**To sum up, the degree and speed of the pass-through of changes in key interest rates to the remuneration of household deposits stem from a number of cyclical and structural factors.** At the start of the interest rate hike cycle in July 2022, institutions in the Portuguese banking system had abundant liquidity and low exposure to international wholesale funding markets. In Portugal, this pass-through has taken longer than in previous cycles, with some heterogeneity across banks. In most euro area countries, there was a faster pass-through to interest rates on new household term deposits than in Portugal. However, when assessing the pass-through based on the change in the average remuneration of the stock of household deposits, developments in Portugal appear to be more in line with the other euro area countries. The pass-through to deposit interest rates is enhanced by the management of deposits by depositors, who seek better-remunerated products for the desired characteristics of risk and liquidity.

### Box 5 • Sovereign Loan Guarantees and Financial Stability

A sovereign loan guarantee is a public policy measure that protects banks against borrower insolvency by shifting the burden of loan losses from the banking sector to the sovereign. It is also a policy that decreases banks' capital needs which in turn, can lead to an expansion of credit to the economy and a reduction in bank capital. These features make the policy particularly relevant for financial stability.

**During the COVID-19 sanitary crisis, sovereign guarantees on loans to firms were among the policies adopted in Portugal to mitigate the effects of the pandemic.** The amount of guaranteed loans reached €8.9 billion in October 2021, 85 percent of which were issued in 2020. Guaranteed loans were notably provided to firms in the sectors most affected by the pandemic. The guarantee's cover could vary between 80 and 90 percent of the loan depending on firm size. Most guarantees were granted with the maximum maturity of six years. Guaranteed loans included a guarantee fee paid by firms depending on the maturity of the loan and on the firm's size.

**How do these guarantees impact financial stability, specifically the probability of bank default and the level of credit in the economy?** An extended version of the DSGE (*Dynamic Stochastic General Equilibrium*) model in Clerc et al. (2015) is used to measure the effect of the loan guarantee scheme. The model's steady-state is hit with a series of shocks that mimic the forecasts of the evolution of the Portuguese economy after the onset of the COVID-19 pandemic, and the response of variables of interest in two scenarios are compared: with and without sovereign guarantees.

**The default risk of banks is lower and credit and output are higher with sovereign loan guarantees than they would have been without them (Chart C5.1).** On average, a sovereign guarantee over 1 percent of the stock of credit to firms over a year reduces banks' default risk by 0.48 percent and increases credit and output by 0.32 and 0.01 percent respectively.

**Guaranteed loans replace some of the loans that firms would have received without the scheme.** Each euro of guarantees generates an average of 31 cent of new credit to firms and replaces 69 cent of credit that firms would have received in the absence of the policy.

**While banks become less risky and firms receive more funding, firms' default increases because of the policy.** Firms' default depends on their leverage, i.e., the ratio of firms' debt to the value of their assets. In the scenario with sovereign guarantees, the increase in firms' leverage is higher than in the scenario without sovereign guarantees, driven by the rise in credit supply that the loan guarantee scheme triggers.

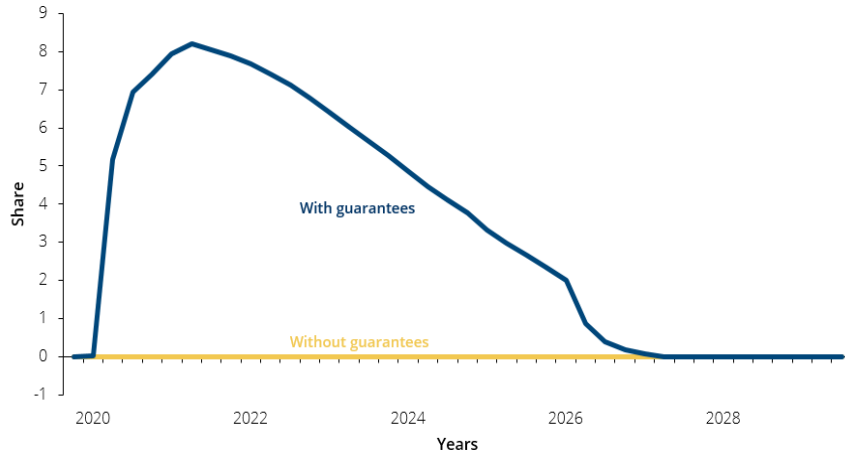
**The deadweight losses related to default cumulatively decrease by 3 percent over the duration of the scheme.** Default triggers deadweight losses. These losses include, among others, the costs associated with collecting debt and the loss in the value of borrower's assets because the assets are used less efficiently. The increase in the firms' default increases deadweight losses, but this effect is compensated with the decrease in the deadweight losses associated with lower bank default.

**The guarantee fee is a key driver of the policy's fiscal cost.** The policy's fiscal costs are the expected transfers the sovereign needs to make to compensate banks for the losses on guaranteed loans. On average, the expected fiscal cost of the sovereign loan guarantees is 0.02 percent of output for each 1 percent of guaranteed credit over a year. But if guarantees were free – i.e., if there was no fee – the scheme's expected fiscal cost would increase by 65 percent.

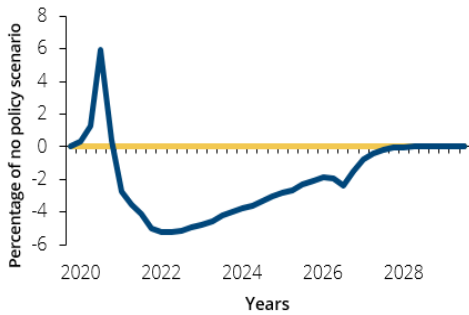


Chart B5.1 • The impact of the loan guarantee scheme after the COVID-19 shock | Percentage

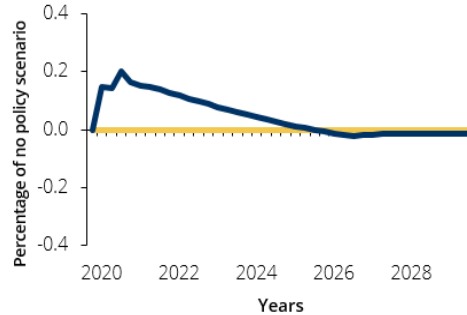
Panel A - Share of guaranteed loans



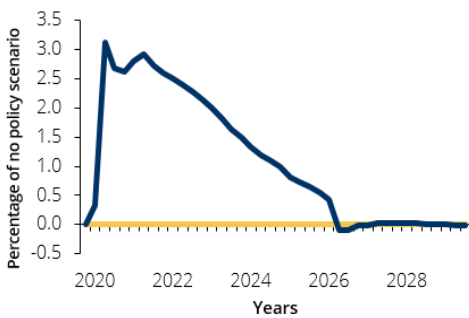
Panel B - Banks' default rate



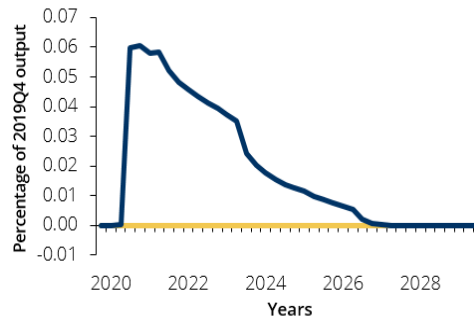
Panel C - Output



Panel D - Corporate loans



Panel E - Fiscal cost



Source: De Lorenzo Buratta and Pinheiro (2023). | Notes: dynamics of variables after the COVID-19 shock in the presence of guarantees.

There's evidence to believe that the firms' default rate as used in the model may be overstating the credit risk of the firms that received loan guarantees, and thus the scheme's fiscal cost. In the model, the scheme's fiscal cost is in part driven by the steady-state default rate of firms. This default rate is set equal to the observed average default rate of firms in the economy before the sanitary crisis. However, Mateus and Neugebauer (2022) show that lower credit-risk firms were the

main recipients of Portuguese loan guarantees and obtained larger loans than riskier firms. Moreover, the probability of default of firms that received loan guarantees is, prior to the sanitary crisis, 61.5 percent lower than the model's calibrated value. Thus, **the fiscal cost of the loan guarantee scheme is 83 percent lower when the default rate of firms used in the analysis matches the default rate of firms receiving the loan guarantees instead of the average firm in the economy.**

The selection of safer firms in the Portuguese scheme contrasts with what happened in some European countries. For example, Laeven *et al.* (2022) find that Spanish firms with higher pre-COVID credit exposure to banks were more likely to obtain guaranteed loans, particularly the riskier ones. As a result, the fiscal cost of the policy in these other countries may end up being higher than in Portugal.

The policy's fiscal cost ignores the possible impact of other policies implemented at the time of the sanitary crisis or of other shocks unrelated to it. Shocks unrelated to the sanitary crisis can suddenly increase the default probability of firms. If firms' default probability does increase, so do the realised fiscal costs of the scheme. This increase may be mitigated by the fact that safer firms were selected into the sovereign loan guarantee scheme. A case in point is the current interest rate shock. Firms are under financial pressure following the significant increase in interest rates and may default more often. The recipients of loan guarantees, being safer at the time of the implementation of the scheme, are more likely to withstand the shock than other firms in the economy. Thus, the policy's fiscal cost is likely to increase in response to the interest rate shock but by less than it would if the recipients of loan guarantees were riskier.

**Alternative designs for the scheme are explored in the analysis to assess the impact of its size, duration, and timeliness.** Increasing the scheme's size enhances its effect on bank default, on credit, and on economic recovery but entails higher fiscal costs. Extending the maturity of sovereign guarantees has a negligible effect on bank default and credit, although it increases the benefits to the economy. Finally, delaying the implementation of the scheme beyond the quarter of the COVID-19 shock would lengthen economic recovery and increase the banks' default probability at the time of the shock.

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## II Special issue

Interest rate risk in the banking book  
The importance of management capital buffers  
in lending to firms



# Interest rate risk in the banking book<sup>1</sup>

## 1 Background

Interest rate risk management and monitoring are of growing importance for both banks and supervisors, considering recent interest rates hikes that have already affected banks' profitability and regulatory capital (Chapter 2).

Banks and supervisors should assess whether vulnerabilities exist that could emerge in a scenario of further changes, to which the impact of the credit and liquidity risk may be added.

The European Union's regulatory framework distinguishes the treatment of the interest rate risk in the trading book – i.e. in the portfolio that includes instruments mainly for short-term capital gains – from the treatment of interest rate risk in the remaining instruments, which make up the so-called banking book.

Assessing banks' vulnerability to interest rate shocks in the banking book means measuring different impacts. From a short-term perspective, it is important to assess the impact, and its adjustment speed, on net interest income. In turn, from a medium-term perspective, it is important to assess the change in the economic value of assets and liabilities and, in net terms, in equity. The impact of interest rate shocks may be mitigated by hedging risk through derivatives.

Banks should incorporate the various interest rate risk dimensions into their analysis. Against this background, the following should be noted:

- Interest rate repricing risk, arising from the mismatch of residual maturities and/or interest rate repricing periods between assets and liabilities;
- Yield curve risk, where, for the same repricing period, any change in the slope of yield curves are potential loss generators;
- Basis risk, resulting from the lack of a perfect correlation across the different indices with the same interest rate repricing period, assuming that the other characteristics of the financial instruments are similar; and
- Option risk, arising from the inclusion of option clauses in on-balance sheet or off-balance sheet instruments.

This Special issue aims to provide information on interest rate risk in the banking book. Therefore, there is a description of the current regulatory framework, followed by a presentation of the impacts of different scenarios on both net interest income and the economic value of equity to the banking system, based on estimates provided by the banks at December 2022.

## 2 Regulatory framework for interest rate risk

The current prudential framework applicable to interest rate risk in the banking book (IRRBB) defines a set of rules to discourage banks from taking on excessive risk exposures. These

<sup>1</sup> Prepared by Bruno Dias, Sílvia Santos and Tomás Salen.

standards, as well as supervisory expectations associated with their compliance, fall under the regulatory component commonly referred to as Pillar 2. The key purpose is to encourage banks to maintain appropriate internal governance structures to manage this risk and develop management and measurement policies and procedures that are proportional to the risk they incur. The interest rate risk of the banking book is not subject to rules for calculating minimum capital requirements (as set out in Pillar 1).

The Supervisory Review and Evaluation Process (SREP) checks that strategies, processes, capital and liquidity are adequate to the risks that each bank is or might be exposed to. Against this backdrop, and in addition to qualitative supervisory measures, the supervisor is authorised to impose additional capital requirements (Pillar 2) should it conclude that a bank does not have sufficient regulatory capital in the event of a situation that may be deemed as entailing excessive risk.

Following international methodological recommendations, when assessing risk banks should calculate their exposure to changes in interest rates (short, medium and long-term) on an instrument-by-instrument basis using internal models, Value at Risk (VaR) and/or the duration of the instrument. Therefore on an instrument-by-instrument basis, banks classify assets, liabilities and off-balance sheet items in the banking book by interest rate repricing intervals, i.e. according to the time elapsed until the earliest date on which the interest rate applicable to the instrument is expected to be updated, up to its maturity date at the latest. Thus, for each time bucket it is possible to calculate the mismatches between assets and liabilities corresponding to net amounts.

Based on this information and by applying shocks to interest rates in the banking book, the impacts on the economic value of one-year shareholders' equity and net interest income are estimated. These impacts form the basis for assessing the interest rate risk and the European Union's regulatory framework establishes standardised shocks that institutions must apply and periodically report to the supervisor, known as outlier tests.

The results of these tests are also part of the periodic disclosures to the market that banks must make, the frequency and content of which vary according to their size and complexity (Pillar 3).

### 3 Supervisory Outlier Tests for assessing interest rate risk in the banking book

Supervisory outlier tests serve as a starting point for a more comprehensive assessment of whether a given bank's interest rate risk exposure is considered excessive for SREP purposes.

From an economic value perspective, banks analyse whether, given six standardised shock scenarios of interest rate changes, the reduction in the economic value of equity is greater than 15% of Tier 1 capital. These scenarios are as follows: a parallel upward shift of the yield curve; a parallel downward shift of the yield curve; an increase in the yield curve slope; a decrease in the yield curve slope; an increase in short-term rates; and a decrease in short-term rates. Thus, the current value of mismatches between assets and liabilities for each repricing interval is considered and discounted according to the interest rates resulting from the application of the shock considered. This value will be compared with the current value of these same deviations when discounted at the interest rates observed at the time, assuming a balance sheet in which the amortised instruments are not renewed (referred to as a run-off balance sheet).

From a net interest income perspective, an analysis will be made of whether it suffers a large decline considering a parallel movement of the yield curve. For this purpose, the threshold corresponding to 5% of Tier 1 proposed by the European Banking Authority (EBA) in its Opinion

to the European Commission,<sup>2</sup> in April 2023 (EBA/OP/2023/03) can be taken as a reference. To calculate this change, the forecast of interest income and expenses for the end of a one-year horizon is considered, compared with the net interest income expected for that same horizon based on the current interest rate profile, assuming for this purpose a constant balance sheet, where the amortised instruments are renewed by others with the same characteristics, but with a new interest rate. In view of the time horizon set for this calculation, all instruments that are subject to interest rate repricing one year after the reference date of the calculation are excluded.

Exceeding the thresholds set for the outlier tests has no automatic consequences in terms of supervisory actions, and any supervisory measure is associated with a more comprehensive assessment of exposure and risk management specific to each institution.

There are a number of harmonised requirements that institutions must comply with when calculating these tests, in particular in terms of the scope for including banking book assets and liabilities and the calculation by currency. The scope considered includes instruments accounted for at amortised cost and excludes real estate assets, intangible assets and equities. Segmenting the calculation by currency, on the other hand, only applies to currencies deemed significant, in view of all assets and liabilities denominated in that currency.

In outlier tests, the key factors for determining interest rate risk assessments are the period elapsing until the interest rate is repriced for each financial instrument, the amount of each instrument that is subject to interest rate repricing and lastly, the change in the interest rate resulting from shock application. These three factors are key in gauging the sensitivity of the value of assets and liabilities to changes in interest rates.

Although there are instruments with a high degree of certainty as to when the interest rate will be repriced, for a still significant percentage of the balance sheet, the banks need to model the most likely date for repricing to occur. The relevance of the impact of modelling customer behaviour also depends on the institutions' business models. Uncertainty may be triggered by decisions taken by customers at their discretion, behavioural optionality, and is present, for instance, in loans with early prepayment options, term deposits with early redemption option and non-maturity deposits. In these cases, banks model the exercise of these options by customers and incorporate the results into the overall assessment of the interest rate risk of these instruments. The EBA guidelines set out various requirements to be met by banks and introduce a 5-year cap on the average maturity applicable to the modelling of non-maturity deposits, which is the same for all institutions and can be exceeded in certain circumstances.

## 4 Analysing interest rate risk exposure scenarios

The results of the outlier tests are presented, based on data reported by credit institutions as at 31 December 2022. The universe under consideration represents about 91% of the Portuguese Banking System's total assets.

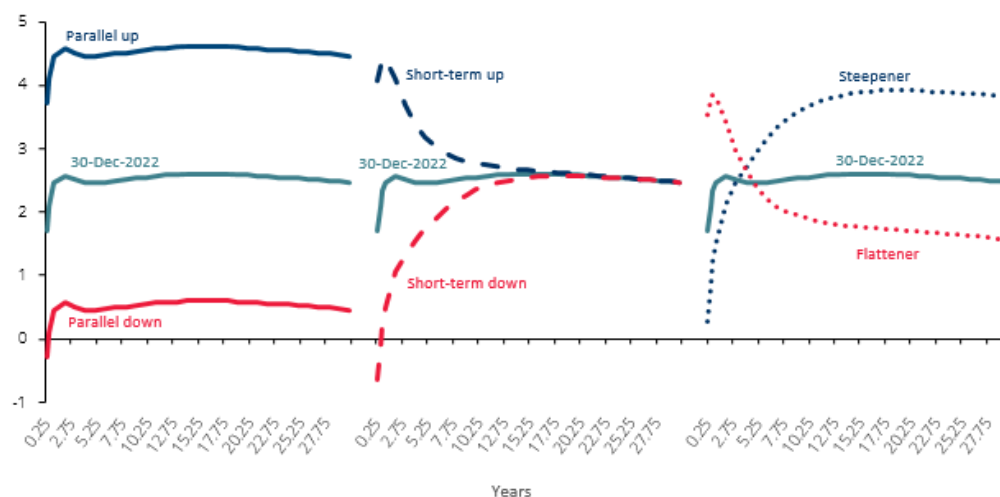
These results show calculations made by the banks when estimating the impacts of the six standardised shocks to the yield curve on the economic value of each institution's equity and net interest income, and include positions in all significant currencies.

The results reflect the assumptions and models applied by institutions, in particular in terms of behavioural modelling assumptions, reported to the supervisor. The exercises were based on

<sup>2</sup> This EBA Opinion is still to be endorsed by the European Commission, which, should it occur, will be reflected in changes to the technical standards on supervisory outlier tests [EBA/RTS/2022/10] (EBA/RTS/2022/10).

regulatory scenarios for the immediate shock to the yield curve (Chart 1), which for euro-denominated instruments corresponds to 200 b.p. for parallel shocks (downward and upward)<sup>3</sup> and 250 b.p. for the short-term interest rate rise/drop scenario with convergence to zero in the long term.

**Chart 1 • Shocks to interest rates in EUR – Scenarios (December 2022) | As a percentage**



Sources: ECB and EBA (European Banking Authority)

When analysing the data reported, the impact on the economic value of equity shows greater dispersion in scenarios with a parallel shift in the yield curve (Chart 2 - Panel A and B), which is explained by the fact that changes in interest rate covered all maturities, leading to a cross-cutting impact on the different financial instruments regardless of the interest rate repricing period in each of them. The slope change scenarios are more evenly distributed.

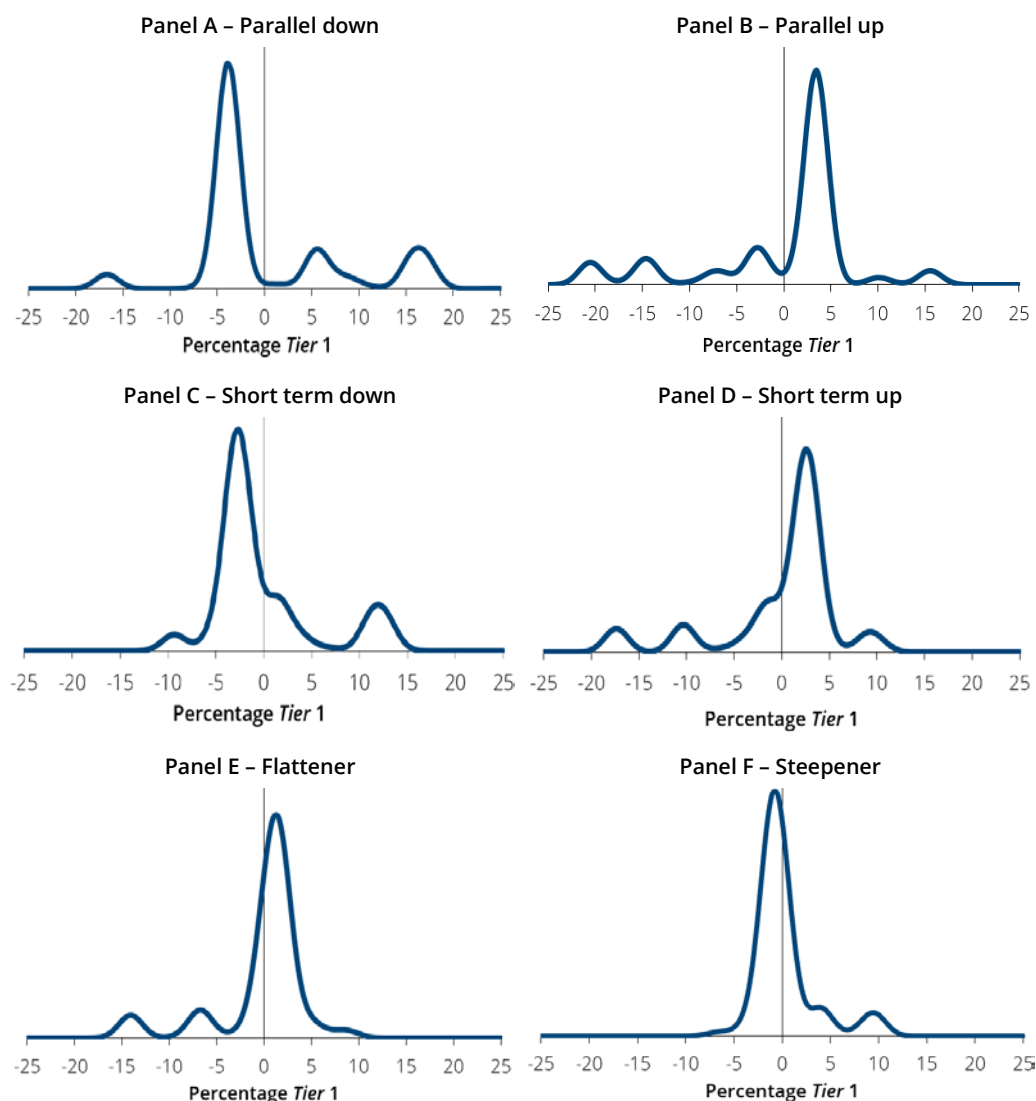
For some scenarios, some banks estimated a reduction in the economic value of their equity (as a percentage of Tier 1) of more than 15% and are considered outliers in the light of the thresholds set by the EBA. This was more prevalent in a scenario of a parallel upward shift in the yield curve, where outliers represent 6% of the banking system's total assets. There was only one outlier in the parallel drop and short-term up scenarios, while there were no outliers in the other scenarios.

In an instrument-by-instrument analysis, as the customers' portfolio of loans and advances is mostly made up of variable rate loans that follow the evolution of interest rates, the impact of this component on the economic value of equity, as a result of interest rate changes, is small in any of the scenarios. This portfolio represents, on average, around 80% of the overall portfolio of loans and advances to customers. It can also be concluded that the impact on the economic value of equity tends to be explained by mismatches between assets or liabilities with longer repricing periods, as their economic value is more sensitive to changes in interest rates. Results are highly dependent on the modelling of behavioural maturities for certain items, such as non-maturity deposits. Moreover, there are banks with interest rate risk hedging strategies for fixed rate debt securities, through the use of derivatives, which also limit part of the interest rate risk.

<sup>3</sup> The formulae for calculating the yield curves for the scenarios are detailed in the draft technical standards on the outlier test (EBA/RTS/2022/10).



**Chart 2 • Empirical distribution of the predicted impact on the economic value of Capital - December 2022 | Empirical density**



Source: Banco de Portugal | Notes: Data reported by credit institutions (CIs) as part of the EBA's Quantitative Impact Study and Instruction No 34/2018 of the Banco de Portugal. The results of the outlier tests are displayed as an empirical distribution using a Gaussian kernel that weights institutions by their relative importance in the system, by using the amount of Tier 1 capital.

Banks with negative impacts on the economic value of equity in a parallel up scenario tend to reflect on average shorter interest rate repricing periods for liabilities (mostly deposits) than for assets (in particular, fixed-rate debt securities). Therefore, for longer repricing periods, the mismatch between assets and liabilities tends to be predominantly positive. Discounting them at a higher interest rate results in a reduction in the economic value of equity, as they are more sensitive to changes in interest rates than mismatches in shorter repricing periods. The outliers in this scenario reflected situations in which mismatches between assets and liabilities for different repricing periods are more pronounced.

Despite some banks having negative impacts in a scenario of a parallel rise in the interest rate curve (Chart 2 – Panel B), 70% of the cumulative density of the distribution reflects an increase in the economic value of equity which is concentrated around a 3.5% positive change. This is due to the fact that larger banks in the system have longer repricing periods for liabilities than for assets,

which means that in this scenario the estimated reduction in economic value for liabilities is, on average, greater than the estimated drop in assets' value.

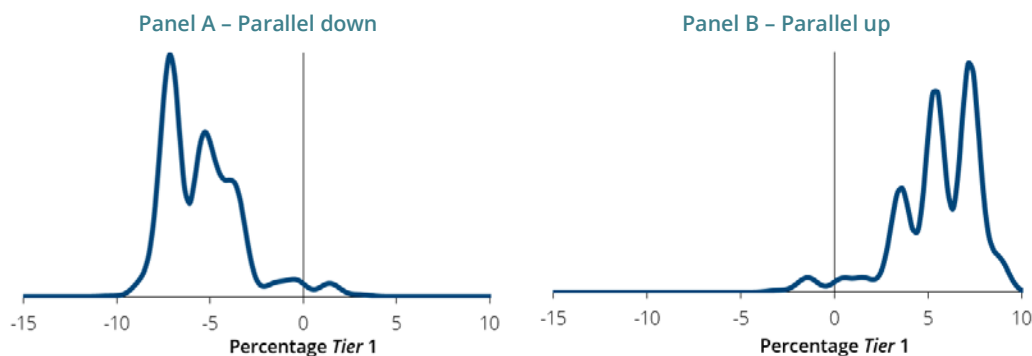
The fact that the distribution is concentrated around a positive change, even in a short-term up scenario (Chart 2 – Panel D), shows that the mismatch between assets and liabilities by repricing period in this scenario is predominantly negative right from earlier repricing periods.

Conversely, in a scenario of a parallel fall in interest rates (Chart 2 – Panel A), distribution is centred around a 4% negative change in the economic value of its equity, based on the same factors that explain the positive changes in the opposite scenario.

In either scenario, there is no direct correspondence between the loss amount in the economic value of equity calculated by the institutions and the immediate impact that this loss could have on their financial statements. Changes in the fair value of assets and liabilities carried at amortised cost that do not reflect credit losses are not recognised in the accounts. The exception is if these valuation changes take place through the sale of these assets or the repurchase of these liabilities, under market conditions, before their maturity.

As far as net interest income is concerned (Chart 3), the scenario of a parallel up in interest rates is quickly reflected in loans, mostly at variable rate or with short-term repricing periods, while the adjustment in deposit remuneration occurs more slowly, leading to a positive impact on the distribution as a whole. In the reverse scenario, and for the same reasons mentioned above, most of the distribution shows negative changes in net interest income.

**Chart 3 • Empirical distribution of the predicted impact on net interest income - December 2022 | Empirical density**



Source: Banco de Portugal | Notes: Data reported by credit institutions (CIs) as part of the EBA's Quantitative Impact Study and Instruction No 34/2018 of the Banco de Portugal. The results of the outlier tests are displayed as an empirical distribution using a Gaussian kernel that weights institutions by their relative importance in the system, by using the amount of Tier 1 capital.

## 5 Conclusions

The assessment of banks' vulnerability to interest rate risk must consider different aspects. Therefore, although the outlier test does not consider the prospective impact of changes in interest rates on credit or liquidity risk, it does provide an insight into the interest rate risk of the banking book by assessing the impact of interest rate shocks on a significant number of balance sheet items and on net interest income.

The analysis of IRRBB data provided by credit institutions at December 2022 led to the conclusion that a parallel upward and downward shift in the interest rate curve would have a small impact on the economic value of equity for the banking sector.

Based on the threshold of 15% as a ratio of Tier 1 for the economic value dimension, outliers are more prevalent in the scenario of a parallel upward shift in the yield curve, although it represents a lower expression in terms of distribution. There were no outliers in scenarios of a slope change and a drop in short-term rates.

Given the nature and purpose of the exercise, expectations are that institutions will take their results into account when making decisions to mitigate the banking book instruments' sensitivity to any interest rate shocks.

In terms of net interest income, distribution was centred on positive changes in a parallel up scenario, while the opposite occurs in the scenario of parallel down interest rates. These results are explained, in both scenarios, by a high weight of variable rate loans where interest rates adjust quickly, combined with a slower adjustment in deposit remuneration.

Outlier tests for the economic value of equity and net interest income make it possible for institutions and the supervisor to use objective metrics to assess both aspects of interest rate risk, by creating incentives for prudent management and avoiding excessive risk-taking for institutions' balance sheets and business. These should also be supplemented by other interest rate shock scenarios developed by banks or possibly required by supervisory authorities.

The results of the outlier tests or any other interest rate shock scenario may be supplemented with sensitivity analyses, in particular for behavioural assumptions, and with a periodic review of these at times of greater interest rate volatility, as well as of changes in customer behaviour. These issues are essential to the interest rate risk of the banking book, and are among the supervisory priorities at European level for 2024.

# The importance of management capital buffers in lending to firms<sup>1</sup>

## 1 Introduction

The post-Global Financial Crisis regulatory framework is characterised by minimum regulatory capital requirements (Pillar 1 and Pillar 2), plus capital buffers. Capital buffers make it possible for banks to absorb unexpected losses from an adverse shock without jeopardising their minimum capital requirements. Failure to comply with capital buffers entails less severe sanctions and restrictions than failure to comply with minimum capital requirements. In times of stress, if banks do not hold capital buffers, they are forced to take immediate action by raising their capital, reducing their assets and/or average risk weight to prevent loss absorption from leading to a breach of minimum capital requirements that could jeopardise business continuity. Theory and empirical evidence suggest that under these circumstances, banks opt for reducing their risk-weighted assets, as raising new equity is costly, even more so during periods of stress (Adrian and Shin, 2014; Behn et al., 2016; Repullo and Suarez, 2012). In fact, one of the purposes of capital buffers is to ensure conditions are in place to maintain an appropriate flow of credit to the economy during periods of crisis (BCBS, 2011; BCBS, 2020b).

In response to the COVID-19 shock, macroprudential and microprudential supervisory authorities across countries reduced some of the capital buffers required or relaxed restrictions related to breaching them (BCBS, 2020a), to allow banks to absorb unanticipated losses and continue financing the economy. However, the capital ratios observed have not decreased in the wake of the COVID-19 shock, therefore in general, capital buffers have not been used. Although government measures or demand for credit help explain this development, the question arises as to whether management capital buffers – i.e. the part of banks' capital ratio not imposed by regulators – impact positively on credit supply in the aftermath of an adverse shock (Abboud et al., 2021; ECB, 2020).

Avezum, Oliveira and Serra (2023) examine the impact of Portuguese banks' management capital buffers on changes in lending to firms during the COVID-19 pandemic. As the ECB has allowed institutions to operate on a temporary basis below the Pillar 2 guidance (P2G) level in the context of the COVID-19 pandemic, the management capital buffer considered corresponds to the sum of voluntary capital buffers and the P2G.

## 2 Data

Central Credit Register (CCR) data were used to study the impact of management capital buffers on loans granted to firms. These data comprise all loans over €50 granted by banks operating in Portugal. Moreover, (financial and supervisory) quarterly data from banks based on FINREP-COREP reporting were used. The sample includes banks on a consolidated basis, where applicable. The sample excludes branches of other member states, since they are not bound to meet capital requirements at individual level, therefore they do not report prudential data. Finally, data on firms'

<sup>1</sup> Prepared by Diogo Serra and Vítor Oliveira.

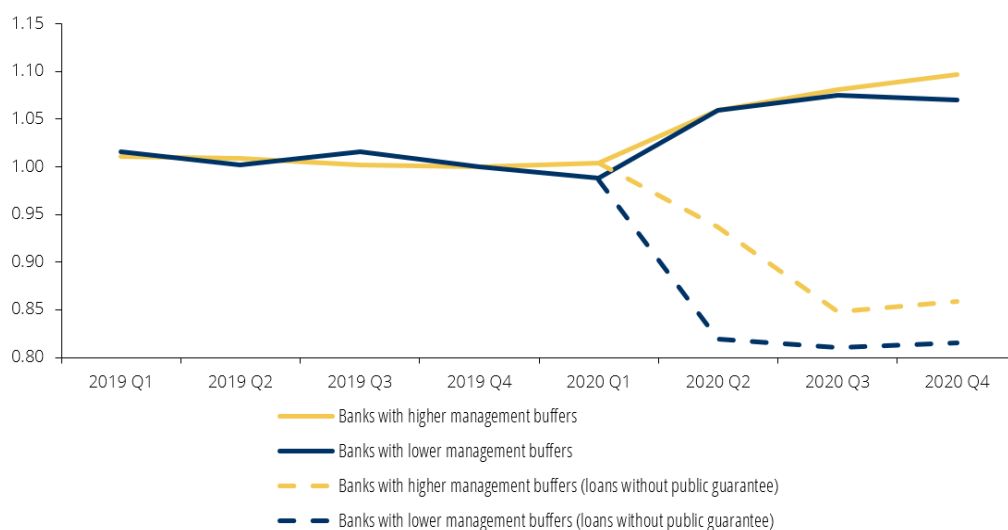
characteristics have been obtained from the *Informação Empresarial Simplificada* (Simplified Corporate Information), which provides information on firms' balance sheets on an annual basis.

The COVID-19 pre- and post-shock periods comprise the second, third and fourth quarters of 2019 and 2020 respectively. The analysis aims to explain the percentage change in credit granted between 2019 and 2020 to firms, as well as the probability of a bank to stop lending or granting credit to a new customer after the COVID-19 shock, depending on banks' and firms' characteristics in the run-up to the pandemic. The sample consists of 492,615 loans from 20 banks to 271,601 firms.

Credit developments cannot be dissociated from the role of government measures to respond to the COVID-19 pandemic, in particular the public guarantee scheme. Between March and December 2020, government-backed credit lines accounted for around 33 per cent of new loans granted to NFCs.

Groups of banks with higher and lower management capital buffers show a similar lending trend over the period under review (Chart 1). Given the key role of the public guarantee scheme in credit developments in response to the pandemic, which may affect the results, the same comparison was made considering only credits that did not benefit from public guarantees, represented by dashed lines. In fact, as of the second quarter of 2020, the COVID-19 shock appears to have had a stronger impact among these loans, as the group of banks with lower management capital buffers showed a sharper drop in lending.

**Chart 1 • Developments in credit granted to firms by banks with higher and lower management capital buffers | Index**



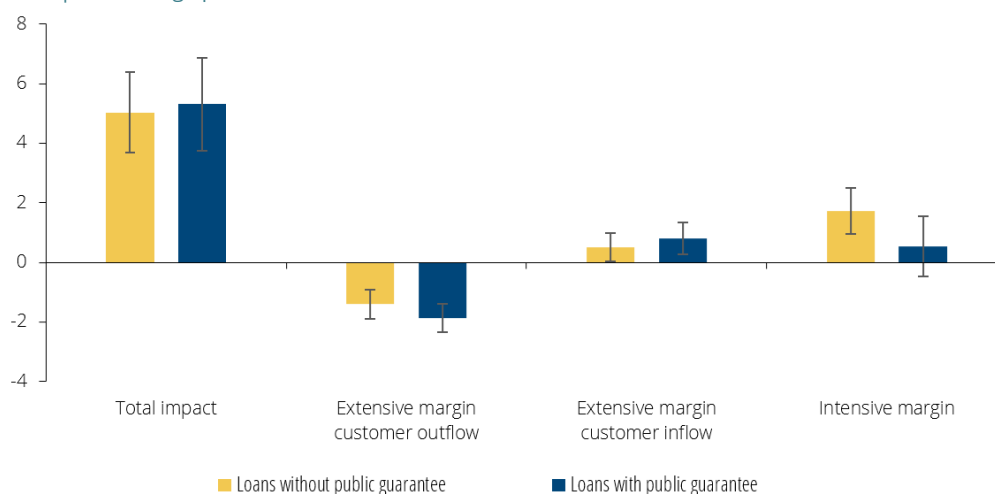
Sources: COREP, FINREP and CCR (Banco de Portugal calculations). | Notes: Banks with lower management capital buffer levels are in the first quartile of the distribution of this variable in the fourth quarter of 2019. The dashed lines represent the subset of loans granted by banks without public guarantees. Credit trends are normalised to equal 1 in the fourth quarter of 2019.

### 3 The impact of the management capital buffer on lending to firms<sup>2</sup>

The size of the management capital buffer had a positive impact on developments in lending to firms throughout the pandemic period. The impact on credit is positive both for relationships between banks and firms already existing in the pre-COVID 19 period (intensive margin) and for total credit granted, including incoming and outgoing customers in the post-COVID-19 shock period (extensive margin). This relationship is reinforced in the extensive margin and mitigated in the intensive margin by the use of public guarantees (Chart 2).

In the extensive margin, the results show that the higher a bank's management capital buffer, the less likely it is to stop lending to a customer (outflow) and the more likely it is to lend to a new customer (inflow), and these effects are reinforced by the use of public guarantees. In terms of the intensive margin, there is a greater propensity for banks with higher management buffers to grant credit without a public guarantee, and the use of this public support scheme has removed the positive impact of the management buffer on lending.

**Chart 2 • Estimated marginal effect of the management capital buffer on credit growth rate | Percentage points**



Sources: COREP, FINREP and CCR (Banco de Portugal calculations). | Notes: The chart shows the impact of an increase in the management capital buffer by a magnitude equal to its standard deviation (2.8 p.p.) on the growth rate of credit to a firm between the pre-COVID19 period (second quarter to fourth quarter of 2019) and the post-COVID19 shock period (second quarter to fourth quarter of 2020). In all regressions, firm-level fixed effects are included to control for credit demand, as well as bank-level control variables (ratio of market funding to total liabilities, the average risk weight, the ratio of total minimum regulatory capital, the logarithm of total assets, and the ratio of provisions to total assets). The 99% confidence intervals are obtained by the delta method using standard errors calculated at the borrower's industry-location-bank level. The results presented are statistically significant at the 1% level if confidence intervals do not intersect the horizontal axis.

The result on the intensive margin is consistent with that shown in the Special issue of the June 2021 *Financial Stability Report* (Banco de Portugal, 2021). When analysing aggregate credit developments at bank level, it may be concluded that from the second quarter of 2020, across the banks that have not granted government-backed loans, those with a higher management capital buffer increased their growth rate of credit to the non-financial private sector the most,

<sup>2</sup> For further details, see Avezum, Oliveira and Serra (2023).

compared to banks with lower buffers. In contrast, for banks that have granted loans under this public support programme, there is no statistically significant difference in the growth rate of credit between banks with different management capital buffers.

Note that the results of this analysis do not change significantly if P2G is removed from management capital buffer calculation. Moreover, if the management capital buffer is replaced by its components (voluntary capital buffers and P2G), the results suggest that banks are reluctant to use P2G regardless of the easing measures adopted in the context of the COVID-19 pandemic.<sup>3</sup>

The results of this analysis suggest that banks with lower management capital buffers relied on public guarantees, thereby safeguarding their lending relationships and market share, given the low risk associated with this type of lending reflected in lower capital requirements. On the other hand, banks with higher capital buffers maintained their exposure to risk and relied less on government-backed loans. In line with this interpretation, Mateus and Neugebauer (2022) found that (i) the limits on credit line spreads under the public guarantee scheme (1%, 1.25%, and 1.5% on loans with a maturity of less than 1 year, between 1 and 3 years, and between 3 and 6 years respectively) resulted in an average interest rate of 1.4%, while the same is 3.6% for loans without public guarantees, and (ii) banks were more likely to grant credit with public guarantees to firms to which they had already granted loans, helping to explain why the use of public guarantees only mitigates the impact of the management capital buffer on the intensive margin.

## 4 Impediments to the use of the management capital buffer

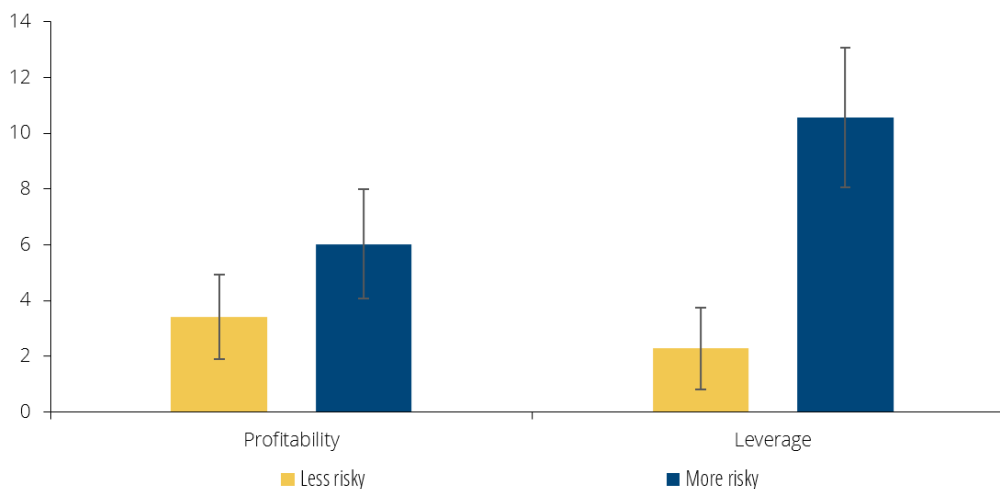
Market pressure to maintain or even increase capital ratios may prevent banks from using their capital buffers, especially during a crisis period (Behn et al., 2020, Schmitz et al., 2021, and Carvalho et al., 2022). Banks' financing costs may increase if the market associates a decrease in the capital ratio during a crisis with an increase in the risk of default. Therefore, in the event of an adverse shock, to avoid market stigma, banks may refrain from increasing their assets, in particular their lending, and may consequently reduce their management buffer.

In this analysis, market discipline is measured by the ratio of the bank's market funding to total liabilities. The results suggest that the greater the market discipline, the greater the impact of the management capital buffer on the change in lending to firms. As mentioned above, banks with lower management capital buffers are more likely to grant credit under public guarantees. However, market discipline mitigates this incentive.

Another potential impediment to the use of capital buffers is the increased risk aversion by banks. Altunbas et al. (2017) document a high degree of heterogeneity in risk aversion across euro area banks, consistent with theories that treat banks as risk-averse agents operating in uncertain environments (Sealey, 1980; Ratti, 1980; Ho and Saunders, 1981; Koppenhaver, 1985; and Angbazo, 1997). Avezum, Oliveira and Serra (2023) also found that the impact of the management capital buffer on credit growth is greater for firms that are considered riskier in terms of profitability and leverage (Chart 3). The management capital buffer has thus become an even more important factor in lending to riskier firms in a crisis context.

<sup>3</sup> For further information on the robustness analyses carried out, see Avezum, Oliveira and Serra (2023).

**Chart 3 • Estimated marginal effect of the management capital buffer on credit growth conditional on firm risk | In percentage points**



Sources: COREP, FINREP and IES (Banco de Portugal calculations). | Notes: The chart shows the impact of an increase in the management capital buffer by a magnitude equal to its standard deviation (2.8 percentage points) on the growth rate of lending to a firm between the pre-COVID19 period (second quarter to fourth quarter of 2019) and the post-COVID19 shock period (second quarter to fourth quarter of 2020). When analysing profitability, the riskiest firms are those with an interest coverage ratio of less than 2 or a negative EBITDA. When analysing the leverage, the riskiest firms will be those whose debt-to-asset ratio is greater than 1. In all regressions, bank-level control variables are included (ratio of market funding to total liabilities, the average risk weight, the total minimum regulatory capital ratio, the logarithm of total assets, and the ratio of provisions to total assets). The 99% confidence intervals are obtained by the delta method using standard errors calculated at the borrower's industry-location-bank level. The results presented are statistically significant at the 1% level if confidence intervals do not intersect the horizontal axis.

## 5 Conclusions

Banks with higher management capital buffers granted more credit in the context of the COVID-19 shock, thus having used their management buffers to finance the economy. The overall positive impact on credit supply as a result of having higher management buffers was largely driven by the extensive margin (i.e. customer inflows and outflows). In contrast, the impact of management buffers on the intensive margin was negligible (i.e. in terms of lending to existing customers before the COVID-19 shock). This divergence is explained by the finding that public guarantees have reinforced the positive impact of the management capital buffer on loans to new customers in the extensive margin, but have dampened the impact in the intensive margin. Finally, it can be concluded that the positive impact of management capital buffers on changes in credit increases with the market discipline which banks are subject to and with risk or vulnerability of firms.



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