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FINANCIAL STABILITY: MAIN VULNERABILITIES AND RISKS

The improved near-term global economic growth outlook and the decline in the inflation rate, especially in the energy component, have helped moderate some of the risks identified in the last *Financial Stability Report* (FSR). However, the geopolitical tensions linked to the war in Ukraine continue to generate extraordinary uncertainty, heightening the divided world order and posing downside risks to the growth outlook. In addition, high underlying inflation increases the risk that price rises may be more persistent and that financial conditions may tighten further (see Figure 1), which would in turn drive up household and firm vulnerability. More recently, the banking sector turmoil in the United States and Switzerland constitutes a new area of uncertainty.

Spain saw strong economic growth in 2022, narrowing the gap with the pre-pandemic production levels. But GDP slowed significantly in the second half of the year, in keeping with the decline in economic momentum worldwide.

The moderation in energy prices on international markets reversed the cost increases that emerged in the wake of the Russian invasion of Ukraine. Thus, current inflation moderated and the inflation outlook was revised down, while the likelihood of recession in the coming quarters as a result of energy and critical commodity supply disruptions declined. But underlying inflation remains high, increasing the risks of second-round effects emerging. Moreover, there is great uncertainty surrounding the future course of energy prices, which could head up again after OPEC+ announced oil production cuts. Meanwhile, the global turmoil observed in the banking sector in March 2023 increases the risk of lower growth.

Spanish banks' profitability increased in 2022 (excluding the extraordinary items recorded in 2021), so that it exceeded their cost of equity. Moreover, the credit quality of bank balance sheets improved overall, with further declines in both non-performing and Stage 2 loans compared with previous years. All the foregoing, influenced by a macro-financial environment in which – at the same time as interest rates were raised, driving up margins – economic activity was resilient, with just a partial slowdown, and risk premia remained contained, thus limiting the negative effects on impairment provisions and financing costs.

Since March 2023, the serious financial problems seen at Silicon Valley Bank (SVB), other medium-sized US banks and Credit Suisse have driven down bank stock prices. This increases the risk of higher financing costs and liquidity stress for the banking sector worldwide, including Spanish banks, and may have a negative impact on the favourable financial position with which they started out in 2023. Yet, these

Figure 1
FINANCIAL STABILITY: MAIN VULNERABILITIES AND RISKS (a) (b)

SOURCE: Banco de España.

a In this report, the **vulnerabilities** are defined as economic and financial conditions that increase the impact or probability of materialisation of **risks to financial stability,** which in turn are identified as adverse changes in economic and financial conditions, or in the physical or geopolitical environment, with an uncertain probability of occurrence, which hamper or impede financial intermediation, with negative consequences for real economic activity.
b The risks and vulnerabilities shown here are measured using three colours: yellow (low level), orange (medium level) and red (high level). The arrows denote the change in the risks and vulnerabilities since the last FSR.

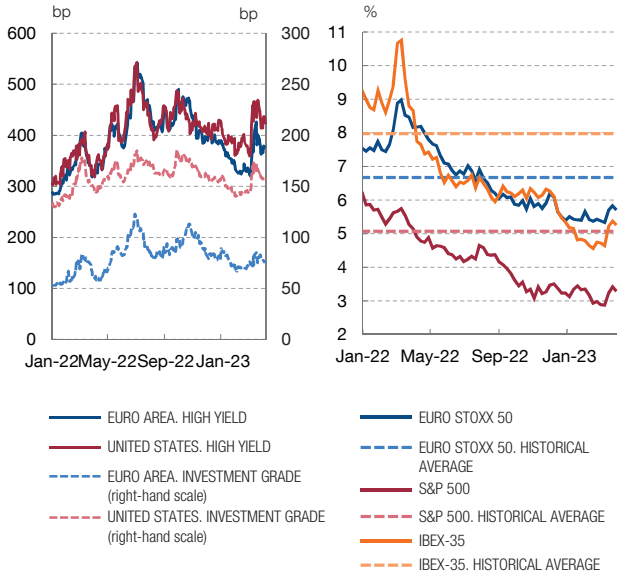
risks are mitigated by various characteristics of the Spanish banking sector: the lack of direct systemically important exposures to SVB and Credit Suisse; the business model differences vis-à-vis these banks, especially in terms of depositor diversification, with a majority of retail depositors in Spain, and broad coverage of the deposit guarantee scheme; and a high liquidity position. Box 1 analyses in greater depth the particular circumstances of the SVB and Credit Suisse crises, their impact on bank risks and the position of Spanish and other European banks in the face of these risks.

In any event, the materialisation of risks to economic growth and inflation could have a further adverse financial impact on the banking sector, again through financing costs, but also in terms of credit quality deterioration. In consequence, banks should follow a prudent provision and capital planning policy that will allow them to use the higher profits generated in the recent period to boost sector resilience.

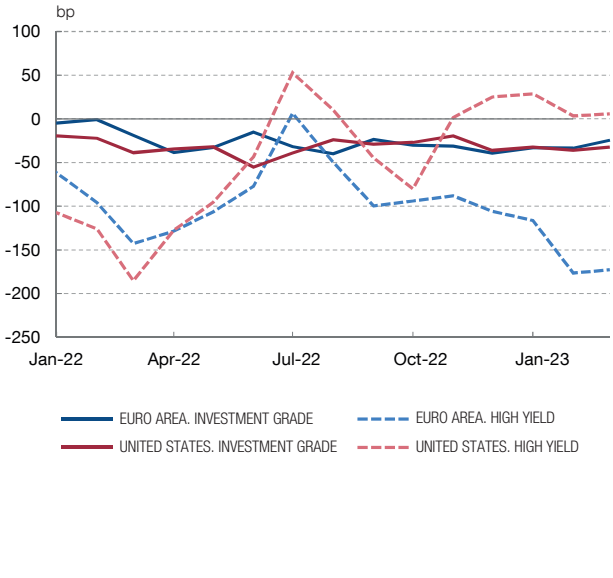
The main risks[1] to the stability of the Spanish financial system are discussed in greater detail below:

1 Risks to financial stability are defined as adverse changes in economic and financial conditions, or in the physical or geopolitical environment, with an uncertain probability of occurrence, which hamper or impede financial intermediation, with negative consequences for real economic activity.

1 SPREADS OF NFCs' BONDS AGAINST THE SWAP CURVE (LEFT-HAND PANEL) (a) AND EQUITY RISK PREMIUM (RIGHT-HAND PANEL) (b)



2 DEVIATIONS OF THE CORPORATE CREDIT RISK PREMIUM FROM CERTAIN FUNDAMENTALS (c)



SOURCES: Refinitiv Datastream, Bloomberg Data License and Banco de España.

a High yield: ICE Bank of America Merrill Lynch Non-Financial High Yield Index. Investment grade: ICE Bank of America Merrill Lynch Non-Financial Index.

b The stock market risk premium is calculated using a two-stage dividend discount model. For more details, see R. J. Fuller and C.C. Hsia. (1984). "A simplified common stock valuation model". *Financial Analysts Journal.* The historical averages are calculated for the period 2006-2023.

c The difference between the corporate credit risk premium observed and that predicted by a corporate bond valuation model based on four factors: expected enterprise value (EV), uncertainty over expected EV, corporate sector leverage and investor risk aversion. For more details, see J. Gálvez and I. Roibás. "Asset price misalignments: an empirical analysis". Working Paper - Banco de España (forthcoming).

R1 Geopolitical risks

High uncertainty remains regarding the war in Ukraine, especially as to the duration of the war, which could be protracted, and its possible escalation, which could lead to a further deterioration in relations between Russia and the western world and could exacerbate the divided world order.

Over the last stretch of 2022 and up to February 2023, investor risk aversion generally eased, but the global banking sector turmoil in March drove up risk premia for various financial asset classes (see Chart 1). Moreover, the uncertainty surrounding the geopolitical tensions is a further source of risk of an abrupt correction in financial asset prices, in addition to the risks to the growth outlook and inflation. Moreover, certain signs of high asset valuations worldwide,[2] both in debt securities (see Chart 2) and equities, make this a more significant risk.

2 Signs of high valuation are assessed by checking the market prices of financial assets against their intrinsic value (for instance, drawing on expectation and risk regarding the ability of the issuers to generate income) and analysing general market conditions (for example, risk-free rate levels or volatility).

The start of the war in Ukraine in February 2022 triggered a very sharp increase in commodity prices and, in particular, in energy prices, which had already been rising since mid-2021. This drove up inflationary pressures generally and prompted a significant slowdown in economic activity. However, global supply conditions proved more flexible than was initially expected. Moreover, economic policies were adopted to compensate for energy price rises and encourage energy saving, and there was the added advantage of a mild winter.

All the foregoing has prevented the most adverse scenarios, and energy prices have decreased markedly since the second half of 2022, with gas and oil prices currently below their February 2022 levels (before the start of the war in Ukraine). Yet despite these favourable developments, the uncertainty surrounding the future course of energy prices and their pass-through to prices of consumer goods remains very high. Indeed, OPEC+ recently announced a cut in oil production which could halt the decline in oil prices.

Moreover, the geopolitical tensions also affect other regions. These include most notably the continuing political and trade tensions between the United States and China. All these factors raise the risk of a divided world order becoming entrenched that would, at least partly, reverse the efficiency gains from globalisation, especially in the medium and long term.

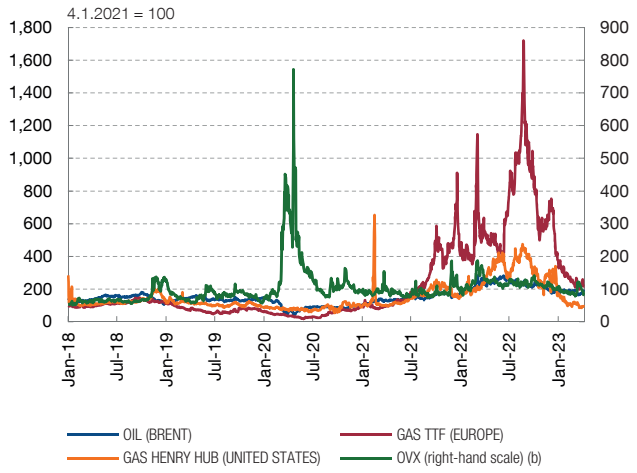
Spanish banks have significant business in emerging market economies such as Latin America and Türkiye, which means that developments in those areas matter to them. The last six months have notably seen political tensions in Brazil, which have moderated more recently, while Türkiye, in addition to its high level of financial vulnerabilities, has suffered natural catastrophes which have marred confidence in the future course of its economy.

R2 Higher and more persistent inflation

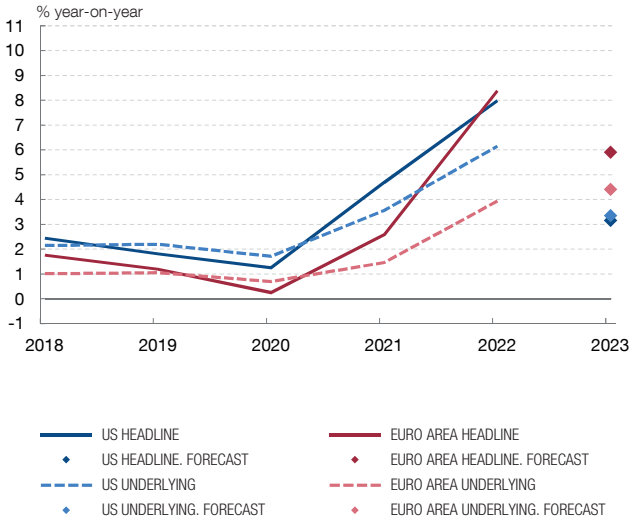
The high inflation figures recorded worldwide in 2022 were essentially driven by the increases in energy and food prices, including their pass-through to underlying inflation. Upside pressure on prices was also exerted by the continuing – albeit more moderate– global supply chain disruptions first seen in 2021, and by demand-side factors linked, above all, to the lifting of the pandemic-related health restrictions. In this respect, the increase in demand in certain service industries (for example, leisure, hospitality and tourism) made a particularly significant contribution.

Energy costs fell in the second half of 2022 (see Chart 3), helping to ease inflation dynamics worldwide. Yet geopolitical tensions still pose a risk of higher energy market prices and volatility, and OPEC+'s decision to cut oil production could mark a potential change in trend.

3 NATURAL GAS AND OIL PRICES (a)



4 INFLATION RATES IN THE EURO AREA AND THE UNITED STATES (c)



SOURCES: Refinitiv Datastream, national statistics, ECB and Federal Reserve Bank of Philadelphia.

a The spot prices of the three markets are shown in euro for comparability purposes.
b OVX is the expected 30-day volatility of crude oil prices in the United States Oil Fund.
c The diamonds represent the forecasts for 2023 in the United States and the euro area, taken from the Survey of Professional Forecasters, prepared by the Federal Reserve Bank of Philadelphia and the ECB, respectively. The harmonised index of consumer prices is used for the euro area, while the consumer price index is used for the United States. The annual average growth rate is shown.

In addition, underlying inflation remains high in many geographical areas (see Chart 4) and this increases the risk of second-round effects both on wages and firms' mark-ups, which would prolong and exacerbate inflation dynamics.

Also relating to second-round effects, fiscal measures that seek to mitigate the increase in the cost of living should be temporary, focused on the most vulnerable groups and compatible with efficient consumption – especially energy consumption – decisions. Otherwise, they could fuel inflation dynamics and require a more vigorous monetary policy response, which would drive up households' and firms' borrowing costs, putting pressure on their ability to pay.

Meanwhile, the reopening of the Chinese economy after winding up the zero-COVID policies generates opposing risks for inflation: upside risks, on account of the global demand momentum, in particular for commodities; and downside risks, owing to the easing of the global supply chain bottlenecks.

In this highly uncertain environment, in the euro area the Governing Council of the European Central Bank (ECB) has reinforced the importance of a data-dependent approach to its policy rate decisions, which will be determined by its assessment of the inflation outlook in light of the incoming economic and financial data, the dynamics of underlying inflation and the strength of monetary policy transmission. The Governing Council has also said that it is monitoring current market tensions closely and stands ready to respond as necessary to preserve price stability and financial

stability in the euro area. Other central banks are expected to likewise maintain pro-active monetary policies in a high inflation environment worldwide, while at the same time being ready to take decisive action to check financial instability episodes.

If the upside risks to inflation materialise, monetary policy tightening is likely to be stricter than that currently factored into market expectations. This could drive up perceived uncertainty among investors, with the consequent increase in risk premia. Alternatively, if the financial tensions observed in March 2023 were to continue or heighten, they could trigger further tightening of financing conditions and have contractionary effects on demand, curbing inflationary pressures. The difficulty to accurately predict in the present environment the speed and intensity of the transmission of monetary policy to the financial sector's financing costs and households' and firms' borrowing costs adds, from a financial stability standpoint, a further risk dimension associated with these shocks.

R3 Contraction in real activity

High inflation, elevated uncertainty and tightening financing conditions moderated growth in the second half of 2022. Yet economic activity worldwide, in Spain and in the rest of the euro area was more resilient than was expected a few months ago, reducing the likelihood of recession in 2023 (see Chart 5).

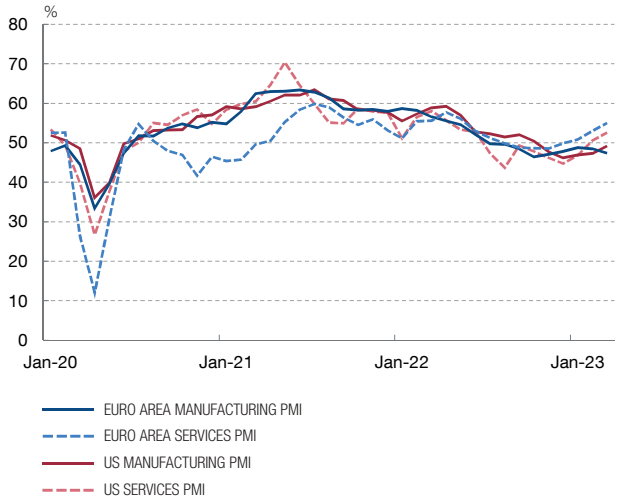
The first reason for this was the more favourable development in supply-side conditions in the second half of 2022, as the energy price rises seen earlier in the year reversed and the global supply chain bottlenecks eased, a process that is expected to continue in the first half of 2023. As indicated in the case of inflation, energy market shocks continue to pose risks to supply-side conditions and could reverse the recent improvements in activity.

Demand has also been stronger than expected, despite the high uncertainty. This is partly explained by the savings and liquidity reserves accumulated by households and firms during the initial phase of the pandemic, and by the support that fiscal policy and good labour market performance have provided to household income. However, the negative cumulative effect of inflation and the tightening of financing conditions, which has still not been fully passed through to households and firms, pose the risk of demand becoming more contractionary. The episodes of banking sector turmoil seen in March 2023 may also have a contractionary effect.

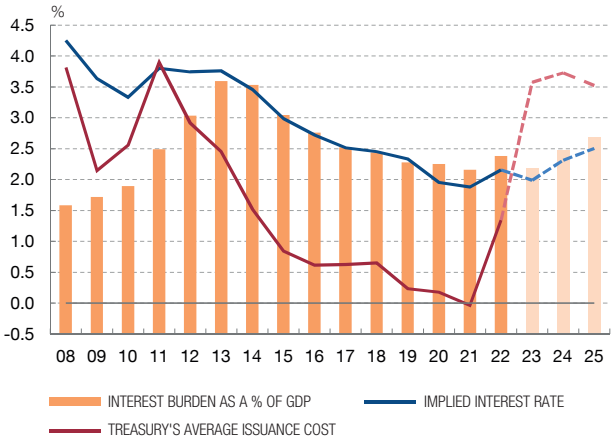
The main vulnerabilities[3] of the Spanish economy and financial system include:

3 In this report, vulnerabilities are defined as economic and financial conditions that increase the impact or probability of materialisation of risks to financial stability.

5 ACTIVITY IN THE EURO AREA AND THE UNITED STATES



6 COST OF PUBLIC DEBT



SOURCES: National statistics, IGAE, S&P Global and Banco de España.

V1 High level of government debt

On the latest available data, at end-2022 the general government deficit stood at 4.8% of GDP, 2.1 percentage points (pp) lower than in 2021. The government debt-to-GDP ratio also fell in the year, continuing in the pattern that began in 2021 Q2, and stood at 113.2% of GDP at December 2022, almost 7 pp lower than at end-2020 (120.4% of GDP). Nominal output growth is playing a key role in tempering the government debt ratio, with a further reduction expected to 109% of GDP in 2024.

Monetary policy tightening played a key role in the year in the increase in the yields of Spanish government debt securities, which at December 2022 were 309 basis points (bp) higher (1-year maturity) and 251 bp higher (10-year maturity) than a year earlier. However, this increase had only a moderate impact on general government interest expenses, as pre-existing debt maturities are relatively long, in accordance with the Treasury's earlier funding strategy, and redemption of debt securities issued at comparatively high interest rates during the global financial crisis continue to offset the impact of the higher cost of new issuances (see Chart 6). The implicit average yield of Spanish government debt in 2022 was 2.1%, just 0.2 pp above its 2021 level.

In addition, since end-2021, the spread between Spanish and German 10-year bonds has widened only slightly. After peaking at 136 bp in June 2022 (around 58 bp more than at December 2021), it has narrowed thereafter, standing at around 100 bp at the end of 2023 Q1. The global banking sector turmoil in March 2023 prompted only a very short-lived and limited increase in the Spanish sovereign risk premium which rapidly reversed.

Despite the signs of containment of this vulnerability in the short term, the economic projections continue to envisage high government debt in Spain in the coming years. The structural budget deficit is also expected to remain elevated. Moreover, continued high interest rates will also gradually drive up the average cost of debt. This fiscal position makes the economy vulnerable to changes in market sentiment and limits the fiscal space available to address the potential deterioration in financing conditions or the stalling of economic activity. In addition, maintaining a high level of public sector debt may increase the cost of meeting the borrowing needs of households and firms.

In this setting, as indicated in previous editions of this report, a fiscal consolidation process should be set in motion in 2023, to gradually reduce this vulnerability and make more fiscal space available to respond to future shocks. In particular, to reduce a high structural component of the budget deficit, decisive and sustained action over time is needed, albeit tailored to macroeconomic developments. The combination of large-scale use of the NGEU funds – which has no direct impact on the budget deficit, but will have a positive effect on economic activity – with the launch of a fiscal consolidation process would reduce the short-term cost, in terms of lower activity, of this fiscal rebalancing process.

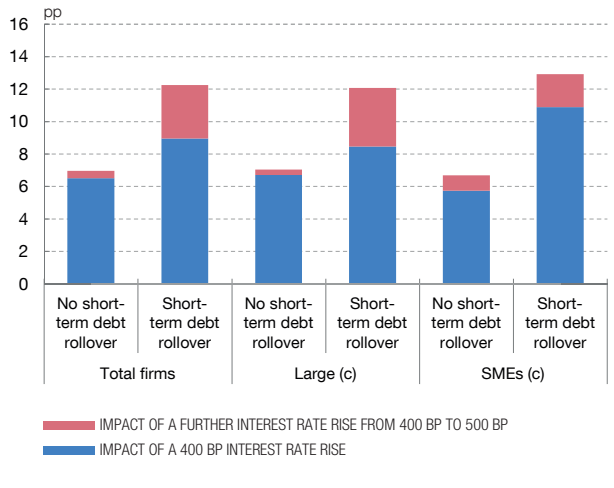
It must also be considered, when assessing Spain's fiscal position, that the deactivation of the escape clause of the Stability and Growth Pact in 2024 will mark the return to EU-wide fiscal rules. In accordance with the latest European Commission guidelines for member countries' fiscal policy, Spain must submit, in spring 2023, a stability programme that will not only lead to a general government deficit systematically below 3%, but will also pave the way for a continuous decline in government debt.

V2 Financial weakness of households and firms

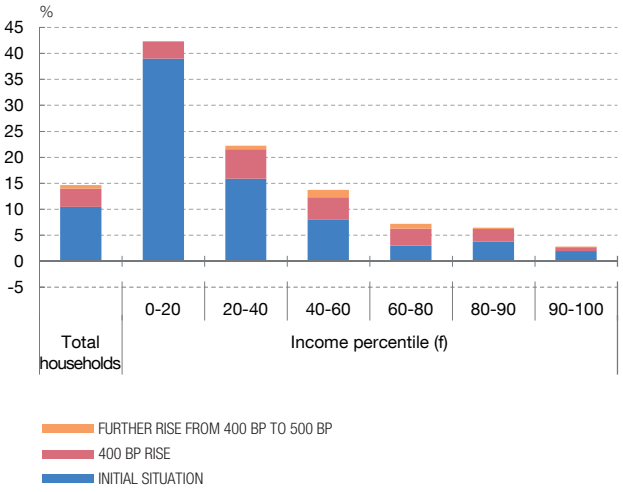
In 2022 corporate profits in Spain performed very unevenly by firm size and sector. Among SMEs, the proportion of firms whose earnings declined between April and September 2022 was higher than those whose earnings improved, while in the year overall, profits performed less well in economic sectors —such as the manufacturing industry— where activity was less dynamic and the pass-through of higher costs to prices was lower. In addition, the proportion of financially vulnerable firms increased in these sectors.

Firms' debt burden is increasing, albeit still only moderately, because monetary policy interest rate hikes have only been partially passed through to the cost of bank lending, and also because, compared with previous periods, the stock of long-term and fixed-rate debt is higher, in particular in the case of the ICO-backed loans granted since the start of the pandemic. However, at end-2022, 40% of the increase in the 3-month EURIBOR during the year had been passed through to the average cost of non-financial corporations' bank debt. The cost of corporate funding on the wholesale

7 ESTIMATED INCREASE IN THE SHARE OF DEBT HELD BY FIRMS UNDER HIGH FINANCIAL PRESSURE DUE TO THE RISE IN INTEREST RATES (a) (b)



8 IMPACT OF THE INTEREST RISE ON THE PERCENTAGE OF INDEBTED HOUSEHOLDS WITH A HIGH NET DEBT BURDEN (d) (e)



SOURCE: Banco de España.

a A firm is considered to be under high financial pressure when the ratio of (gross operating profit + financial revenue) to financial costs is below one.
b In the case of no short-term debt rollover, the rise in interest rates is fully passed through to the interest rate on long-term and variable-rate debts and loans. In the case of deposits, a pass-through is assumed in line with historical patterns. Short-term rollover differs from the previous case in that the rise in interest rates is also passed through to short-term debts and loans. These estimations are based on Integrated Central Balance Sheet Data Office data for 2021.
c Size is defined according to European Commission Recommendation 2003/361/EC.
d Simulations drawing on data from the 2020 Banco de España Survey on Household Finances. The impact of the interest rate increases reflects the change in net interest burden (debt servicing costs - interest income from deposits). Interest rate increases are assumed to be passed through fully to variable borrowing costs and partially to deposit rates.
e The net interest burden is considered to be high when it exceeds 40% of household income.
f The percentiles are defined for the entire sample of households, regardless of whether or not they are indebted.

markets rose more sharply in 2022, driven by monetary policy tightening, and despite some easing of corporate risk premia in the last quarter of the year.

Looking ahead, firms' borrowing costs can be expected to climb, as monetary policy transmission increases, especially in the event of further monetary policy tightening. The future course of risk premia is more difficult to forecast, although they generally increase when financing conditions tighten. Accordingly, the proportion of firms subject to high financial pressure is likely to grow, especially insofar as it becomes necessary to roll over debts with more short-term maturities (see Chart 7). In this respect also, the recent banking sector turmoil may exert further pressure on firms' borrowing costs, through the risk premium channel, and make it more difficult for them to access external financing. Moreover, if risks to activity were to materialise as a result of the financial tensions, this would reduce firms' capacity to generate income with which to meet their payment obligations.

Meanwhile, the sharp increase in inflation led to a drop of 4.4% in households' real disposable income in 2022 compared with the previous year, and the higher interest rates are curtailing indebted households' spending power and making it more difficult for them to meet their financial obligations. These negative effects on purchasing power are more prevalent among lower-income indebted households.

The degree of pass-through of higher market interest rates to the cost of households' outstanding debt was still moderate in 2022. For instance, at year-end, almost 30% of the increase in the 12-month EURIBOR during the year had been passed through to the cost of households' outstanding mortgages. The cost of bank loans to households is expected to increase further in the coming quarters, especially as existing floating rate mortgages come up for review. In recent years fixed rate mortgages have been more prevalent and this limits the scale of this transmission channel compared with previous periods. Yet variable and mixed rate mortgages still accounted for slightly more than 70% of the total stock at December 2022. Overall, the current interest rate hike cycle is expected to drive up the proportion of indebted households with a high debt burden, especially in some of the lower income percentiles (see Chart 8).

If the banking sector turmoil seen in March 2023 was to spread, resulting in broader financial market tensions, these could mitigate the inflationary pressures, influencing the ECB's interest rate decisions. However, the possible relief this could entail for households' financial situation could be offset by lower economic momentum, higher risk premia and more restricted access to external financing.

Faced with increased financial pressure on households, changing the contractual terms and conditions of their debts to facilitate debt servicing, especially for the most vulnerable households, could be a possible solution, to maximise the likelihood of lenders recovering their debts and mitigate the potential negative impact of loan defaults on households' consumption and their access to credit.

At end-2022, the reform of the Code of Good Banking Practice (CGP), originally introduced in Royal Decree-Law (RDL) 6/2012, sought to regulate forbearance in the case of segments of households with high socioeconomic vulnerability. In addition, for medium income households, RDL 19/2022 introduced a new CGP that allows contractual terms and conditions to be amended and sudden increases in interest rates and their impact on the mortgage burden to be delayed over time. Also, for mortgage households overall, the reform has temporarily reduced the costs of full or partial early mortgage repayment and of mortgage conversion from variable to fixed rate, which could give rise to deleveraging and reduce households' vulnerability to further interest rate hikes.

The costs and benefits of forbearance measures and, more generally, of changes to contractual debt terms and conditions,[4] and their distribution between lenders and borrowers, may differ greatly according to how the measures are designed and implemented, for loans covered by CGPs and for those that lie beyond their remit. With

4 RDL 6/2012 refers specifically to forbearance. However, changes to contractual terms and conditions under the RDL, or other cases envisaged in RDL 19/2022, do not automatically imply classification as forbearance for the purposes of accounting provisions in accordance with Annex 9 of Circular 4/2017. For this purpose, each individual debtor's capacity to remain up to date with their payment obligations in the absence of changes to terms and conditions must be assessed.

the aim of contributing to the analysis of these costs and benefits, the special feature included in this report analyses the banking sector's experience with the CGP introduced by RDL 6/2012, its reform, and the introduction of a new temporary CGP in 2022. It also analyses, more generally, the credit quality of forborne home mortgage loans.

V3 Weaknesses in the financial sector's intermediation capacity

The profitability of the Spanish banking sector performed very favourably in 2022. Return on equity (ROE), excluding extraordinary items, was up 140 bp in 2022, reaching a level of 10.2%, well above the average cost of equity (COE) estimated for the year (7.5%) (see Chart 9). However, the deterioration in global financing conditions and, particularly, the fall in banking sector stock prices, could push up the COE in the coming quarters.

Spanish banks also continued to improve the quality of their balance sheets in 2022, at a faster pace than in the period 2020-2021. In particular, non-performing loans (NPLs) in Spain declined by 18.5% year-on-year over 2022. The NPL ratio stood at 3.5% at end-2022 (down 75 bp in the year) after falling across all sectors. Stage 2 exposures[5] also declined, but with a mixed sectoral performance in this case, as they increased in loans to households and decreased in loans to firms. At least for the time being, the slowdown in activity over 2022 does not appear to have led to a worsening of Spanish banks' credit quality.

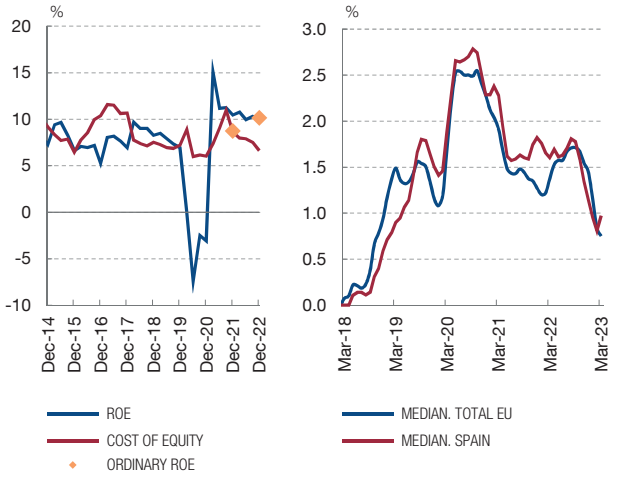
The positive changes in Spanish banks' balance sheets and market valuation also led to a lower contribution to systemic risk, which appears to have been only very partially reversed by investors' higher risk aversion and the fall in stock prices in March 2023 (see Chart 9). However, in this favourable setting, Spanish banks reduced their CET1 solvency ratio during 2022. In December 2022 the CET1 ratio stood at 13%, 25 bp less than a year earlier. This owed mainly to the negative contribution from the change in risk-weighted assets,[6] which was only partially offset by the lower positive contribution from the change in the numerator of the ratio.

In the present setting, which combines high current profitability with significant uncertainty at different time horizons, banks should accumulate loss-absorbing funds to allow them to deal with unexpected situations without restricting the supply of credit to solvent projects. In particular, they must continue to exercise a high degree of prudence in their provisioning and capital planning policies. An adequate and early recognition of risks which preserves confidence in the sector is equally necessary.

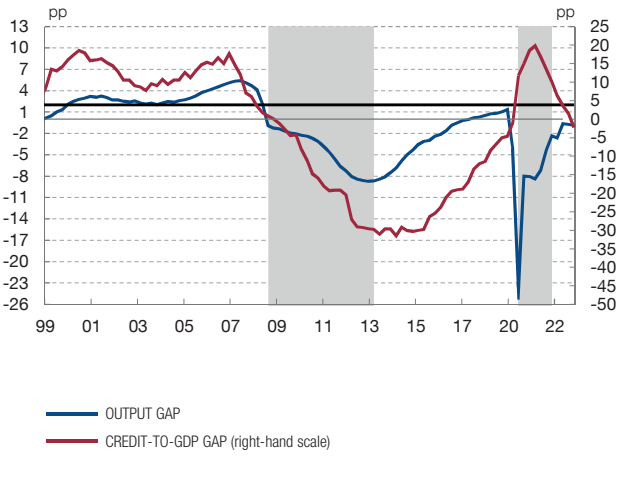
5 Pursuant to Circular 4/2017, a loan is classified as Stage 2 when credit risk has increased significantly since initial recognition, even though no event of default has occurred.

6 Risk-weighted assets are a measure of the risks that a bank has in its portfolio. Each asset is multiplied by a coefficient, which is higher the higher the risk associated with it, to obtain a risk-weighted asset figure.

9 ROE AND COST OF EQUITY (LEFT-HAND PANEL) AND DISTRIBUTION OF THE SRISK SYSTEMIC RISK INDICATOR (RIGHT-HAND PANEL) (a)



10 CREDIT-TO-GDP GAP AND OUTPUT GAP (b)



SOURCES: Datastream, SNL Financial, INE and Banco de España.

a The diamonds in the left-hand panel show ROE excluding extraordinary profit for 2021 and 2022. The SRISK indicator shows the additional capital that would be needed in the event of a significant market shock to cover bank capital requirements at market value, expressed as a percentage of each bank's total assets. The parameters used are 4.5% for capital requirements, 10% for the fall in the European stock market index and 22 working days for the period in which the hypothetical market decline occurs. For more details, see C. Broto, L. Fernández Lafuerza and M. Melnychuk. (2022). "Do buffer requirements for European systemically important banks make them less systemic?". Working Papers - Banco de España, 2243. The SRISK index for 2023 Q1 is calculated on the basis of 2022 Q4 asset and liability figures drawing on the stock price data for each month. The series have been smoothed using a three-month moving average. Data updated at 31 March 2023.

b The output gap represents the percentage difference between observed GDP and its quarterly potential level. Values calculated at constant 2010 prices. See P. Cuadrado and E. Moral-Benito. (2016). "Potential growth of the Spanish economy". Occasional Papers - Banco de España, 1603. The credit-to-GDP gap is calculated as the percentage point difference between the observed ratio and its long-term trend calculated by applying a one-sided Hodrick-Prescott filter with a smoothing parameter of 25,000. This parameter is calibrated to the financial cycles historically observed in Spain. See J. E. Galán. (2019). "Measuring credit-to-GDP gaps. The Hodrick-Prescott filter revisited". Occasional Papers - Banco de España, 1906. Data available up to December 2022. The grey shaded areas show two financial crisis periods identified in Spain since 2009: the systemic banking crisis (2009 Q1-2013 Q4) and the crisis triggered by the onset of COVID-19 (2020 Q1-2021 Q4). The black horizontal line shows the benchmark threshold for the activation of the CCyB, equal to 2 pp for the credit-to-GDP gap.

The materialisation of the macro-financial risks identified in this report may have a significant adverse impact on banks' profitability and solvency. First, the rise in interest rates has boosted banks' revenue to a greater extent than their financing costs and was the factor with the greatest positive influence on profitability in 2022. Factors such as the comfortable liquidity situation with which the Spanish banking sector is facing this interest rate hike cycle and the negative rates from which it started have so far contributed to containing the cost of bank deposits (where the level of pass-through of the increase in monetary policy rates is currently very low) and the need to raise wholesale funding.

These factors also position the Spanish banking sector favourably to absorb the fallout from the financial turmoil which affected the banking sector worldwide in March 2023 and entails a significant shock to previous expectations, and which could raise the cost of deposits and other sources of bank financing. In the meantime, banks should take advantage of the current profitability situation to increase their capacity to absorb unexpected losses.

The recent upsurge in risk aversion in financial markets has also increased global concerns about vulnerabilities in the non-bank financial intermediation (NBFI) sector. These vulnerabilities, which are linked to tight liquidity positions (particularly in the open-ended investment fund segment) and, in other cases, to high leverage, could magnify the impact of the banking sector turbulence that started in March 2023 on the financial situation of these intermediaries. This in turn could trigger a further tightening of financing conditions in the banking sector, with which the NBFI segment has direct and indirect links, and additional negative feedback loop effects between banks and non-bank financial intermediaries. Liquidity and leverage factors were behind the stress episode of autumn 2022 in the UK pension fund sector and they also played an important role in the SVB and Credit Suisse crises.

In the past, investment fund and other NBFI sectors have exhibited procyclical behaviour, exacerbating downward price corrections, and there are no signs that a different pattern would emerge if risk aversion were to continue or intensify. In Spain, investment funds have better liquidity positions which limit this risk. However, corrections in global financial markets, which may be triggered by the build-up of vulnerabilities in NBFI segments in other geographical areas, would still affect the Spanish financial system as a whole.

V4 Incipient signs of real estate market imbalances

The number of house purchases and the flow of new mortgage lending slowed significantly in 2022 H2, and even recorded negative year-on-year growth rates in 2022 Q4. In particular, the volume of new mortgages granted during 2022 Q4 was 5.4% lower than in the same period a year earlier. This slowdown in housing market activity appears to have stemmed from households' loss of purchasing power, heightened uncertainty and the gradual tightening of mortgage lending financing conditions. Despite this, the volume of house purchases and new mortgages is still higher than before the pandemic.

House prices also lost momentum, albeit much more moderately, partly due to the persistence of some weakness in the supply of housing, and grew by 5.5% year-on-year in 2022 Q4, 2.1 pp less than three months earlier. At December 2022 house prices stood 12.6% above their pre-pandemic level, 1.1 pp below the increase in prices of consumer goods in the period (13.7%). Moreover, the ratio of house prices to household income stood at relatively high levels, having remained on an upward trend since 2014.

In this regard, house price imbalance indicators (relating to their long-term growth, to interest rate and income levels, etc.) have shown some signs of overvaluation since 2020 and continue to do so, although these signs are contained for the time being and the tightening of financing conditions could contribute to moderating

them further. It should be borne in mind that new rents are rising significantly, and this could affect house price developments in future quarters.

Throughout 2022, credit standards for newly approved home mortgages remained relatively stable at prudent levels, in relation to both the value of the collateral (loan-to-value) and income (loan-to-income). Thus, real estate market growth in 2022 H1 does not appear to have entailed greater risk-taking in these dimensions.

While the rise in reference rates translated into higher interest rates on new mortgage loans in 2022 H2, the spreads between mortgage rates and the reference rates continued to narrow. Thus, the return on these loans could more easily fall to very low levels, or even generate losses, in the event of potential increases in the cost of bank borrowing or a deterioration in borrowers' ability to pay.

Macroprudential policy stance

As in the Autumn 2022 FSR, uncertainty remains regarding short-term macroeconomic developments, although the areas of risk have partly shifted from energy markets to financial markets and the international banking sector, and to the persistence of underlying inflation. Likewise, there continues to be no evidence of any build-up of systemic imbalances in credit to the private sector in Spain. In fact, the credit-to-GDP gap adjusted for the financial cycle in Spain has fallen below the activation threshold of the countercyclical capital buffer (CCyB), as anticipated by its downward trend since 2021 (see Chart 10). There are also no signs of imbalances in other indicators linked to credit growth. Moreover, the return to normal economic activity in 2021 and 2022 has reduced the negative output gap, although the improvement slowed down in 2022 H2 owing to weaker momentum in activity. In this regard, it will be important to see whether the expected slowdown in the real estate market is confirmed, as the most recent data seem to suggest. Lastly, the recent banking sector turmoil generates additional downside risks to lending and activity. Consequently, the available indicators are consistent with holding the CCyB rate at 0% as at present and not activating other macroprudential measures.

Box 1

THE EFFECTS OF THE MARCH 2023 GLOBAL BANKING TURMOIL ON THE STABILITY OF THE EUROPEAN BANKING SYSTEM

The resolution of Silicon Valley Bank (SVB), the deterioration in the financial position of certain medium-sized banks in the United States and the takeover of the Swiss bank Credit Suisse by UBS, with the backing of the Swiss authorities, has driven up investor risk aversion and financial market volatility since March and prompted a drop in bank share prices worldwide.

SVB and Credit Suisse had already been underperforming other bank stocks since April 2022 (see Chart 1). Between that date and March 2023 both banks' stock prices had been following a downward trend, in contrast to the stability of the US banking sector's overall share prices and the recovery seen in European bank stocks. The additional fall in these two banks' share prices in March 2023, as their financial situation worsened, partially filtered through to the rest of the banking sector, which also saw stock price declines. Indeed, the correlation of SVB and Credit Suisse with other banks increased significantly, albeit temporarily, around the dates of greater stress at these banks (see Chart 2).

To assess the implications of these events for the financial stability of the European banking system and, in particular, the Spanish banking system, certain idiosyncratic factors that have contributed to the financial problems of these two banks must first be identified.

Silicon Valley Bank

A large part of SVB's depositors were venture capital, fintech and start-up firms, and the bank was therefore heavily dependent on funding in the form of wholesale deposits, the vast majority of which were not protected by deposit insurance. Indeed, according to SVB Financial Group[1] accounting data for 2022, deposits accounted for 80% of its liabilities. Its funding sources were, therefore, short-term and potentially very unstable. Moreover, financial instruments and amortised cost loans[2] represented more than 80% of its assets (see Chart 3). Most of these assets were long-term debt securities that it intended to hold to maturity, and which could therefore accumulate significant latent unrealised losses until the emergence of liquidity pressures, in a setting of rising interest rates.

The volume of deposits at SVB had increased substantially since the start of the COVID-19 pandemic, partly thanks to the liquidity buffers accumulated by the firms in its customer base during that period as well as the new financing raised from investors. As firms gradually withdrew these funds to meet their liquidity needs, SVB was forced to sell a significant part of its debt securities at a loss, which it tried to cover through a capital increase that would offset the ensuing deterioration of its solvency.

Both developments generated mistrust among its depositors, who tried to reduce their deposits to the amount covered by the deposit guarantee scheme. The withdrawal of deposits, facilitated by new technologies and coordination via social networks, was unprecedentedly swift and intense, leading to a rapid loss of liquidity and solvency as more assets had to be liquidated to meet the requests for deposit withdrawals. These events forced the collapse of SVB on 10 March 2023, following which the US Federal Deposits Insurance Corporation (FDIC) initiated the resolution process.[3]

At the time of its collapse, US regulation exempted medium-sized banks like SVB from certain prudential liquidity (liquidity coverage ratio (LCR) and net stable funding ratio (NSFR)) and solvency requirements.[4] These banks are subject to less frequent stress tests than larger banks and may opt out of reflecting in their regulatory capital levels unrealised losses on balance sheet securities classified as available for sale.[5]

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1 SVB Financial Group is a consolidated group comprising SVB, SVB Capital, SVB Private and SVB Securities. According to the 2022 accounting information, SVB's average assets made up more than 90% of the sum of the assets of the entire group.

2 Under this accounting approach, assets (or liabilities) are recorded in the balance sheet at acquisition cost and are not revalued to market value on an ongoing basis, as it is assumed that the holder will keep them on its books until maturity. If they are sold, they must be revalued at market price and the resulting gain or loss must be recognised.

3 See FDIC press release dated 10 March 2023.

4 The S.2155 - Economic Growth, Regulatory Relief, and Consumer Protection Act, which increased the minimum asset threshold above which banks in the United States were required to conduct internal stress test exercises, was published in 2018. The Fed's Prudential Standards, 84 Fed. Reg. 59032 stipulated that banks with total consolidated assets of between $100 billion and $250 billion had to conduct stress tests every two years. Given its asset volume, SVB was not subject to these requirements in 2021.

5 The FDIC allowed smaller US non-advanced approaches banks to opt out of including losses or gains in their available-for-sale portfolios (which are therefore subject to interest rate risk) in their CET1 calculations. See 324.22 Regulatory capital adjustments and deductions. Unlike exposures held at amortised cost, available-for-sale exposures should typically reflect their fair value, which must be updated frequently. The above treatment is therefore an exception to the general accounting valuation and prudential principles.

Credit Suisse

In the case of Credit Suisse, a global systemically important bank, the loss of investor confidence was closely related to the losses on its investment banking business, to past failed high-risk investment strategies (such as Archegos and Greensill) and to the materialisation of operational risks, linked in particular to money laundering cases, that significantly damaged its perceived trustworthiness, a key factor in banking.

Chart 1
STOCK PRICES OF SVB AND CREDIT SUISSE AND OF THE OVERALL US AND EURO AREA BANKING SECTORS (a)

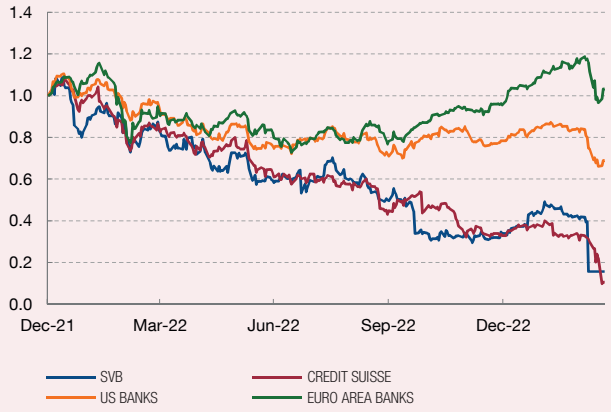


Chart 2
CORRELATION OF SVB AND CREDIT SUISSE WITH BANKING INDICES (a) (b)

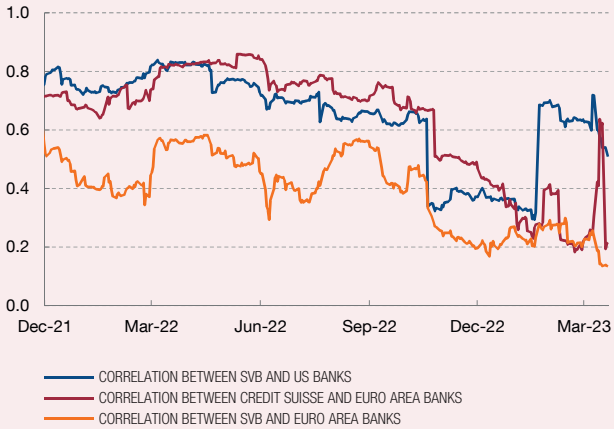


Chart 3
ASSET AND LIABILITY STRUCTURE AT SVB FINANCIAL GROUP AND CREDIT SUISSE. DECEMBER 2022 (c)

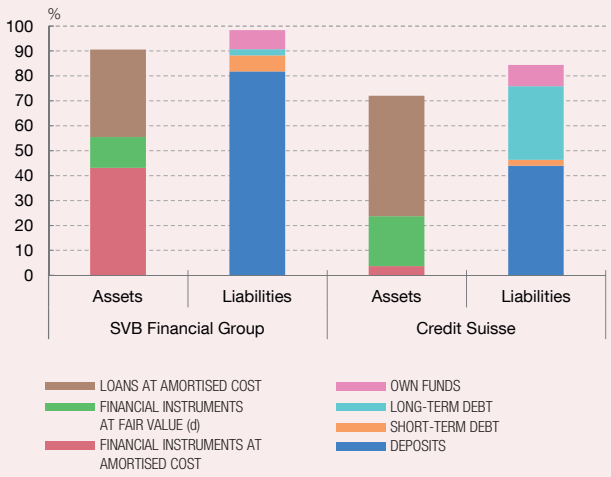
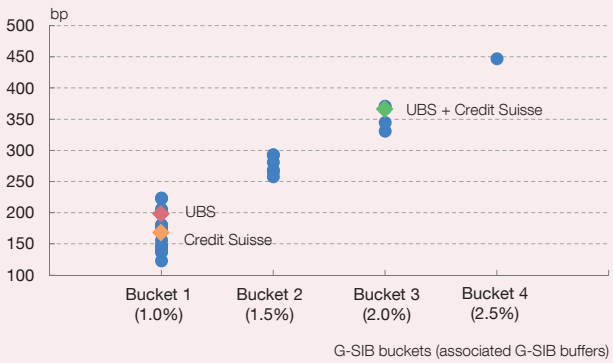


Chart 4
G-SIB OVERALL SCORES AND ASSOCIATED MACROPRUDENTIAL G-SIB CAPITAL BUFFERS FOR UBS AND CREDIT SUISSE. DECEMBER 2021 (e)



SOURCES: Refinitiv Datastream, *Credit Suisse Annual Report 2022,* United States Securities and Exchange Commission Form 10-K filed by SVB Financial Group, Bank for International Settlements and Banco de España.

a The banking index is the S&P 500 Banks for the United States and the EURO STOXX Banks for the euro area.
b The correlation coefficient of the daily log returns is obtained taking into account the three months prior to each date. The correlation between Credit Suisse and US banks is similar to that between SVB and euro area banks, with a peak on 15 March 2023. Data updated to 10 April 2023.
c SVB Financial Group is a consolidated group comprising SVB, SVB Capital, SVB Private and SVB Securities. According to the 2022 accounting information, SVB's average assets made up more than 90% of the sum of the assets of the entire group.
d The portfolio of financial instruments at fair value generally includes available-for-sale and other financial instruments where there is no commitment to hold the investment to maturity, and thus requires frequent revaluation to fair value.
e The chart shows the scores of the 30 institutions that the FSB and the BCBS designated as G-SIBs in the latest available Basel exercise. The estimated position of the new entity ("UBS + Credit Suisse"), calculated on the basis of the scores obtained by UBS and Credit Suisse separately, is shown for information purposes.

Credit Suisse was in fact engaged in the complex process of transforming its business model and had suffered significant liquidity withdrawals in the final quarter of 2022.[6] Its LCR had been gradually declining since end-2021, from 203% to the 144% it recorded at end-2022, in daily 3-month average terms.

Unlike in the case of SVB, Credit Suisse's depositor and accounting portfolio structure appears to be unrelated to the crises it has faced. Of note on the assets side are loans at amortised cost (50%) and financial instruments at fair value (20%), with a small percentage of instruments at amortised cost (4%). Most of its liabilities are relatively evenly split between long-term debt (30%) and deposits (44%) (see Chart 3). In any event, this did not stave off Credit Suisse's financial risk management problems.

On 19 March 2023 the Swiss authorities approved the takeover of Credit Suisse by UBS, and undertook to support the merger through both the provision of liquidity by the Swiss National Bank and State guarantees to cover potential losses on certain assets in Credit Suisse's portfolio. Further, due to the risks to financial stability from Credit Suisse's situation, the forced write-down of all of the bank's AT1 debt instruments (also known as CoCos or contingent convertibles) was approved, inflicting a loss of €16 billion on their holders.[7] This possibility, envisaged in the issuance clauses of these financial instruments, was triggered by the financial assistance provided by the government to the bank, averting its resolution in favour of a private solution.

The new bank resulting from the merger of Credit Suisse and UBS will rank among the five largest global systemically important banks (G-SIBs) (see Chart 4). Up to now UBS had outperformed Credit Suisse in several of the metrics used to measure systemic importance, particularly those relating to interconnectedness with other financial institutions and the scale of its international activity (see Chart 5), although both were present in around 50 countries and had a global reach. The services provided by Credit Suisse had a higher degree of substitutability (compared with other banks), reflecting its greater involvement in business segments relating to underwriting and trading of securities and payment activities.

The integration of Credit Suisse into UBS will entail an increase of its capital buffer as a systemic bank. UBS and Credit Suisse were already separately designated as G-SIBs by the Financial Stability Board (FSB) and the Basel Committee on Banking Supervision (BCBS). The score obtained in the last G-SIB identification exercise in 2022 placed UBS and Credit Suisse as the 17th and 23rd most systemic banks, respectively. Based on the BCBS methodology, it is estimated that the new bank will have to maintain a macroprudential buffer of 2%, more than the current 1% requirement at UBS and Credit Suisse (see Chart 4). This could change in the medium term, as the acquisition agreement entails divestments in certain business areas. In any event, all this shows how important the successful stabilisation of the banking sector by the Swiss authorities is for global financial stability.

Impact of Credit Suisse in the AT1 market[8]

The losses inflicted on Credit Suisse's AT1 bond holders generated considerable uncertainty in financial markets, particularly as they were compatible with a partial recovery of shareholders' investment, disrupting creditor hierarchy expectations. They thus contributed to the stock market declines in the week after the announcement and to a sharp increase in European bank CoCo yields (see Chart 6). This deterioration passed through, albeit much more moderately, to other debt instruments issued by European banks.

Faced with this situation, the Single Resolution Board (SRB), the European Banking Authority (EBA) and the European Central Bank (ECB) issued a joint statement[9] clarifying that, under the European Union's resolution framework, common equity instruments are the first ones to absorb losses, and only after their full use would AT1 be required to be written down. This approach has been consistently applied in past cases and will continue to guide the actions of the SRB and

6 In its 2022 annual report (see Credit Suisse 2022 Annual Report), Credit Suisse indicated that it had experienced liquidity problems in the last quarter of the year relating to large-scale withdrawals of cash deposits and the non-renewal of maturing time deposits.

7 See "Finma approves merger of UBS and Credit Suisse", press release of the Swiss Financial Market Supervisory Authority (FINMA) dated 19 March 2023.

8 Additional tier 1 capital instruments (AT1) are instruments that, while not meeting all the conditions to be considered common equity tier 1 (CET1) capital, allow losses to be absorbed while the bank continues to operate. See FSI. (2019). *Definition of capital in Basel III - Executive Summary.*

9 See SRB, EBA and ECB Banking Supervision statement on the announcement on 19 March 2023 by Swiss authorities, dated 20 March.

ECB banking supervision in crisis interventions. The authorities also indicated that AT1 is and will remain an important component of the capital structure of European banks. This joint SRB, EBA and ECB statement managed to stabilise European banks' CoCo prices.

In any event, European banks' ability to obtain funding through this kind of instruments needs to be monitored closely. CoCo holdings of euro area resident investors are concentrated in investment fund portfolios (see Chart 7). These investors have a higher risk appetite than other institutional investors, but it oscillates cyclically and could decline in a scenario of worsening global financial conditions. Non-euro area residents' AT1 holdings, for which less information is available,[10] are also considerable.

Position of the Spanish banking sector

Several of the idiosyncratic elements behind the stress episodes at SVB and Credit Suisse are not present in European banks, or in particular in Spanish banks, and the events at these banks cannot be automatically extrapolated to these different banking systems as a whole.

The euro area banking system and, particularly, the Spanish system are facing these market tensions from a highly resilient position and with sound capital and liquidity positions, as a result of regulatory reform agreed internationally over the last decade. In Europe, strict capital and liquidity requirements have been applied to all banks, irrespective of their size.

Moreover, Spanish banks are more geared towards the retail segment and in recent times this has contributed to positive profitability developments, in a setting of rising interest rates, and to a favourable liquidity position and good financing conditions. Thus, Spanish banks' profitability has grown significantly over the past year, exceeding the cost of capital, having benefited from the positive effect of higher interest rates on banks' net interest income and the increase in fees and commissions.

Chart 5
G-SIB OVERALL SCORES AND BY CATEGORY OF INDICATOR FOR UBS AND CREDIT SUISSE. DECEMBER 2021 (a)

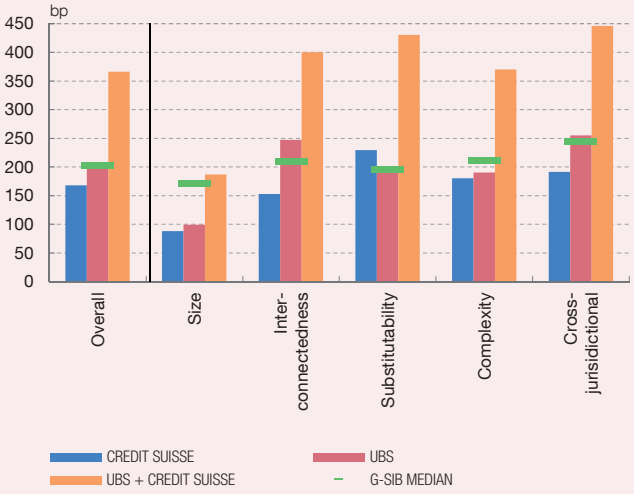
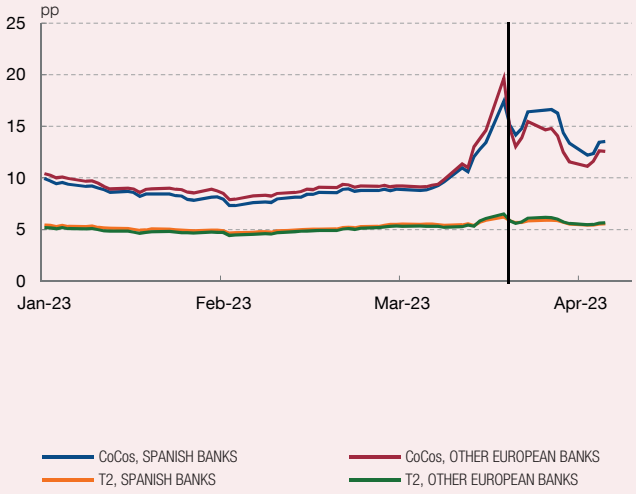


Chart 6
YIELDS ON AT1 AND T2 INSTRUMENTS ISSUED BY EUROPEAN BANKS (b)



SOURCES: Dealogic, Refinitiv Datastream, Bank for International Settlements and Banco de España.

a The chart shows the scores obtained by UBS and Credit Suisse in the latest available Basel G-SIB exercise. The scores of the institution are simulated from the sum of the scores obtained separately by UBS and Credit Suisse. The horizontal lines indicate the median of the scores obtained by the 30 institutions identified as G-SIBs.
b Profitability is obtained as the weighted average by volume of the yield traded in the secondary market on the different types of bonds from listed Spanish banks and a sample of European banks. CoCos: contingent convertible debt, eligible as Tier 1; T2: debt that complies with the Tier 2 requirements.

10 A large share of European CoCo holders are in non-euro area investor portfolios, where it is not possible to identify their sector.

It is also important to note that the risk of contagion of Credit Suisse's problems to the Spanish financial system through direct financial exposures is very moderate. First, direct credit exposures via interbank loans are low. In addition, Spanish banks' derivatives and securities lending transactions and repos with Credit Suisse are very limited. Lastly, according to Refinitiv data, Credit Suisse is not a major player in the syndicated loan market, meaning that its joint operations with Spanish banks are not systemically important. However, some caution is necessary, as the information on possible indirect connections through shared exposures to non-bank financial intermediaries or non-financial corporations is not yet fully available.

Due to their particular relevance in the SVB and Credit Suisse stress episodes, Spanish and other European banks' liquidity situation and the composition of their financial instrument and loan portfolios are analysed in more detail below.

Liquidity situation

Spanish banks have high liquidity ratios, both in the short term and in terms of stable funding over a longer period (see Chart 2.10 in the main text of Chapter 2), placing them at the higher end of the distribution of these metrics among their European peers. As mentioned above, the retail orientation of Spanish banks' business, in clear contrast to SVB, also contributes to this sound liquidity position and to the stability and diversification of their funding sources.

The short-term liquidity position of Spanish deposit-taking institutions has improved in recent years. Specifically, their overall LCR rose from just under 170% at December 2019 to close to 180% at December 2022. Over the past year this ratio has declined by 29 percentage points (pp), helped by the tightening of the ECB's monetary policy and, in particular, the reduction in TLTRO funding. Insofar as it remains above the required 100% banks will not need to tap the market in the short term to cover liquidity outflows, in the 30-day stress scenario defined according to the regulatory LCR parameters. This limits the possibility of an abrupt upsurge in their financing costs.

A closer look at the composition of Spanish banks' high quality liquid assets (HQLAs), which are intended to act as a buffer against potential liquidity withdrawals by their customers, reveals a high concentration in those of the highest quality (see Chart 8, left-hand panel). The proportion of total Tier 1 (highest quality) assets increased from 92.3% in 2019 to 95.5% in 2022. Of note are the level and growth of cash and reserves and other assets at central banks, whose valuation is not affected by interest rate changes.

The composition of liability items susceptible to liquidity outflows has remained virtually unchanged in the last three years, with retail deposits accounting for the largest share of the total (close to 50%) (see Chart 8, right-hand panel). In the case of wholesale deposits, those held for operational or other reasons that are susceptible to greater liquidity outflows represented close to 15% of total liabilities susceptible to outflows, both in 2019 and 2022.

In any event, supervision at European and national level will closely monitor banks' liquidity positions to ensure that available buffers are not reduced, which would increase vulnerability to potential investor withdrawals. In addition, the ECB has also announced the existence of a wide range of instruments that could be activated to immediately mitigate any such risk.

Accounting classification of financial assets

With regard to the assessment of solvency, an important factor in the case of SVB was the proportion of its holdings of financial instruments, in particular of debt instruments, and how they were valued for the purpose of calculating capital. In this regard, the asset structure in Spanish banks' balance sheet is similar to that of the other European banks. In addition, it must be borne in mind that a portion of the debt securities held by Spanish banks – like those of other European and international banks – is classified as held-for-sale. In accordance with the regulatory treatment of such portfolios in the European Union, these securities are measured at market price. Therefore, any potential gains or losses have already been recognised against the banks' capital. This is a very important difference with respect to medium-sized US banks, which benefited from accounting exemptions in this area.

Another portion of the fixed-income portfolios of European and Spanish banks is intended to be held to maturity. These debt securities are therefore classified and recognised as such. These portfolios are deemed a balance sheet risk management tool for banks, to make their balance sheets less volatile and, above all, less

THE EFFECTS OF THE MARCH 2023 GLOBAL BANKING TURMOIL ON THE STABILITY OF THE EUROPEAN BANKING SYSTEM (cont'd)

Chart 7
DISTRIBUTION OF AT1 HOLDINGS ISSUED BY EUROPEAN BANKS. DECEMBER 2022 (a)

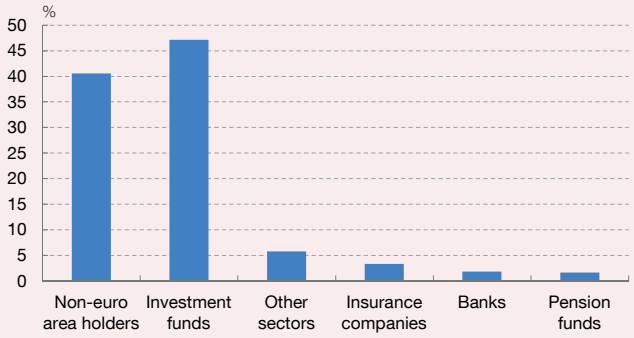


Chart 8
COMPOSITION OF HIGH QUALITY LIQUID ASSETS AND LCR CASH OUTFLOWS IN DECEMBER 2019 AND 2022 IN SPAIN (b)

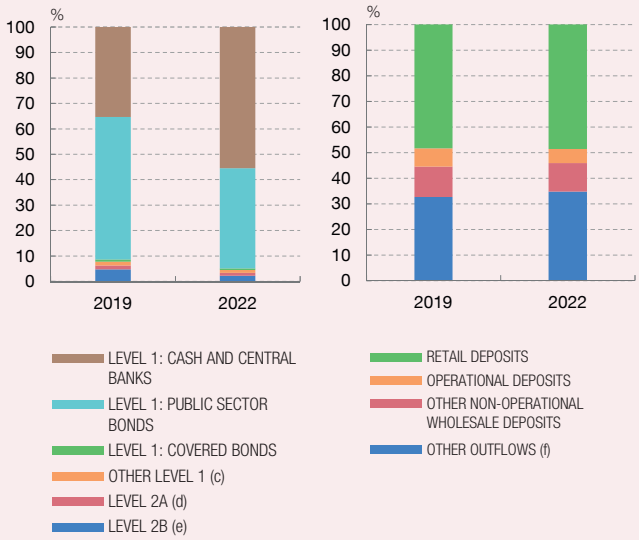


Chart 9
EUROPEAN COMPARISON OF THE COMPOSITION OF FINANCIAL ASSETS (FA) AND SOVEREIGN EXPOSURES (SOV) BY VALUATION METHOD. DECEMBER 2022 (g)

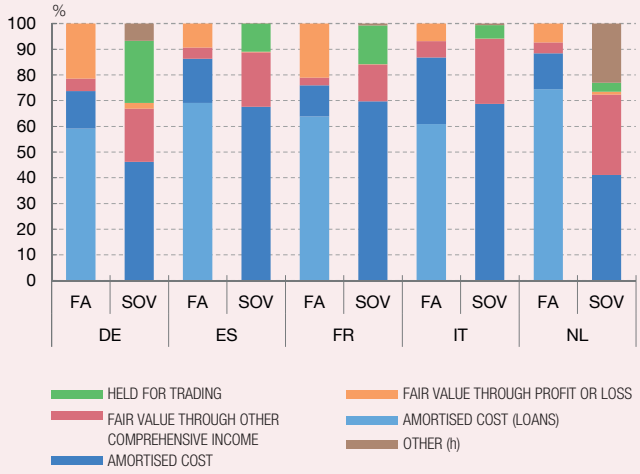
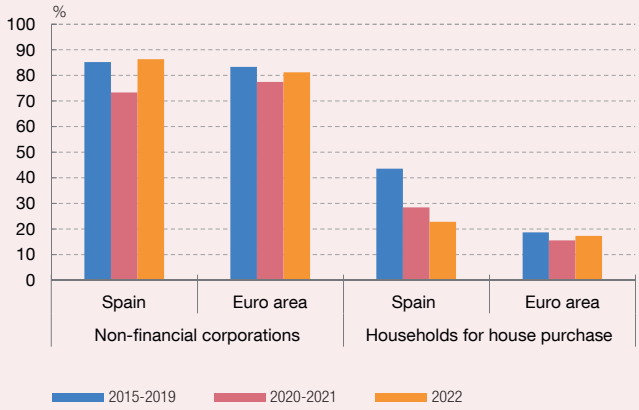


Chart 10
SHARE OF NEW LENDING GRANTED BY SPANISH AND EURO AREA BANKS AT A VARIABLE RATE (i)



SOURCES: Dealogic, SHS, Banco de España, EBA and ECB.

a The chart shows the proportion of the outstanding balance of AT1 instruments held by each type of holder. These instruments' yields are analysed in Chart 6, which includes both Spanish banks and a sample of European banks. Other sectors include households and non-financial corporations.
b The LCR is the ratio of high-quality liquid assets to net cash outflows (the difference between inflows and outflows) over 30 days.
c Including other extremely high-quality assets.
d Including high-quality assets, such as central bank and third-country central, regional and local government assets, covered bonds and other high-quality assets.
e Including shares which are part of a major stock index, asset-backed securities with a credit rating of 1 and corporate debt securities with a credit rating of 2/3, together with other high-quality assets.
f Other outflows, such as those from secured lending and capital market-driven transactions, other unsecured transactions/deposits, additional outflows, committed facilities, overdrafts and other liabilities.
g Sovereign exposures are included in overall financial assets. Financial assets at amortised cost are recorded at their acquisition cost and are not revalued to market cost on an ongoing basis. By contrast, financial assets at fair value and held-for-trading assets are regularly revalued to market value.
h Includes trading sovereign exposures, non-trading exposures mandatorily valued at fair value through other comprehensive income or profit and loss or at fair value to equity or measured using a cost-based method, and other financial assets not held for trading.
i Variable interest rate transactions are defined as those with a flexible rate or with a fixed initial interest rate for a period of less than one year.

procyclical. As mentioned above, held-to-maturity portfolios are accounted for at amortised cost, not at market value. Only if banks were to sell these portfolios before maturity would the potential unrealised losses materialise (specifically, at the time of the sale itself). In any event, it should be noted that for the purposes of calculating the LCR ratio these assets are taken at market value, as is appropriate for liquidity purposes. Given Spanish banks' high liquidity ratios and their improved earnings in 2022, this scenario of forced sales before maturity is unlikely.

Specifically, in December 2022, 86.2% of the main Spanish banks' financial assets (including loans) and 67.5% of their sovereign exposures were measured at amortised cost. These percentages are similar to those for 2019 and in line with those of the main comparable European banks (see Chart 9). German and French banks have the lowest percentage of exposures at amortised cost relative to total financial assets (around 75%), while in the case of sovereign exposures, German and Dutch banks have the lowest percentage at amortised cost (around 45%). In the case of Spanish banks, loans (and not fixed-income marketable instruments) accounted for the largest share of exposures at amortised cost as a percentage of financial assets at December 2022 (80.1%). Sovereign exposures represented 14.1% of their total financial assets at that date, while the median for the main European countries stood at 11.6%.

In assessing the risks associated with the loan portfolio, the proportion associated with fixed and variable rate remuneration systems must also be considered. If most of the loans in the amortised cost portfolio are variable rate loans, this provides banks with a natural hedge against interest rate rise scenarios such as the current one.

In this respect, the proportion of new variable rate lending by Spanish banks[11] to non-financial corporations has remained stable in recent years, standing at 86.2% in 2022, slightly above the level for the euro area (81.2%) (see Chart 10). In the case of loans for house purchase, fixed rate loans have accounted for the bulk of new lending in recent years, with the volume of new variable rate loans falling to 22.7% in 2022, still 5.5 pp above the overall euro area figure. However, in the case of Spain, the historical predominance of variable rate lending and the long maturities of these loans, whose average time to maturity at end-2022 was almost 20 years, limits the weight of fixed rate loans in the total loan for house purchase portfolio to a level slightly below 30% at end-2022.

Assessment of the global risk environment

Having analysed the balance sheet dimensions that are most directly relevant to understand the resilience of European and, particularly, Spanish banks to stress episodes such as those experienced by SVB and Credit Suisse, a broader view of the risk scenarios facing the banking sector is also needed. In a macro-financial situation in which interest rates have had to be raised swiftly to contain inflationary pressures, banks face opposing risks to their net interest income, the value of their holdings of financial instruments and their balance sheet credit quality.

Banks whose average lending rates have adapted faster to the new situation than their average deposit rates (for instance, those with a greater share of variable rate loans and/or shorter maturities, and a greater share of retail funding) are seeing a substantial improvement in their net interest income, which has boosted their profitability. Conversely, in general, the value of fixed-income financial exposures (such as bonds, especially those with longer maturities) has declined. Further upward adjustments to banks' cost of financing and, over the more medium term, some deterioration of credit risk quality will be more likely the longer the high interest rate period continues. The extent to which different banks and financial systems position themselves against these risks, which has now attracted more attention from investors, will determine how resilient they are.

In an environment as uncertain as the one we have been witnessing in recent months, including in relation to the degree of future monetary policy tightening, Spanish banks must implement a prudent provisioning and capital planning policy that allows them to harness their favourable positioning and use part of the current short-

11 For this purpose, based on the information in the interest rate statements reported to the ECB on the volume of new lending, flexible rate loans and those with a fixed initial interest rate for a period of less than one year are deemed variable rate loans.

term increase in income to further raise the sector's resilience. This would leave banks better placed to deal with any potential losses, should the different risk scenarios identified in the summary of risks and vulnerabilities materialise.

Importance of supervision and the banking union

The role of banking supervision in this uncertain environment must also be highlighted. Even before the recent banking events, certain supervisory priorities had been set within the Single Supervisory Mechanism (SSM), specifically designed to mitigate and anticipate potential adverse effects of the current macroeconomic context. In particular, the supervisory focus was placed on banks' interest rate risk and the sustainability of their funding plans, issues that are crucial in a setting of rising interest rates and liquidity withdrawals. The most exposed European banks were required to improve the way in which they monitor and manage this risk. In some cases they were even asked to be more conservative in their interest rate assumptions and in their model calibration and validation.

Likewise, when it emerged that there were interconnections between the banking system and non-bank financial intermediaries, as in the case of Archegos, which, as noted above, particularly affected Credit Suisse, the decision was also made to place the supervisory focus on analysing the risks of this type of exposure for European banks.

Lastly, the SVB and Credit Suisse episodes have strengthened the case for deepening integration within the banking union. This would require EU leaders to agree on a proposal to implement a fully mutualised European Deposit Insurance Scheme (EDIS). The commitment to deploy such a scheme would have a positive impact on the confidence of citizens and the markets and would contribute to increased risk-sharing among countries and, thus, to reducing potential episodes of fragmentation. This third pillar of the banking union would help align financial liability with institutional banking supervision and resolution decision-making arrangements, which have been centralised for almost a decade through the SSM and the Single Resolution Mechanism (SRM).

1

RISKS LINKED TO THE MACRO-FINANCIAL ENVIRONMENT

Spanish and global economic growth moderated in the final stretch of 2022 and remains weak in early 2023, albeit somewhat stronger than expected a few months ago. The risks to economic growth in the short and medium term continue to be tilted to the downside. Noteworthy downside risks include the uncertain course of the war in Ukraine and the possibility of the recent tensions on international financial markets resulting in significantly tighter financial conditions.

Headline inflation rates have eased from the 2022 Q3 peaks both globally and in Spain, but significant inflationary pressures persist and underlying inflation remains high.

Although conditions have improved in the emerging market economies, there are pockets of vulnerability in some of the economies to which the Spanish banking system is significantly exposed.

Weak economic growth, inflationary pressures and rising interest rates are eroding the economic and financial position of the most vulnerable households and firms. Turning to the general government, while the budget deficit fell more than expected in 2022, no further significant decreases are expected over the coming years in either the budget deficit or public debt as a percentage of GDP.

1.1 Macroeconomic environment

1.1.1 Systemic and materially significant countries

Global growth and inflation moderated in the final stretch of 2022. Various factors combined to slow the pace of growth of economic activity: high inflation rates (driven by the rise in commodity prices), which eroded household disposable income and consumption; considerable uncertainty surrounding the war in Ukraine; and the tightening of global financial conditions as a consequence of greater risks and more restrictive monetary policy stances.

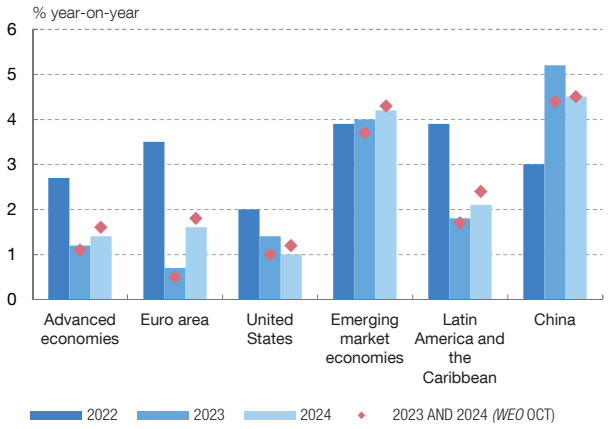
For the main economies, the growth outlook for 2023 continues to signal a deceleration. However, growth might not slow as much as expected (see Chart 1.1.1). The underpinnings notably include the correction in energy and other commodity prices, a slight easing of global production chain bottlenecks, labour markets performing better than expected and the use of some of the savings built up during the COVID-19 crisis. In the euro area, the European Central Bank (ECB)

Chart 1.1

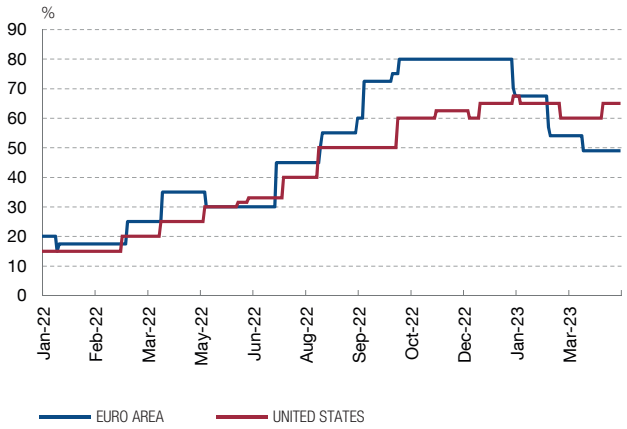
GLOBAL ECONOMIC GROWTH CONTINUED TO SLOW DOWN AND HEADLINE INFLATION HAS EASED

The growth outlook for 2023 continues to signal a deceleration, albeit smaller than that expected a few months ago. Meanwhile, inflationary pressures persist, although these have also eased and the central banks have slowed the pace of interest rate increases, which were particularly swift and sharp in 2022.

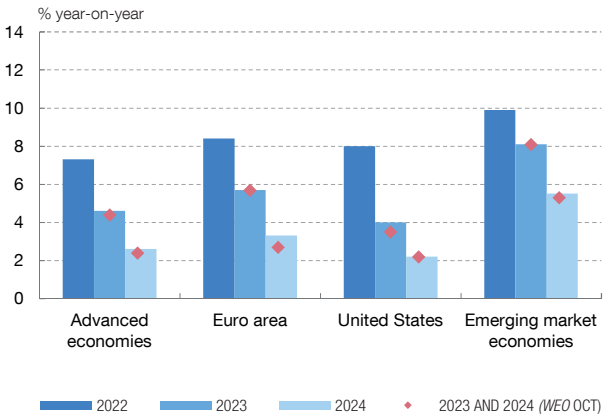
1 GDP GROWTH OUTLOOK (2022-2024) (a)



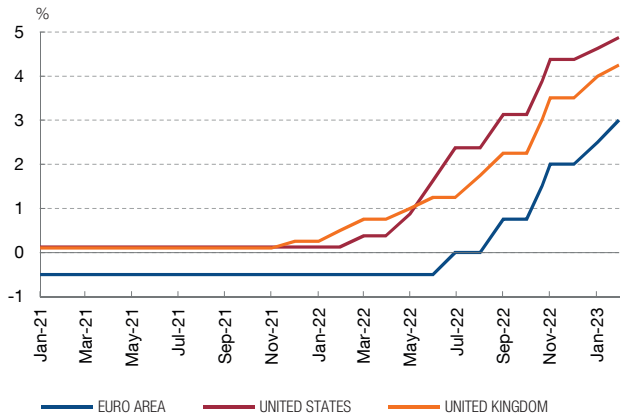
2 PROBABILITY OF A RECESSION ONE YEAR AHEAD. EURO AREA AND THE UNITED STATES (b)



3 INFLATION OUTLOOK (2022-2024) (a)



4 MONETARY POLICY: POLICY INTEREST RATES



SOURCES: IMF, Bloomberg, national statistics and Refinitiv.

a IMF (*WEO*, January 2023).
b These indicators are based on responses to surveys conducted by Bloomberg on the probability of a recession one year ahead. The indices used are: US Recession Probability Forecast Index and Eurozone Recession Probability Forecast Index.

forecasts very moderate GDP growth of 1% for 2023, an upward revision to its December 2022 projections. Activity has also proven more resilient than expected in the United States, albeit with relatively weak consumption figures and a drop in real estate purchases (see Chart 1.1.2). Lastly, the definitive reopening of the Chinese economy after abandoning the zero-COVID strategy will help normalise global supply chains, but will also boost growth and demand for energy imports. This will impact global inflation in different ways: moderating it in the first case and pushing it up in the second.

Despite the relatively less gloomy economic outlook, the risks to growth remain tilted to the downside. The uncertain course of the war in Ukraine (its geopolitical implications and the attendant consequences for the prices and availability of gas and other commodities, and its effects on trade and the polarisation of the world economy) remains the main source of risk to the world economy, particularly to the euro area. Should the financial market turmoil that recently emerged as a result of the stress at some US and European banks not subside, the erosion of confidence would constitute a further substantial risk to growth.

Headline inflation has slowed globally from the peak values of 2022 Q3, but considerable inflationary pressures persist and underlying inflation remains high. Looking ahead, further improvements in bottlenecks and the weakening of global demand – induced by tightening financial conditions – are expected to bring inflation under control. In this respect, the recent tightening of financial conditions would magnify this disinflationary effect. Conversely, many of the measures deployed by governments to mitigate the impact of higher prices on the most vulnerable households are expected to be rolled back. Energy prices could also be affected by China's exit from zero-COVID further driving demand, and by adverse supply shocks depending on the materialisation of geopolitical risks. The latest ECB projections forecast euro area inflation of 5.3% in 2023 and 2.9% in 2024 (see Chart 1.1.3).

Central banks have continued to tighten their monetary policy, although they have moderated the pace of interest rate increases. Among the main advanced economies, after several increases of 75 basis points (bp), the ECB has opted to raise its key interest rates by 50 bp in its recent monetary policy decisions, taking the deposit facility rate to 3% (see Chart 1.1.4). The Federal Reserve System raised its federal funds rate by 25 bp to 4.75%-5% and the Bank of England raised its Bank Rate by 25 bp to 4.25%. In response to the financial stress caused by problems at some banks, the Federal Reserve announced further liquidity facilities. However, central banks have generally reduced the size of their balance sheets as a result of the tighter monetary policy stance. In the euro area, the ECB has decided to reduce its asset purchase programme portfolio by €15 billion per month on average between March and June 2023.

Monetary policy tightening has responded to the need to bring inflation back to values compatible with the medium-term price stability targets. In this respect, the main central banks all stress the need to keep rates high for long enough to ensure that inflation falls over time and returns to its medium-term target, while also considering financial market developments and their effects on activity and prices.

Since end-2022 financial markets in the emerging market economies have started to rebound from the losses recorded since 2022 Q2, practically returning to pre-war in Ukraine levels. However, financial conditions in Latin

America have continued to tighten as a result of higher interest rates on long-term debt in local currency. These increases largely reflect idiosyncratic risks associated with elections and the potential consequences for budget and external imbalances of implementing some of the economic policies announced. The recent financial stress has also driven risk premia higher in the emerging market economies. However, they remain at moderate levels. Amid generally relatively tight monetary policy, exchange rates have held relatively steady (see Chart 1.2.1).

After peaking in mid-2022, inflation started to ease in the emerging market economies. However, the disinflation process is expected to be slow, with end-2023 rates exceeding those recorded in early 2021 in all regions (see Chart 1.2.2). Those central banks that raised their policy interest rates earlier or more forcefully have significantly eased the pace of the increases (see Chart 1.2.3), against the backdrop of markets that have started to price in a slow and long cycle of rate cuts in the future.

The improvement in emerging financial markets does not conceal the pockets of vulnerability in some of the economies to which the Spanish banking system is significantly exposed. Thus, since the onset of the pandemic the sovereign credit ratings of the Latin American countries and Türkiye have been downgraded (see Chart 1.2.4) more than those of other emerging regions, reflecting the increase in external imbalances in the case of the Andean economies. These downgrades are also the result of the decline in international reserves, high levels of public debt and, in some cases, a sharp rise in economic policy uncertainty and social and political unrest.

In **Mexico,** economic activity slowed sharply in 2022 Q4 and limited GDP growth is expected for 2023. Underlying inflation remains above headline inflation and both are far higher than the monetary policy target, despite the strength of the Mexican peso. Given this situation, analysts and financial markets consider the Banco de México to be near to concluding its rate hiking cycle (policy interest rates have risen by 700 bp, to 11%). Credit to the private sector displayed greater momentum in 2022 H2, recording real rates of growth of close to 5% in early 2023 (up 2 percentage points (pp) on mid-2022, with consumer lending growing at just under 10%).

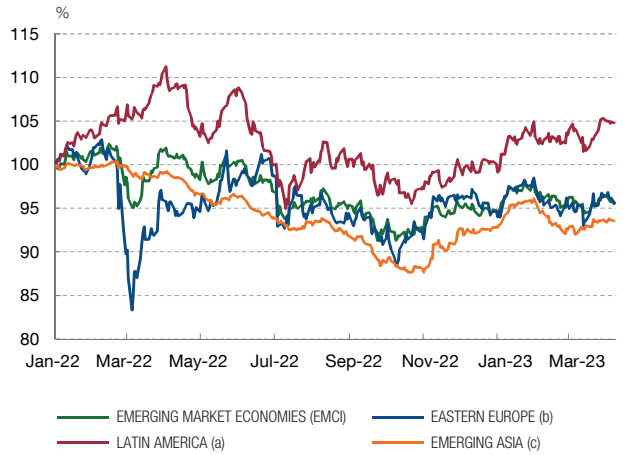
Economic activity in **Brazil** clearly decelerated in 2022 H2 (negative quarter-on-quarter GDP growth in Q4). This was mainly due to sluggish domestic demand, while at the turn of the year inflation stood at its lowest levels since early 2021. Headline inflation has largely eased owing to the path of regulated prices after subsidies for certain energy products were approved, while underlying inflation has fallen less. The end of the subsidies in early 2023 has slightly reversed the downward trend in inflation. The Banco Central do Brasil has halted its rate hikes. Policy interest rates have stood at 13.75% since August 2022 and are expected to be lowered. Although the risks to the inflation outlook in Brazil can currently be deemed to be balanced,

Chart 1.2

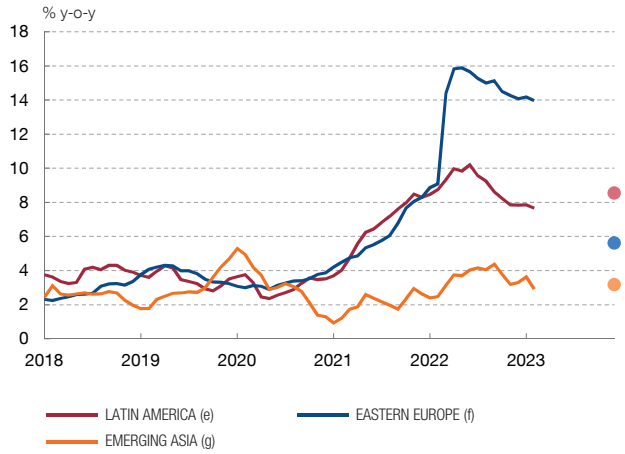
INFLATION HAS STARTED TO EASE IN THE EMERGING MARKET ECONOMIES AND THE RATE-HIKING CYCLE HAS SLOWED IN THE REGIONS THAT LAUNCHED IT EARLIER

The emerging market financial markets were affected by the tightening of global financial conditions and the appreciation of the dollar, although they have recovered since December. Inflation rates had started to fall by the summer, but they will remain at high levels throughout 2023. As a result, the central banks that launched their monetary policy tightening cycle earlier slowed the pace of policy interest rate hikes. Some of the most important economies for Spanish banks have seen their vulnerability increase since 2019.

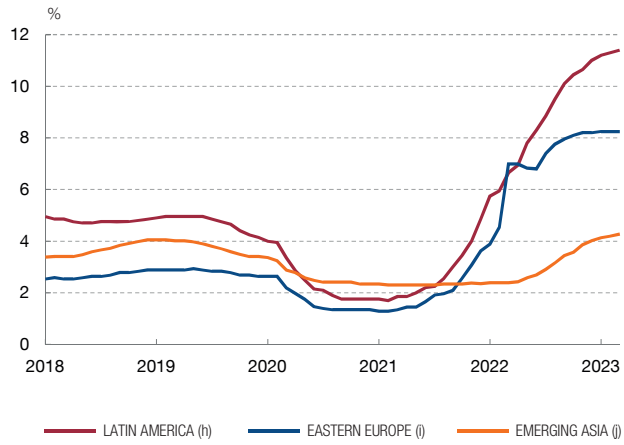
1 EXCHANGE RATES. EMERGING MARKET ECONOMIES



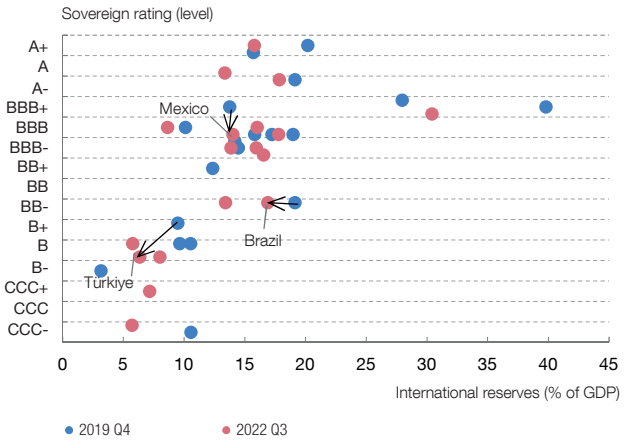
2 INFLATION (d)



3 POLICY INTEREST RATES



4 VULNERABILITY INDICATORS



SOURCES: Refinitiv, Consensus Forecasts and national statistics.

a Simple average of the exchange-rate indices of Brazil, Mexico, Chile, Colombia and Peru.
b Simple average of the exchange-rate indices of the Czech Republic, Hungary, Poland, Romania and Russia.
c Simple average of the exchange-rate indices of China, India, Indonesia, South Korea, Thailand, Malaysia and the Philippines.
d The dots denote inflation expectations for end-2023, according to the Consensus Forecasts, in March 2023.
e GDP-weighted average in PPP of Brazil, Mexico, Chile, Colombia and Peru.
f GDP-weighted average in PPP of the Czech Republic, Hungary, Poland, Romania and Russia.
g GDP-weighted average in PPP of China, India, Indonesia, South Korea and Thailand.
h Simple average of the policy interest rates of Brazil, Mexico, Chile, Colombia and Peru.
i Simple average of the policy interest rates of the Czech Republic, Hungary, Poland, Romania and Russia.
j Simple average of the policy interest rates of China, India, Indonesia, South Korea, Thailand, Malaysia and the Philippines.

the labour market (which has very low unemployment levels, similar to those seen in 2015) represents a significant upside risk to inflation. The acceleration in credit, measured in real terms, poses a significant financial stability risk. Social and political unrest has risen sharply since the presidential election, resulting in higher long-term interest rates in local currency. Along the same lines, fiscal policy uncertainty could delay, or even prevent, the expected monetary policy loosening.

In **Türkiye,** the economic slowdown since 2022 H2 was accompanied by extremely high inflation, which in October of that year surpassed 85% year-on-year. It subsequently eased to 55.2% in February 2023 as a result of considerable base effects and the drop in global energy prices. Nevertheless, between August 2022 and February 2023 the Central Bank of the Republic of Türkiye (CBRT) cut its policy interest rate by a cumulative 550 bp, to 8.5%. Furthermore, a complex regulatory framework was established to direct credit growth, increase the weight of the Turkish lira in the banking system and narrow the gap between the reference interest rate and corporate lending interest rates. These measures pose significant risks to public finances and to the profitability of financial institutions.

While the current account deficit continues to widen and net foreign exchange reserves remain at very low levels, the nexus in foreign currency between the CBRT and commercial banks has also deepened; commercial banks have reduced their foreign currency lending while simultaneously increasing their foreign exchange deposits at the CBRT. This could pose a risk as excluding currency swaps with other central banks, the CBRT has negative net foreign exchange reserves, while continuing to intervene in currency markets to defend the value of the Turkish lira.

Lastly, it should be noted that, leaving to one side the destruction of capital stock, February's earthquakes are expected to have a relatively moderate and short-term impact on activity. However, the effects on inflation could be more pronounced, given the relative importance of the region affected for the Turkish primary sector, which could trigger a negative supply shock for this type of product.

1.1.2 Spain

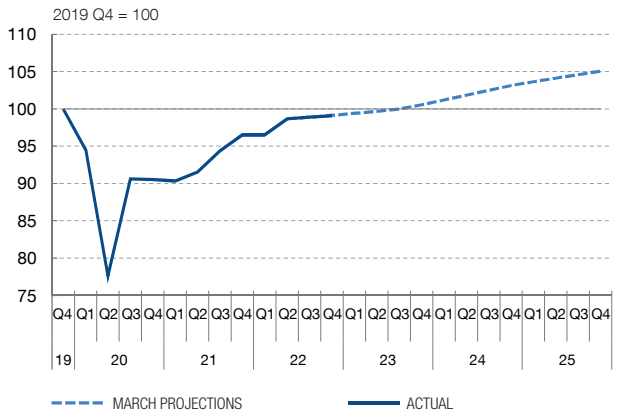
The Spanish economy grew more than expected in 2022, although it slowed in the second half of the year. GDP rose significantly in 2022 (5.5%), yet it is still 0.9 pp below its pre-pandemic level. GDP growth was largely concentrated in the first half of the year, driven by the positive impact of the lifting of the pandemic restrictions, whereas it slowed significantly in the final two quarters. Even so, activity and employment remained more resilient than expected in H2, thanks to energy market tensions easing from summer 2022, resulting in a winter without supply issues, and the fiscal impulse deployed in response to the war in Ukraine and the energy crisis.

Chart 1.3

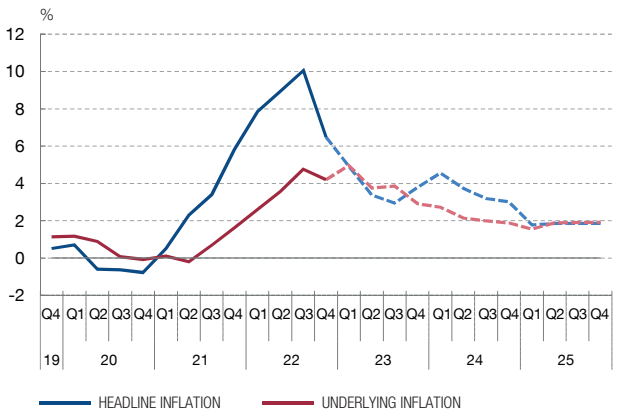
SPANISH ECONOMIC GROWTH SURPRISED ON THE UPSIDE IN 2022, ALTHOUGH IT SLOWED FROM THE SECOND HALF OF THE YEAR, AFFECTED BY THE ADVERSE IMPACT OF INFLATIONARY PRESSURES ON AGENTS' PURCHASING POWER

Since the last FSR, the pace of growth of output surprised on the upside, despite decelerating from the summer, affected by the cumulative loss in agents' purchasing power and monetary policy normalisation. Output is expected to gain momentum from spring 2023 onwards, although a high level of uncertainty continues to surround this scenario. The main downside risk to Spanish economic growth and upside risk to inflation stems from the heightening of geopolitical tensions, which would have adverse repercussions for energy markets and supply chains. On the upside, underpinnings include the execution of NGEU projects, the fading of bottlenecks and the sound performance of the labour market.

1 REAL GDP. SPAIN. LEVEL (a)



2 HEADLINE AND UNDERLYING INFLATION (a)



SOURCES: Banco de España and INE.

a The charts depict the actual GDP and inflation figures up to 2022 Q4, and from then on the March 2023 Banco de España macroeconomic projections.

In line with global activity, growth is expected to be quite weak in early 2023, against a backdrop of weak private consumption. Private consumption has been affected by the cumulative loss in household purchasing power prompted by price growth and higher interest rates. Despite energy prices slowing more sharply than expected since the summer, inflationary pressures, which were initially confined to energy before spreading to food, have passed through to the other consumption basket items, whose inflation rates remain high. This inflationary process hits lower income households particularly hard, as staple goods account for a higher share of their consumption. Use of the savings built up since the onset of the pandemic has so far cushioned part of the impact of inflation on consumption. Yet this driver could be weakened by the depletion of these savings as they are channelled instead towards loan repayments – amid rising interest rates – and by the high level of uncertainty.

In the medium term, economic growth for 2023 has been revised up thanks to growth surprising on the upside in 2022. According to the latest Banco de España projections, activity is expected to gain more traction from spring onwards (see Chart 1.3.1),[1] underpinned by the easing of tensions on energy markets and the

1 "Macroeconomic projections for the Spanish economy (2023-2025)". In "Quarterly Report and macroeconomic projections for the Spanish Economy. March 2023". In *Economic Bulletin - Banco de España,* 2023/Q1.

gradual fall in inflationary pressures, the deployment of Next Generation EU (NGEU) funds and the labour market's sound performance. Fading global bottlenecks will also underpin activity in Spain. These factors are expected to offset the adverse impact of tightening financing conditions. Note that to date monetary policy interest rate rises have only partially been passed through to the financing costs of Spanish households and firms and, therefore, this process will continue throughout 2023.

All things considered, the outlook for the Spanish economy under the baseline scenario is subject to an extraordinary level of uncertainty and the risks are tilted to the downside in terms of economic activity and balanced in terms of inflation. With regard to prices, the baseline scenario for Spain envisages inflation easing (see Chart 1.3.2). Higher inflation than currently projected would have more adverse effects than those incorporated into the baseline scenario on agents' purchasing power and confidence and, therefore, their spending decisions, employment and activity. Under this adverse scenario, sharper than expected monetary policy tightening globally would also be more likely.

1.2 Financial markets and the real estate sector

1.2.1 Financial markets

Interbank market interest rates have continued to rise as a result of monetary policy tightening since the cut-off date for the last Financial Stability Report (FSR), although this trend was interrupted in the wake of the recent financial market turmoil. The latest decisions of the main central banks of the developed economies, together with expectations for further policy rate hikes, have raised interbank market interest rates. However, these increases reversed in early March in response to the financial market turmoil prompted by financial problems at various medium-sized US banks and the European bank Credit Suisse. In light of this situation, markets revised down the expected future level of policy interest rates. At the cut-off date for this report, the 12-month EURIBOR stood at 3.6%, i.e. some 89 bp higher than its early November 2022 level.

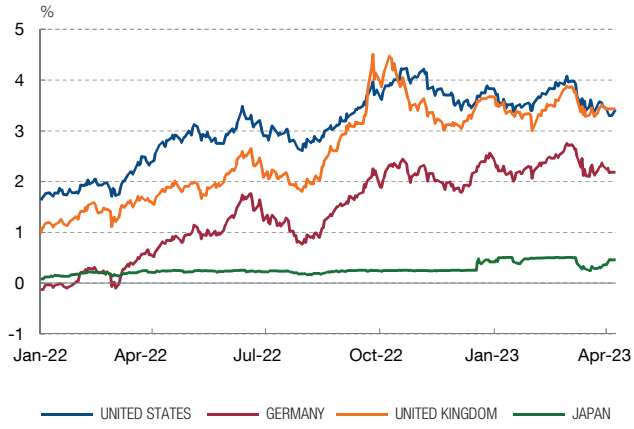
Long-term yields on higher-rated sovereign debt have proven highly changeable since early November. They have been particularly influenced by changes in market expectations about the duration of the current inflationary episode, its effect on the terminal level of policy interest rates and how quickly they will return towards neutral territory, and, more recently, by the uncertainty stemming from the episode of global financial market instability. At the cut-off date for this report, yields on ten-year US and German sovereign bonds stood at 3.4% and 2.2%, respectively, down 63 bp and up 6 bp on their early November 2022 levels (see Chart 1.4.1). This was accompanied by an improvement in secondary market liquidity, reversing the downward trend of prior months (see Chart 1.4.2).

Chart 1.4

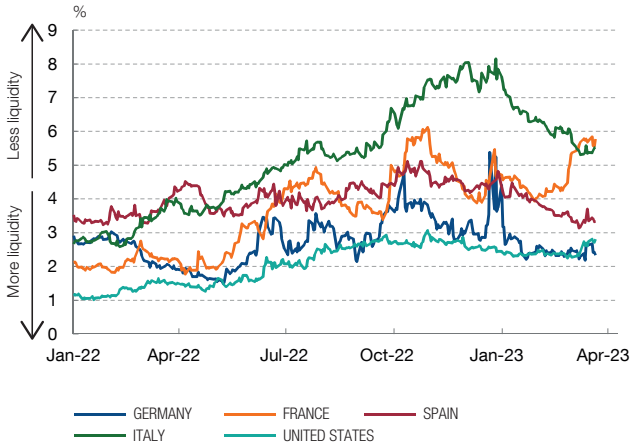
RECENT TURMOIL ON INTERNATIONAL FINANCIAL MARKETS HAS CAUSED THE REVERSAL OF TRENDS SEEN IN PREVIOUS MONTHS, DRIVING DOWN LONG-TERM YIELDS ON SOVEREIGN BONDS AND PRICES OF RISKY ASSETS, ALTHOUGH THE LATTER DEVELOPMENT HAS PARTIALLY OR TOTALLY REVERSED IN RECENT WEEKS

Long-term yields on high-rated sovereign bonds have proven changeable since early November, linked to changes in monetary policy expectations. After the recent turmoil on the international financial markets, long-term yields decreased, while credit and sovereign risk premia increased and stock market indices fell. However, these developments have partially reversed in recent weeks. Sovereign bond market liquidity indices have generally shown an improvement over recent months.

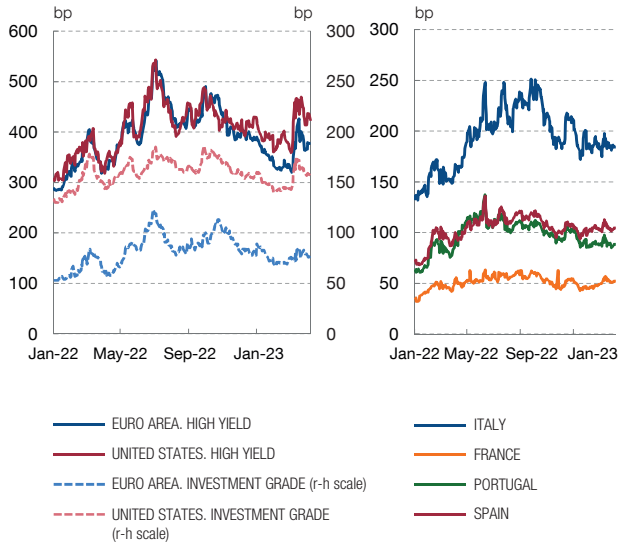
1 10-YEAR SOVEREIGN BOND YIELDS



2 SOVEREIGN LIQUIDITY INDICES (a)



3 DIFFERENTIALS BETWEEN BONDS ISSUED BY NFCs AND THE SWAP CURVE (L-H PANEL) (b) AND 10-YEAR SOVEREIGN BOND SPREAD AGAINST GERMANY (R-H PANEL)



4 STOCK MARKET INDICES

SOURCES: Refinitiv Datastream and Bloomberg Data License.

a The index shows the average deviation of yields on sovereign bonds maturing at more than one year from their theoretical value obtained from an adjusted yield curve.
b High yield: ICE Bank of America Merrill Lynch Non-Financial High Yield Index. Investment grade: ICE Bank of America Merrill Lynch Non-Financial Index.

Sovereign spreads in the euro area and corporate credit risk premia had fallen to February, but then rose in the wake of the turmoil on the international financial markets. The downward trend observed up to early March appears to be attributable to the improvement in market sentiment, seemingly underpinned by a smaller than previously expected macroeconomic downturn. On the European sovereign debt markets, long-term yield spreads narrowed more markedly in the more indebted economies, such as Greece and Italy, and more moderately in others, for example Spain and Portugal. The Transmission Protection Instrument and the prudence with which the ECB is implementing its quantitative tightening seem to have helped contain the premia in recent weeks also. In the wake of the recent financial market turmoil, there was a moderate and temporary widening in sovereign bond yield spreads and a sharper increase in corporate credit risk premia. In the latter case, the rise was comparatively steeper in the higher risk segment and, by jurisdiction, it was more pronounced in the United States than in the euro area (see Chart 1.4.3). These increases have subsequently reversed somewhat, although at the cut-off date for this report, corporate credit risk premia remained above their levels before this episode.

Stock markets in the main developed economies have recorded gains since the last FSR, driven by better than expected corporate earnings and by the recovery in market sentiment. However, the rise in risk aversion and volatility since March has prompted stock prices to tumble, above all in the banking sector. Nonetheless, in recent weeks, these falls have reversed partially for the banking sector and completely for the other sectors. At the cut-off date for this report, the IBEX 35, EURO STOXX 50 and S&P 500 indices had accumulated gains of 16.4%, 18% and 6.6%, respectively, since early November (see Chart 1.4.4). The IBEX 35 stood above its end-2021 level and the EURO STOXX 50 was around that benchmark. Over the same period, the S&P 500 Banks index has fallen by 16.9%, whereas EURO STOXX Banks has gained 17.8%.

On the foreign exchange markets, the US dollar has depreciated significantly against the main currencies since early November 2022. This could be attributable to the market expectations for monetary policy tightening in the United States to be unwound earlier and faster than in the other developed economies. The depreciation of the dollar partially corrected between February and the onset of the financial market turbulence, at which point the euro-dollar exchange rate stabilised. In recent weeks it has depreciated again. The Japanese yen has appreciated against the dollar since the last FSR, triggered by the shift in the Bank of Japan's yield curve control, which widened the target band for ten-year sovereign bonds to 50 bp – a tighter stance for the Japanese central bank.

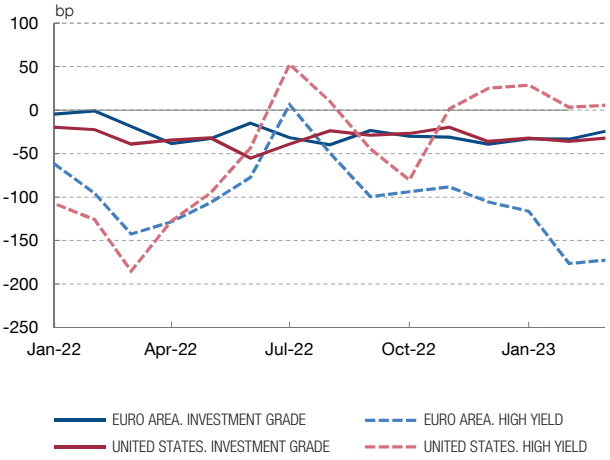
The materialisation of certain risks could trigger corrections in financial asset prices, particularly for higher risk assets. First, a scenario in which inflation falls more slowly than financial markets are currently anticipating could lead to the expectations for future policy interest rates to be revised up. This could boost long-

Chart 1.5

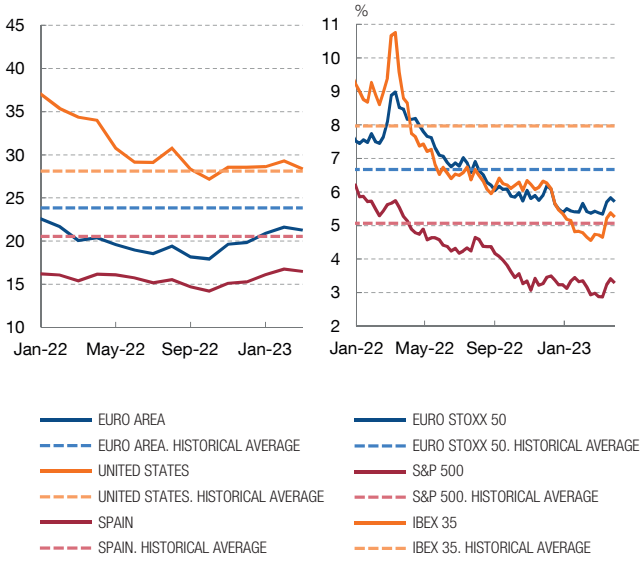
BY HISTORICAL STANDARDS, RISK PREMIA ARE AT RELATIVELY LOW LEVELS

Corporate credit risk premia are generally below the level consistent with their past trajectory relative to their usual determinants. In the case of the equity markets, although the cycle-adjusted price-to-earnings ratio remained below its historical average or at levels very close to it, equity risk premia stood at historically low figures, despite their recent increase.

1 DEVIATIONS OF CORPORATE CREDIT RISK PREMIA FROM FUNDAMENTAL DETERMINANTS (a)



2 CYCLE-ADJUSTED PRICE-TO-EARNINGS RATIO (L-H PANEL) (b) AND EQUITY RISK PREMIA (R-H PANEL) (c)



SOURCES: Refinitiv Datastream, Bloomberg Data License, R. Shiller and Banco de España.

a The difference between the actual corporate credit risk premium and that predicted by a corporate bond valuation model based on four factors: the expected value of the firms, the uncertainty surrounding this value, corporate sector leverage and the degree of investor risk aversion. For further details, see J. Gálvez and I. Roibás. "Asset price misalignments: an empirical analysis". *Documentos de Trabajo - Banco de España,* forthcoming.

b The cycle-adjusted PER is calculated as the ratio between the share price and the 10-year moving average of earnings. The historical averages are calculated for the period 1997-2023.

c The equity risk premium is calculated using a two-phase dividend discount model. For further details, see R. J. Fuller and C. C. Hsia. (1984). "A simplified common stock valuation model". *Financial Analysts Journal.* The historical averages are calculated for the period 2006-2023.

term yields and lower the prices of risky assets, such as corporate bonds and shares. Second, a gloomier macroeconomic outlook could also cause the prices of these assets to fall. In addition, the relatively low risk premia make these developments more likely in the event adverse shocks materialise. Specifically, at end-March corporate credit risk premia were generally below the level consistent with their past trajectory relative to their usual determinants (see Chart 1.5.1). Turning to the equity markets, although the cycle-adjusted price-to-earnings ratio remains below its historical average or at levels very close to it, equity risk premia stood, according to the available estimates, at historically low figures, despite their recent increase (see Chart 1.5.2).

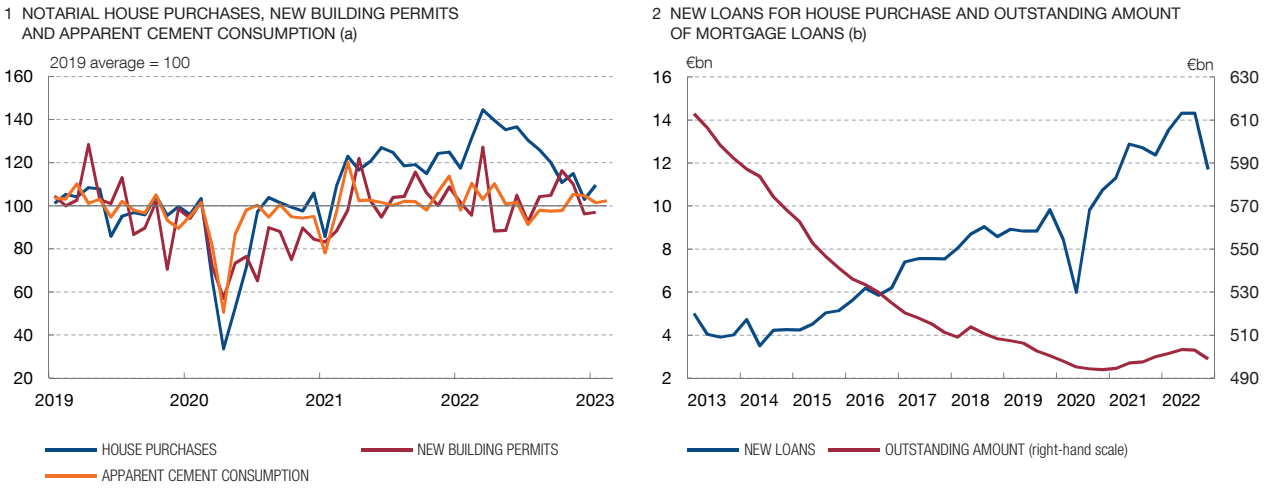
1.2.2 The Spanish real estate market

After reaching historically high levels in spring 2022, monthly house purchases subsequently followed a downward path, tending to return to their pre-

Chart 1.6

HOUSE PURCHASES WERE HELD BACK IN 2022 H2 BY THE LOSS OF HOUSEHOLD PURCHASING POWER AND THE TIGHTENING OF FINANCING CONDITIONS, WHICH ALSO RESULTED IN THE FLOW OF LENDING SLOWING

House purchases have fallen from their highs of spring 2022, affected by the impact of the rise in consumer prices and of financing gradually becoming more expensive. New buildings remain in short supply, influenced by the high costs of construction materials and a marked labour shortage in the sector. In line with these developments, the flow of new mortgages lost steam during 2022 H2, falling year-on-year by 5.4% in 2022 Q4. However, the volume of mortgage lending granted in 2022 as a whole remains above its pre-pandemic level. Against this backdrop, the outstanding amount of mortgage loans decreased by 0.2% in 2022.



SOURCES: Banco de España, Centro de Información Estadística del Notariado, INE, Ministerio de Transportes, Movilidad y Agenda Urbana and Oficemen.

a Seasonally and calendar adjusted series. Latest observation: house purchases and new building permits (January 2023) and apparent cement consumption (February 2023).
b New loans for house purchase (left-hand scale) reflects in billions of euro the cumulative total of new loans at the end of each quarter. This series is seasonally adjusted. The outstanding amount of mortgage loans (right-hand scale) reflects in billions of euro the outstanding amount of mortgage loans at the end of each quarter.

pandemic level (see Chart 1.6.1). This loss of momentum appears to be attributable to both higher consumer prices, which are eroding household purchasing power, and the gradual tightening of financing conditions, which makes borrowing the funds required to purchase a house more expensive and more difficult. House purchases in 2022 as a whole still stood far above the average level observed in the years leading up to the pandemic, boosted by the high volume of transactions in the first half of the year. In early 2023, the number of transactions remains slightly above its pre-pandemic level.

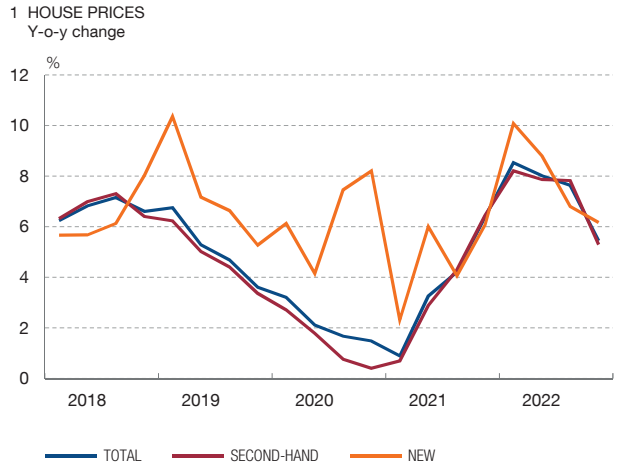
As house purchases waned, mortgage lending lost steam in 2022 H2. Indeed, the flow of new mortgage loans contracted in 2022 Q4 by 5.4% year-on-year. Even so, the flow of mortgage lending in 2022 Q4 held above the quarterly average for the years leading up to the pandemic (see Chart 1.6.2).

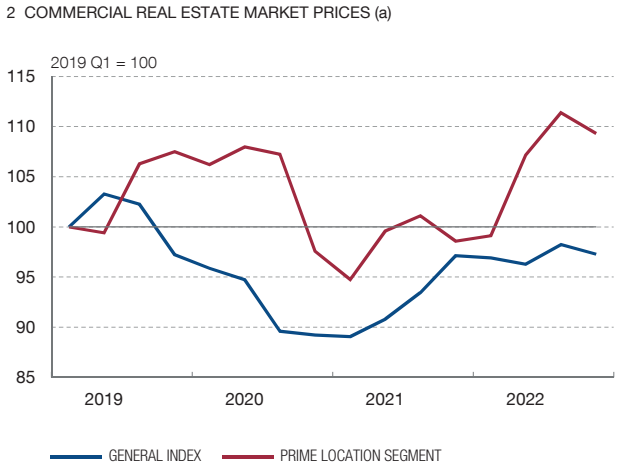
Against this background, the outstanding amount of mortgage loans also flagged in 2022 H2. Thus, the increase since early 2021 has gradually moderated. Indeed, the

Chart 1.7

HOUSE AND COMMERCIAL REAL ESTATE PRICE GROWTH IS MODERATING

The average house price remains more buoyant than other indicators of housing market activity, recording year-on-year growth that moderated to 5.5% in 2022 Q4. Commercial real estate prices fell by 1% quarter-on-quarter in 2022 Q4, mainly due to commercial premises price trends. Prices in the prime location segment also dropped in 2022 Q4.





SOURCES: Banco de España, Colegio de Registradores and INE.

a To calculate these indices each market is divided into strata containing homogeneous properties. A price is then estimated for each stratum based on a hedonic regression model. The indices aggregate the data on the prices estimated for each stratum. The index value for the commercial real estate market as a whole is calculated as an average weighted by the relative share of transactions carried out in each segment. The relative shares per segment are 4% for offices, 78% for commercial premises and 18% for industrial buildings. In 2022 properties in prime locations represent 4% of the transactions conducted in the commercial real estate segment as a whole. Prime location properties include any of the types of properties mentioned above (commercial premises, offices and industrial buildings) that are located in the central business districts of the main large cities (Barcelona, Bilbao, Madrid, Malaga, Palma and Valencia).

outstanding amount of mortgage loans ended 2022 just below the end-2021 level (-0.2%), due to repayments slightly exceeding the flow of new mortgage lending.

Lending to the construction and property development sector continued to contract in 2022. The outstanding amount of this type of financing, which has been on a downward path since the global financial crisis, fell at a faster pace at end-2022 than during 2022 H1 (7.9% year-on-year in 2022 Q4 versus 6.6% year-on-year in 2022 Q2).

Even so, new building permits picked up in 2022 H2, which preceded increases in the production of some construction inputs towards the final stretch of the year, after declining in the rest of the year. The recent increase could owe to the normalisation of building permits following problems affecting the availability of materials due to their soaring costs, leading to delays in their being granted (see Chart 1.6.1). That said, housing starts remain historically low amid the growing shortage of workers in the sector, as reflected by the Banco de España Business Activity Survey.

Housing supply remains insufficient to meet demand, such that housing prices continued to grow in year-on-year terms, albeit somewhat more slowly than in previous quarters. According to National Statistics Institute (INE) data, the year-on-year growth rate of housing prices moderated to 5.5% in Q4, down 2.1 pp on the increase in Q3 (see Chart 1.7.1). House prices fell quarter-on-quarter by 0.8%. In virtually all regions, year-on-year house price growth fell, somewhat more sharply in central Spain and several coastal areas. Prices continue to grow above the national average in the islands, southern Spain and on the Cantabrian coast. By segment, the price of both new and, to a greater extent, second-hand housing slowed (by 0.6 pp and 2.5 pp, to 6.2% and 5.3%, respectively). According to notarial information for early 2023, the drop in house prices has continued.

The price growth in the commercial property market in earlier quarters appears to have halted in the final stretch of 2022. The latest data, for 2022 Q4, show a quarter-on-quarter fall of 1% in the overall price index for the commercial real estate sector (see Chart 1.7.2). Price trends of commercial premises, which account for the bulk of the properties of this type (78% of the volume of transactions in 2022), explained most of the adjustment. Prices in the prime location segment, which comprises the areas with the most retail activity and which only accounted for 4% of the volume of transactions in 2022, have also fallen in 2022 Q4, although they grew year-on-year by 10.9%.

1.3 Non-financial sectors

1.3.1 Non-financial corporations and households

Corporate earnings have proven highly uneven across sectors and firm sizes of late. In the Banco de España Central Balance Sheet Data Office Quarterly Survey[2] (CBQ) sample, which is mostly comprised of large firms, ordinary net profit increased 91.3% in 2022. Corporate profits grew most in those sectors with activity that bounced back more when pandemic restrictions were lifted, such as wholesale and retail trade, hospitality and transportation. By contrast, other sectors, such as industry, did not enjoy this boost. They struggled to pass through higher production costs (largely the result of rising energy and other commodity prices) to selling prices and saw weaker performance in profits. For example, ordinary net profit of the manufacturing sector fell by 8.7%. The half-yearly Survey on the Access to Finance of Enterprises in the euro area shows that between April and September 2022 the proportion of Spanish SMEs reporting a decline in profits far outweighed those reporting growth in profits, with a 25 pp difference between

2 The CBQ comprises a sample of around 1,000 primarily large firms.

the two groups.[3] The sectoral breakdown shows that this change was worse for industry, which is consistent with the CBQ results for large firms.

The percentage of vulnerable firms did not vary within the CBQ sample as a whole, but it was higher in certain sectors. In particular, for those whose activity was weaker and who were less capable of passing higher production costs through to selling prices. Thus, in 2022 there was a rise in the percentage of the most economically vulnerable firms (i.e. those with negative return on assets, 17% of the sample as a whole) in the manufacturing[4] (6.6 pp), energy (2.8 pp) and wholesale and retail trade (2.5 pp) sectors. The proportion of highly indebted firms[5] also appears to have increased in some of these industries – manufacturing in particular (6 pp) (see Chart 1.8.1).

Rising interest rates are gradually lifting the cost of bank financing for indebted firms. At end-2022, 40% of the increase in the three-month EURIBOR over the course of that year had been passed through to the average cost of outstanding bank financing borne by non-financial corporations (NFCs).[6] This represented an increase in the debt burden equivalent to 1.8% of firms' 2022 gross operating surplus. In the short term, this process can be expected to continue to the point of affecting all debt subject to interest rate revisions and maturing in the short term, meaning that the impact will eventually amount to 2.6% of 2022 gross operating profits for all NFCs.[7]

Similarly, the debt burden associated with all sources of corporate financing has risen, as has the proportion of firms whose burden is elevated. In order to assess the overall impact on firms' borrowing costs, it must be noted that not all firms have bank loans (around 53% of the total do) and that, in addition, many others hold other types of interest-bearing debts (such as bonds or intragroup loans), as well as financial assets that will earn greater remuneration with interest rate hikes. Once all of these elements are taken into account, it is estimated that the median gross debt burden, which stood at 12.4% in 2021, may increase in the short term by between 2.9 pp and 6.8 pp[8] if there were a 400 bp hike in market rates (greater than the 365 bp gain in the three-month EURIBOR to date). Under this scenario, the

3 For further details, see Á. Menéndez and M. Mulino. (2023). "Recent economic performance of Spanish SMEs and developments in their access to external financing according to the ECB's half-yearly survey". *Economic Bulletin - Banco de España,* 2023/Q1, 06.

4 Excluding the manufacture of coke and refined petroleum products.

5 Firms are understood to be highly indebted when their ratio of net financial debt to (gross operating profit + financial revenue) is higher than 10, or they have positive net financial debt and zero or negative earnings. This ratio stood at 15% at end-2022.

6 The three-month EURIBOR is commonly used by financial institutions as a benchmark market rate for loans to NFCs.

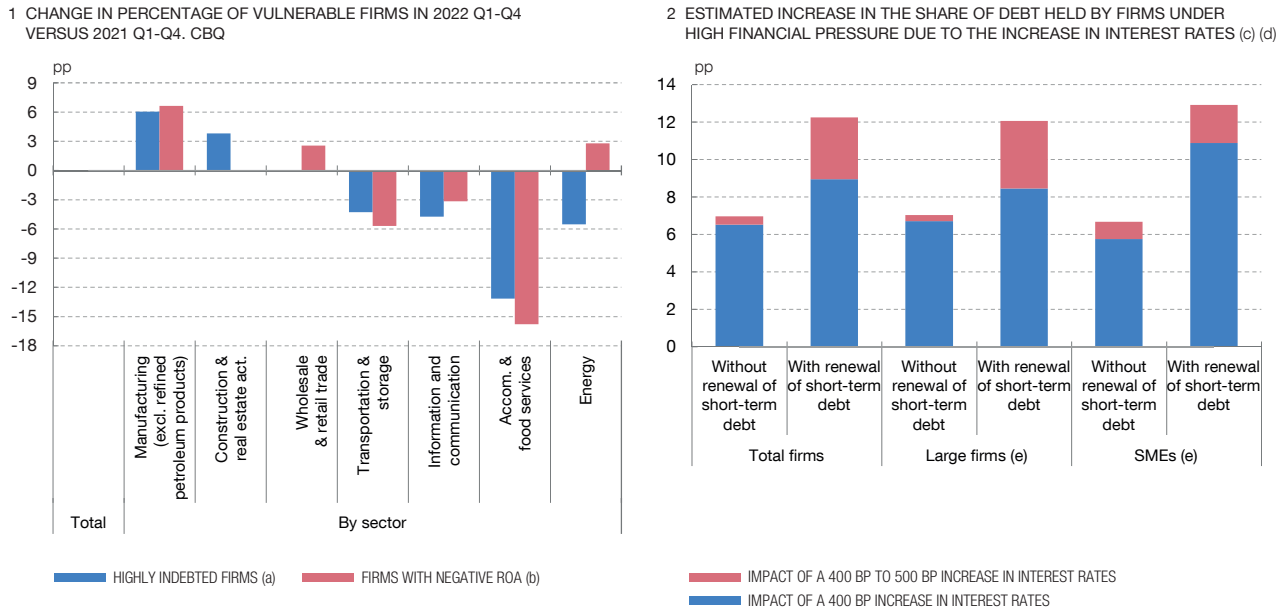
7 This estimation assumes that all loans maturing in under one year are renewed in their entirety.

8 The values within this range are obtained based on several assumptions regarding the percentage of debt that matures at short term and is refinanced. The 6.8 pp impact at the upper end of the range assumes the full renewal of the debts maturing in the short term.

Chart 1.8

THE DIFFICULTIES OF PASSING THROUGH HIGHER PRODUCTION COSTS TO SELLING PRICES AND HIGHER INTEREST RATES ARE INCREASING THE PROPORTION OF VULNERABLE FIRMS

In 2022, those sectors whose turnover has grown less and whose profit margins have narrowed have seen the percentage of vulnerable firms (both in terms of negative ROA and high indebtedness) rise. A 400 bp increase in interest rates, once passed through to the cost of debt whose conditions are updated in the short term, would raise the share of corporate debt held by firms under high financial pressure by 6.5 pp and 8.9 pp, depending on the percentage of short-term debt renewed.



SOURCE: Banco de España.

a Highly indebted firms are defined as those whose net financial debt / (gross operating profit + financial revenue) ratio is greater than 10 or which have positive net financial debt and zero or negative earnings.
b Firms with negative ROA are defined as those whose (ordinary net profit + financial costs) / assets net of non-interest-bearing liabilities is less than zero.
c Firms under high financial pressure are defined as those whose (gross operating profit + financial revenue) / financial costs ratio is lower than 1.
d In the case of non-renewal of short-term debts, the rise in interest rates if fully passed through to the interest rate on long-term and variable-rate debts and loans. In the case of deposits, the pass-through equivalent of the reference rate is assumed to be in line with historical regularities. The case with short-term rollover differs from the foregoing case in that the interest rate rise is also passed through to short-term debt and loans. These estimations have been made using 2021 data from the Central Balance Sheet Data Office integrated database.
e Definition of firm size in accordance with Commission Recommendation 2003/361/EC.

proportion of total corporate debt held by firms under high financial pressure[9] will increase by between 6.5 pp and 8.9 pp from 11.5% (see Chart 1.8.2). For a 500 bp hike, these percentages would rise by between 7 pp and 12.2 pp. The consequences differ depending on firm size – the impact would be greater on SMEs if considering the renewal of debts maturing in the short term.

The growth in household nominal income has continued to lag behind inflation, thus eroding their purchasing power, particularly those with lower incomes.

9 A firm is considered to be under high financial pressure when its (gross operating profit + financial revenue) / financial costs ratio is lower than 1.

Between end-2020 and end-2022, household gross disposable income rose by 6.8%, while consumer prices climbed 12.4% in the same period. It is estimated that cumulative inflation in 2021 and 2022 increased households' average spending on non-durables by 2.8% of their income, with the impact being greatest among the lower-income quintiles. The first quintile saw an increase in their spending on non-durables equivalent to 6.4% of their income (see Chart 1.9.1).

The growth in nominal consumption has led to a significant drop in the saving ratio, which stood below its historical average since 2022 Q3. Against this backdrop, the most recent data (from March) from the monthly consumer survey of the European Commission (EC)[10] continue to point to most households, regardless of their income level, having a bleaker outlook for their economic situation over the next 12 months (see Chart 1.9.2).

Interest rate hikes are also heaping further financial pressure on indebted households. By the end of 2022, 27% of the rise recorded in the 12-month EURIBOR over the course of that year had been passed through to the cost of households' outstanding mortgage balance. In order to estimate the impact of interest rates hikes on households, it must be borne in mind that they mainly affect indebted households and, within that set, those that hold debt with a variable interest rate. According to the 2020 round of the Spanish Survey of Household Finances, 29.1% of households had variable rate loans, with the proportion rising in line with income (for example, while the rate for the first income quintile is just 10.9%, it is 45.9% for the 80th and 90th percentiles). As a result, it is estimated that total household net borrowing costs (interest expense less interest income) will rise by 1.1% of their income were the 12-month EURIBOR to rise by 400 bp (slightly less than the 410 bp increase seen to date), once the conditions of variable-rate loans are updated (see Chart 1.9.1).[11] This effect tends to increase with income up to the fourth quintile (0.8% for the first quintile and 1.4% for the fourth).

Interest rate hikes appear to also be lifting the percentage of financially vulnerable households. In this scenario, the percentage of indebted households with a high net interest burden[12] would increase by 3.5 pp to 13.9%, with those households between the 20th and 60th income percentiles being most affected (see Chart 1.9.3). If there were a 500 bp rise, this percentage would increase to 14.6%. The relief measures in the new Code of Good Practice[13] may help to significantly

10 The EC's monthly consumer survey can be found here.

11 If there were a 500 bp increase in the 12-month EURIBOR, households' net borrowing costs would increase by 1.4% of their income.

12 The net interest burden is considered to be high when the ratio of (debt service expenses - interest income from deposits) to household income is over 40%.

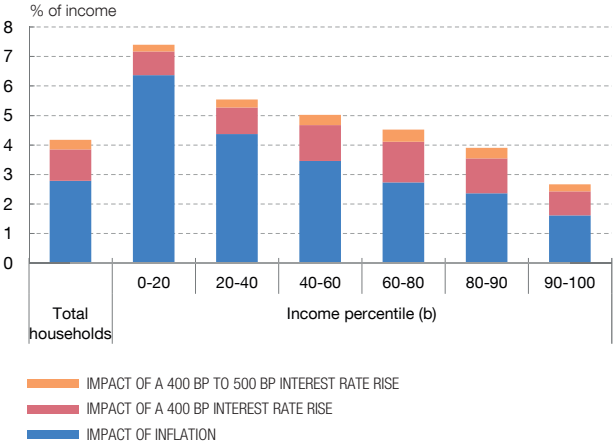
13 Royal Decree-Law 19/2022 of 22 November 2022 establishing the Code of Good Practice to provide relief for interest rate rises on principal residence mortgages, amending Royal Decree-Law 6/2012 of 9 March 2012 on urgent measures to protect mortgagors experiencing financial hardship and implementing other structural measures to improve the mortgage market.

Chart 1.9

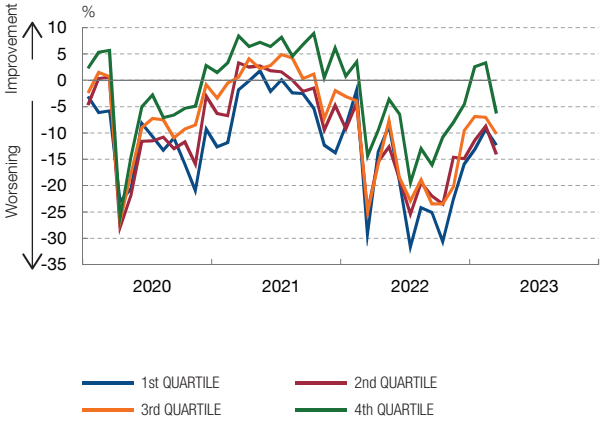
HIGH INFLATION AND THE RISE IN INTEREST RATES ARE ERODING THE ECONOMIC POSITION OF HOUSEHOLDS, PARTICULARLY THOSE WITH LOWER INCOMES

Cumulative inflation during 2021 and 2022 appears to have caused an increase in the average household spending on non-durable goods equivalent to 2.8% of their income. Furthermore, a 400 bp increase in market rates, as recorded by the 12-month EURIBOR, would increase the total household net interest burden by 1.1 pp. In this same scenario, the percentage of indebted households with a high net interest burden would increase by 3.5 pp, with lower income households tending to be most affected. Altogether, lower income households would see their debt servicing capacity eroded. Thus, most households expect their economic position to worsen in the coming months.

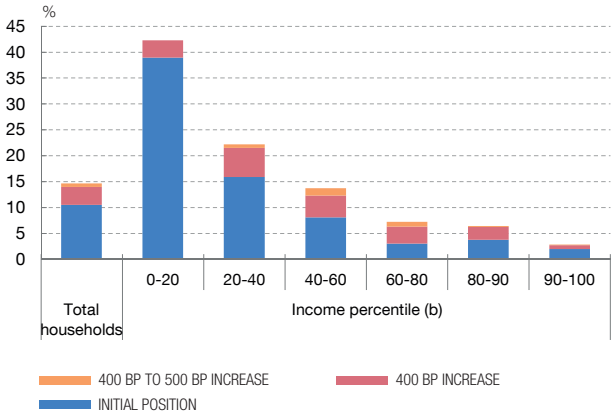
1 INCREASE IN HOUSEHOLD SPENDING ASSOCIATED WITH INFLATION AND THE RISE IN INTEREST RATES (a)



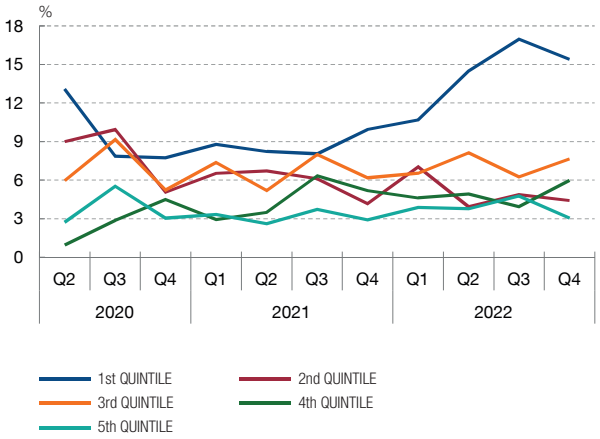
2 HOUSEHOLDS' OUTLOOK FOR THEIR ECONOMIC SITUATION OVER THE NEXT 12 MONTHS, BY INCOME QUARTILE (c)



3 IMPACT OF THE RISE IN INTEREST RATES ON THE SHARE OF INDEBTED HOUSEHOLDS WITH A HIGH NET INTEREST BURDEN (a) (d)



4 HOUSEHOLDS THAT HAVE BEEN MORE THAN 90 DAYS PAST DUE IN THE PAYMENT OF THE MORTGAGE IN THE LAST 12 MONTHS, BY INCOME QUINTILE (e)



SOURCES: Consumer Expectations Survey (ECB), Consumer Confidence Indicator (European Commission) and Spanish Survey of Household Finances (Banco de España, 2020).

a Simulations performed using data from the Spanish Survey of Household Finances (Banco de España, 2020). The impact of inflation is obtained by multiplying the consumption of non-durable goods by cumulative inflation in 2021 and 2022, calculated using the Harmonised Index of Consumer Prices for this spending component. The impact of interest rate hikes includes the change in the net interest burden (debt service expenses - interest income from deposits). Interest rate hikes are assumed to be fully passed through to variable-rate loans, and partially to interest rates on deposits.
b The percentiles are defined for the entire sample of households, regardless of whether or not they are indebted.
c The Consumer Confidence Indicator (European Commission) = percentage of households expecting their economic situation to improve significantly × 1 + percentage expecting their economic situation to improve somewhat × 1/2 - percentage of households expecting their economic situation to worsen somewhat × 1/2 - percentage expecting their economic situation to worsen significantly × 1.
d The net interest burden is considered to be high when it exceeds 40% of household income.
e Consumer Expectations Survey (ECB). Percentage of households that answered yes to the question: *Over the past 12 months, to the best of your knowledge, was your household more than 90 days late in mortgage payments on at least one occasion?* for households who have a mortgage on their main residence.

mitigate this impact (for more details, see the special feature on the Codes of Good Practices).

Increases in consumer prices and interest rate hikes already seem to be reducing more vulnerable households' servicing capacity for certain debts. Thus, according to the ECB's Consumer Expectations Survey,[14] the percentage of repayments made more than 90 days past due by households in the lowest income quintile with an outstanding mortgage increased in 2022, although this percentage eased in the final quarter of the year. In other quintiles, this figure stayed relatively stable (see Chart 1.9.4). Similarly, recent quarters saw a broad-based increase in the percentage of households that expect to refinance their mortgage next year, although it did so much more markedly in the lowest income quintile.

1.3.2 General government in Spain

Spain's budget deficit fell more than expected in 2022, although the improvement slowed in the closing months of the year (see Chart 1.10.1). The budget deficit for 2022 as a whole was 4.8% of GDP, 2.1 pp below the previous year and 0.2 pp less than projected by the Government in October. The improvement from 2021 was the result of robust growth in economic activity (10% in nominal terms), which boosted tax revenue. The budgetary impact of the support measures for households and firms, approved in response to the war in Ukraine and rising energy prices, was offset by lower pandemic-related spending, which helped to contain growth in government spending. There was, however, a slight downturn in the last few months of the year. On the one hand, public revenue weakened, affected by the slowdown in household consumption.[15] On the other, expenses rose significantly in the final quarter of the year as a result of subsidies for households and firms and the retroactive 1.5% additional pay rise for public sector employees.

The Banco de España's latest projections place the budget deficit and public debt in 2025 slightly below 2022 levels (see Chart 1.10.1). The projections, which were published on 22 March 2023,[16] point to a deficit of 4.6% of GDP at end-2022, roughly in line with the figure published by the Spanish National Audit Office (IGAE) on 31 March 2023. In the absence of any new measures, there will be no significant change in the budget balance between 2022 and 2025. First, the favourable impact of the removal in 2024 of the support measures introduced in the wake of the war in Ukraine will be partially offset in 2025 by the withdrawal of the temporary tax raising

14 The ECB's Consumer Expectations Survey can be found here.

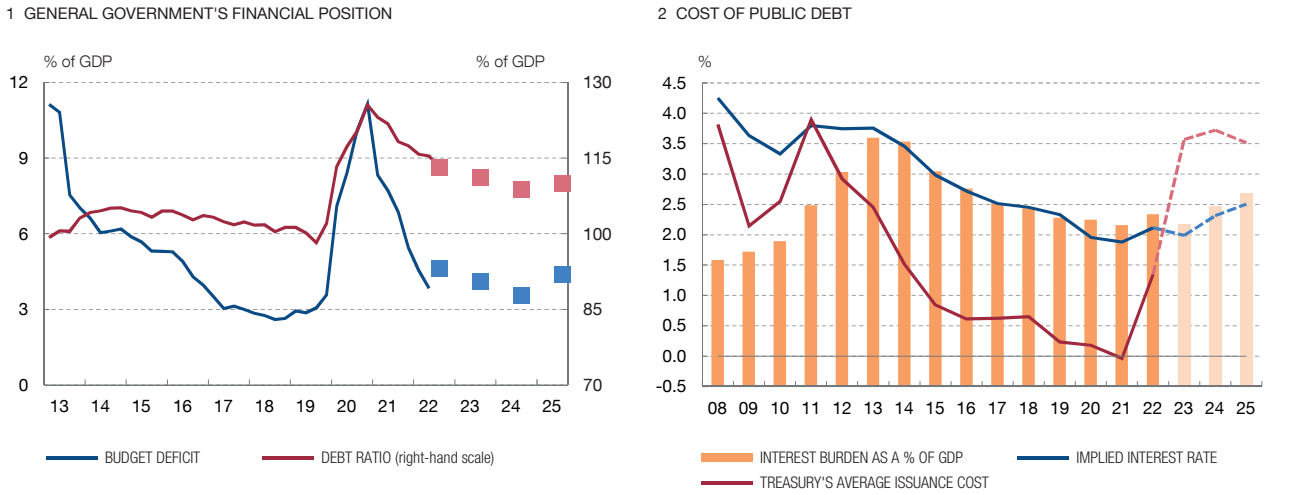
15 In particular, tax revenue (taxes plus social security contributions) only rose 4.3% in the final quarter, following an 11% year-on-year rise in the first three quarters.

16 "Macroeconomic projections for the Spanish economy (2023-2025)". In "Quarterly report and macroeconomic projections for the Spanish economy. March 2023". In *Economic Bulletin - Banco de España,* 2023/Q1.

Chart 1.10

WITHOUT ANY ADDITIONAL MEASURES, THE IMPROVEMENT IN THE BUDGET DEFICIT WILL PETER OUT, WITH VULNERABILITY PERSISTING IN THE MEDIUM TERM

The budget deficit fell by 2.1 pp in 2022 to 4.8% of GDP. However, in the closing months of the year the slowdown in revenue and steadily climbing expenditure partially offset the earlier improvement. In the absence of fiscal consolidation, the budget deficit and public debt will remain high, constituting a source of risk to the Spanish economy in the medium term. The growth of structural spending and the reversal in the downward trend of interest payments as a percentage of GDP underline the need for fiscal consolidation.



SOURCES: IGAE and Banco de España.

a The squares denote the Banco de España's macroeconomic projections published on 22 March 2023, nine days prior to the IGAE publication for end-2022.

measures implemented to finance them.[17] Second, the positive effects of the cyclical expansion (which are much more moderate than in 2021 or 2022) will be outweighed by larger payments on some expenditure items, such as pensions, and a moderate slowdown in tax revenue (following recent buoyancy). Public debt has declined somewhat after standing at 113% of GDP at the end of 2022. However, it will remain at around 110% of GDP owing to negative primary balances continuing to be run and the positive gap between GDP growth and the interest payment burden narrowing.

Public debt persistently exceeding 100% of GDP constitutes a medium-term risk to the Spanish economy. In the absence of financial market tensions, the burden of the current Spanish public debt could be balanced by moderate increases in tax revenue or debt. However, historical evidence shows that, in a time of crisis, the need to bolster economic activity and agents' incomes with public support

17 Specifically, the temporary taxes on the profits of energy utilities and financial corporations, the temporary solidarity wealth tax and the temporary limitation on corporate tax deductions.

substantially increases general public debt. Similarly, high levels of indebtedness make public finances more sensitive to potential increases in debt servicing costs.

Reducing these risks will require sustained fiscal consolidation that is appropriately adapted to macroeconomic developments in Spain. The sustainability of public debt ultimately depends on agents' confidence in states being able to make the most of growth periods to offset the outlays in periods of crisis. Under the current circumstances of the Spanish economy, the expansionary drive provided by NGEU funds (which have no immediate budgetary cost) could enable this consolidation to begin now.

Thus, the deactivation of the general escape clause of the Stability and Growth Pact in 2024 will mark the resumption of European fiscal rules. Under the EC's latest guidance for Member States' fiscal policy, Spain must submit a stability programme in spring that will systematically bring the budget deficit below 3% and set debt on a downward path.

At its outset, fiscal consolidation in Spain will face a volume of structural spending that has grown since the beginning of the COVID-19 pandemic and will continue to be pushed up by population ageing and the fight against climate change, among other drivers. Primary public spending as a percentage of GDP has risen by 3 pp since 2019.[18] It initially grew as a result of the extraordinary public support measures during the pandemic and later rose because of the war in Ukraine and its consequences on energy markets. However, those temporary measures declined in importance in 2022. Nevertheless, primary spending remains substantially above pre-pandemic levels.[19] This is already partially reflecting the consequences of population ageing in Spain on the demand for welfare benefits and services. These will be felt more acutely in the medium term and will combine with other effects, such as investment and the outlays needed to further the fight against climate change, which will require the participation of, and determined support from, the public authorities. Given this situation, the fiscal internalisation of external activities that generate CO_2 emissions is emerging as the most effective option to finance, at least partly, the transition.

Inflationary pressures and the normalisation of monetary policy undertaken by the ECB since early 2022 have put an end to the continuous decline in debt interest spending as a percentage of GDP (see Chart 1.10.2). The substantial growth of interest payments in 2022 (21.3%) was mainly the effect of higher European

18 Cyclically adjusted and excluding NGEU-funded spending.

19 The uptick in spending appears to have been accompanied by a likewise extraordinary increase in revenue. However, as discussed by E. García Miralles and J. Martínez Pagés (2023), most of the rise in tax revenue as a percentage of GDP does not appear to be down to changes in tax bases, historical elasticities or measures put in place. There is, therefore, a risk that this will only be a temporary increase.

inflation rates in that year on the interest accrued on inflation-linked Treasury bonds.[20] Furthermore, the ECB's shift in monetary policy has meant that the Treasury's average issuance costs rose from 0% in 2021 to 1.3% in 2022. In the opening months of 2023, this figure stood above 3%, with additional increases expected in coming months, according to prevailing market expectations. Given the relatively long average life of the pre-existing debt,[21] this rise is passed through to the implied interest rate on the debt's outstanding balance in a highly progressive manner. Hence the moderate anticipated increase in the interest payment burden as a percentage of GDP (up to 2.7%) in 2025. However, to illustrate the greater sensitivity arising from current debt levels, a 100 bp increase in the expected path of either short or medium and long-term interest rates would raise this ratio by an extra 0.4 pp in 2025.

1.3.3 Financial flows vis-à-vis the rest of the world and the international investment position

In 2022 H2 capital inflows to Spain (€64 billion) exceeded net purchases of foreign assets by residents (€55 billion), although these flows were more moderate than in H1. Net purchases by international investors were mainly channelled to short-term bank deposits and debt securities issued by financial institutions, while they divested general government debt securities, specifically short-term ones.

The negative net international investment position (IIP) in Spain continued to correct in 2022, falling to 60.5% of GDP at end-2022, its lowest level in 18 years (see Chart 1.11.1). However, the current level remains relatively high in comparison with Spain's main trading partners. In 2022, this ratio fell by 11 pp, of which 6.5 pp were the result of GDP growth, the factor that contributed the most to this decrease. In terms of volume, the negative net IIP decreased thanks to the balance of financial transactions with the rest of the world being positive and, mostly, as a result of valuation effects and other adjustments (see Chart 1.11.2). The latter is largely due to losses on liabilities, which far exceeded those on assets. Thus, higher interest rates significantly reduced the value of debt securities held by non-residents. The decline in the value of foreign assets was associated with the drop in the value of foreign investment fund shares and units held by domestic investors.

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20 Inflation linked debt amounted to €64.9 billion in early 2022, accounting for 4.5% of the total. For Treasury-issued inflation-linked bonds, both the interest payments and the principal to be repaid depend on the cumulative inflation since their date of issue. According to National Accounts rules, interest accruing in the year includes both higher regular payments resulting from higher inflation and the growth in the principal to be repaid. The latter grew very strongly in 2022.

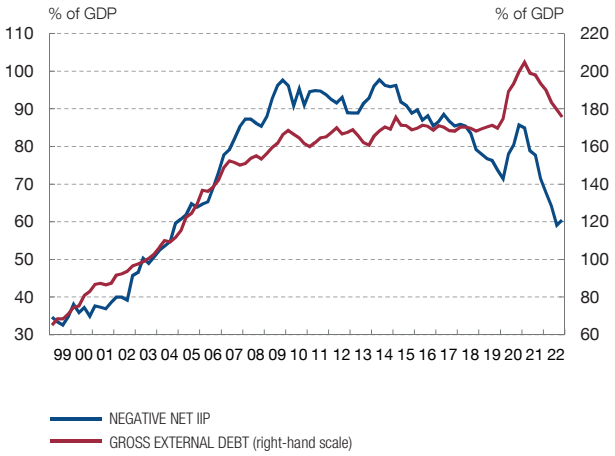
21 Specifically, for central government-issued short, medium and long-term bonds, the average life at end-2022 was 7.7 years, 0.1 years shorter than twelve months earlier.

Chart 1.11

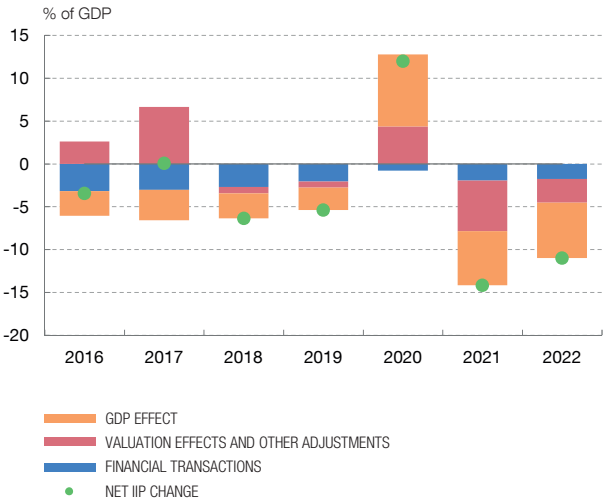
SPAIN'S NEGATIVE NET IIP AND GROSS EXTERNAL DEBT AS A PERCENTAGE OF GDP FELL IN 2022

Spain's negative net IIP fell by 11 pp of GDP in 2022 to stand at 60.5%, its lowest level in 18 years. This was the result of the favourable performance of all components, particularly the growth of nominal GDP. For its part, the gross external debt ratio fell almost exclusively as a result of GDP growth. It barely fell by €2.3 billion in 2022 as a whole, and reached its all-time high (€2,351 billion) in 2022 Q1.

1 NEGATIVE NET IIP AND GROSS EXTERNAL DEBT (a) (b)



2 DRIVERS OF CHANGE IN THE NEGATIVE NET IIP (a)



SOURCE: Banco de España.

a The net IIP is the difference between the value of the external assets and liabilities of resident sectors vis-à-vis the rest of the world.
b The external debt comprises the balance of all liabilities giving rise to future payments of principal, interest or both (i.e. all financial instruments, except own funds, financial derivatives and monetary gold ingots).

Spain's gross external debt also fell by 17.7 pp of GDP to 175.7% in 2022, essentially as a result of the rise in GDP. In terms of volume, gross external debt fell just €2.3 billion in 2022 as a whole, having reached an all-time high from its peak of €2,351 billion in 2022 Q1. This vulnerability in the Spanish economy is mitigated somewhat by the composition of the liabilities, as they are mainly long-term, issued by the public sector, denominated in euro and predominantly at fixed rate.

Box 1.1

IMPACT OF INFLATION AND INTEREST RATE DEVELOPMENTS ON HOUSEHOLDS' FINANCIAL FRAGILITY

The cumulative growth of the harmonised index of consumer prices (HICP) in Spain from June 2021 to December 2022 was 9.8%. The 12-month EURIBOR also rose very sharply in that period (from –0.48% to 3.01%), after turning positive in May 2022 for the first time since February 2016. This increase in the 12-month EURIBOR and in other benchmark market interest rates was particularly pronounced after the first policy rate rises by the European Central Bank in July 2022.

This box analyses the impact of the high inflation environment and interest rate hikes on the proportion of households with real estate debt[1] that have spending-related liquidity problems.

Using the most recent available information from the 2020 Spanish Survey of Household Finances, these households are classified depending on their ability to meet their payment obligations (i.e. the amount of disposable income and liquid funds they have to meet their immediate expenses). Specifically, a household is considered fragile if its monthly income plus the available balance on its payment accounts is less than the main monthly expenses it must meet. These include food, utility bills, school/university expenses and fees, leisure, property service charges and travel, along with monthly car loan, mortgage or rent payments.

The classification of a household as fragile in this box does not take into account other financial and non-financial assets that the household may own and eventually dispose of to meet its payments over a longer horizon,[2] nor the possibility of taking out additional loans. In particular, the mortgage of a household that cannot cover its expenses in a given month will not necessarily be considered non-performing due to arrears, as this would require the household to have defaulted on its mortgage payments for more than three months. The aim, therefore, is to identify an early signal of households' probability of default, which would also indicate a deterioration of their confidence and consumption level. Mortgage non-performance is a later stage of household financial deterioration and is specifically discussed in Box 3.1 of this FSR.

As the latest Spanish Survey of Household Finances reflects the situation of households three years ago, it is assumed that between the year of the survey (2020) and the start of the analysis (June 2021) the relative distribution of households' income and liquid assets has not changed, that household income changes proportionally to average wage growth, that total household expenditure increases in line with the HICP, that variable rate mortgage payments are revised based on the EURIBOR and that the nominal value of liquid assets remains constant. These assumptions provide an approximation of households' initial liquidity situation in June 2021.

The percentage of fragile households is estimated by measuring their individual ability to cover their expenses with their disposable income and liquid assets.[3] First, the sensitivity of the percentage of fragile households to changes in the 12-month EURIBOR and HICP growth, all else being equal, is presented starting in June 2021. To analyse possible non-linearities, 50 basis point (bp) steps are considered for the 12-month EURIBOR (see Chart 1.a) and 1 percentage point (pp) steps are considered for HICP growth (see Chart 1.b), with all other macro variables constant in each case.

As Chart 1.a shows, the percentage of fragile households at June 2021 (3.31%) rises in a non-linear fashion with every increase applied to the 12-month EURIBOR. The first 100 bp rise in this interest rate leads to an increase in the percentage of fragile households of barely 2 bp[4] (to 3.33%). The sensitivity remains relatively low in the first steps of the increase. An increase of 350 bp, in line with the actual rise from June 2021 to December 2022, raises the fragility rate by 23 bp. After a cumulative increase of 400 bp in the 12-month EURIBOR, the effects of additional increases are notably larger and continue to accelerate. For example, a cumulative increase from 400 bp to 500 bp

1 According to the Spanish Survey of Household Finances 2020, that year there were 5.2 million households with mortgage debt on their principal residence or other properties.

2 This is a similar definition to that used in A. Lusardi, D. Schneider and P. Tufano. (2011). "Financially Fragile Households: Evidence and Implications". *Brookings Papers on Economic Activity,* 2011(1), pp. 83-134. These authors identify as fragile those households unable to come up with a moderate amount ($1,000) in less than one month to meet unexpected payments, because they do not have the immediate liquidity to do so.

3 Households are classified dichotomously according to whether or not they are able to meet their expenses. This is in contrast with alternative approaches, such as using a statistical model to estimate the probability of each household not being able to cover its expenses.

4 Each basis point increase in the proportion of fragile households is equivalent to 520 additional households out of the population of 5.2 million in 2020.

in the 12-month EURIBOR pushes up the fragility rate by 16 bp. Going from 500 bp to 600 bp increases the fragility rate by 29 bp.

The effect of inflation on the percentage of fragile households is also quite moderate for the first steps of the increase. On average, for the first 5 pp of cumulative increase, each additional 1 pp increase in the HICP raises the percentage of fragile households by 3.1 bp. By contrast, each percentage point increase of a further 5 pp increase (to a total of 10 pp) pushes up the fragility rate by 7.3 bp. A certain non-linear effect can thus also be seen for this variable (see Chart 1.b).

When interpreting the quantitative relevance of these findings, it should be borne in mind that they are assessing households' ability to pay one month ahead. Over longer horizons, the depletion of available resources in payment accounts in the face of interest rate rises or higher consumer prices may lead to greater increases in fragility and with a steeper non-linear pattern.

The second part of the exercise analyses the sensitivity of the percentage of fragile households in Spain, considering jointly the changes in the 12-month EURIBOR, in inflation (as measured by the HICP) and in wage growth, from June 2021 to December 2022. It studies both the marginal and the joint contribution to household fragility of these different factors.

The starting point is the already identified effect of a EURIBOR rise (ΔEURIBOR) equal to that observed from June 2021 to December 2022, excluding all other effects (particularly inflation). In the second scenario, observed inflation is added to the EURIBOR rise (ΔEURIBOR, ΔHICP). Finally, in the third scenario, the wage growth per worker in the period is also applied to households' income (ΔEURIBOR, ΔHICP, Δwage).

The third part of the exercise once again estimates the percentage of fragile households under these different assumptions, considering interest rate, inflation and wage changes consistent with the macroeconomic projections for the Spanish economy between 2023 and 2025 published in March 2023.[5] The results in terms of fragility should not, however, be interpreted as a forecast: they merely identify its sensitivity to different-sized shocks on household income and expenditure.[6] The use of forecasts for inflation, wages and interest rates makes it possible to calibrate a plausible and useful range for these shocks.

The findings show that inflation and interest rate increases in line with the observed patterns and projected levels of all these variables would have moderate effects, on average, on the percentage of fragile households (see ΔEURIBOR, ΔHICP, Δwage). Excluding income (wage) growth, the immediate increase in fragility is greater (see ΔEURIBOR, ΔHICP). But this immediate benefit of wage growth should be taken with caution, as wage growth can generate second-round effects on inflation, contributing to greater fragility over a longer time horizon.

The estimated percentage of households that would not be able to meet their monthly payments using their immediate liquidity considering the effect of the interest rate hike to December 2022 (ΔEURIBOR) would be 3.54%, 23 bp higher than that estimated for June 2021. This increase would rise to 72 bp if the effect of inflation is also considered (ΔEURIBOR, ΔHICP). Factoring in the wage increase (ΔEURIBOR, ΔHICP, Δwage) would more than offset the effect of inflation and the EURIBOR, reducing the percentage of fragile households by 2 bp, to 3.29%.

If the projections for the relevant macroeconomic variables up to December 2025 are applied, the largest increase in the percentage of liquidity-constrained households would be seen under the interest rate rise (ΔEURIBOR) and the interest rate and price rise (ΔEURIBOR, ΔHICP) assumptions, with an increase with respect to June 2021 of 57 bp and 149 bp, respectively. Assuming that income rises in line with wage growth (ΔEURIBOR, ΔHICP, Δwage), the percentage of fragile households would decline by 9 bp with respect to June 2021, to stand at 3.22%.

As an additional sensitivity exercise, the change in the percentage of fragile households assuming that all households' mortgage debts are variable rate has been estimated. This quantifies the degree of protection against

5 Banco de España. (2023). "Macroeconomic projections for the Spanish economy (2022-2025)", March.

6 A more detailed projection exercise would require estimating the monthly changes not just in income and expenses but also in the stock of households' liquid assets. Moreover, a full macroeconomic scenario would be considered, in which changes in other variables, such as stock prices or unemployment, would also be relevant.

IMPACT OF INFLATION AND INTEREST RATE DEVELOPMENTS ON HOUSEHOLDS' FINANCIAL FRAGILITY (cont'd)

Chart 1
IMPACT ON THE PERCENTAGE OF FRAGILE HOUSEHOLDS (a) (b) (c)

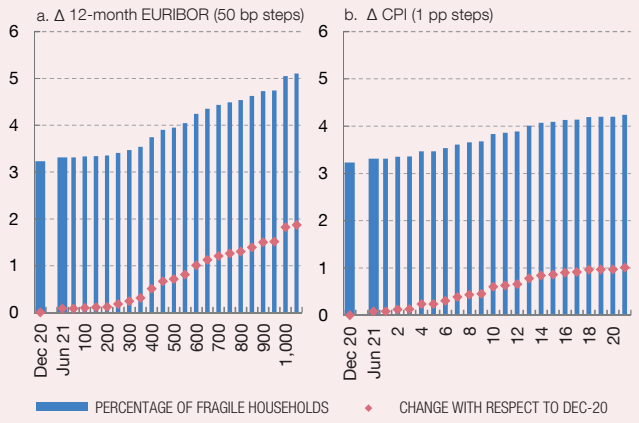


Chart 2
IMPACT ON THE PERCENTAGE OF FRAGILE HOUSEHOLDS (2022-2025) (a) (b) (d) (e)

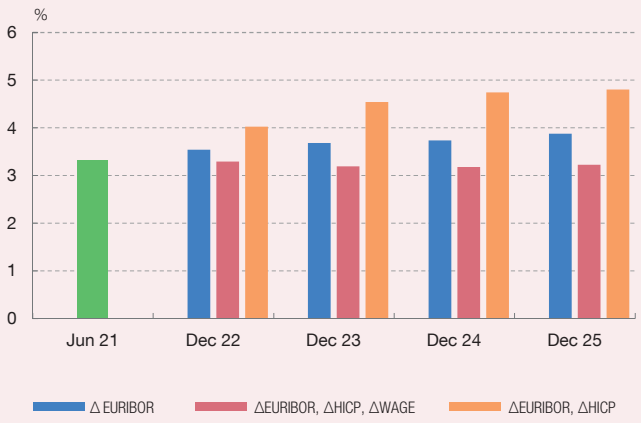


Chart 3
IMPACT ON THE PERCENTAGE OF FRAGILE HOUSEHOLDS BY INCOME QUINTILE (2022-2025) (a) (b) (d) (e)

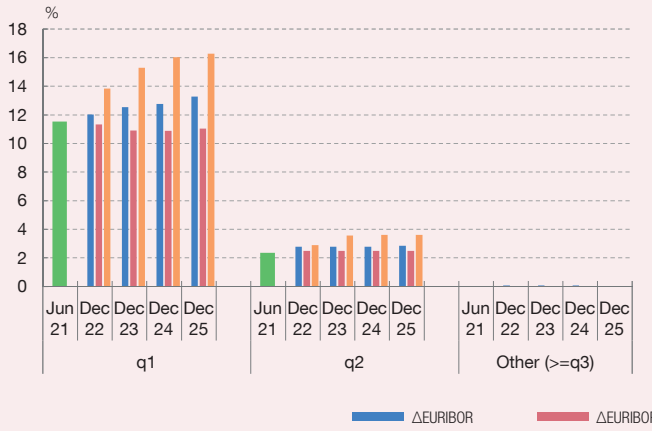
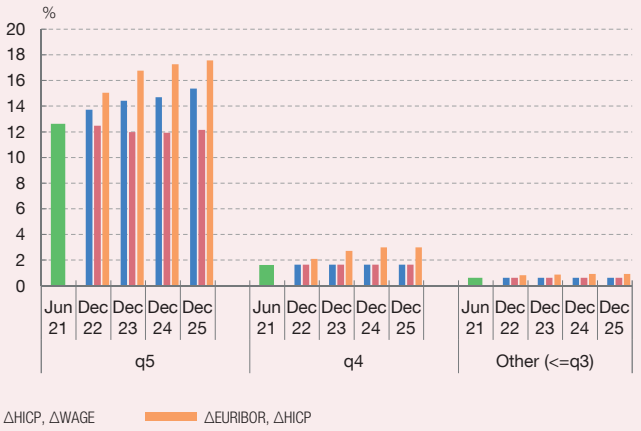


Chart 4
IMPACT ON THE PERCENTAGE OF FRAGILE HOUSEHOLDS BY DEBT BURDEN-TO-INCOME QUINTILE (2022-2025) (a) (b) (d) (e)



SOURCES: Banco de España and INE.

a A household is considered fragile if its monthly income plus the available balance on its payment accounts is less than the main monthly expenses it must meet.
b The percentage of fragile households in December 2020 is estimated based on the Spanish Survey of Household Finances 2020. For other dates, assumptions are made based on the aggregate increase observed in 2021 and 2022 (and the projected increase for subsequent dates) in the HICP, wages and interest rates. The resulting fragilities should not be interpreted as forecasts but as sensitivity exercises. The years in the x-axis identify the time ranges used to calibrate the size of the expenditure and income shocks used in these exercises.
c Starting from the fragility rate in June 2021, 50 bp steps are considered for the 12-month EURIBOR (Chart 1.a) and 1 pp steps are considered for HICP growth (Chart 1.b), with all other macro variables constant in each case. The cumulative effect is shown for each step. The bars with a thick edge show the increase observed in December 2020 and June 2021.
d From 2023, income and expenditure shocks are calibrated according to the HICP, interest rate and wage growth per worker forecasts in the March 2023 Banco de España macroeconomic projections (2023-2025).
e Three assumptions are used: (ΔEURIBOR) interest rate rise, (ΔEURIBOR, ΔHICP) interest rate rise and consumer price growth in line with the HICP, (ΔEURIBOR, ΔHICP, Δwage) interest rate rise, consumer price growth in line with the HICP and income growth in line with wage growth per worker.

borrowing cost shocks afforded by fixed rate loans. Under this assumption, the EURIBOR rise (ΔEURIBOR) to December 2022 and December 2025 levels would be associated with an increase in the percentage of fragile households, all other things being equal, to 3.61% and 4%, respectively. Using the actual distribution between variable and fixed rate loans the impacts are not significantly greater than in the baseline scenario. This suggests that the latter would have a limited effect at aggregate level on fragility in the short term.

With regard to this and other findings, the limited scope of this box as a short-term sensitivity analysis should again be borne in mind. Under full macroeconomic scenarios and over longer time horizons, where households' liquid reserves are used over multiple months, both the impact on fragility and the protection afforded by fixed rate loans would be greater. Fixed rate loans protect households' solvency, and not just their short-term liquidity.

When the different effects by household type are analysed, it can be seen that the impact of the rise in inflation and interest rates is mainly concentrated on lower income households, particularly those in the bottom two quintiles of the income distribution (see Chart 3). In the case of the first quintile, with a much higher fragility rate at the outset (11.5% of all the households in it), the percentage of fragile households would increase by 174 bp, all other things being equal, if the expected interest rate hike between June 2021 and December 2025 (ΔEURIBOR) is applied, while it would grow by 475 bp under the combined effect of the rise in inflation and interest rates (a significant effect that could be offset by wage growth). In the second income quintile the percentage of fragile households would also increase, by 48 bp to 2.8%, if the expected interest rate rise between 2022 and 2025 (ΔEURIBOR) is applied. The effect of inflation and wage growth would have a limited impact on household fragility in this quintile. The impact on financial fragility for households in the third, fourth and fifth income quintiles is virtually nil.

By debt burden level, the households most affected by inflation and interest rate shocks are those in the top debt burden quintile (see Chart 4).[7] In fact, the percentage of fragile households grows more for households with the highest debt burden than for households in the lowest income quintile. Specifically, the interest rate rise to December 2022 (ΔEURIBOR), all else being equal, would push up the fragility rate for households with the highest debt burden to 13.7% (110 bp more than in June 2021). Considering the change in the 12-month EURIBOR to 2025 would entail a further increase. If only the changes in the EURIBOR and HICP until 2025 are applied (ΔEURIBOR, ΔHICP), excluding the wage growth effect, the percentage of fragile households in this quintile would increase to 17.56% (495 bp more than in June 2021). The impact for households in the remaining quintiles is very limited.

Overall, the results show that increases in inflation and interest rates which, as described in the body of this chapter, result in a greater proportion of households with a high debt burden, may also materialise, through the consumption expenditure and interest expense channels, as increased liquidity constraints. Income growth could largely offset these negative effects in the short term.

However, it should be borne in mind that the scope of this study is limited to short-term liquidity and the sensitivity to key variables. Over longer time horizons and considering additional impact channels (unemployment, deterioration of financial wealth, etc.), the expected effects will be larger. Moreover, the materialisation of the risks identified in this FSR would put household liquidity under further pressure.

The analysis also reveals significant heterogeneity across households, according to their income and debt levels, in terms of their ability to withstand financial shocks without experiencing liquidity problems. In the future, this analysis needs to be extended to study the importance of additional sources of heterogeneity, such as differences in income growth (for example, households with different average ages and income are affected in different ways by growth in wages, pensions or the minimum wage) and in consumption expenditure (for example, the relative share of spending on food is greater in lower income households). It could also be useful to analyse other populations of households, beyond those with real estate-related debts.

7 It is important to point out the overlap between lower income and a higher debt burden. Thus, most of the households with the highest debt burden (55%) are in the lowest income quintile.

2

FINANCIAL SECTOR RISKS AND RESILIENCE

Lending has begun to reflect the rise in funding costs and the moderation in growth, with the volume of lending to the private sector decreasing in Spain in 2022. This decline was attributable to lending for house purchase and lending to firms. However, credit quality showed no signs of impairment and the volume of troubled assets continued its downward trajectory.

This balance sheet resilience, coupled with stronger net interest income associated with higher interest rates, helped to improve the banking sector's ordinary profit. Yet the Spanish banking industry's aggregate solvency – measured using the average common equity tier 1 (CET1) ratio – declined as the increase in CET1 capital failed to fully offset the growth in assets. As a result, in 2022 there was no improvement in the Spanish banking system's standing in the European banking solvency ranking.

Assessment of the outlook for the coming months should be guided by prudence. For one thing, banks may require higher provisioning for balance sheet impairment due to the potential materialisation of some of the risks mentioned in Chapter 1, in particular the decline in firms' and households' ability to pay. Moreover, net interest income may be gradually eroded by the rising cost of liabilities (especially higher deposit remuneration). The recent turbulence in the global banking industry indicates a higher cost of funds that would prompt a less favourable performance from this earnings component. Similarly, the possible procyclical behaviour of some non-bank financial intermediaries at global level – those with more vulnerable liquidity or leverage positions and which are likely to make an effort to reduce the size of their balance sheets or demand higher risk premia – could further push up the cost of funds for banks and other intermediaries in the Spanish financial sector.

Against this background, it is essential that banks maintain a suitable flow of credit to solvent undertakings. To do so they must observe prudent provisioning and capital planning policies, to allow a portion of the current short-term increase in profits to be used to further bolster the sector's resilience in the face of unexpected contingencies.

2.1 Deposit institutions

2.1.1 Balance sheet structure, risks and vulnerabilities

Credit risk

In contrast to the two previous years, in 2022 lending to the resident private sector decreased in Spain. The stock of lending by deposit-taking institutions to

the resident private sector in Spain declined by 0.7% in 2022 (see Chart 2.1.1). This stands in contrast to the significant lending growth recorded in 2020 (in part due to the policies introduced to mitigate the effects of the COVID-19 pandemic) and the stable levels in 2021.

In real terms,[1] credit to the resident private sector declined at similar rates to those observed in the years leading up to the pandemic. Specifically, the reduction in 2022 amounted to 5.8% year-on-year (exceeding the 4.7% in 2021). This was mainly attributable to the surge in inflation, which was not offset by stronger nominal credit growth. The analysis of the results of the Bank Lending Survey (BLS) (see Chapter 3) indicates that both supply and demand-side factors contributed to these developments.

In 2022, growth in new lending to the resident private sector failed to fully offset larger balance sheet outflows. The stock of lending declined despite the larger volume of new loans (up 8.9% on the previous year) and the increased drawdown on existing credit lines (up 12.9% year-on-year, a sharper rise than in 2021). All of these effects were more than offset by larger outflows (up 11.3% on 2021), which include repayments, write-offs, securitisations and portfolio sales (see Chart 2.1.2). As discussed in greater detail elsewhere in this report, the deterioration of global financing conditions could adversely affect both supply and demand for credit to the private sector, prompting more contractionary developments in such lending over the coming quarters.

In the case of households, lending decreased owing to the drop in the stock of loans for house purchase. Despite the volume of new lending to households increasing by 7.4%, the stock of loans to this sector was down by 0.2% year-on-year at December 2022, in contrast to the growth of 0.6% observed a year earlier (see Chart 2.2.1). This essentially owed to the decline in the stock of loans for house purchase. In housing loans, 2022 Q4 saw a marked contraction in both the outstanding stock and new lending volumes (as discussed in more detail in Chapter 1). Other lending to households held stable in the year.

The decline in business lending was driven by the sectors most and least affected by the health crisis. In 2022, the stock of lending to NFCs and sole proprietors declined by 1.5% year-on-year (see Chart 2.2.1). There was a marked drop in lending to the sectors hardest hit by the COVID-19 pandemic (down by 6.9% in 2022). However, lending to these sectors recorded the fastest growth in the first few quarters of the pandemic, partly driven by the economic support policies

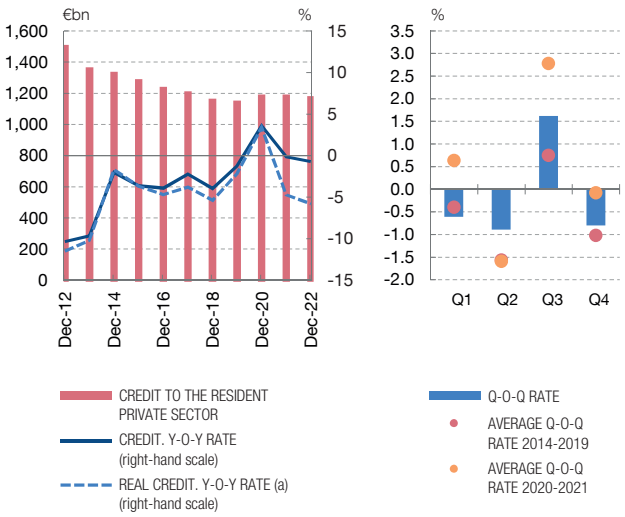
1 The figures in this paragraph are for real lending, obtained by deflating the portion of lending to households (not for business purposes) by the consumer price index and other lending (to NFCs, financial corporations and sole proprietors) by the GDP deflator. All other references to lending in this chapter relate to nominal lending.

Chart 2.1

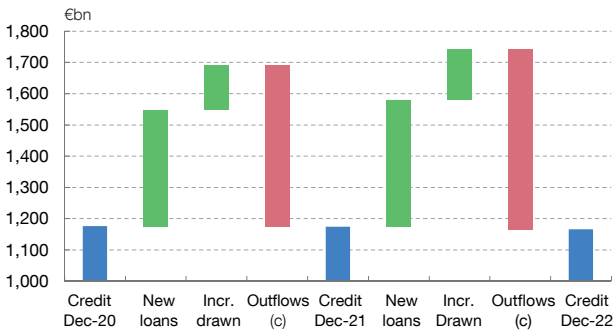
CREDIT TO THE RESIDENT PRIVATE SECTOR IN SPAIN DECLINED BY 0.7% IN 2022, ALTHOUGH NEW LENDING GREW

The decline in the stock of lending to the resident private sector in Spain in 2022 contrasted with the stable performance in 2021. These developments were shaped by larger outflows in comparison with the previous year, which offset the growth in new lending and the higher level of principal drawn on existing loans. In real terms the decline was more pronounced, similar to that observed in the years leading up to the pandemic.

1 VOLUME OF CREDIT AND Y-O-Y RATE OF CHANGE
Business in Spain, DI



2 FLOW OF CREDIT TO THE RESIDENT PRIVATE SECTOR (b)
Business in Spain, DI



SOURCE: Banco de España.

a The real change in credit is found taking into account its composition, deflating the portion of credit to households (not for business purposes) by the consumer price index and all other credit (to NFCs, financial corporations and sole proprietors) by the GDP deflator.
b The resident private sector includes households, NFCs and sole proprietors, and financial corporations.
c Outflows include repayments, write-offs, securitisations and portfolio sales.

introduced (such as the ICO guarantee programme). The current drop appears to reflect, at least in part, the progressive reduction of the extraordinary levels of debt incurred by these sectors during that period. However, the largest negative contribution to the stock of lending was made by the sectors least affected by the pandemic, despite their smaller year-on-year decline in 2022 (3.3%). The reason is that these sectors account for a larger share of total corporate loans. These declines in the outstanding stock of lending came despite new business loans growing 15.2% year-on-year, while the principal drawn on available credit lines rose by 23.3% (see Chart 2.2.2).

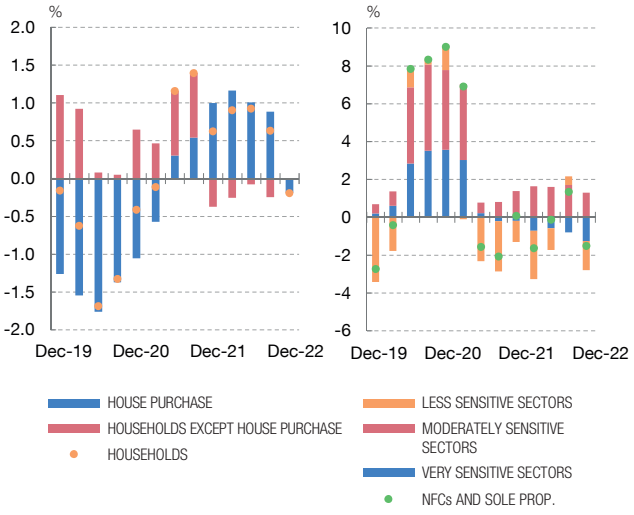
In 2022 Q4, the increase in the reference interest rate (EURIBOR) was passed through to average lending rates for households and firms more robustly. In the year to December 2022, the 12-month EURIBOR rose by a cumulative 352 bp, a speed and scale of growth not seen in previous episodes of increases since 2000. In average rate terms, the pass-through to the stock of loans to households for house purchase and to lending to NFCs currently stands close to 30%. The

Chart 2.2

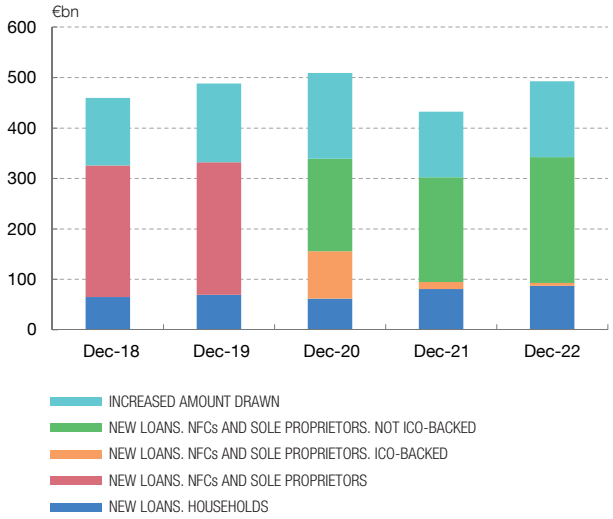
IN 2022, THE STOCK OF CREDIT DECLINED BOTH TO HOUSEHOLDS (DUE TO LENDING FOR HOUSE PURCHASE) AND TO FIRMS, DESPITE BOTH SEGMENTS RECORDING GROWTH IN NEW CREDIT

The stock of loans to households declined by 0.2% year-on-year at December 2022, as a result of developments in lending to households, which recorded a negative year-on-year rate in 2022 Q4. Business lending contracted in year-on-year terms owing above all to the sectors hardest hit by the pandemic. There was growth in both new lending and the amount drawn on existing loans, both to households and firms.

1 CONTRIBUTIONS TO THE Y-O-Y RATE OF CREDIT TO HOUSEHOLDS (LEFT) AND TO NFCs AND SOLE PROPRIETORS (RIGHT)
Business in Spain, DI



2 VOLUME OF NEW LENDING IN THE YEAR. HOUSEHOLDS, NFCs AND SOLE PROPRIETORS (a)
Business in Spain, DI



SOURCE: Banco de España.

a Other financial corporations are not included in this chart.

pass-through to the stock of other lending to households was more limited (13%) (see Chart 2.3.1). Both in this segment and in lending to NFCs, the degree of pass-through was lower than that implied by the average sensitivity of lending rates to the interbank rate over the business cycle.[2] The containment of average deposit costs, discussed later, appears to have contributed at least partially to these developments.

The increase in interest rates on new business loans was widespread across banks and maturities (the longer the term, the larger the increase). In 2022 Q4, as compared with the same quarter in 2021, the median interest rate on new loans to firms maturing in less than three months rose by 1.7 pp, while that on loans maturing in more than five years increased by 2.8 pp. Data reported to the Banco de España's Central Credit Register (CCR) show that a maturity spread has developed (the longer the loan maturity, the higher the interest rate), one that was practically non-existent

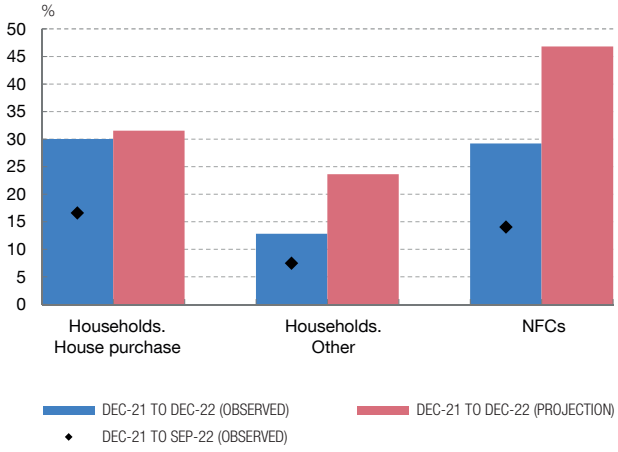
2 This sensitivity is measured through an econometric analysis using a vector autoregressive model that links developments in lending rates to the 12-month EURIBOR and other macroeconomic variables.

Chart 2.3

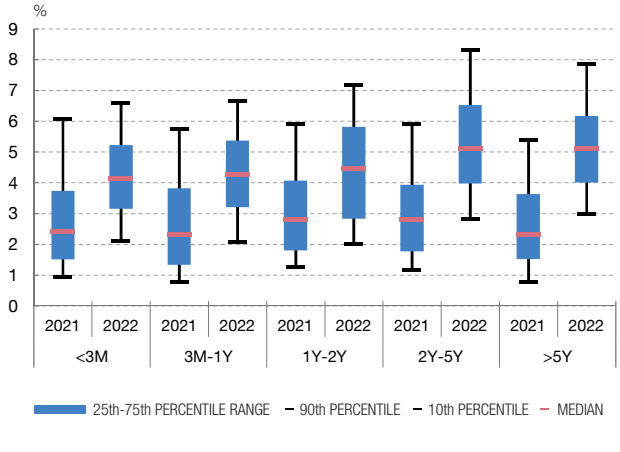
THE PASS-THROUGH OF THE INCREASE IN THE EURIBOR TO AVERAGE INTEREST RATES ON LOAN PORTFOLIOS ACCELERATED IN 2022 Q4, STANDING AT AROUND 30%. INTEREST RATES ON NEW LOANS TO BUSINESSES INCREASED ACROSS ALL MATURITIES

At December 2022, the pass-through of the increase in the 12-month EURIBOR to the stock of bank loans stood at close to 30% in loans to NFCs and credit to households for house purchase, a portion of which are subject to periodic review clauses, and around 13% in other lending to households. For their part, interest rates on new loans to businesses rose significantly across all maturities, and a maturity spread has formed that was practically non-existent in 2021.

1 PASS-THROUGH OF THE INCREASE IN THE EURIBOR TO INTEREST RATES ON THE PORTFOLIO OF LOANS TO HOUSEHOLDS AND NFCs (a)



2 DISTRIBUTION OF INTEREST RATES APPLIED TO NEW LOANS TO BUSINESSES, BY MATURITY. 2021 Q4 - 2022 Q4 (b)



SOURCE: Banco de España.

a Pass-through is defined as the ratio between the cumulative change, in percentage points, of the interest rate applied to loans and the change in the 12-month EURIBOR in the reference period. Changes in commercial interest rates are projected using a multivariate structural VAR model based on interest rates data reported to the ECB.

b According to CCR data for the narrowly defined effective rate (NDER), i.e. the interest rate component of the annual percentage rate (APR), excluding, therefore, all fees and costs applied to new loans with a specific term identified in 2021 Q4 and 2022 Q4, respectively.

in 2021 (see Chart 2.3.2). All else being equal, longer-term loans are associated with higher risk. Therefore, this pattern appears to be consistent with higher risk premiums applied to borrowers, and may be testimony to banks exercising greater prudence in an uncertain environment.

Over the coming quarters, the pass-through of higher reference interest rates to average lending rates can be expected to continue and there is upside risk to reference interest rates. Based on time series modelling, in 2023 a stronger pass-through of past reference rate hikes to average lending rates is to be expected, especially in loans for house purchase. The global financial turbulence since March 2023 entails upside risks to the banking sector's funding costs via the risk premium channel, while higher risk premia would also pass through, at least partially, to lending rates.

There was a further decrease in the volume of non-performing loans (NPLs) to the resident private sector in 2022. In the twelve months to December 2022, these

troubled assets declined by more than €9 billion (-18.5% year-on-year) (see Chart 2.4.1). The contraction was widespread across banks, affecting both loans to NFCs and sole proprietors (-13.7%) and loans to households (-24.3%). Further, the pace of decline increased in both segments (by 8.6 pp and 18.2 pp, respectively) in the year. In consumer credit (a segment associated with higher NPL ratios), NPLs likewise decreased in 2022, returning to their pre-pandemic levels (see Chart 2.4.2).

The NPL ratio stood at 3.5% in December 2022, its lowest level since December 2008. In 2022 this ratio was down by 0.8 pp for the overall resident private sector, with declines both in corporate lending (-0.7 pp to 4.7%) and in loans to households (-0.9 pp to 2.8%). Since the start of the pandemic, the NPL ratio has decreased by 1.6 pp for NFCs and by 1.4 pp for households. In the sectors hardest hit by the pandemic,[3] the NPL ratio fell by a lesser degree (0.3 pp in 2022, to 5.6%) (see Chart 2.4.3).

For their part, Stage 2 loans[4] were down by 12.2% year-on-year. In the year to December 2022, the proportion of Stage 2 loans declined by 0.9 pp to 7.1% of total lending to the resident private sector. However, such loans remain 24.5% up on pre-pandemic levels. By institutional sector (see Chart 2.4.3), in 2022 the relative share of Stage 2 exposures increased in lending to households (by 0.4 pp to 5.5%) and decreased in loans to NFCs and sole proprietors (by 2.6 pp to 9.8%). In the sectors hardest hit by the COVID-19 pandemic, which had recorded a very marked increase in Stage 2 loans up to mid-2021, the share of such exposures fell very sharply (by 3.4 pp to 14.6%), although they remained above the average level.

Forborne exposures also followed a downward trajectory in 2022. Their relative share declined in the year by 0.8 pp to 4.2% of total lending to the resident private sector, following a drop of 16.5% in volume since end-2021 (see Chart 2.4.2) when they reached pre-pandemic levels.

According to CCR data, the amount drawn on ICO-backed business loans declined in 2022, while their credit quality deteriorated. In terms of amount, these loans recorded a year-on-year decline of 11.3% at December 2022. The proportion of ICO-backed credit classified as Stage 2 fell by 0.8 pp to 19.6% of the total. However, NPLs increased by 78.8% in the year, causing the NPL ratio[5] to rise by 3.6 pp to 7.1% (see Chart 2.4.4). In 2022, the reduction in the aggregate size of this

3 Credit to the most severely affected sectors is proxied by credit to sectors whose turnover fell by more than 15% in 2020 and that can be identified in the FI-130 regulatory return; specifically, hospitality, manufacture of refined petroleum products, social services and entertainment, transportation and storage, and manufacture of transport equipment.

4 Pursuant to Circular 4/2017, a loan is classified as a Stage 2 exposure when credit risk has increased significantly since initial recognition, but no event of default has occurred.

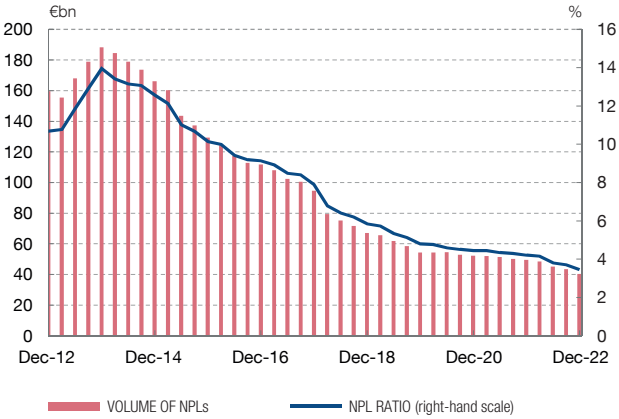
5 Calculated on each date and for all ICO-backed loans as the ratio of the outstanding drawn balance classified as non-performing – either due to arrears or for subjective reasons – to the outstanding drawn amount.

Chart 2.4

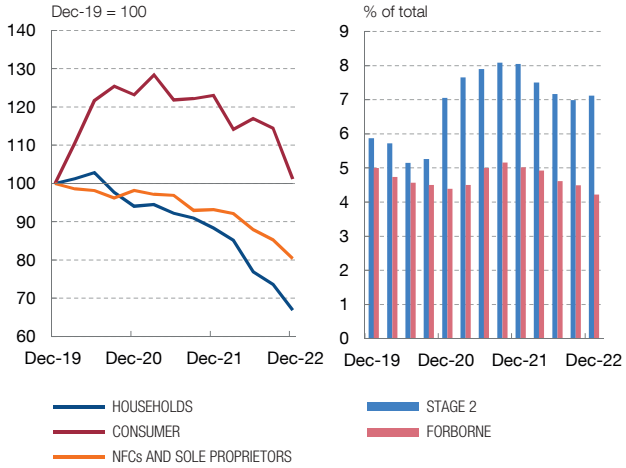
THE PACE OF DECLINE IN NON-PERFORMING ASSETS ACCELERATED IN 2022, WHILE EARLY SIGNS OF IMPAIRMENT IN BUSINESS LENDING FADED

NPLs continued to decline in 2022, and at a faster pace than in previous years (-18.5%). This fed through to the NPL ratio, which was down significantly both for households (0.9 pp) and NFCs and sole proprietors (0.7 pp). Stage 2, forborne and restructured loans were also down in the year. However, in the household segment there was a moderate increase in Stage 2 exposures.

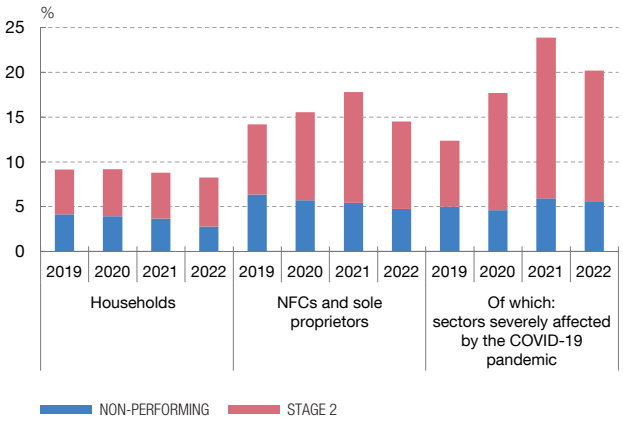
1 NPLs AND NPL RATIO. RESIDENT PRIVATE SECTOR
Business in Spain. DI



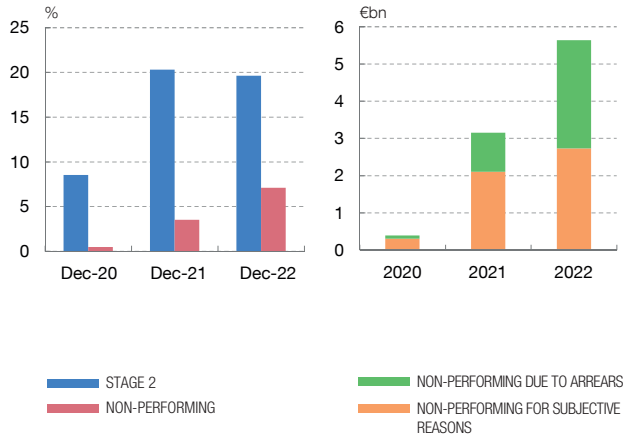
2 VOLUME OF NPLs (LEFT) AND EARLY SIGNS OF IMPAIRMENT IN LENDING TO THE RESIDENT PRIVATE SECTOR (RIGHT) (a)
Business in Spain. DI



3 SHARE OF CREDIT CLASSIFIED AS NON-PERFORMING AND STAGE 2. HOUSEHOLDS, NFCs AND SOLE PROPRIETORS (b)
Business in Spain. DI



4 ICO-BACKED LOANS. DEVELOPMENTS IN CREDIT QUALITY (c) (LEFT) AND COMPOSITION OF NPLs (RIGHT)
Business in Spain. DI



SOURCE: Banco de España.

a For Stage 2 and forborne loans, the share of each category out of total lending to the resident private sector is shown.
b Credit to the most severely affected sectors is proxied by credit to sectors whose turnover fell by more than 15% in 2020 and that can be identified in the FI-130 regulatory return; specifically, hospitality, manufacture of refined petroleum products, social services and entertainment, transportation and storage, and manufacture of transport equipment. Data for the month of December of each year.
c The proportion of ICO-backed loans to firms and sole proprietors that are classified as non-performing or Stage 2 is measured.

closed portfolio accounted for 0.8 pp of the increase in the NPL ratio.[6] Within non-performing ICO loans, those classified as non-performing due to arrears were up

6 Pandemic-related ICO loans constitute a closed portfolio because such loans will not be extended in the future. Thus, as progress is made towards repayment of the existing loans, the outstanding balance of the portfolio will necessarily decrease. For a given quantity of non-performing loans remaining on the balance sheet, this reduction process brings about an automatic increase in the NPL ratio, but also lowers exposure to the risk of additional NPL inflows in the future.

most sharply (177% year-on-year), while the increase in those classified as non-performing for reasons other than arrears was less pronounced (29.6% year-on-year). The credit quality of this portfolio deteriorated faster than that of business loans overall. This was in line with initial expectations for the ICO guarantee programme, which was particularly geared towards firms that went into the 2020-2021 health crisis with a weaker financial position and were expected to be more affected by it, in particular due to the nature of their sectoral activity (e.g. trade or hospitality). Various measures (fiscal and monetary measures in particular) have helped to safeguard firms' income since then. However, the protection is not absolute, resulting in a more marked deterioration of ability to pay among the most vulnerable firms.

The faster decline in NPLs in 2022 was driven both by smaller inflows and larger outflows. NPL inflows were down 15.2% on the previous year (see Chart 2.5.2). Annual outflows increased by 5% in the period. Within these, loans reclassified as write-offs declined slightly. Conversely, there was an increase in outflows to Stage 2 and in asset transfers (which accounted for 16.8% of total outflows compared with 13.3% in 2021).[7] Transferring impaired portfolios is a particular challenge during periods of high uncertainty. Therefore, the increase observed illustrates the need for banks to maintain a prudent provisioning policy.

The stock of Stage 2 exposures declined as a result of smaller inflows from, and larger outflows to, performing status. In 2022, the decrease in inflows from performing status (the lowest since 2019) outweighed the above-mentioned increase in inflows from non-performing. The resulting net effect was a reduction in inflows as compared with 2021 (see Chart 2.5.1). However, another portion of the reduction in Stage 2 credit was driven by a considerable increase in outflows to performing. On balance, these developments would be consistent with a slowdown in the build-up of latent risks.

Foreclosed assets decreased by 14.5% in 2022, to stand at €19.7 billion in December. This represented a continuation of the declining trend seen in recent years. Since the start of the COVID-19 pandemic, these exposures have fallen by more than €11 billion (36%), on top of the declines recorded in the years leading up to the health crisis.

Credit quality must be subject to forward-looking monitoring despite the recent favourable performance. The credit quality improvements seen in 2022 might be reversed by the risks to activity and inflation that have been identified, and,

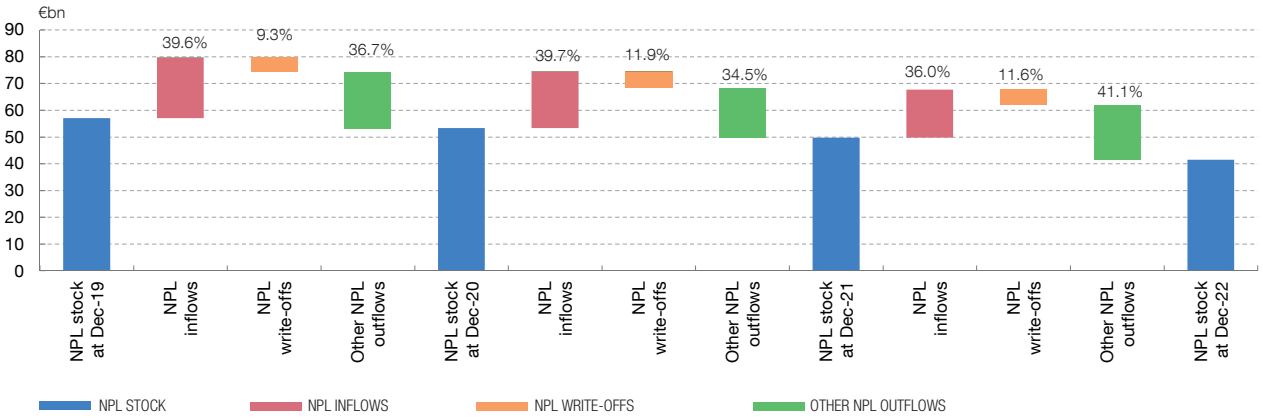
7 Asset transfers refer to portfolio sales and securitisations. Outflows to foreclosed and to performing status also declined, although these accounted for a low share of total NPL outflows.

Chart 2.5

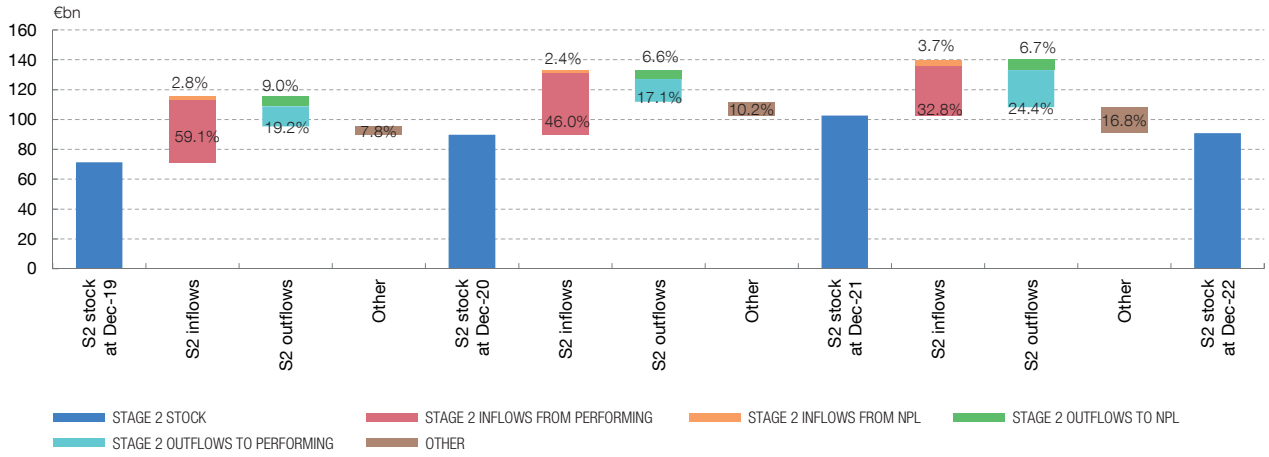
THE DECLINE IN NPLs AND STAGE 2 LOANS OWED TO BOTH SMALLER INFLOWS INTO, AND GREATER OUTFLOWS FROM, THESE CLASSIFICATIONS

NPL inflows declined and NPL outflows grew, with outflows to Stage 2 and loan transfers particularly standing out. Stage 2 loans decreased in 2022 as a result of smaller inflows from performing (how loans are classified at origination) and greater outflows, especially to performing.

1 INFLOWS AND OUTFLOWS OF NON-PERFORMING LOANS AND ADVANCES (a)
Business in Spain. ID



2 INFLOWS AND OUTFLOWS OF STAGE 2 LOANS AND ADVANCES (b)
Business in Spain. ID



SOURCE: Banco de España.

a The stock of non-performing loans and advances in each year corresponds to the carrying amounts on the institutions' balance sheets. NPL inflows are movements of loans from performing status and Stage 2, along with loans acquired from third parties. NPL outflows include movements to performing status and Stage 2, along with asset foreclosures, portfolio sales and securitisations. The percentages that appear above the inflows and outflows over the course of a year represent the share of these in the stock of loans and advances in non-performing status as at December of the previous year.

b The volume of Stage 2 loans is measured using the carrying amount on the institutions' individual balance sheet. To be included as inflows and outflows, loans must end the year at a different stage of value impairment than at the start of the year or at the time of initial balance sheet recognition, if later. The percentages above the bars of the different Stage 2 inflows and outflows show their proportion in the stock of Stage 2 loans on balance sheets as at December of the previous year. The "Other" bar includes loans that, having been in Stage 2 at the previous year-end, are repaid or sold over the year under way.

in particular, the risk of a further tightening of financial conditions.[8] Therefore, these should be very much to the fore in provisioning and capital planning.

8 See Box 2.2 of the Financial Stability Report Autumn 2022 for an analysis of the impact on provisions and capital of an adverse scenario in which these risks materialise.

At December 2022, the total consolidated assets of Spanish deposit-taking institutions stood at €4.04 billion, having grown 2.1% year-on-year (see Annex 1). Financial instruments[9] in Spain decreased by 7.7% year-on-year, while those stemming from business abroad (expressed in euro) increased by 9.6% to 53.7% of the total (up 4.3 pp on a year earlier). Much of the decline in financial instruments in Spain owed to the reduction in balances held with central banks (-31.9% year-on-year) and, to a lesser extent, to the drop in loans to the resident private sector (-2.5% in consolidated terms). Meanwhile, the increase in financial instruments abroad was due to the growth in lending to the resident private sector in third countries (up by 10.3% on December 2021) and in debt securities (16%), supported by a depreciating euro (see Chart 2.6.1).

Lending grew in 2022 in most of the relevant countries for Spanish banks' business. In particular, there was year-on-year credit growth in the United States (31.5%), Brazil (27.7%), Mexico (24.1%) and Türkiye (11.2%), and a slight decline in the United Kingdom (2.1%). The bulk of business in those countries is conducted in the local currency. The appreciation of these currencies against the euro[10] therefore contributed to that growth (with the exception of Türkiye, where business growth came despite the Turkish lira's continued sharp depreciation against the euro) (see Chart 2.6.2).

Deposit-taking institutions' exposure to debt securities likewise grew in 2022. These instruments represented 13.6% of total assets (14.2% of financial instruments) at December 2022, after increasing 11.7% in the year. Looking at business abroad, debt securities accounted for more than 15.4% of financial instruments at December 2022 (0.9 pp more than in the same month of 2021), with countries such as Italy, the United States and Mexico accounting for notably large proportions relative to their share in credit (see Chart 2.6.3). In business in Spain, debt securities also gained weight, accounting for 12.7% of financial instruments, with a year-on-year increase of 1.5 pp. At consolidated level, more than 80% of debt securities have a general government counterparty. In 2022, general government debt securities increased by 10.1%, while those with a private sector counterparty grew by 15.4%.

Lastly, NPL ratios broadly performed favourably in countries where Spanish banks have significant business. In year-on-year terms, the NPL ratio declined in the United Kingdom (by 0.3 pp to 1.3%), Mexico (by 0.7 pp to 3.1%) and Türkiye (by 2.7 pp to 6.3%). Conversely, this ratio held stable in the United States (3.5%) and rose sharply in Brazil (by 2.2 pp to 8.5%) (see Chart 2.6.4).

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9 Overall, financial instruments (loans, derivatives, debt and equity securities and cash balances) represented 95% of the balance sheet of deposit-taking institutions at December 2022.

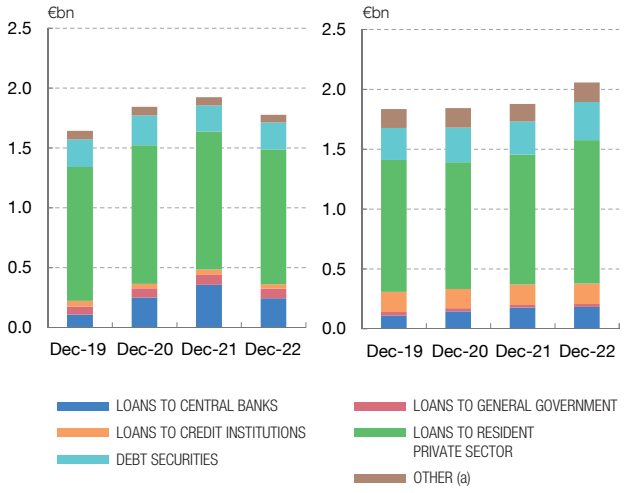
10 In 2022 the US dollar appreciated by 6.6%, the Brazilian real by 12.4% and the Mexican peso by 11.9%. Conversely, the pound sterling depreciated by 5.4% and the Turkish lira by 24.4%.

Chart 2.6

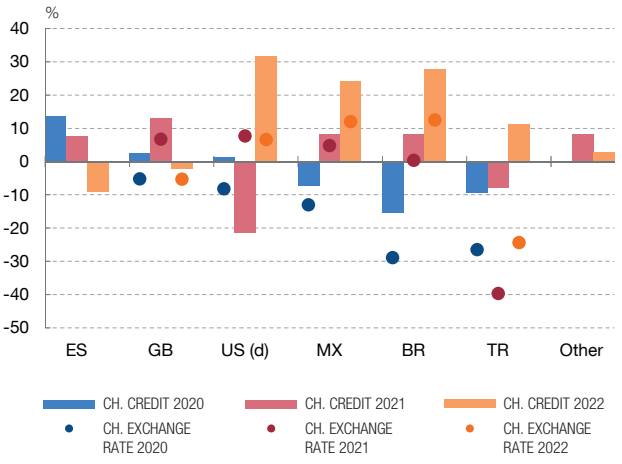
THE VOLUME OF BUSINESS ABROAD INCREASED IN 2022, PARTLY DUE TO EXCHANGE RATE DEVELOPMENTS, WHILE NPL RATIOS DECLINED IN THE BULK OF THE MOST IMPORTANT COUNTRIES, WITH THE EXCEPTION OF BRAZIL

The business abroad of Spanish deposit-taking institutions increased by 9.6% in 2022, chiefly due to the growth in loans and debt securities. This essentially owed to the growth in business in the United States, Mexico and Brazil, thanks in part to the exchange rate performance of these countries' currencies against the euro. NPL ratios declined across almost all relevant markets for the business of Spanish institutions, with the noteworthy exception of Brazil where there was a significant increase.

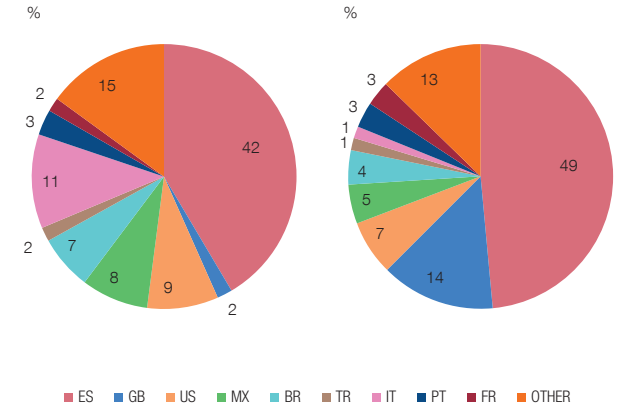
1 COMPOSITION OF FINANCIAL ASSETS IN SPAIN (LEFT) AND ABROAD (RIGHT)
Consolidated data



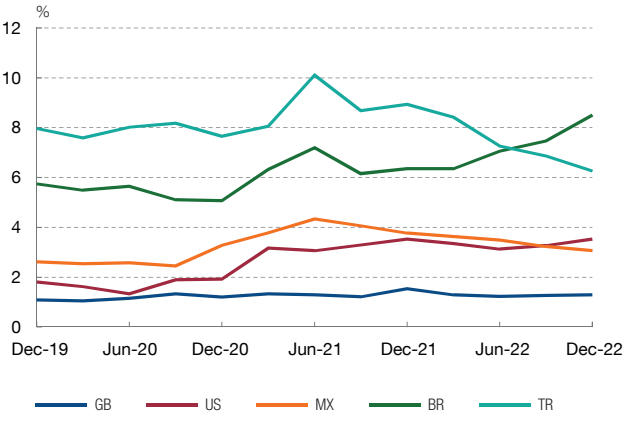
2 LENDING IN SPAIN AND ABROAD (b)
Y-O-Y change in lending and exchange rates (c). Consolidated data



3 DISTRIBUTION OF DEBT SECURITIES (LEFT) AND LOANS (RIGHT)
Consolidated data. December 2022



4 NPL RATIO. LOANS TO THE RESIDENT PRIVATE SECTOR
Consolidated data



SOURCES: Datastream and Banco de España.

a The "other" item comprises balances of cash, derivatives and equity instruments.
b Includes total loans and advances (central banks, credit institutions, general government and resident private sector), both in the local and non-local business of each country.
c A positive sign for the change in exchange rate indicates appreciation of the currency against the euro.
d For the United States, the high negative change in 2021 owes to a sale made by one bank, while the large positive change in 2022 owes, in part, to a Spanish bank incorporating a new company with business in the region.

Liquidity and financing conditions

For the first time in recent years, the process of monetary policy normalisation is reducing both the Eurosystem balance sheet and banks' excess liquidity.[11] Excess liquidity was down by €676 billion since the last report (to €4.002 billion) (see Chart 2.7.1), a trend that is expected to continue over 2023. This reduction was mainly driven by European banks making early repayments on the monetary policy loans provided by the ECB (€1.014 billion).[12] A further significant reduction is expected in 2023, as banks make voluntary early repayments and further rounds of TLTRO III mature.[13] In addition, in March the Eurosystem began the process of reducing its portfolio of assets at a measured and predictable pace.

The reduction in balances held by European banks with central banks accelerated in 2022 Q4, albeit unevenly across countries. In particular, there were marked reductions by Spanish banks (-32%) and Italian banks (-39%) in the year to December 2022, compared with altogether more moderate decreases by French and Dutch banks and an increase by German banks. At end-2022, the overall balances held by these countries banks with central banks were down by 9% on a year earlier (see Chart 2.7.2).[14]

The recent tightening of policy interest rates has been passed through to money market rates. The path of the €STR (the interest rate on unsecured transactions), the 3-month EURIBOR (the interbank rate) and secured market interest rates (repo rates) have been consistent with the ECB's two 50 basis point (bp) hikes to policy interest rates in February and March. These interest rates, in particular the 3-month EURIBOR, may continue to rise until mid-2023, although the financial turbulence observed this year makes this trajectory more uncertain[15] (see Chart 2.7.3).

The repo market functioned without significant frictions in 2022 H2. For one thing, higher policy rates were speedily and fully passed through to repo rates (see Chart 2.7.4). Further, in 2022 the decline typically seen in the last stretch of the year was less pronounced than in 2021 and smaller than had been expected, reflecting

11 Excess liquidity is the sum of a commercial bank's holdings at the central bank, whether on the current account or in the deposit facility, above the reserve requirements.

12 This reduction owes to euro area banks making use of the three early repayment dates in the period: a notable €499 billion was repaid in the December window, compared with €296 billion in November and €62 billion in January. The repayments in February and March were also noteworthy, amounting to €37 billion and €120 billion, respectively.

13 At end-2023, only four of the ten TLTRO III operations will remain outstanding.

14 The data capture the balances with the ECB of resident banks in each of the countries, including foreign subsidiaries and branches. Germany's excess liquidity includes the operations of foreign-owned banks that have deposited with the ECB funds obtained from the sale of assets for its purchase programmes; as noted above, the ECB has not yet begun to reduce its holdings under these purchase programmes.

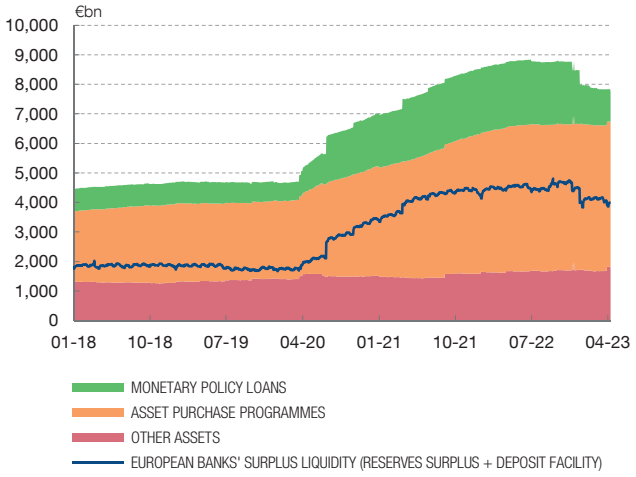
15 Expectations for the deposit facility rate based on the OIS curves. 3-month EURIBOR projections based on futures maturing in March, June, September and December 2023. Data at 10 April 2023.

Chart 2.7

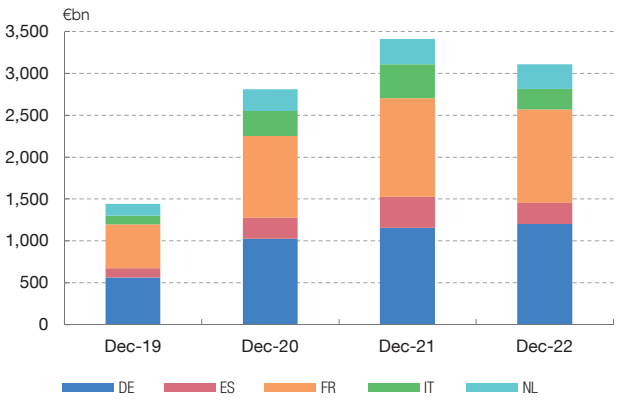
THE EUROSYSTEM'S BALANCE SHEET HAS DECREASED, CONSISTENT WITH THE MONETARY POLICY TIGHTENING, WHILE INTEREST RATE INCREASES HAVE PASSED THROUGH TO MONEY MARKET RATES

The balance sheet reduction has been driven mainly by early repayment of a considerable volume of monetary policy loans (TLTRO III). This trend will gather steam when the ECB ceases to reinvest maturing balances under purchase programmes. The deposits of banks with central banks have also declined, albeit unevenly across countries. The increases in monetary policy rates have passed through to €STR, repo and 3-month EURIBOR rates. This is expected to continue in 2023, albeit more moderately.

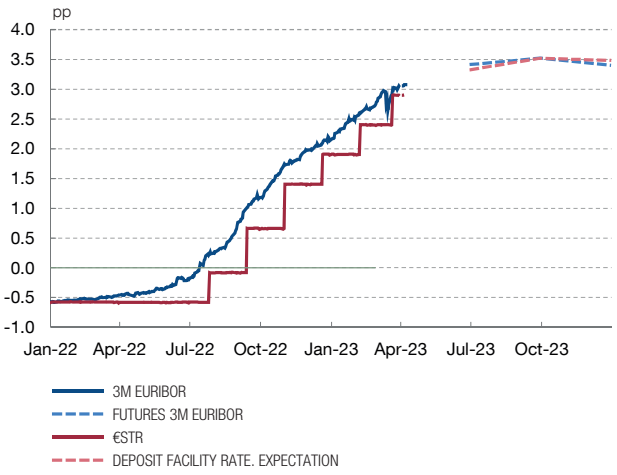
1 EUROSYSTEM BALANCE SHEET AND EUROPEAN BANKS' SURPLUS LIQUIDITY



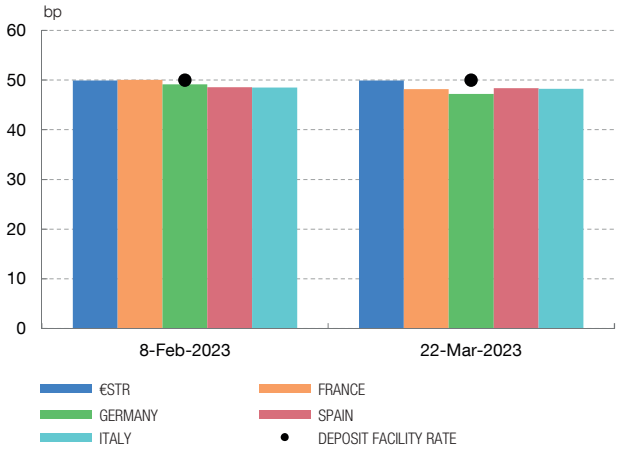
2 BANK DEPOSITS WITH CENTRAL BANKS
Monetary financial institutions. Business in the euro area



3 EURIBOR AND €STR RATES (a)



4 CHANGE IN REPO RATES (b)



SOURCES: Bloomberg, Dealogic, Refinitiv, Money Market Statistical Reporting and Banco de España.

a Futures (at 10.4.2023) for the 3-month EURIBOR maturing in June, September and December 2023 and March 2024. Expectations for the deposit facility rate are calculated based on an internal model using the OIS (overnight indexed swap) curve. Latest estimation data: 10.4.2023.
b Shown is the daily change in the repo rate after the deposit facility rate increases announced in February and March. The repo rate is calculated as the weighted average overnight rate for transactions secured with sovereign collateral issued by each country, based on Money Market Statistical Reporting.

among other factors the impact of the measures introduced by the ECB and the German Finance Agency[16] to address collateral scarcity.

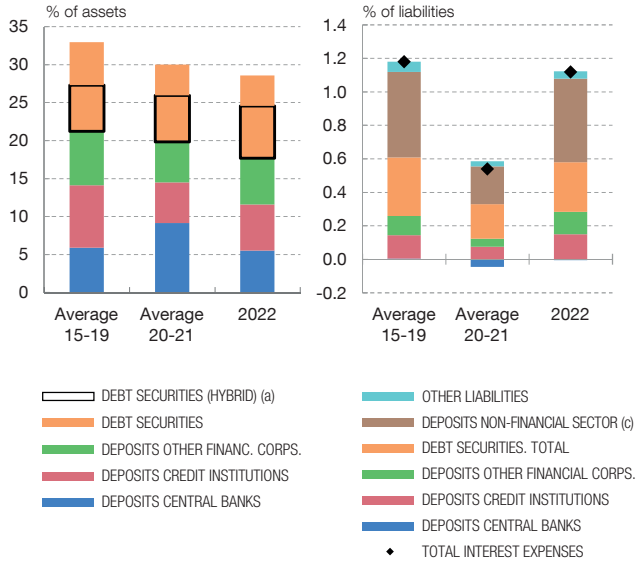
16 The ECB announced that it would increase the limit for securities lending against cash from €150 billion to €250 billion. Further, the announcement of new early repayment options for TLTRO III operations meant that part of the collateral used in those operations could be released. For its part, the German Finance Agency (Deutsche Finanzagentur, DFA) increased the amount of German collateral available for repo market trading across 18 German sovereign bonds.

Chart 2.8

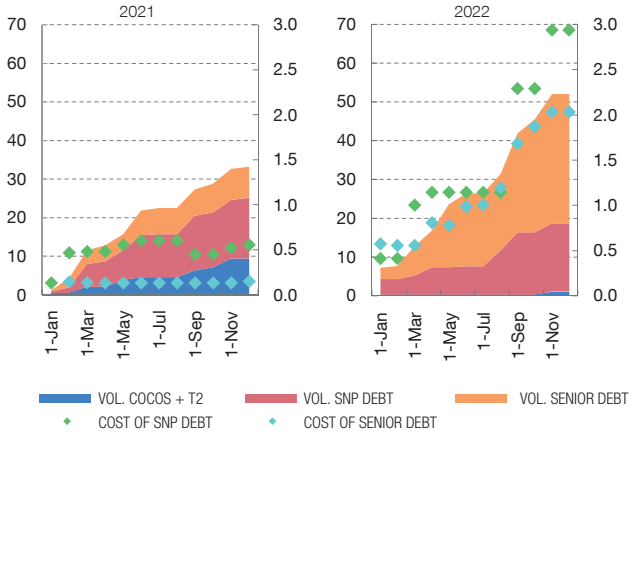
THE SHARE OF THE FINANCIAL SECTOR'S DEPOSITS AND MARKETABLE DEBT INSTRUMENTS IN ASSETS DECLINED IN 2022, WHILE THE AVERAGE COST OF BANK LIABILITIES INCREASED. IN ADDITION, BOTH THE COST AND VOLUME OF NEW DEBT ISSUANCES INCREASED MARKEDLY

The share of the financial sector's deposits and marketable debt instruments in the Spanish banking sector's balance sheet continued to decline in 2022, while the total cost of liabilities stood close to pre-pandemic levels, owing to the rise in interest rates in 2022 and the ECB's withdrawal of liquidity. Funding costs in the primary market for senior debt instruments increased over the course of the year, with a greater volume of issuances than in the previous year.

1 FINANCIAL SECTOR DEPOSITS AND MARKETABLE DEBT INSTRUMENTS (LEFT-HAND PANEL) AND INTEREST EXPENSES ON FUNDING (RIGHT-HAND PANEL)
Consolidated data



2 ANNUAL CUMULATIVE VOLUME AND COST OF ISSUANCES, BY TYPE OF INSTRUMENT (b)



SOURCES: Bloomberg, Dealogic, Refinitiv and Banco de España.

a Convertible and non-convertible debt securities, other than certificates of deposit, covered bonds and hybrid contracts with embedded derivatives.
b The volume (million euro) of issuances accumulated monthly over the course of each year is shown. The cost of issuances on the primary market for bonds issued in euro is calculated as the volume-weighted average in each period of the year. The cost of Tier 2 and CoCos issuances on the primary market is not included owing to the low volume of issuance in 2022.
c Includes household deposits and non-profit institutions serving households, non-financial corporations and sole proprietors, and general government.

In 2022, the overall share of the financial sector's deposits and marketable debt instruments declined further; however, in line with deposits from the non-financial sector, their cost increased. The decline in Eurosystem funding was only partially offset by an increase in funding through deposits from credit institutions and other financial corporations and in debt security funding (see Chart 2.8.1). The average cost of bank liabilities increased significantly, in relative terms, on account of the general increase in interest rates on financing from the ECB, interbank markets and marketable debt instruments, and likewise on deposits taken from the non-financial sector. The average cost of bank liabilities held slightly below pre-pandemic levels (see Chart 2.8.1).

The Spanish banking sector increased the volume of its debt issuances in 2022. Spanish banks stepped up their issuances of both senior and, in particular,

secured senior debt in the year, a trend that gained momentum in the last quarter of the year. Further, banks increased their senior non-preferred debt issuances to thus comply with the subordination requirements set by the resolution authorities for 2023. Moreover, the volume of subordinated debt issuances (Tier 2 and CoCos) (see Chart 2.8.2) fell sharply, on account of their relatively higher cost and because Spanish banks had already secured the volumes required under prudential regulations in their previous years' issuances. In 2023, the Spanish banking sector as a whole plans to issue €33 billion in MREL-eligible instruments, somewhat less than the volume issued in 2022, allowing the sector to cover any maturities that may arise and also to contend with the increase in requirements entailed in the end of the transitional period (for most banks) in order to be fully compliant with MREL targets. Meanwhile, the outlook for the CoCos market is subject to some uncertainty following the triggering of redemption clauses in Credit Suisse CoCos issues. This market is not likely to normalise until progress is made towards the global standardisation of these instruments.

Compared with 2021, Spanish banks bore a higher issuance cost in 2022, and face upside risks to these costs over the coming quarters (see Chart 2.8.2). This in part owes to higher risk-free rates (see Box 2.1 for a detailed analysis), which will foreseeably contribute to the cost of issuance rising further in 2023. The higher cost of senior non-preferred debt may also be attributable to the increase in the number of issuing banks (possibly including some from which investors are demanding higher risk premiums). Overall, the banking sector's cost of issuance is subject to greater upside risk due to investors growing more risk averse since the stress episodes of March 2023, associated in particular with SVB and Credit Suisse.

In 2022, Spanish banks' secondary market funding costs rose further for senior debt instruments, but not for debt instruments more akin to capital instruments. The secondary market yields demanded on senior debt have risen in tandem with a widening spread between secured and unsecured debt. Conversely, prior to the banking sector turbulence of March 2023, the cost of instruments issued to satisfy regulatory requirements (CoCos, Tier 2 and senior non-preferred) had declined in step with banks' improving share prices (particularly since 2022 Q4). The stock market prices and valuations of these hybrid instruments declined considerably during the turbulence, with a subsequent partial reversal. In particular, the losses suffered by the holders of Credit Suisse AT1 debt (CoCos) had a differential and sizeable adverse impact on these instruments (see Box 1 for a more detailed analysis). Nonetheless, over the coming quarters, the upside risks to the cost of bank funding may also be reflected in this secondary market segment.

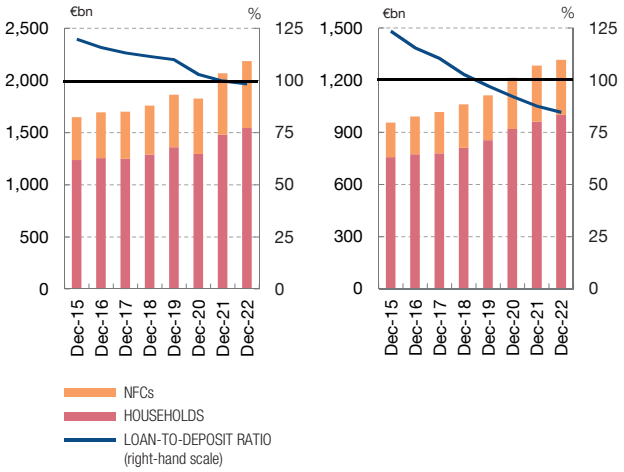
The deposits of households and NFCs continued to grow in 2022, with remuneration holding at low levels. At consolidated level, these deposits grew by 5.6% year-on-year. The growth was lower for business in Spain (3.5%), with a clear moderating trend that accentuated in the early months of 2023, when deposits from

Chart 2.9

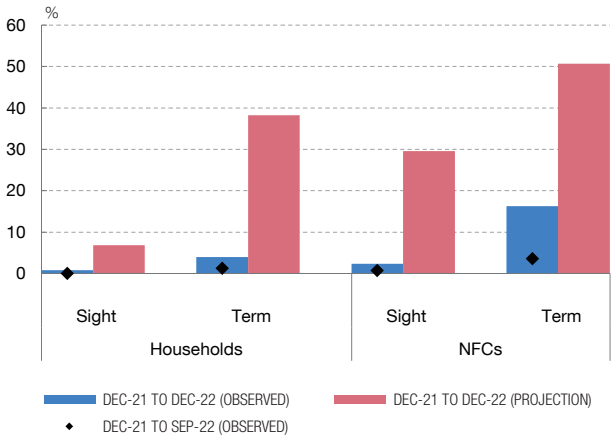
HOUSEHOLDS' AND NFCs' DEPOSITS CONTINUED TO GROW IN 2022, DESPITE THE LIMITED PASS-THROUGH OF THE INCREASE IN THE EURIBOR TO DEPOSIT RATES

Households' and NFCs' deposits continued to grow in 2022, both at consolidated level and in business in Spain. The pass-through of the increase in the EURIBOR to deposit rates was limited, although it accelerated in Q4. This trend could continue in the coming months, as liquidity in the Eurosystem dries up and banks' financing needs increase.

1 HOUSEHOLDS' AND NFCs' DEPOSITS AND THE LOAN-TO-DEPOSIT RATIO (a)
Consolidated data at global level (l-h panel) and individual data for business in Spain (r-h panel)



2 PASS-THROUGH OF THE INCREASE IN THE EURIBOR TO DEPOSIT RATES (b)



SOURCE: Banco de España.

a The loan-to-deposit ratio considers loans to, and deposits from, households and NFCs.
b Pass-through is defined as the ratio between the cumulative change (in pp) of the interest rates applied to deposits and the change in the 12-month EURIBOR in the reference period. Deposit interest rates are projected using a multivariate structural VAR model based on interest rates data reported to the ECB.

firms recorded significant declines. Households' deposits were again the main source of retail financing, accounting for 70.6% on a consolidated basis and 75.9% for business in Spain. At end-2022, the loan-to-deposit ratio held at levels close to 100% in consolidated terms, compared to 84.5% for business in Spain (see Chart 2.9.1).

In Spain, the pass-through to households' and NFCs' deposit rates of the current increase in the EURIBOR has been lower than expected based on past experience.[17] The increase in the 12-month EURIBOR over the course of 2022 has not passed through to a significant degree to the remuneration of either households' deposits or NFCs' current accounts. Only the interest rates on NFCs' fixed-term deposits rose (albeit moderately) in 2022 Q4, with the level of pass-through reaching 16% (see Chart 2.9.2). This prompted a slight increase in the

17 In line with footnote 2, and in this case based on the average interest rates on the outstanding balances of deposits, an econometric analysis has been conducted using a vector autoregressive model to explain the changes as a function of the 12-month EURIBOR and other macroeconomic variables.

share of fixed-term portfolios in this customer segment between September and December 2022 (+1.5 pp to 10.4%). The percentage of households' fixed-term deposits continued to decline (to 6.2%). There is also a degree of cross-bank heterogeneity in the rate of pass-through by customer category and type. Monetary policy has passed through more forcefully to average loan rates, albeit still to a limited extent (see Chart 2.3), furthered by banks' continued access to low cost funding in the form of deposits. As a result, average net interest margins between loans and deposits have widened, helping to explain the growth in net interest income in 2022 (see Section 2.1.2).

The pace of pass-through increased for certain deposits of NFCs in the latter stages of 2022, a trend that may become more pronounced and widespread over the coming months. Factors such as the gradual reduction in, and increased cost of, Eurosystem liquidity facilities, the ECB balance sheet downsizing and the developments seen in deposits (with depositors seeking better remunerated financial instruments and making use of the savings buffers built up during the pandemic) may cause deposit rates to rise more quickly. Certain particularities of the current cycle of rate increases, such as deposit rates starting out from zero, could make for a lower degree of pass-through than seen in the past. The tensions observed in global financial markets since March 2023 may anticipate an additional uptick in the cost of households' and firms' deposits, although this would not prevent such funding from at least partly counterbalancing the sharper growth in the cost of other liability instruments.

Spanish deposit-taking institutions have a comfortable liquidity position to contend with any outflows of funds prompted by financial stress episodes. The liquidity coverage ratio (LCR)[18] – which measures the availability of sufficient liquid assets to cover large outflows of funds in the short term – of Spain's main banks stood at 171% at December 2022, well above the required minimum threshold and up 13 percentage points (pp) on pre-pandemic levels. The main European banks also have significant liquidity buffers, with an average LCR of 165% (see Chart 2.10.1), albeit somewhat below the Spanish average. The net stable funding ratio (NSFR)[19] – which measures the funds available to finance banks' activity over a one-year horizon – stood at 130% at December 2022 for Spain's main banks. This is in line with their European peers and significantly above the minimum requirement of 100%. Among the stable funding sources included in the numerator of the ratio, retail deposits cover 75% of the total funding needs for Spanish banks and 60% for the set of European peers (see Chart 2.10.2).

18 The LCR is defined as the ratio between a bank's unencumbered assets and potential net liquidity outflows during a 30 calendar-day stress period. A level over 100% indicates that the bank holds sufficient liquid assets to cover potential liquidity outflows in a stress scenario.

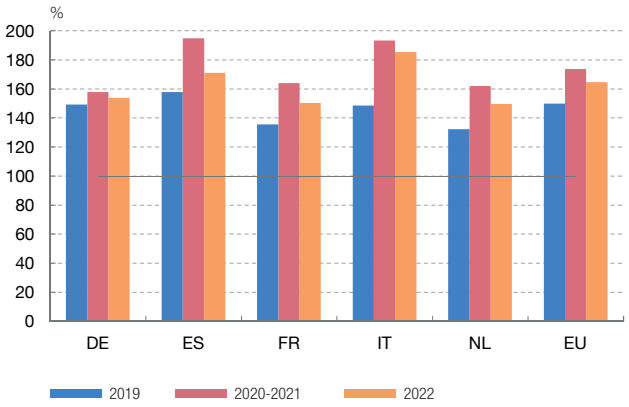
19 The NSFR is defined as the ratio of a bank's available stable funding to its required stable funding for a period of one year. A level over 100% indicates that the bank has sufficient stable funding to satisfy its financing needs over one year, both in normal conditions and in a stress scenario.

Chart 2.10

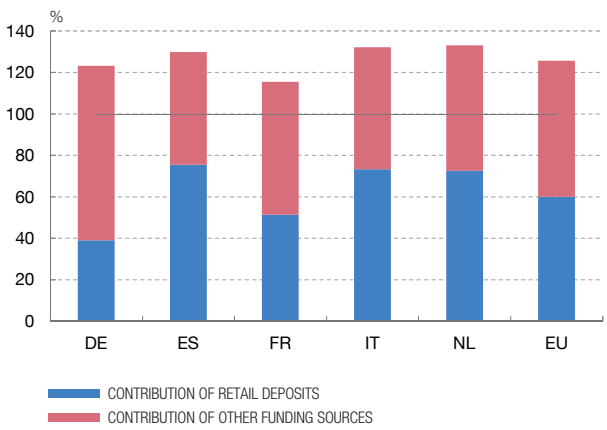
SPANISH BANKS AND THEIR EUROPEAN PEERS HAVE AMPLE LIQUIDITY BUFFERS TO CONTEND WITH ANY OUTFLOWS OF FUNDS PROMPTED BY FINANCIAL STRESS EPISODES IN THE SHORT AND MEDIUM TERM

In December 2022 Spanish banks had one of the highest aggregate liquidity coverage ratios (LCR) among their European peers, 71 pp above the required minimum threshold of 100% and 13 pp up on pre-pandemic levels. The longer-term financing capacity, measured through the net stable funding ratio (NSFR), was also comfortable for both Spanish banks and those in the main European countries.

1 LIQUIDITY COVERAGE RATIO: EUROPEAN COMPARISON



2 NET STABLE FUNDING RATIO: EUROPEAN COMPARISON (a)



SOURCE: EBA.

a The sum of the bars represents the level of the net stable funding ratio (NSFR). The blue and pink bars denote the share that retail deposits and other funding sources represent over the required stable funding.

2.1.2 Profitability and solvency

Profitability

Spanish banks posted consolidated net profit of €25.45 billion in 2022, spurred on by strong growth in net interest income. In year-on-year terms, consolidated net profit was 1.5% lower than in 2021 (see Annex 2), although this was due to the extraordinary income recorded in that year. Excluding extraordinary items in both years,[20] net profit in 2022 would be 18.3% higher than in 2021.

The profitability of the Spanish banking sector improved in 2022, rising above the estimated cost of equity. Return on assets (ROA) in the Spanish banking sector stood at 0.64% in 2022 (compared with 0.66% in 2021, see Chart 2.11.1), while

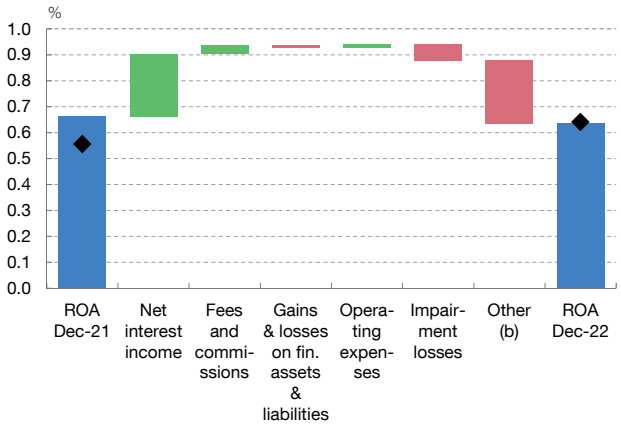
20 In 2021 extraordinary gains were recognised as a result of two mergers: the first, with a net value of €2.9 billion, stemming from negative goodwill (€4.3 billion) and a corporate income tax benefit (€0.6 billion), less extraordinary operating expenses as a result of the labour agreement and other integration costs (€2 billion); and the second, with a value of €1.3 billion, stemming from negative goodwill. Other extraordinary items in 2021 came from the spin-off of an insurance company (€0.9 billion), from the earnings of a US bank up to its sale on 1 June 2021 (€0.3 billion), and from restructuring costs at the two main banks (–€1.2 billion). The extraordinary losses recognised in 2022 were as a result of the offices purchased by one bank (€0.2 billion).

Chart 2.11

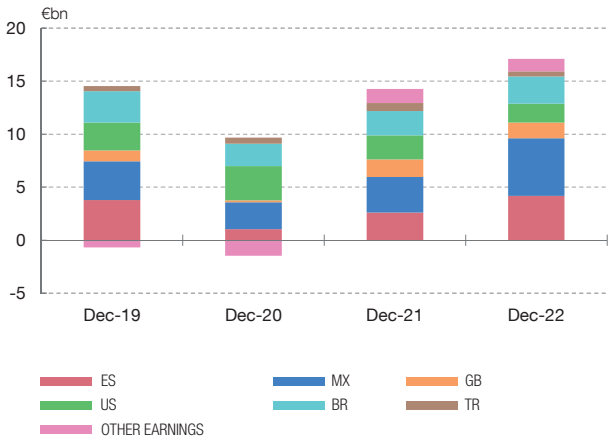
THE SPANISH BANKING SYSTEM'S CONSOLIDATED ORDINARY PROFIT IMPROVED IN 2022 WITH RESPECT TO 2021, DRIVEN MAINLY BY THE STRONG GROWTH IN NET INTEREST INCOME, AND PROFIT ABROAD SAW SIGNIFICANT GROWTH

Spanish banks' consolidated net profit stood at €25.45 billion in 2022, down on the profit obtained in 2021 owing to the extraordinary gains generated in that year. Discounting the effect of these non-recurring items, profit was 18.3% higher in 2022 than a year earlier, as a result of the significant increase in net interest income and strong business in Latin America.

1 BREAKDOWN OF CHANGE IN PROFIT
Consolidated net profit as a percentage of ATAs (a)



2 GEOGRAPHICAL DISTRIBUTION OF ORDINARY PROFIT ATTRIBUTABLE TO THE PARENT OF BANKS WITH SIGNIFICANT INTERNATIONAL ACTIVITY (c)



SOURCES: Banco de España and banks' financial reporting.

a The red (green) colour of the bars denotes a negative (positive) contribution of the corresponding item to the change in consolidated profit in December 2022 compared with December 2021. The black diamonds denote the ROA excluding extraordinary items. Specifically: in December 2021, extraordinary gains as a result of two mergers (€4.2 billion), the spin-off of an insurance company (€0.9 billion) and extraordinary restructuring costs (–€1.2 billion); and in December 2022, the net impact from the purchase of offices by a bank (–€0.2 billion).
b Including, among others, the aforementioned extraordinary items.
c Among the banks with significant international activity, this group includes the three in which such activity is more important and more extended in time, and non-recurring items in the period considered are excluded. The category 'Other earnings' includes the results of the banks' corporate centres.

return on equity (ROE) stood at 10.1%, down 35 bp compared with a year earlier. However, excluding extraordinary items, ROA stood at 0.64% at end-2022 (compared with 0.56% in 2021) and ROE at 10.2% (up 140 bp on the 8.8% of a year earlier). Meanwhile, Spanish banks' average cost of equity fell to around 7.5% in 2022, and to below 7% in the last stretch of the year and the opening months of 2023, significantly lower than their return on capital in the year, reflecting the good stock market performance of bank shares in the 12-month period. The recent turmoil in the banking sector and the fall in bank stock prices have driven up banks' cost of equity, although it remains below 7%.

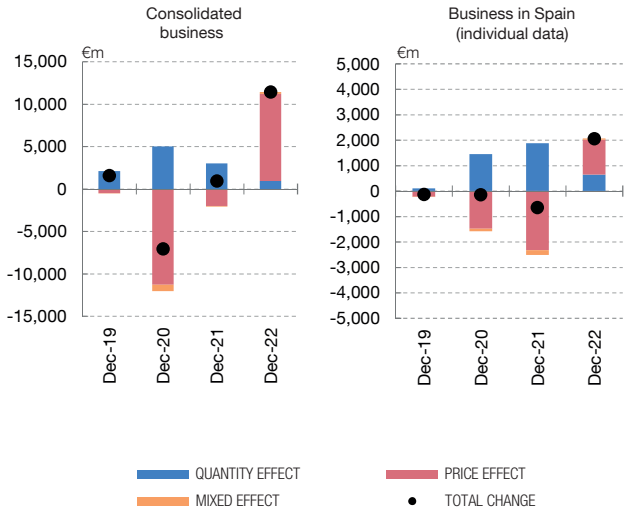
For Spain's main banks with an international presence, ordinary profit from business abroad rose significantly, driven by the strength of their business in Latin America. In 2022, profits abroad grew by 15.7% year-on-year, thanks to strong business in Mexico (where profits rose by 61%) and in Brazil, which offset the fall in profits in Türkiye, the United States and the United Kingdom. Accordingly, the ordinary profit obtained by Spanish banks with significant business abroad exceeded pre-pandemic levels (see Chart 2.11.2).

Chart 2.12

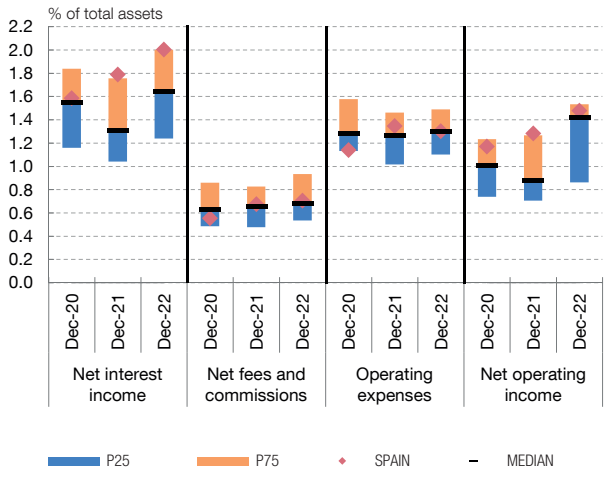
SPANISH BANKS' NET INTEREST INCOME IMPROVED SUBSTANTIALLY IN 2022, AGAINST A BACKDROP OF RISING INTEREST RATES. THE NET OPERATING INCOME OF SPANISH BANKS COMPARES FAVOURABLY WITH THAT OF OTHER EUROPEAN BANKS

Spanish banks' consolidated net interest income rose by 17.1% in 2022, driven chiefly by the price effect associated with the current environment of monetary policy tightening, which has had a larger impact on interest income. In business in Spain, net interest income also rose markedly, interrupting the downward pattern observed in recent years. When compared with their main European peers, Spanish banks are amongst those with the highest net interest income over assets.

1 BREAKDOWN OF CHANGE IN NET INTEREST INCOME (a)



2 EUROPEAN COMPARISON OF MAIN PROFITABILITY VARIABLES (b)
Consolidated data



SOURCES: EBA and Banco de España.

a The quantity effect is calculated as the product of the change in investments (in the case of income) or funding (in the case of expenses) and the return (income) or cost (expenses) held constant at the values of the initial period. The price effect is calculated as the product of the change in return (income) or cost (expenses) and the investments (income) or funding (expenses) held constant at values of the initial period. The mixed effect is a residual calculated as the difference between the total change and the sum of the price and quantity effects. The effects on net interest income are calculated as the difference between effects on interest income and interest expenses.

b Percentiles calculated based on the aggregate financial ratios published in the European Banking Authority's Risk Dashboard for each of the EU banking systems.

Consolidated net interest income improved substantially in 2022 (see Annex 2), mainly owing to the higher relative increase in lending rates. Net interest income rose by 17.1% year-on-year, driven by higher interest income, which more than offset the increase in income expense. The main reason for this improvement is the price effect, which has impacted lending rates more than deposit rates. Albeit to a lesser extent, the volume effect also made a positive contribution to the increase in consolidated net interest income (see Chart 2.12.1), partly as a result of the appreciation against the euro of some of the currencies of the countries in which Spanish banks operate. Net fees and commissions also increased significantly, up 7.9% year-on-year.

In business in Spain, net interest income also rose in 2022, likewise underpinned by the price effect, interrupting the downward pattern observed in recent years. In this case, the contribution of the volume effect was smaller than in previous years (see Chart 2.12.1).

The strong growth in net interest income and net fees and commissions drove gross income up 11% in year-on-year terms. The positive performance of these items offset the other operating losses and the decline in net trading income (6.1%) in 2022. Operating expenses rose slightly (1.7%), although excluding the extraordinary expenses booked in 2021 (see footnote 20) this rate of growth would be higher (5.7%), against a backdrop of high inflation affecting certain items such as labour costs.

Net operating income increased by 19.7% year-on-year, in accordance with the positive trend observed across Europe. A European comparison shows the main Spanish banks standing out in terms of the strength of their net interest income (above the 75th percentile in the country distribution) and in terms of their net fee and commission income and operating expenses (in line with the European median) (see Chart 2.12.2).

Gross operational risk losses fell by 21% compared with 2021. As in previous years, the chief reasons for these losses are inappropriate conduct and business practices. Losses owing to inappropriate anti-money laundering and cyber risk policies and practices have not increased, even though the high geopolitical tensions have raised the associated risks. Yet concern remains about the increase in these risks, whether as a result of customer fraud or, more directly, their impact on banks' operations and systems.

Impairment losses at the consolidated level rose significantly in 2022, driven by higher provisions in banks' business abroad. Impairment losses increased by 19.7% year-on-year in 2022 (see Chart 2.13.1). Spanish banks' cost of risk – defined as the ratio of impairment loss charges to lending – is higher than that of other European banks, although the gap has narrowed since its pandemic peak (see Chart 2.13.2). Together with the better net interest income performance described above, this suggests that Spanish banks' higher profitability comes partly at the cost of assuming higher risks.

In business in Spain, impairment allowances continued along the downward path observed in recent years, decreasing by 20.7% in 2022. As a result, the ratio of impairment losses to operating income in Spain is among its lowest levels in recent years (see Chart 2.13.1). In any event, in the coming quarters the current geopolitical and inflationary tensions, together with monetary policy tightening, could undermine bank customers' ability to pay, which would require banks to step up their provisioning efforts.

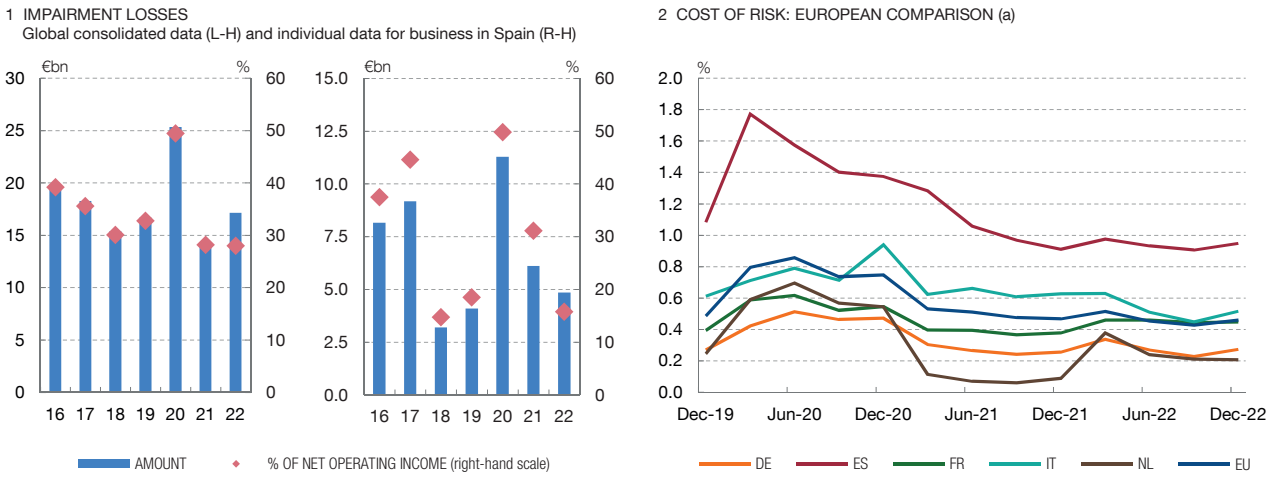
Banks increased their distributions in 2022, once the prudential recommendations on limiting dividend payments and share buy-backs were lifted.[21] Dividend payments exceeded €7.2 billion in 2022, with a pay-out ratio of

21 These recommendations were not extended beyond September 2021. See Recommendation of the European Central Bank of 15 December 2020 on dividend distributions during the COVID-19 pandemic and repealing Recommendation ECB/2020/35.

Chart 2.13

IMPAIRMENT LOSSES AT THE CONSOLIDATED LEVEL ROSE SIGNIFICANTLY, AND DECREASED IN BUSINESS IN SPAIN. IN COMPARATIVE TERMS, THE SPANISH BANKING SECTOR NOTABLY HAS A HIGHER LEVEL OF IMPAIRMENT CHARGES THAN ITS EUROPEAN PEERS

The impairment losses of Spanish banks at the consolidated level rose by 19.7%, driven by higher provisions in banks' business abroad, although the ratio of impairment losses to net operating income held stable compared with 2021. In business in Spain, however, impairment losses continued to decline notably following the sharp rise posted in 2020. Spanish banks' cost of risk is higher than that of other European banks.



SOURCES: EBA and Banco de España.

a The cost of risk is defined as impairment loss charges divided by gross lending.

40%, similar to pre-pandemic levels. The sharp increase in share buy-backs made by some banks stands out, the aim being to subsequently cancel the repurchased shares and reduce share capital,[22] thus providing additional remuneration for shareholders and driving up earnings per share (see Chart 2.14.1).

In 2022, Spanish banks' cost of equity fell more sharply than that of other euro area banks. For Spanish banks the cost of equity[23] went from 8.6% at December 2021 to 6.6% at December 2022, whereas for the euro area banks it fell from 8.1% to 7.7% over the same period. The reason for the decline was, first, the Europe-wide drop in the equity risk premium, which fell by some 1.5 pp (prompting a drop of 1.8 pp in the cost of equity of Spanish banks and of 1.9 pp at euro area banks), thus largely offsetting the impact of the increase of almost 1.8 pp in risk-free interest rates. The correlation between the returns required by investors from the banking sector and

22 Banks' capital policies can also envisage other actions, such as the sale of own shares or issue of new shares, that fully or partly offset the effects of share buy-backs on their equity. But in 2022, in contrast with previous years, the plans of the listed banks – especially of the big four – explicitly included the aim of remunerating shareholders.

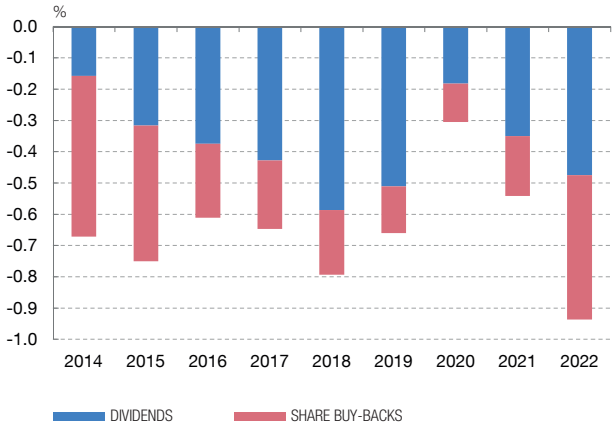
23 Estimated using a dividend discount model; see L. Fernández Lafuerza and J. Mencía. (2020). "Recent developments in the cost of bank equity in Europe". *Economic Bulletin* - Banco de España 4/2020, Analytical Articles.

Chart 2.14

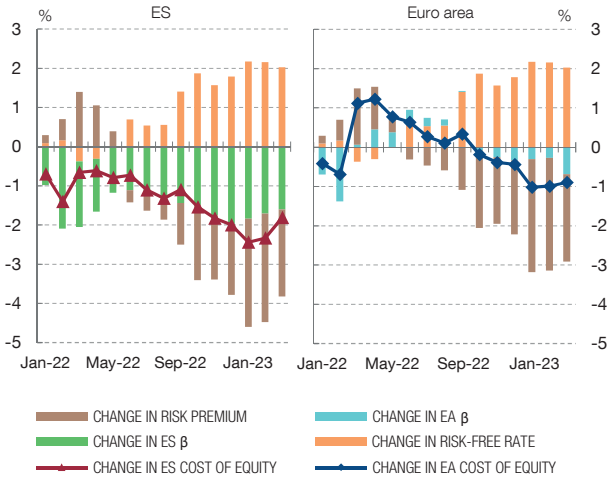
THE DIVIDEND PAYMENTS AND SHARE BUY-BACKS OF LISTED BANKS INCREASED NOTABLY IN 2022, WHILE THE COST OF EQUITY OF SPANISH AND OTHER EUROPEAN BANKS FELL, MAINLY OWING TO THE LOWER EQUITY RISK PREMIUM

Dividends and share buy-backs increased sharply in 2022, once the recommendations limiting dividend distributions in the wake of the COVID-19 pandemic were lifted. The cost of equity of euro area banks fell slightly in 2022, essentially owing to the drop in the equity risk premium, and despite the increase in risk-free rates. Spanish banks' cost of equity fell more sharply, due to the decline in the correlation with the equity market. The upside risks to banks' cost of equity have risen notably since the financial turmoil of March 2023.

1 DIVIDENDS AND SHARE BUY-BACKS AS A PERCENTAGE OF RISK-WEIGHTED ASSETS. Consolidated data



2 CHANGE IN THE COST OF EQUITY AND ITS DECOMPOSITION FOR SPANISH (LEFT-HAND PANEL) AND EURO AREA (RIGHT-HAND PANEL) BANKS. With respect to December 2021 (a)



SOURCE: Banco de España, drawing on data from Datastream and Consensus Economics.

a The different colours of the bars denote the contribution of the corresponding item to the change in the cost of equity. The risk-free rate used is the yield of the inflation-linked bond issued by the French government, and the stock market, the EURO STOXX. Calculations based on a dividend discount model. See L. Fernández Lafuerza and J. Mencía. (2020). "Recent developments in the cost of bank equity in Europe". *Economic Bulletin* - Banco de España 4/2020, Analytical Articles.

those demanded from the European equity market overall also contributed to a decline in the cost of equity of around 2 pp for Spanish banks and 0.3 pp for euro area banks (see Chart 2.14.2). The cost of equity of both Spanish and euro area banks began to rise in February and March 2023, mainly owing to the higher equity risk premium.

The fall in the cost of equity cushioned the increase in the overall cost of deposits in 2022. Compared with the 2020-2021 average, interest expenses on Spanish bank deposits rose by 58 bp in the year (see Chart 2.8.1). This increase in the cost of deposits contrasts with the estimated fall of 26 bp in the cost of equity over the same period, resulting in a more contained increase in banks' total funding costs.

Against a backdrop of tighter global financial conditions, the risk of higher growth in all funding costs has risen. Although bank share prices have been highly volatile, falls in share prices in March 2023 translated into increases in the cost of equity required in the financial market, thus checking the previous favourable

performance. Moreover, further increases in risk premia will drive up all funding costs, but foreseeably in particular the cost of equity and of unsecured wholesale debt, along with the cost of more senior debt.

Expected revenue from the extraordinary temporary levy on banking sector profits amounted to €637.1 million in February 2023.[24] According to the regulations governing the levy, payment obligations in 2023 will be calculated, for each consolidated group for corporate income tax purposes in Spain, as 4.8% of net interest income and net fee and commission income in 2022. The payment must be completed in September 2023, but 50% of the total must be paid earlier, in February. Extrapolating the information on the payments to the full year, they would be equivalent to 5% of net consolidated profit obtained in 2022. The payment obligations in 2024 will work in the same way, based on profits obtained in 2023.

Solvency

CET1 ratios fell by 25 bp in 2022 after climbing in the two previous years (see Chart 2.15.1). This change may be broken down into the contribution of CET1 (in the numerator) and the contribution of RWAs (in the denominator), which in turn may be broken down as the product of total assets and RWA density (the RWAs to total assets ratio), making a total of three factors. In 2022 CET1 ratios declined on account of the growth in total assets (2.6%) and the increase in RWA density (53 bp), thus reflecting a relative increase in risk. In turn, CET1 capital rose by 2.1% between 2021 and 2022, insufficient to prevent a reduction in the ratio.

CET1 ratios and voluntary buffer levels (including the Pillar 2 guidance, P2G) are uneven across banks (see Chart 2.15.2). The two magnitudes are highly correlated, with a higher CET1 ratio associated with a higher voluntary buffer level. The correlation coefficient is over 0.99 and the linear regression coefficient is equal to 1; excluding the upper decile of the CET1 ratio distribution, these values would be 0.92 and 1.05, respectively. The higher voluntary buffer observed at the less significant institutions possibly reflects a more prudent attitude in view of their greater difficulties to secure funding in the form of capital and subordinated debt, especially at times of financial stress.

The change in CET1 ratios in 2022 was also uneven across banks. The three largest banks, which at December 2022 accounted for 76% of RWAs, saw their (RWA-weighted) average CET1 ratio fall by 33 bp in 2022. This was particularly due to the

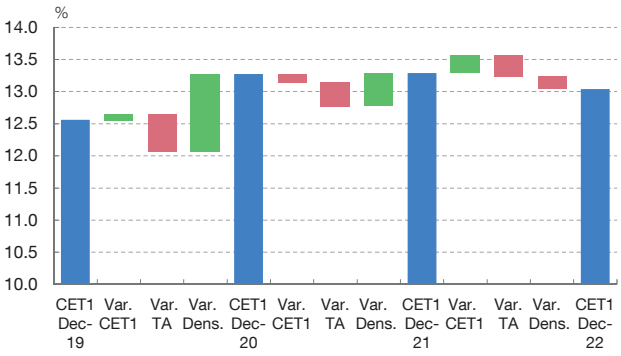
24 See press release of the Ministerio de Hacienda y Función Pública, of 21 February 2023. Article 2 of Law 38/2022 contains the specific regulations on this levy, which applies to banks that operate in Spain and whose interest income plus fee and commission income for 2019, determined according to the accounting regulations applicable, amount to €800 million or more.

Chart 2.15

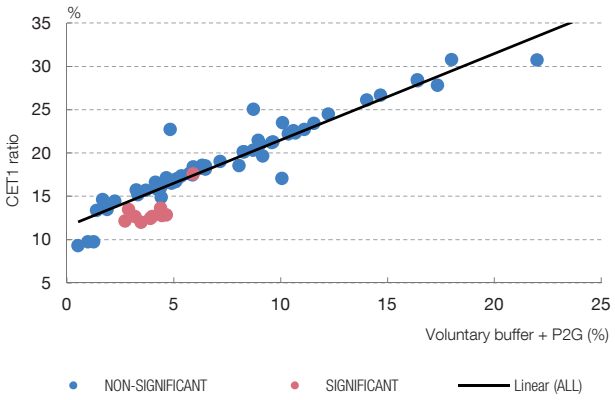
THE INCREASE IN TOTAL ASSETS AND RWA DENSITY IN 2022 TRIGGERED AN AGGREGATE DECLINE IN CET1 RATIOS, WHICH ARE HIGHLY HETEROGENEOUS ACROSS BANKS

The CET1 ratio of the Spanish banking sector fell by 25 bp in 2022, on account of the growth in assets and the increase in RWA density, and despite the increase in the volume of CET1. The CET1 ratio is highly heterogeneous at the individual bank level, showing a clear positive correlation with the voluntary buffer level plus the Pillar 2 guidance (P2G) on RWAs.

1 BREAKDOWN OF THE CHANGE IN THE CET1 RATIO BETWEEN 2019 AND 2022. CHANGE IN THE NUMERATOR AND THE DENOMINATOR (a)
Consolidated data



2 VOLUNTARY BUFFER PLUS P2G COMPARED WITH THE CET1 RATIO AT DECEMBER 2022, % of RWAs (b)
Consolidated data



SOURCE: Banco de España.

a The CET1 ratio can be broken down as the change in CET1, total assets (TA) and density (Dens.), where the density is calculated as the RWAs to total assets ratio. Thus, the CET1 ratio is calculated as CET1 over TA x Dens. The red (green) colour of the bars denotes a negative (positive) contribution to the change in the CET1 ratio.

b The red dots represent the banks directly supervised by the SSM. To better view the data, banks with a CET1 ratio in the top decile (a CET1 ratio of 34% and which include eight banks, all of which are non-significant) have been omitted, but this does not affect the overall conclusions. The trend line shown takes into account the full sample.

growth in their RWAs on account of their business expansion abroad. By contrast, the banks representing the other 24% of RWAs at December 2022 saw their (RWA-weighted) average CET1 ratio increase by 8 bp year-on-year in 2022.

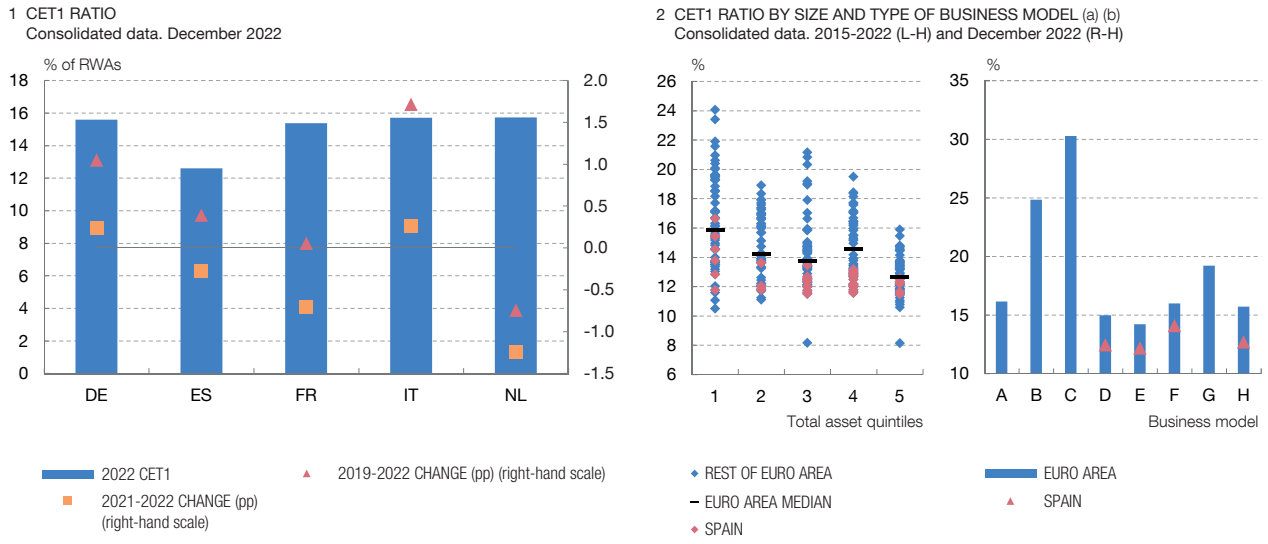
Spanish banks' CET1 ratios remain lower than those of some of their European peers, at the low end of the CET1 ratio distribution for different bank sizes and business models. The CET1 ratio for Spain at end-2022 was lower than that for countries such as Germany, France, Italy or the Netherlands. However, compared with France and the Netherlands, the Spanish ratio saw a smaller decline in the year. Also, like those of Germany, France and Italy, Spain's CET1 ratio is above its pre-pandemic level (see Chart 2.16.1). CET1 ratios are highly heterogeneous across European banks, although in general the larger banks tend to operate with lower ratios. Grouped by bank size, Spanish banks lie at the low end of the CET1 ratio distribution (see Chart 2.16.2).[25] In addition, the business model also affects banks'

25 It has also been documented that larger global banks' capital ratios have fallen to pre-pandemic levels; see Basel III capital ratios for largest global banks fell to pre-pandemic levels in H1 2022, latest Basel III monitoring exercise shows. BIS press release, 28 February 2023.

Chart 2.16

THE SPANISH BANKING SECTOR'S CET1 RATIO REMAINS AT THE LOWER END OF THE CET1 RATIO DISTRIBUTION AT THE EUROPEAN LEVEL

The Spanish banking sector's CET1 ratio declined less than in other European economies and thus remained above pre-pandemic levels. At the European level, larger banks operate with lower CET1 ratios. Grouped by size and type of business model, Spanish banks are also at the lower end of the distribution of this metric.



SOURCES: EBA, ECB and Capital IQ.

a Each dot in the left-hand panel denotes a bank and a year.
b The information by type of business model for the euro area and Spain is sourced from the ECB and the Banco de España, respectively. The following categories are considered: corporate/wholesale lenders (A), custodians and asset managers (B), development/promotional lenders (C), diversified lenders (D), global systemically important banks (E), retail and consumer credit lenders (F), small market lenders (G) and universal and investment banks (H).

CET1 ratio levels. By business model, Spanish banks' CET1 ratio levels are lower than the euro area aggregates (see Chart 2.16.2).

The CET1 ratio levels of Spanish banks are clearly above average requirements and, on aggregate, provide significant loss-absorbing capacity. Whether supervised by the ECB or directly supervised by their national central banks, all banks are subject to capital (and liquidity) requirements under the strict Basel III framework. As Chart 2.15.2 shows, banks also operate with ample margin over these requirements on account of their voluntary capital buffers (envisaged in the supervisory guidance). All of which provides the banking sector overall with significant loss-absorbing capacity, even in the face of highly adverse macro-financial scenarios.[26] Nevertheless, the prevailing high uncertainty requires especially diligent monitoring by the

26 For the latest results of the Banco de España's stress tests, see *Financial Stability Report Autumn 2022.*

supervisor, to ensure that this resilient solvency position does not wane over time. This is particularly important in view of the heightened probability of risk scenarios materialising, such as those linked to the financial turmoil and the increase in risk premia observed since March 2023. These differ from the main risk scenarios envisaged in previous quarters, linked to energy supplies and inflationary pressures.

2.2 Non-bank financial sector and systemic interconnections

2.2.1 Non-bank financial sector

Vulnerability analysis

Some recent stress episodes have highlighted the vulnerability of certain financial intermediaries, in particular in terms of their liquidity position. These episodes have affected both bank and non-bank financial intermediaries:

i) First, the difficulties experienced by certain energy firms with central counterparties in commodity derivatives trading (for more details, see Section 2.2.2 below) when they struggled to meet margin calls prompted by soaring energy prices and energy price volatility in 2022.

ii) Also, in the second half of 2022, the increase in UK government debt yields affected the liability-driven investment (LDI) strategies used by certain UK pension funds to boost the return on their investments, on occasions with resource to synthetic leveraging.[27] The higher government debt yields made it more difficult for the LDI funds to maintain their operations. This prompted forced sales of UK sovereign debt, which generated high volatility in the government debt yield curve in the closing months of 2022.

iii) Lastly, in March 2023, doubts concerning the robustness of Silicon Valley Bank (SVB) and Credit Suisse trigged a run on funds at both institutions, resulting in the resolution of SVB and the takeover of Credit Suisse by UBS (see Box 1 for details on these individual crises and their systemic implications).

For the time being this stress has been constrained to certain institutions and segments, but greater systemic effects could arise, in particular through the

27 For example, the funds invested in LDI funds were used to purchase government debt, and this in turn was used as collateral in repos to obtain more funds with which to acquire other assets offering higher returns. In addition, the LDI funds used interest rate derivatives to match their asset/deposit maturities.

non-bank financial intermediation (NBFI) segment. The empirical evidence available flags the procyclical behaviour of various NBFI segments, in particular investment funds; were significant market risks to materialise, this could be reinforced through forced asset sales to reduce their leveraging and increase their liquidity.[28] It is also important to note that, in several cases, the economic authorities' actions helped contain the events described: the steps taken by the fiscal and prudential authorities of various countries (such as the United Kingdom and Sweden) to protect energy firms' liquidity; the bond purchases made by the Bank of England to stabilise the UK government debt market; the measures adopted by the US authorities guaranteeing all SVB deposits and providing an emergency liquidity facility to other medium-sized banks; and the steps taken by the financial authorities and in Switzerland to facilitate the takeover of Credit Suisse by UBS.

Developments in insurance companies, investment funds and pension funds

Insurance companies, investment funds and pension funds saw their assets decrease in size in 2022, in Spain and in the euro area overall. This decrease of around 10% in asset size since the start of 2022 is the largest since the global financial crisis (see Chart 2.17.1). It is important to note that this decrease in asset size stems from changes in stock market values and from sales of assets held by these non-bank financial intermediaries. In 2022, the euro area overall saw increasing sales of debt securities and shares, which moderated only in the last quarter, whereas in Spain the year saw significant net acquisitions of long-term debt securities, while holdings of listed shares fell slightly (see Chart 2.17.2).

Investment funds

Investment funds in the euro area overall, excluding Spain, saw net capital outflows in 2022, while Spanish funds performed more favourably. The euro area overall, excluding Spain, recorded net capital outflows, especially from fixed-income funds (see Chart 2.18.1). This pattern moderated towards the end of the year, when flows in fixed-income funds recovered somewhat. In the case of Spanish investment funds, capital outflows were concentrated at mixed investment funds (that is, funds that invest both in bonds and shares), but these were more than offset, especially in Q4, by

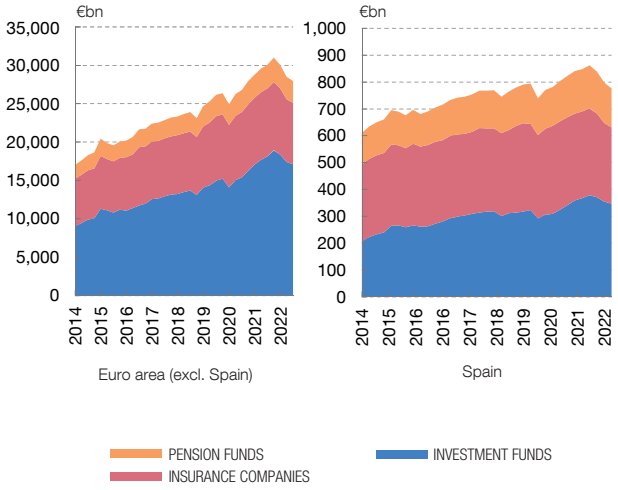
28 See, for instance, Y. Timmer. (2018). "Cyclical investment behavior across financial institutions". *Journal of Financial Economics,* volume 129, issue 2, pp. 268-286. The author finds that investment funds sell more debt than other institutional holders when past returns are negative. The ECB draws a similar conclusion: ECB. (2022). "Liquidity mismatch in open-ended funds: trends, gaps and policy implications". *Financial Stability Review,* November. In this case, funds' forced sales are triggered by liquidity mismatches.

Chart 2.17

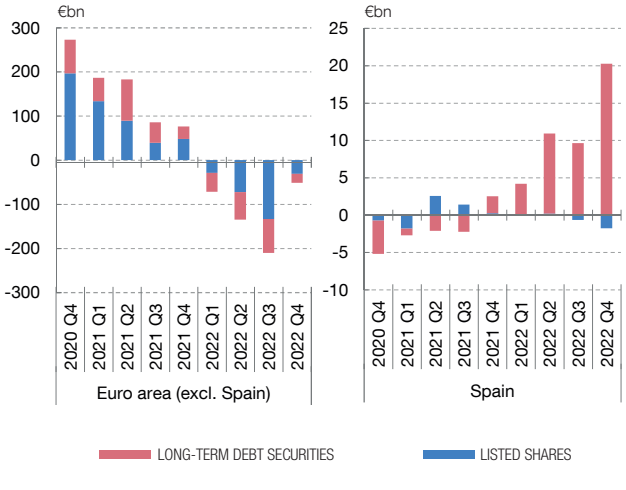
THE TOTAL ASSETS OF PENSION AND INVESTMENT FUNDS AND INSURANCE COMPANIES DECLINED IN 2022, BOTH IN THE EURO AREA OVERALL AND IN SPAIN. THE POSITIVE NET ACQUISITIONS OF LONG-TERM DEBT SECURITIES BY THESE INTERMEDIARIES IN SPAIN STOOD IN CONTRAST TO THE DEVELOPMENTS OBSERVED IN OTHER COUNTRIES

In 2022 H2 the total assets of funds and insurance companies continued their decline which began in H1, both in Spain and in the euro area overall, making for a cumulative drop of around 10% over the past year in both cases. In the euro area overall, these non-bank financial intermediaries made net sales of shares and long-term debt securities, whereas Spain saw high net acquisitions of long-term debt securities.

1 TOTAL ASSETS OF NON-BANK FINANCIAL INTERMEDIARIES IN THE EURO AREA (EXCL. SPAIN) AND IN SPAIN (a)



2 NET ACQUISITIONS OF LISTED SHARES AND LONG-TERM DEBT SECURITIES BY NON-BANK FINANCIAL INTERMEDIARIES IN THE EURO AREA (EXCL. SPAIN) AND IN SPAIN (b)



SOURCES: Banco de España, ECB and Securities Holding Statistics by Sector.

a The following non-bank financial intermediaries are considered: money and non-money market investment funds, insurance companies and pension funds.
b Net quarterly transactions at market value by non-bank financial intermediaries (investment funds, pension funds and insurance companies).

subscriptions to fixed-income funds (see Chart 2.18.1).[29] These capital inflows into fixed-income funds are at least partly responsible for the above-mentioned sharp increase in Spanish investment funds' purchases of debt securities (see Chart 2.17.2).

Debt securities gained weight in investments funds' portfolio holdings in 2022. Equities fell slightly as a proportion of total holdings of marketable instruments in euro area investment funds (excluding Spain), and posted a somewhat sharper fall as a proportion of Spanish funds' holdings (see Chart 2.18.2). This difference is related to the significant capital inflows into Spanish fixed-income funds described above. Also important to note is that, while euro area funds (excluding Spain) saw their cash and deposits holdings grow, these holdings fell in Spanish funds, resulting in a certain degree of convergence. Lastly, both euro area funds (excluding Spain) and Spanish funds saw a decline in the market value of their higher risk debt securities (those rated BBB or lower).

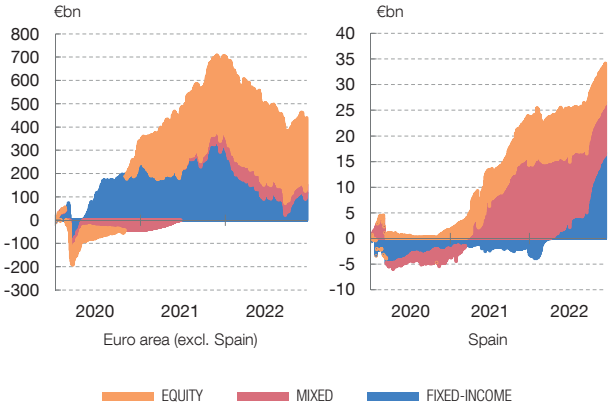
29 The data on investment funds' capital inflows/outflows are obtained from Refinitiv and may differ from other official statistics.

Chart 2.18

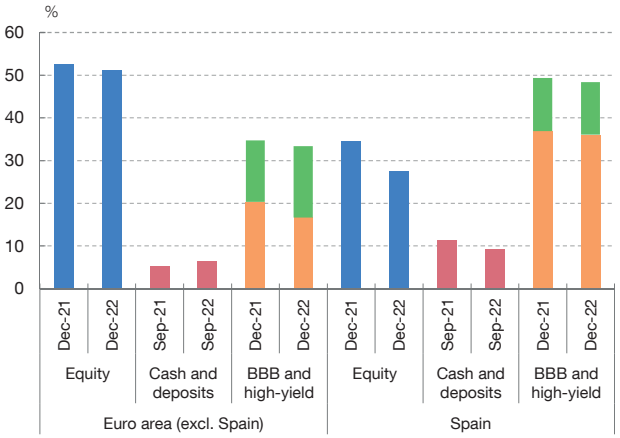
FIXED-INCOME FUNDS IN OTHER EUROPEAN COUNTRIES RECORDED CAPITAL OUTLOWS IN 2022, WHILE A MORE FAVOURABLE PATTERN WAS OBSERVED IN SPAIN. HIGHER RISK SECURITIES HAVE LOST GROUND ACROSS THE BOARD

Investment funds in other euro area countries recorded net capital outflows in 2022, particularly in the case of fixed-income vehicles, although these flows have recently recovered. In Spain, this segment saw significant net suscriptions in the final stretch of the year, offsetting the capital outflows from other vehicles. Higher risk debt securities, rated BBB or lower, declined slightly in the euro area as a whole and in Spain.

1 INVESTMENT FUND FLOWS IN THE EURO AREA (EXCL. SPAIN) AND IN SPAIN (a) (b)



2 LIQUIDITY AND HOLDINGS OF HIGH-YIELD FIXED-INCOME AND EQUITY INVESTMENT FUNDS. EURO AREA (EXCL. SPAIN) AND SPAIN (c) (d)



SOURCES: Banco de España (Cuentas Financieras), ECB (Securities Holdings Statistics by Sector, Quarterly Sector Accounts) and Refinitiv.

a Cumulative change in investment fund net capital inflows and outflows since 15 January 2020, drawing on a representative sample, prepared by Refinitiv, of funds domiciled in euro area countries. The data for Spain in the right-hand panel refer to funds domiciled in Spain included in this sample. Data up to end-2022.
b The left-hand panel includes information on the funds domiciled in Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands and Portugal. The fixed-income fund category also includes vehicles that invest in the money market.
c The term "high-yield" refers to sub-investment grade credit ratings (from BBB+ to BBB—). The orange and green bars indicate the weight of BBB and high-yield holdings, respectively. Only non-money market investment funds are considered in the calculation of the level of cash and deposits.
d The level of equity is measured as a percentage of the fixed-income and equity portfolio, the level of cash and deposits as a percentage of total financial assets, and BBB and high-yield holdings as a percentage of the fixed-income portfolio.

Insurance companies

Income from direct insurance premiums rose by 4.6% in 2022, in line with the normalisation of general economic activity. Income from non-life premiums grew by 5.2%, while income from life premiums rose by just 3.7%. Overall, income from insurance premiums has returned to pre-pandemic levels (see Chart 2.19.2).

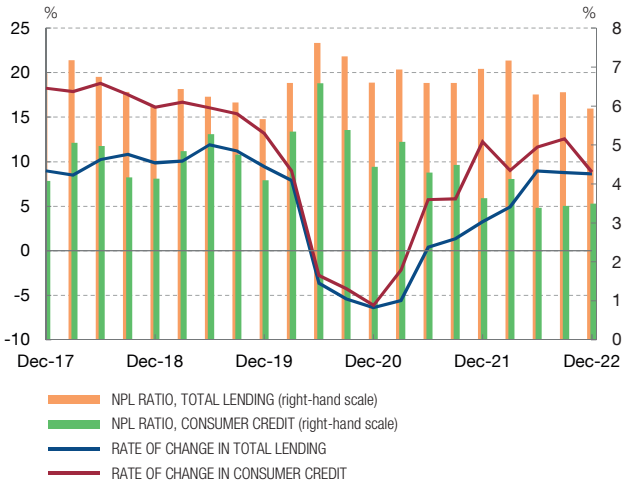
There were no signs of risk in the profitability or solvency of the insurance sector in 2022. The good performance of income from non-life products in the year offset the increase in claims. Meanwhile, income from the life insurance business improved as a consequence of the higher interest rates, which lifted the rate of return on some of the assets in which insurance companies hold their investments. Overall, insurance sector profitability improved in 2022, with ROE at 13.3% (compared with 12.4% in 2021). The solvency ratio (SCR) stood at 235.3%, down slightly compared with 2021 (240.7%).

Chart 2.19

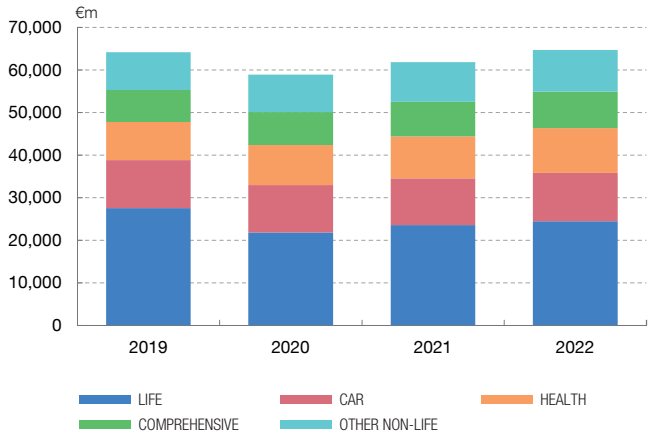
LENDING BY SPECIALISED LENDING INSTITUTIONS INCREASED IN THE LAST YEAR, WHILE THE NPL RATIO EDGED DOWNWARDS. INCOME FROM INSURANCE PREMIUMS ROSE IN THE SAME PERIOD

Lending by specialised lending institutions (SLIs) to the resident private sector rose by 8.6% in the last year, similar to the change in their consumer credit. The NPL ratio in total SLI lending declined by 1 pp, while the NPL ratio in their consumer credit hardly changed. Income from insurance premiums rose in 2022, in line with the normalisation of economic activity.

1 RATE OF CHANGE IN LENDING AND NPL RATIOS AT SPECIALISED LENDING INSTITUTIONS (a) (b)



2 INCOME FROM INSURANCE PREMIUMS



SOURCE: Banco de España.

a The analysis was performed with the group of SLIs existing in December 2022 and thus excluded the effects of corporate transactions carried out in recent years.
b The total NPL ratio is higher than the NPL ratio for the consumer segment because of one large SLI specialising in high-risk mortgage loans.

Pension funds

Contributions to pension funds and their total assets and returns all declined in 2022. Gross contributions to pension funds fell by more than 25% in the year, partly owing to the lower limit on tax deductions for contributions to individual pension schemes.[30] Total pension scheme assets also fell, by 9.6% year-on-year. In addition, market volatility, whipped up by the war in Ukraine and higher inflationary pressures, triggered a pronounced fall in pension funds' average annual returns, down from 8.5% at December 2021 to –9.7% at December 2022. Nevertheless, despite falling by 79 bp, long-term returns (25 years) remained in positive territory, standing at 2.5% at December 2022.

Specialised lending institutions

Lending by specialised lending institutions (SLIs) increased in 2022, while their NPL ratios declined. In 2022, lending by SLIs rose by 8.6% year-on-year. In

30 The maximum tax deductible amount was reduced from €8,000 a year in 2020 to €2,000 in 2021. In 2022 it was €1,500 a year, as stipulated in Article 59(2) of the State Budget for 2022, amending Article 52(1) of Law 35/2006 of 28 November 2006.

particular, consumer credit, which is their traditional business segment, grew by 8.8% on December 2021, 3.4 pp less than a year earlier. NPL ratios in SLI lending to the resident private sector stood at 5.9% (1 pp less than at December 2021), while NPL ratios in their consumer credit fell by 0.1 pp to 3.5% (see Chart 2.19.1).

2.2.2 Systemic interconnections

Securitisations originated by Spanish banks are an important source of interconnections with other financial intermediaries, which act as holders of these instruments. The outstanding amount of securitisations originated in Spain amounted to €132 billion in 2022 Q4, 14% of the European total. This percentage is similar to that of countries such as Italy, the Netherlands and France, and is topped only by the volume originated in the United Kingdom (see Chart 2.20.1). Mortgage-backed securities account for the bulk of the total in Europe, amounting to some 60% in recent years (see Chart 2.20.2), while in Spain they account for 75% of securitisations issued by Spanish banks.

The materialisation of bank credit risk could affect holders of instruments outstanding. Approximately 50% of all securitisations in the period 2019-2022 were distributed to investors, with the remainder retained by banks to obtain liquidity in the Eurosystem's refinancing operations.[31] Holders of placed securitisations may be exposed to collateral value deterioration, in the event of credit quality deterioration of the underlying loans. According to loan-level analysis, the average LTV ratios of the assets used as collateral in securitisations held steady at around 70% in the period 2005-2021, with a decrease in the percentage of loans with LTV ratios over 100%.

Central counterparties (CCPs), which have a growing presence in derivatives markets, are a further important source of interconnections between financial sectors. Their growing prominence (see Chart 2.21.1) has been encouraged by the authorities, with a view to assimilating one of the lessons learned after the global financial crisis, when many of these operations were conducted bilaterally between counterparties, with a lack of transparency and insufficient buffers to accommodate price fluctuations in the underlying assets. CCPs have now acquired a central role, which demands that their risks be closely monitored and that their activity be appropriately regulated and supervised. Thus, in 2022, a number of energy firms experienced difficulties accessing commodity derivatives operations with CCPs, as they were unable to meet their margin calls when certain commodity prices shot up.

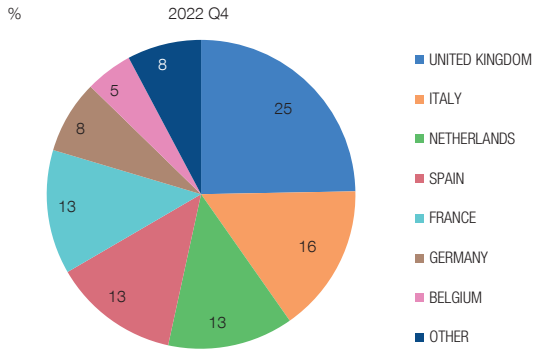
31 On the retention rate, see AFME (2022), *AFME Securitisation Data Report Q3 2022*. Partially reflecting this retention rate, at end-2021 the banking sector was the main holder of securitisations, mostly high credit quality. Those held by other sectors are generally lower credit quality. For more details, see ESRB (2022), *Monitoring systemic risks in the EU securitisation market,* July.

Chart 2.20

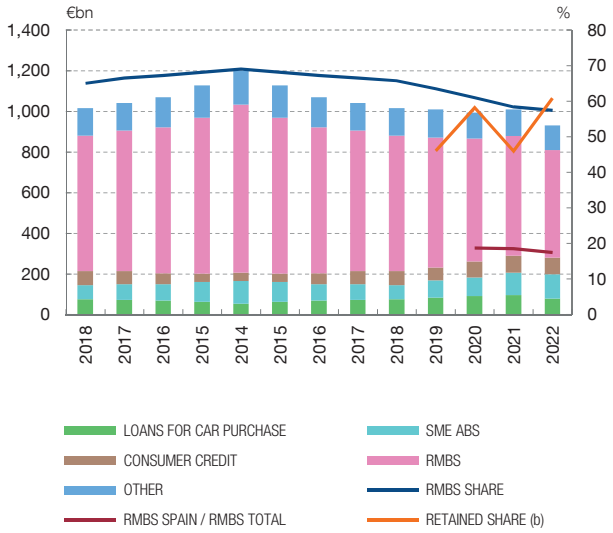
SECURITISATIONS REPRESENT A SOURCE OF POSSIBLE INTERCONNECTION BETWEEN THE BANKING SECTOR AND OTHER SECTORS, AND MAINLY COMPRISE MORTGAGE-BACKED SECURITIES IN THE CASE OF SPAIN

The outstanding amount of securitisations with Spanish collateral accounts for 13% of total securitisations in Europe, a very similar proportion to that of Italy and Germany, and topped only by the United Kingdom. Mortgage-backed securities represent the bulk of outstanding securitisations in Europe, accounting for a very sizeable share of loan-backed securities originated in Spain.

1 ORIGIN OF COLLATERAL OF OUTSTANDING SECURITISATIONS



2 DISTRIBUTION OF OUTSTANDING SECURITISATIONS IN EUROPE, BY TYPE OF COLLATERAL (a)



SOURCE: Association for Financial Markets in Europe.

a RMBS: Residential mortgage-backed securities. SME ABS: Asset-backed securities backed by SME loans.
b Retained share of issuances in the corresponding year.

Some of these market tensions ultimately passed through to banks exposed to these firms, albeit with no systemic consequences.[32]

Crypto-asset market prices have a positive, albeit limited, correlation with market prices of traditional risk-bearing financial assets such as equities. This correlation was particularly high during the stress episodes of 2020 and 2022, associated respectively with the onset of the COVID-19 pandemic and the start of the war in Ukraine (see Chart 2.21.2). The possibilities of diversifying the risk in traditional assets through investment in crypto-assets are therefore limited; indeed, on the contrary, crypto-assets could be a potential contagion channel. Nevertheless, it is important to note that, so far, the pass-through of stress episodes in crypto-assets (for example, the collapse of FTX) to other financial assets and, in general, to traditional financial intermediaries, has been very contained and has not been systemic. After falling sharply in 2022, the market prices of the main crypto-assets recovered rapidly in the opening months of 2023, which suggests that this market

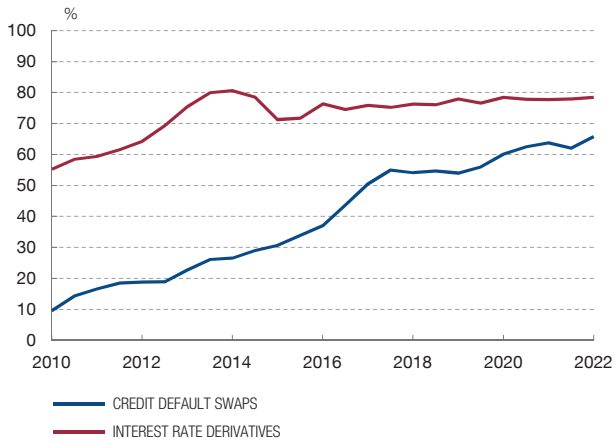
32 For more details, see Section 2.2.2 of Chapter 2 of the Banco de España's Financial Stability Report Autumn 2022.

Chart 2.21

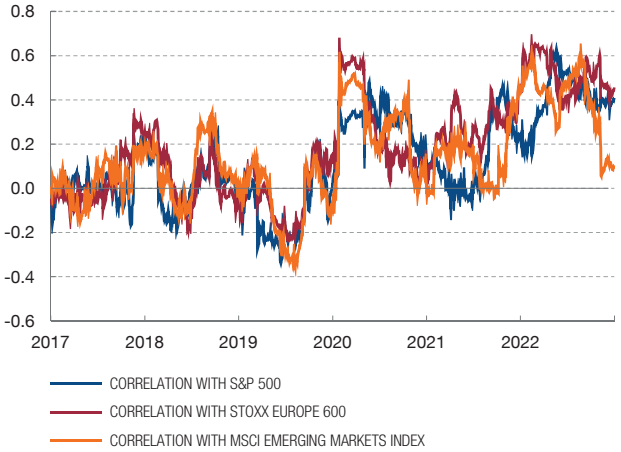
THE GROWING IMPORTANCE OF CENTRAL COUNTERPARTIES AND THE EMERGENCE OF CRYPTO-CURRENCIES REPRESENT OTHER, ALBEIT VERY DIFFERENT, SOURCES OF INTERCONNECTIONS BETWEEN FINANCIAL INTERMEDIARIES

The percentage of CCP traded derivatives has risen since the financial crisis; this has raised the systemic importance of these intermediaries, which help accumulate resources that can absorb shocks and thus reduce the risk of contagion. Crypto-assets are another example of interconnections, and their price in the most recent period has been positively correlated with that of other traditional risk-bearing financial assets.

1 DERIVATIVES CLEARED THROUGH CENTRAL COUNTERPARTIES



2 CORRELATION IN THE DAILY RETURNS ON A CRYPTO-ASSET INDEX AND ON EQUITY INDICES - EUROPE, UNITED STATES, EMERGING ECONOMIES (b)



SOURCES: BIS, Refinitiv, CoinMarketCap and MVIS Investable Indices.

a Percentages calculated drawing on traded notional amounts.
b The crypto-asset index used to calculate the correlations is the MVIS CryptoCompare Digital Assets 100 Index, which comprises the 100 main (backed and unbacked) crypto-assets, based on their market value. Correlation is calculated using three-month rolling windows of the daily returns on each index.

still has the potential to grow and to become more systemic. Indeed, the turmoil in medium-sized banks in the United States highlighted the extent of the interconnections between stablecoins and these banks, through the deposits in which a significant share of their reserve assets were held. Chapter 3 analyses the latest regulatory developments in crypto-assets.

Box 2.1

DETERMINANTS OF THE EUROPEAN BANKING SECTOR'S DEBT ISSUANCE COST IN THE CURRENT CONTEXT OF MONETARY TIGHTENING

Access to the financial markets to issue debt is of great importance to the banking sector as debt makes up a significant part of its funding (see Chart 2.8.1 above). Also, markets enable banks to issue instruments in order to comply with regulatory requirements, relating to solvency, resolution and liquid asset holdings. Markets play an important role in this respect, as they have to assess whether or not to acquire the debt issued by banks, and on what conditions, thereby contributing to disciplining banks' behaviour.

Chapter 2 of the FSR shows how, in the context of a sharp monetary policy tightening, bank debt issuance costs are increasing steeply.[1] This box analyses the determinants of the costs of issuing wholesale debt on the primary market for a group of Spanish and other European banks, exploring the relative importance of factors relating to the issuer, the type of instrument and, also, the cost of sovereign debt, which usually acts as a reference for Spanish enterprises.

The database used covers issuances made by a sample of 36 euro area banks[2] in the wholesale market, during the period 2019-2022. For each issuance, the maturity of the bond, the currency of issue (euro or other), the 10-year risk-free interest rate (Overnight Index Swap (OIS)) and the sovereign spread (expressed as the difference between the 10-year sovereign bond yield and this risk-free rate) are considered.

Along with the issuance characteristics and sovereign rate references, the financial ratios of the issuing banks are also included in the analysis. In particular, the CET1 solvency ratio, the return on assets (ROA), the net stable funding ratio (NSFR) and the leverage ratio are also considered. In addition, the issuing bank's credit rating is also included.[3] And indicators of the relative cost of issuing a type of instrument according to its degree of subordination are also included in the regressions.[4]

First, a higher sovereign risk premium and a higher risk-free interest rate are seen to be passed through to bank debt issuance costs. In this respect, the increase in the OIS was fundamental in increasing the cost of bank debt in 2022, this being one driver of the homogeneous rise for the banks of all euro area countries. At the same time, the impact of sovereign differentials, relative to the OIS, has been uneven across countries, contributing to a relatively lower bank debt issuance cost in Germany, France and the Netherlands (see Chart 1).

Second, the results also indicate that more profitable banks with a lower leverage ratio have a lower cost of financing, showing the importance for the markets of banks' financial strength.[5] For Spanish banks, a better leverage ratio and higher profitability than the euro area banks' average appear to be associated with a reduction in their debt issuance costs (see Chart 1).

Financial ratios are significantly heterogeneous across banks and their effect on the cost of debt cannot be properly measured when institutions are grouped by country. Thus, the cost of debt for banks with different profitability and leverage ratios is also investigated, while keeping other factors constant. Notably, despite the average increase in 2022 in the risk-free interest rate, banks with better solvency and profitability conditions (in the 90th and 95th percentiles) have seen their financial cost increase by 0.7 pp less than banks that have these ratios in the middle percentiles of the distribution (see Chart 2).

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1 See also, for the euro area as a whole, the following speech on the impact of interest-rate hikes on financial conditions: P. Lane, "The euro area hiking cycle: an interim assessment", *Dow Lecture,* National Institute of Economic and Social Research.

2 Including banks from Belgium, Germany, Ireland, Greece, Spain, France, Italy, Netherlands, Austria, Portugal and Finland.

3 It is included in the regression as a categorical variable that takes values from 0 to 19, where 0 corresponds to the highest credit rating (AAA) and 19 to the lowest (DD).

4 Specifically, interactions between instrument fixed effects (for CoCos, T2, senior non-preferred debt and senior unsecured debt; secured debt being the instrument class used as reference for the others and absorbed in the constant) and the year of issue are included. Thus, the coefficient of these variables measures the additional financing cost of these instruments in each year relative to secured debt. In the event of default, secured debt offers instrument holders better recovery expectations and, thus, the hypothesis is that this category is associated, ceteris paribus, with a lower issuance cost.

5 In the period studied (2019-2022), if profitability and leverage are controlled for, there is no statistically significant relationship between other bank-level financial ratios and the issuance cost. The limitation of the time period considered needs to be taken into account, and also the possibility that in other periods with different macro-financial conditions the explanatory power of the different ratios may vary. In any case, the results are consistent with the financial situation of banks being relevant to their debt issuance cost in a broad range of macro-financial scenarios.

DETERMINANTS OF THE EUROPEAN BANKING SECTOR'S DEBT ISSUANCE COST IN THE CURRENT CONTEXT OF MONETARY TIGHTENING (cont'd)

Chart 1
FACTORS BEHIND DIFFERENCES IN ISSUANCE COSTS. BY COUNTRY (a)

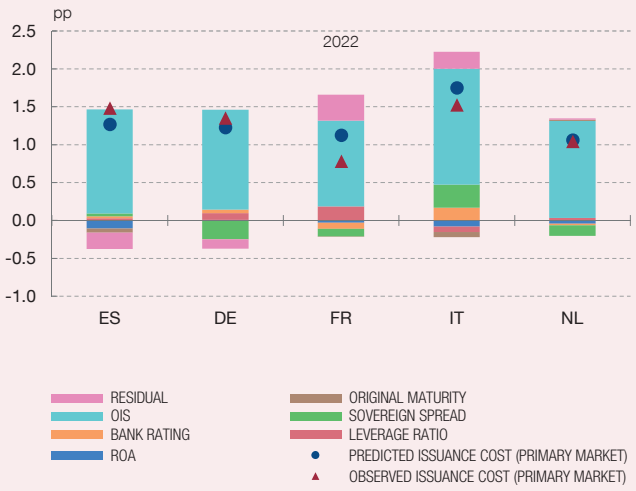


Chart 2
ISSUANCE COST BROKEN DOWN BY BANK CHARACTERISTICS (b)

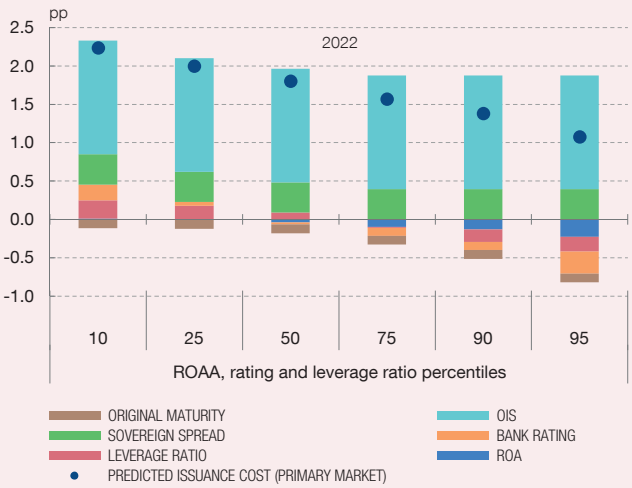


Chart 3
SPREADS BETWEEN ISSUANCE COSTS AND SECURED DEBT (c)

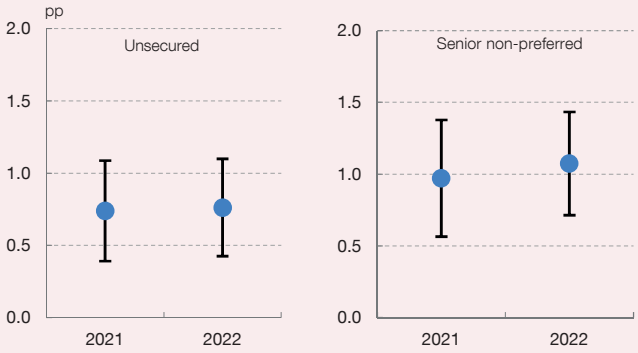
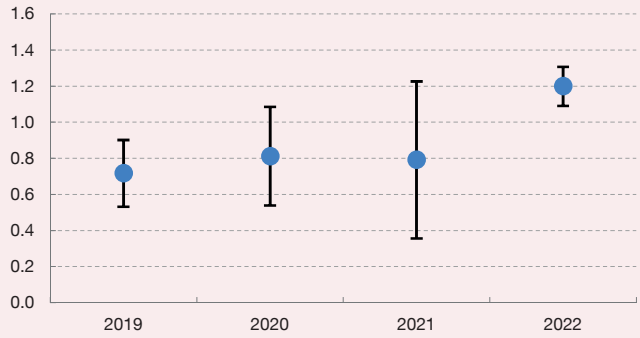


Chart 4
RELATIONSHIP BETWEEN PRIMARY AND SECONDARY MARKET COSTS FOR SPANISH BANKS (d)



SOURCES: Capital IQ, Dealogic, Refinitiv, Thomson Reuters and Banco de España calculations.

a The issuance cost for secured debt relative to the 2019-2022 average for all banks. The regression analysis identifies the ability of aggregate factors (such as the OIS and the sovereign spread) and characteristics of the issuance instrument and of the issuing banks to explain the issuance cost. Explanatory power is summarised in terms of the average 2022 value of the each of the coefficients assessed. The effect of the OIS varies across countries as the 10-year rate is assessed at the time of issuance.

b The predicted issuance cost with a breakdown by factor for the banks in the various percentile ranges of the ROAA, leverage ratio and bank rating distributions. For example, for the 10th percentile, the banks considered are those in that percentile for each of these three variables describing their financial position. The issuance cost of secured debt relative to the average, considering different percentiles of the variables that have a significant impact on issuance cost, is shown. The average values in 2022 are considered for the variables showing financial conditions (OIS and risk spread) and the specific characteristics of the issue (maturity), so that the same context is assessed for different types of banks. The impact or weight of each of the variables is calculated as the value of the coefficient of each variable multiplied by the value of each percentile.

c The coefficients obtained in the regression for the interaction between instrument type and year compared with the baseline instrument (secured debt). The vertical lines show a 95% confidence interval.

d The sensitivity of the cost of debt issued by banks to changes in secondary market prices, excluding CoCos. This is obtained by comparing the rate at issue for the bonds of Spanish banks with the yield on a similar debt instrument on the same day as the bonds were issued. The average secondary market yield is based on a basket of bonds of listed banks, weighted by outstanding amount. A linear regression model is used that takes the primary market price as the dependent variable and the maturity of the issue (in years) and interactions between the secondary market yield and indicators for each quarter as explanatory variables. The vertical lines show a 95% confidence interval.

Box 2.1

DETERMINANTS OF THE EUROPEAN BANKING SECTOR'S DEBT ISSUANCE COST IN THE CURRENT CONTEXT OF MONETARY TIGHTENING (cont'd)

Third, instruments that have a higher probability of absorbing losses in bank resolution or insolvency processes have a higher associated issuance cost. Indeed, the results confirm that there is a risk premium[6] with respect to secured debt, both for unsecured debt and for instruments issued to comply with subordination rules for resolution, which are known as "non-preferred senior bonds". These premia increase with the degree of subordination. However, premia did not change significantly between 2021 and 2022, confirming that a large part of the increase in the interest rates on bank debt is related to the tightening of financial conditions, without any significant pass-through into higher risk premia, according to the data up to end-2022 (see Chart 3).

Finally, the relationship between the issuance cost of new instruments and the price of bank bonds on the secondary market is examined, for Spanish banks only. The analysis is based on a regression, in which the issuance cost is a dependent variable and the maturity of the issue (in years) and the yield on the secondary market at the time of issue, interacting with fixed quarter effects, are explanatory variables. This approach enables us to see whether the relationship between primary and secondary market costs has fluctuated over time. The secondary market yield is measured using a similar debt instrument on the day the issue is made, using a basket of bonds of listed banks, weighted by their outstanding amount. The results show that the ratio between the yield required by investors in the secondary market and banks' issuance costs in the primary market is very nearly one. Accordingly, the price observed on the secondary market can generally be used to approximate the direction and a large part of the magnitude of the change in the cost of new debt for banks. A notable change was seen in 2022, when the coefficient became statistically greater than one, indicating that the cost of new issuance has been greater than the cost quoted on the secondary market. This has occurred in the context of higher financing needs in the wholesale market, and expectations of rising rates, which encourage banks to bring forward their issuance, given that rates are expected to be higher in future (see Chart 4).

A conclusion that may be drawn from this analysis is that the increase in the bank debt issuance costs in 2022 was due largely to the monetary policy tightening and, to a lesser degree, to the widening/tightening of sovereign differentials, although banks that are highly profitable or have better solvency conditions are managing to issue debt at a lower cost. It is also notable that in 2022 issuance costs increased by more than would have been expected given the behaviour of prices on the secondary market, which suggests that the elevated bank issuance and the context of restrictive monetary policy have reduced the flexibility banks have when implementing their issuance plans.

Bank debt issuance costs increased in Europe in an orderly fashion in 2022, and by far less than under the most pessimistic scenarios that were considered as a result of the rise in uncertainty last year. However, it will be necessary to continue to monitor this market closely. On one hand, the expected increase in monetary policy rates will foreseeably continue to be passed through to issuance costs. Also, issuance costs may be pushed up by general increases in risk premia, associated for example with a reduction in investor appetite for instruments with a high degree of subordination. In this respect, the sharp increase in secondary market CoCo yields, owing to the forced write-down of these instruments following the take-over of Credit Suisse by UBS, should be noted. This was reversed after the joint statement made by the SRB, the EBA and the ECB, which underlined their seniority with respect to common equity instruments (see Box 1).

6 To analyse premia by instrument, a categorical variable is included that takes values from 0 to 4, depending on the seniority of the type of instrument as regards loss absorption mechanisms.

3

SYSTEMIC RISK AND PRUDENTIAL POLICY

The contemporaneous indicators of systemic financial stress fell significantly from end-2022 to February 2023, largely reflecting the lesser impact on activity, vis-à-vis the autumn 2022 forecast, of the economic fallout from the war in Ukraine, the inflationary pressures and the higher financing costs resulting from monetary policy tightening. However, the resolution of SVB in March this year, the financial stress experienced by other mid-sized US banks, and the acquisition of Credit Suisse by UBS with government support has made investors more risk averse, triggering drops in the value of bank stocks, which have led to more widespread tightening of global financial conditions.

The moderation in lending contributed, in the final stretch of 2022, to a further narrowing of the credit-to-GDP gap and to the subdued performance of other complementary indicators, leading to an absence of any signs of cyclical imbalances. If the recent market turmoil leads to a greater and more permanent tightening of global financial conditions, credit supply and demand can be expected to contract further, resulting in lower credit growth.

In the real estate sector, house prices continued to show moderate signs of overvaluation in 2022 Q4, and thus still require close monitoring. However, prices and transactions will foreseeably lose momentum given the tighter financing conditions. Similarly, interest rate spreads for new bank loans to firms, which continued to narrow in 2022 H2, will need to be monitored closely.

Despite the recent and projected improvement in various indicators of imbalances, an extraordinary degree of uncertainty remains in the near term and it is possible that some of the risks identified will materialise to a severe degree. Indeed, financial conditions already appear to be reflecting some degree of risk materialisation as a result of the tensions observed globally in the banking sector. Against this backdrop, it is considered advisable to hold the countercyclical capital buffer (CCyB) rate at 0%.

Recent regulatory and supervisory developments relevant to financial stability notably include the updating of the ECB's floor methodology for setting capital buffers for other systemically important institutions (O-SIIs), the ECB's supervisory review of banks' environmental risk management practices, the warning issued by the European Systemic Risk Board (ESRB) on the vulnerabilities in the commercial real estate sector and the Financial Stability Board's (FSB) identification of non-bank financial intermediation as a priority area for financial stability policy-makers.

3.1 Analysis of risk indicators and systemic vulnerabilities

Systemic stress in the financial markets subsided notably from end-2022 to February 2023. The Banco de España's systemic risk indicator (SRI), based on Spanish financial market information,[1] fell significantly to February 2023, returning to pre-Ukraine war levels (see Chart 3.1.1). Tensions eased across all four of the financial segments captured by the SRI.

However, in March 2023, systemic financial stress increased significantly, linked to the turmoil experienced by the banking sector worldwide. Systemic financial stress increased across different financial market segments, and the SRI returned to levels similar to those observed at the start of the Russian invasion of Ukraine. In any event, the SRI stands below the peak reached in 2022, following the gradual rise (to November 2022) driven by geopolitical and economic tensions, and remains far from the levels reached during the global financial crisis or the 2020 health crisis.

The estimated probability of default of listed European firms , which increased in the first three quarters of 2022, has declined since November 2022. The increase in the first three quarters of 2022 was comparable to that experienced during the COVID-19 pandemic, and was particularly pronounced in riskier firms (see Chart 3.1.2). For these firms, the increases observed in 2022 had only corrected partially from end-2022 to March 2023. Although the probability of default of Spanish firms is somewhat higher than the European average, a similar pattern is observed. Since end-2022, the average probability of default of European and Spanish firms has declined slightly and is less stable in Spain given its greater stock market volatility.

The decrease in the systemic risk indicator (SRISK)[2] observed at Spanish and other European banks since 2022 Q4 has also been partially reversed. The indicator's downward trajectory to February 2023 appears to have been prompted by the favourable performance of the financial markets. For European banks as a whole, the fall in the contribution to systemic risk was marginally higher at Spanish banks, where it dropped to below pre-pandemic levels. Investors' increased aversion to risks linked to the banking sector interrupted the downward trend of this metric for Spanish firms in March 2023, slightly reversing earlier declines.

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1 This indicator comprises information on the four most representative segments of Spain's financial markets (the money, government debt, equity and bank funding markets) and is designed to increase in value when tensions arise simultaneously in these four segments. For a detailed explanation of the SRI calculation methodology, see Box 1.1 of the May 2013 *Financial Stability Report (FSR)*.

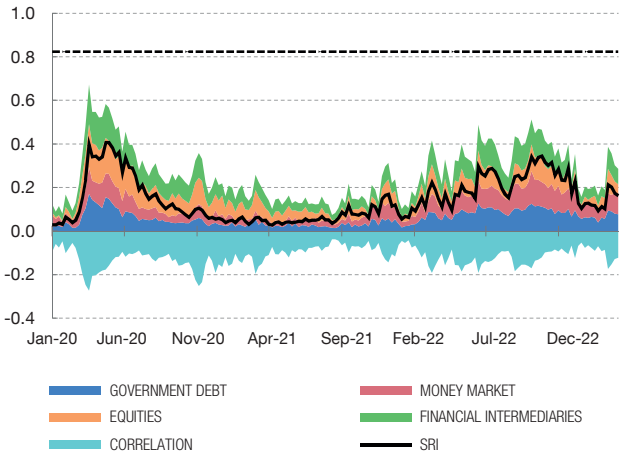
2 Brownlees and Engle. (2017). This indicator measures the market value of the regulatory capital shortfall of an individual bank or the banking sector overall following a significant correction in the equity market. It thus constitutes a systemic risk metric, since the high cost of making up a capital shortfall for the banking sector could distort financial intermediation.

Chart 3.1

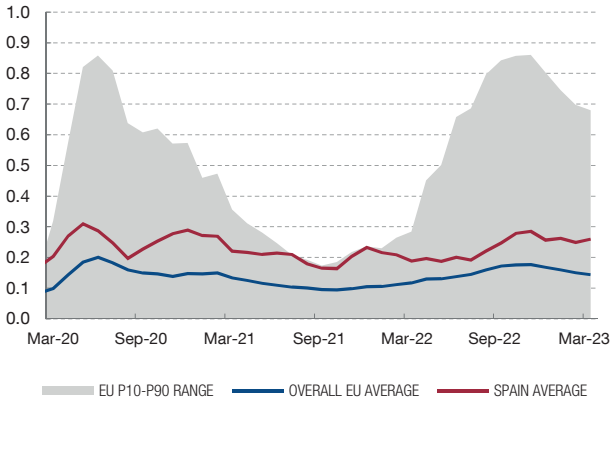
THE FINANCIAL TURMOIL OF MARCH 2023 HAS PARTIALLY REVERSED THE IMPROVEMENTS OBSERVED SINCE END-2022 IN THE SYSTEMIC RISK INDICATOR

The SRI decreased from November 2022 to February 2023, notably reflecting the positive effect of the signs of stress contention in energy markets. In March 2023, the global financial turmoil triggered a sharp rise in the indicator which, nevertheless, stood far below the peak reached in 2022 or the levels of the previous systemic crises. The estimated probability of default of listed Spanish firms has declined since end-2022, but has behaved unevenly owing to stock market volatility.

1 SYSTEMIC RISK INDICATOR (a)



2 DISTRIBUTION OF IMPLIED PROBABILITY OF DEFAULT OF EUROPEAN FIRMS
Percentile range and average for EU and Spain (b)



SOURCES: Datastream, Banco de España and OECD.

a The systemic risk indicator (SRI) aggregates 12 individual stress indicators (volatilities, interest rate spreads, maximum historical losses, etc.) from four segments of the Spanish financial system. In calculating the SRI, the effect of cross-correlations is taken into account, whereby the SRI registers higher values if the correlation between the four markets is high, and lower values where there is less or negative correlation. For a detailed explanation of this indicator, see Box 1.1 of the May 2013 FSR. The dotted line represents the SRI's historical maximum. Data updated as at 5 April 2023.

b Estimation of the probability of default is based on the Merton valuation model; see Box 3.1 of the Spring 2021 FSR. The exercise focuses on firms listed on the STOXX Europe 600 index at January 2023. The sample totals 485 firms (23 of them are Spanish) with the available information required to perform the calculations for the exercise. The series have been smoothed using a three-month moving average. Data updated as at 10 April 2023.

The favourable course of economic activity against a backdrop of subdued growth in lending helped the credit-to-GDP gap to remain on a downward path in 2022. This decline has corrected the distortions caused to this indicator by the abrupt drop in GDP at the onset of the COVID-19 pandemic in 2020, to bring it under the 2 percentage point (pp) reference activation threshold that signals the possible existence of imbalances in the credit cycle[3] (see Chart 3.2.1). The recovery in activity has also led to a gradual closing of the output gap, although this indicator remains in negative territory, correcting at a slower rate in 2022 H2.

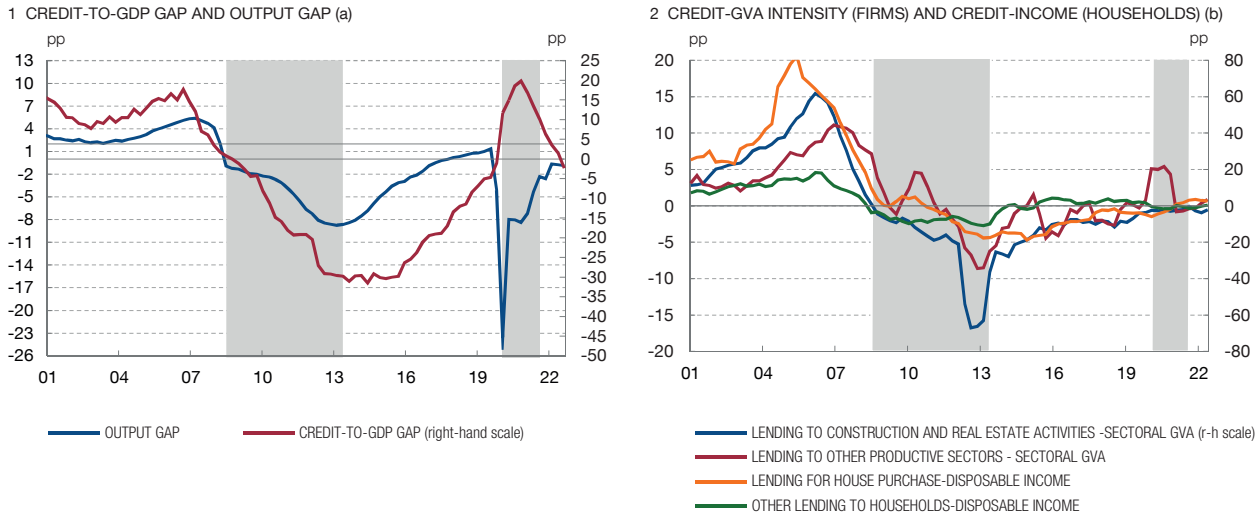
The indicators for monitoring sectoral credit cycles show no signs of imbalance. The Banco de España monitors sectoral credit cycles closely, by

3 This threshold applies under the statistical specification used by the Banco de España to calculate the credit-to-GDP gap, adjusted to the historically observed average duration of the credit cycle in Spain. The standardised credit-to-GDP gap (the "Basel gap") has moved in parallel, but holding at negative levels and below its reference threshold. As discussed in recent FSRs, a reduction in GDP for exogenous reasons, such as the pandemic, changes the interpretation of the excess over the threshold, in which case, activating measures would not be advised.

Chart 3.2

NO WARNING SIGNALS ARE DISCERNIBLE IN GENERAL AND SECTORAL CREDIT CYCLES, BUT THE OUTPUT GAP IS RECOVERING AT A SLOWER PACE

The credit-to-GDP gap has held on a downward trend, standing below the 2 pp reference activation threshold for the first time since the onset of the pandemic. No significant warning signals are observed in the indicators used for monitoring sectoral credit cycles. The output gap stands at levels that are very similar to those observed before the pandemic, but remains in negative territory, correcting at a slower rate in 2022 H2. The financial turmoil of 2023 could trigger a further slowdown in lending, and additional moderation of credit cycle indicators.



SOURCES: Banco de España and INE.

a The output gap is the percentage difference between observed GDP and potential quarterly GDP. Values calculated at constant 2010 prices. See P. Cuadrado and E. Moral-Benito. (2016). "Potential growth of the Spanish economy". Occasional Paper No 1603, Banco de España. The credit-to-GDP gap is calculated as the difference, in percentage points, between the observed ratio and the long-term trend calculated using a statistical one-sided Hodrick-Prescott filter with a smoothing parameter equal to 25,000. This parameter is calibrated to the financial cycles historically observed in Spain. See J.E. Galán. (2019). "Measuring credit-to-GDP gaps. The Hodrick-Prescott filter revisited". Occasional Paper No 1906, Banco de España. Data available to December 2022. The areas shaded in grey represent the periods of the two financial crises in Spain since 2009: the systemic banking crisis (2009 Q1-2013 Q4) and the crisis triggered by the COVID-19 pandemic (2020 Q1-2021 Q4). The grey horizontal line represents the credit-to-GDP gap reference threshold (2 pp) for activation of the CCyB.

b Credit intensity is calculated as the ratio of the annual change in each sector's credit (as the numerator) to the annual cumulative gross value added (GVA) or disposable income (as the denominator). Data available to September 2022.

economic activity in the case of firms, and distinguishing between loans for house purchase and other loans in the case of households.[4] Among the indicators it analyses, those measuring credit intensity[5] do not show, for any of the main economic sectors, that credit growth is currently outpacing that of sectoral activity or household income (see Chart 3.2.2). Nor are any significant warning signals discernible in the other indicators analysed, such as sectoral credit gaps.

Tightening global financial conditions could curb credit growth, foreseeably helping to further narrow the credit-to-GDP gap and other indicators of credit cyclicality. If this tightening holds or increases over time, it can be

4 For a detailed description of the indicators used to monitor sectoral credit cycles, see C. Broto, E. Cáceres and M. Melnychuk. (2022). "Sectoral indicators for applying the Banco de España's new macroprudential tools", Spring 2022 *Financial Stability Review,* and Box 3.1 of the Spring 2022 *Financial Stability Report.*

5 This indicator is defined as the ratio of the change in each sector's credit to the gross value added of the credit in the case of firms, or to disposable income, in the case of households.

expected to further push up the banking sector's financing costs and weaken demand and supply which in turn will translate into a higher cost, and lower growth, of lending. Although this scenario also poses the risk of more negative GDP developments, in the very near term the moderation in lending is likely to dominate and the signs of cyclical imbalances to weaken further.

The indicators of imbalances in house prices have continued to rise, albeit moderately. These indicators have held in positive values since 2020 and on a slightly upward path, although they remain close to their equilibrium levels (see Chart 3.3.1). This pattern continues to be explained by the relatively expansionary behaviour of house prices compared with other variables, such as the rise in interest rates or the changes in real disposable income, which has yet to return to pre-pandemic levels. Moreover, as described in Chapter 1, price growth proved to be relatively resilient in 2022 H2, and a further slowdown was observed in the volume of new loans for house purchase. As monetary policy tightening is transmitted to financing conditions, greater moderation can be expected in the real estate market, possibly dispelling the current signs of imbalance. Any more pronounced and persistent increases in risk premia resulting from the financial turmoil observed in March 2023 would represent an additional channel for the moderation of real estate activity, driven both by weakening demand and rising financing costs.

On the latest available data, house prices and median mortgage amounts continued to outpace household disposable income. These have increased steadily since 2014, albeit at a slower pace than observed before the global financial crisis (see Chart 3.3.2). A downturn in household income prompted by economic activity performing less favourably than expected could , in the absence of other adjustments, further drive up these ratios, raising the risk profile of those seeking new loans for house purchase. Box 3.1 analyses in detail the determinants of the risk of mortgage default, where the level of household income and its interactions with variables such as the mortgage amount play a significant role.

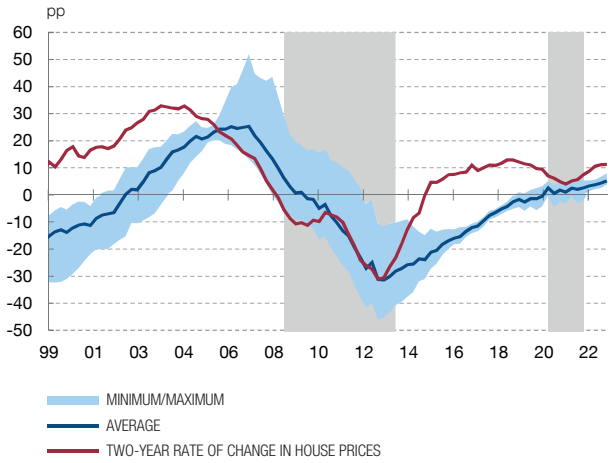
The credit standards applied to new loans for both households and firms have tightened, according to the surveys conducted with banks, and household demand for credit has decreased. The supply of credit to the non-financial private sector contracted in 2022, as a result of credit standards tightening across the board (see Chart 3.4.1). This appears to be due to banks' greater risk perception given the worsening macroeconomic outlook, and to the increase in their funding costs owing to the normalisation of monetary policy. In addition, although the demand for credit by firms rose slightly in 2022 Q4, the demand for household mortgages has contracted significantly in recent quarters, as a result of higher borrowing costs and an erosion of household confidence,

Chart 3.3

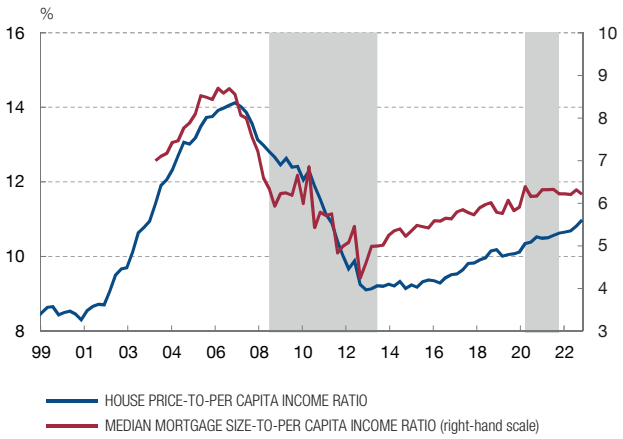
MODERATE SIGNS OF OVERVALUATION HAVE BEEN OBSERVED IN THE HOUSING MARKET, WITH HOUSE PRICES AND MORTGAGE AMOUNTS OUTPACING HOUSEHOLD INCOME

At end-2022, the indicators of price imbalances in the housing market held in positive values, albeit close to their equilibrium level, owing mainly to rising house prices and, especially, to the fall in real disposable household income. Tightening financing conditions are expected to lead to a moderation in these signs of imbalance over the coming quarters.

1 INDICATORS OF HOUSE PRICE IMBALANCES (a) (b)



2 HOUSE PRICE-TO-PER CAPITA INCOME RATIO AND MORTGAGE-TO-PER CAPITA CAPITA INCOME RATIO (a) (c)



SOURCES: INE and Banco de España.

a The years shaded in grey represent the periods of the two financial crises in Spain since 2009: the last systemic banking crisis (2009 Q1-2013 Q4) and the crisis triggered by the COVID-19 pandemic (2020 Q1-2021 Q4). Data updated as at December 2022.
b The shaded area represents the minimum and maximum values of the four indicators of imbalances in house prices. Both the four indicators and the two-year rate of change in house prices have an equilibrium value of zero.
c Property prices calculated based on price per square metre in the current quarter. All magnitudes are expressed in real terms. The definition of per capita income refers to disposible income.

according to results of the Bank Lending Survey for 2023 Q1.[6] Banks forecast the continued tightening of credit standards and diminishing demand in both segments for 2023 Q1. As mentioned above, the global financial turmoil triggered in March 2023, which has particularly affected the banking sector, will increase the risk of credit demand and supply being even weaker than forecast by banks.

For 2022 as a whole, credit standards in relation to collateral values have held relatively stable at prudent levels for households, but lending to the more heavily indebted firms has increased moderately. Specifically, in the case of mortgage loans to households for house purchase, the percentage of mortgages with a loan-to-value ratio (LTV) of more than 80% is slightly down on 2020 (see Chart 3.4.2). In the case of lending to firms, the debt-to-asset ratio (DTA) of those accessing new bank loans is somewhat higher than in mid-2020, following the outbreak of the

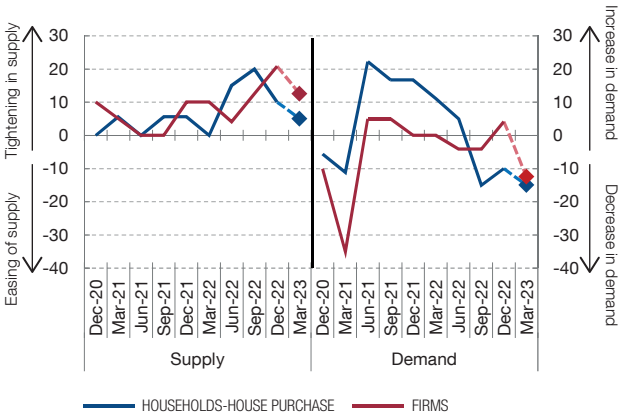
6 Á. Menéndez and M. Mulino. (2023). January 2023 Bank Lending Survey in Spain. *Economic Bulletin - Banco de España, 2023/Q1.*.

Chart 3.4

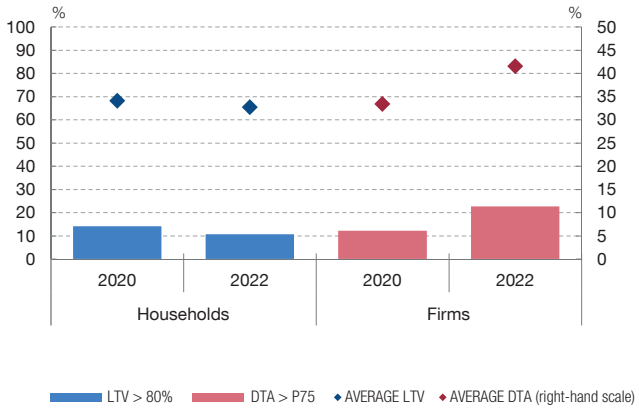
DEMAND FOR NEW CREDIT BY HOUSEHOLDS AND FIRMS IS EXPECTED TO DECREASE IN 2023 Q1 WHILE CREDIT STANDARDS ARE TIGHTENING. INTEREST RATE SPREADS FOR NEW LOANS CONTINUED TO NARROW IN 2022

Credit to households and firms is expected to be affected in 2023 by both a further tightening of credit standards and falling demand. The relative share of new loans, with greater leverage and longer maturities in the case of mortgage loans to households, has decreased. Moderate increases have been observed in loans to firms, the degree of bank leverage and the share of longer-term loans, but this may be explained, at least in part, by the replacement of market-based funding and ICO guarantee facilities. The spreads over risk-free rates continued to fall considerably in both credit categories in 2022.

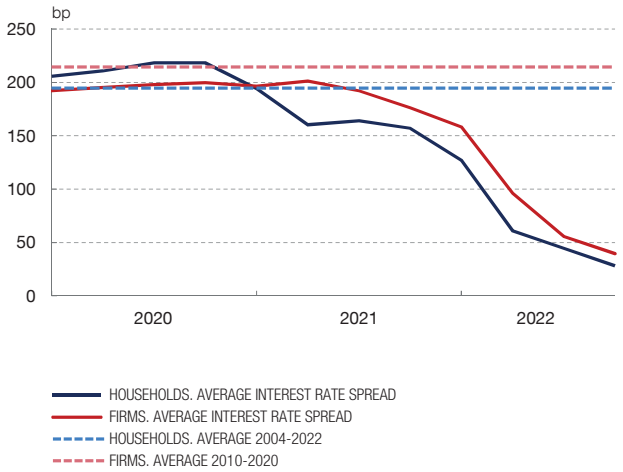
1 BANK LOAN SUPPLY AND DEMAND (a)



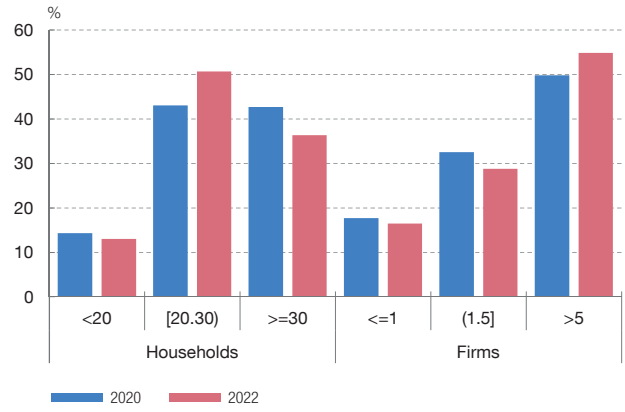
2 DEGREE OF LOAN LEVERAGE (b)



3 INTEREST RATE SPREADS (c)



4 PERCENTAGE OF LOANS BY MATURITY: MORTGAGES TO HOUSEHOLDS AND CREDIT TO FIRMS (d)



SOURCES: Banco de España and Colegio de Registradores.

a Supply represents the change in credit standards, measured by means of an indicator calculated as the percentage of banks that have tightened their credit standards considerably × 1 + percentage of banks that have tightened their credit standards somewhat × 1/2 – percentage of banks that have eased their credit standards somewhat × 1/2 – percentage of banks that have eased their credit standards considerably × 1. Demand represents the change in credit demand, measured by means of an indicator calculated as the percentage of banks reporting a considerable increase × 1 + percentage of banks reporting some increase × 1/2 – percentage of banks reporting some decrease × 1/2 – percentage of banks reporting a considerable decrease × 1. For further details, see Á. Menéndez and M. Mulino. (2023). "January 2023 Bank Lending Survey in Spain", *Economic Bulletin - Banco de España,* 2023/Q1. The dotted lines and diamonds depict the forecasts up to 2023 Q1.

b The loan-to-value (LTV) ratio is the amount of the mortgage principal relative to the property's appraisal value. The average values in the LTV are weighted by the capital of each mortgage and calculated for new mortgages. Data up to 2022 Q4 (not all loans for the period are yet available). The debt-to-asset (DTA) ratio is the amount of a firm's bank debt relative to its total assets; debt refers to bank debt of the firms with new loans in the quarter indicated, and total assets refer to the value at the end of the prior year. The average values in the DTA are weighted by the total bank debt of each firm. The 75th percentile (P75) is calculated for the period 2000-2022.

c Average spread, weighted by the loan capital, over the interest rate of new mortgages in each quarter over the euro IRS swap curve. For floatingrate mortgages, the 1-year IRS rate is used to calculate the spread; for fixed-rate mortgages, the term equivalent to the mortgage term is selected. Data up to 2022 Q4 (not all loans for the period are yet available). In the case of firms, the spread is calculated based on loans in 6 maturity intervals (floating and initial rate fixation period of up to 3 months, between 3 months and 1 year, between 1 and 3 years, between 3 and 5 years, between 5 and 10 years and over 10 years). Each interval is compared with the midterm IRS rate (1 year for floating rate and a fixation period of under 1 year, and 20 years for fixation periods of over 10 years).

d Maturity (measured in years) at origination. New loans are considered in the case of households, while outstanding loans are considered in that of firms.

COVID-19 pandemic. A similar, albeit more moderate, trend is observed in the total debt-to-asset ratio, indicating both that bank loans are replacing market-based funding and that total leverage is increasing somewhat.

Interest rate spreads on mortgages and loans to non-financial corporations over reference rates continued to narrow in 2022 H2. At end-2022, the spreads over the interest-rate swap (IRS) curve risk-free rates were under 50 bp both for households and non-financial corporations, well below their average of recent years (see Chart 3.4.3). Moreover, the average spread for new floating-rate mortgages vis-à-vis the EURIBOR also narrowed further in 2022 H2, to 34.6 bp compared with 187 bp in H1. The spread of new fixed-rate mortgage vis-à-vis the EURIBOR, which was around 106 bp in 2022 Q1 and declined sharply in Q2, has since held stable, fluctuating slightly at around 38 bp.

The narrowing of interest rate spreads implicitly assumes an easing of credit standards, which would foreseeably only be temporary. This narrowing, which has partly offset the rise in benchmark rates resulting from the ECB's monetary policy tightening, reduces the risk premium required of new borrowers. One factor that could explain this behaviour is the slower reaction to changes in monetary policy of lending rates compared with market rates, which are used as the benchmark value to calculate spreads. Other factors include the stability shown to date by the average bank deposit rate, which could be dissociating banks' funding costs from the benchmark rates used to calculate spreads. However, the tightening financial environment will foreseeably pass through gradually also to deposits, and thus it is important for lending rates to properly reflect the cost of funding and the risks assumed by banks. A sharper-than-expected rise in the cost of bank borrowing could significantly reduce profitability, particularly of fixed-rate loans with narrow spreads.

No significant changes have been observed in household mortgage maturities, but longer-term loans to non-financial corporations have increased somewhat. The distribution by maturity of loans to households and non-financial corporations held relatively stable between 2020 and 2022 (see Chart 3.4.4). In the case of household mortgages, the proportion of those at 20 and 30-year terms, which were already predominant, increased slightly in 2022. For non-financial corporations, the weight of loans with terms of more than five years, which are the most common, has increased in recent years with respect to shorter-term lending.

Given this set of macro-financial indicators and the current, extraordinary degree of uncertainty, the Banco de España has decided to hold the CCyB rate at the minimum level of 0%. The war in Ukraine and the geopolitical tensions will continue to pose major risks for economic activity and inflation in the coming quarters. Moreover, the observed path of inflation (whose underlying component is yet to show clear signs of correction) and the monetary measures needed to contain it, are leading to an erosion of borrowers' real income and to a tightening of financing conditions. In this adverse

environment there is a higher probability of low-growth scenarios, and holding the CCyB rate at 0% is therefore considered the appropriate macroprudential response. The fact that the turmoil experienced by the banking sector globally since March 2023 is exacerbating the downside risks to activity and credit growth reinforces this macroprudential policy stance. In any event, the Banco de España is closely and regularly monitoring financial market developments, the vulnerabilities identified in the real estate market, and the possible build-up of inflation-related macroeconomic imbalances, and would make adjustments to the macroprudential requirements if necessary.

Despite the macro-financial uncertainty, several European countries have wielded the argument of restoring bank profitability to approve increases in their CCyB rates. Some countries have activated or raised the CCyB rate after identifying a build-up of cyclical vulnerabilities, which have not decreased despite the greater downside risks to growth in 2022. A further argument put forward by other authorities for activating the CCyB, even in the absence of such cyclical vulnerabilities, is the availability of sizeable voluntary buffers and the improved performance in 2022, which would reduce the current cost of raising the CCyB rate. In these cases, the countries' current cyclical position has also enabled the measure to be activated without significantly increasing risks to growth.[7] Regardless of the arguments used, increasing this buffer would provide their banking sectors with greater resilience to address any shocks that may be triggered by the materialisation of macro-financial risks. It is also important to bear in mind that in countries where stronger signs of imbalances have been detected, the impact of adverse scenarios before buffers are released would also be comparatively greater. Since the last FSR was published, seven national authorities in the European Union (EU)/European Economic Area (EEA) have announced decisions to raise their CCyB rates.[8] Some authorities have also kept the systemic risk buffer (SyRB) activated to address vulnerabilities in the real estate sector (Belgium, Germany, Liechtenstein, Lithuania and Slovenia). Lastly, Austria has reduced its SyRB for one bank and increased it for another (see Chart 3.5 for a fuller picture).

In December 2022, the Banco de España announced the designation of Banco Santander, S.A. as a global systemically important institution (G-SII) in 2024.[9] The identification of this institution as a G-SII for another year entails the need to maintain a macroprudential capital buffer of 1% of CET1.[10] The G-SII buffer, which helps shore up the institution's loss-absorbing capacity, has been conceived with the precautionary goal of mitigating the adverse systemic impact that institutions of this nature (due to their size, level of interconnectedness, complexity and cross-

7 These countries include Croatia, Cyprus, Estonia, Ireland, Lithuania and Norway.

8 Croatia, Cyprus, Estonia, France, Ireland, Romania and Slovenia.

9 See the Banco de España press release of 16 December 2022.

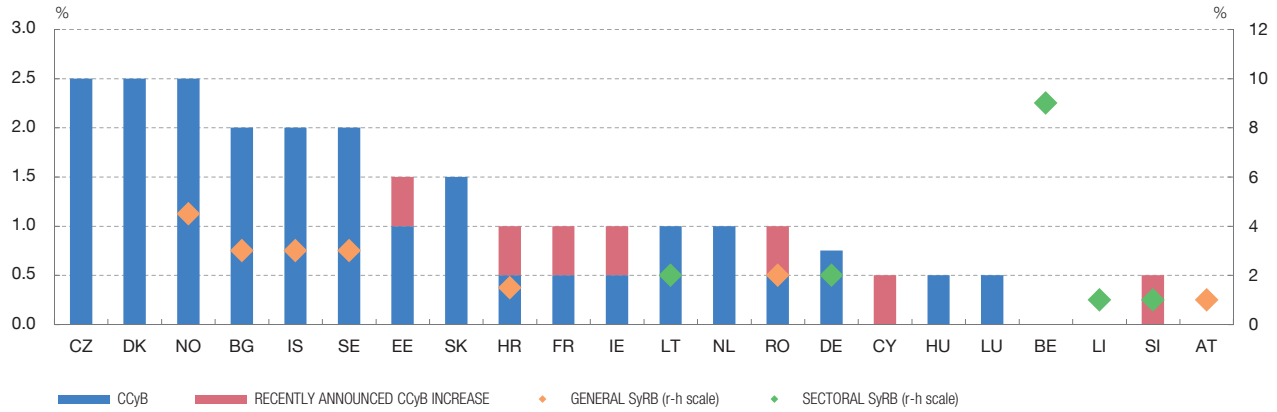
10 This Banco de España measure is a macroprudential action envisaged in the prevailing EU and Spanish legislation, formalising the prior designation of this bank as a global systemically important bank by the FSB. See *"2022 List of Global Systemically Important Banks (G-SIBs)"*, FSB press release, 21 November 2022.

Chart 3.5

THE HETEROGENEITY ACROSS EUROPEAN BANKING SYSTEMS IN TERMS OF MACROPRUDENTIAL CAPITAL BUFFERS LARGELY REFLECTS DIFFERENCES IN TERMS OF THEIR CYCLICAL POSITION

Various European authorities have set positive CCyB rates to address their cyclical vulnerabilities and shore up the solvency of their banking sectors. In other countries, the SyRB has been activated to address both systemic and real estate sector-specific risks. The release of such buffers could help absorb unexpected shocks, such as the potential fallout from the financial turmoil observed since March 2023. Nonetheless, owing to their more vulnerable cyclical position, this turmoil is likely to hit some of the countries with such buffers in place harder.

MACROPRUDENTIAL CAPITAL BUFFERS IN EUROPE (a)



SOURCE: ESRB.

a This chart includes the latest CCyB rates announced by European countries (EEA). The recently announced CCyB increase corresponds to the announcements made following the publication date of the Autumn 2022 FSR (11 November 2022). CCyB rate increases are applicable 12 months after their announcement. It also shows the general and real estate sector-specific SyRB rates of the countries that have activated them. The values of the general SyRB rates of Austria and Romania refer to the maximum of the ranges established (0.25 to 1 and 0 to 2, respectively). The chart does not include European countries (such as Spain) which have not yet announced a positive CCyB rate or activated a SyRB. Data as at February 2023.

border activity, and the substitutability of the services they provide) could potentially have on the financial system, should they experience difficulties. Under current regulations, the effective capital buffer rate applicable to Banco Santander, S.A. in 2024 as a systemically important institution will be the higher of: (i) the G-SII buffer rate and (ii) the O-SII buffer rate to be set by the Banco de España in mid-2023.

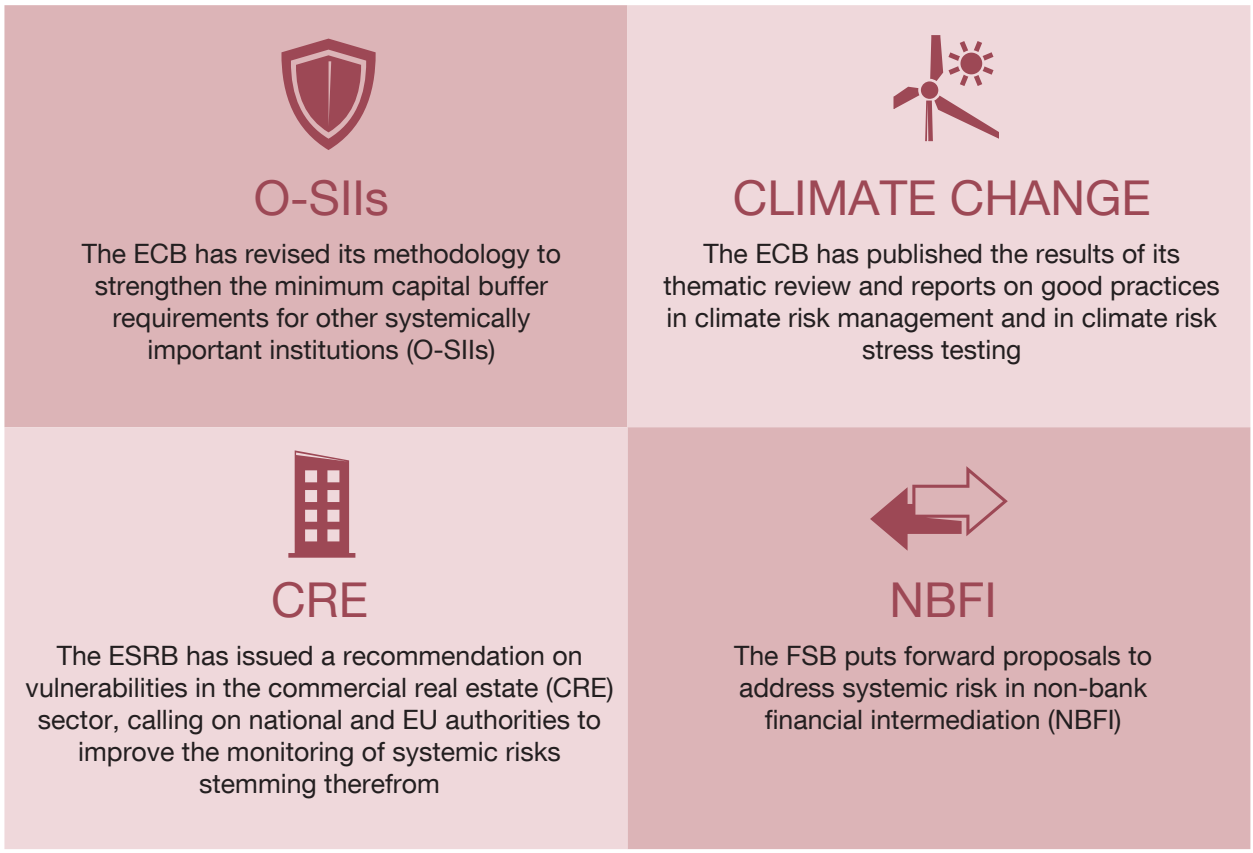
3.2 Regulatory and supervisory developments relevant to financial stability

European bodies

The ECB has revised its floor methodology for assessing capital buffers for O-SIIs,[11] and has raised the minimum requirements for the most systemically important institutions. The ECB will use this revised floor methodology – more stringent than the current one, which was approved in 2016 (see Chart 3.2.1) – to assess the O-SII

11 See ECB, *"Governing Council statement on macroprudential policies"*, 21 December 2022.

Figure 3.1
REGULATORY DEVELOPMENTS RELEVANT TO FINANCIAL STABILITY



buffers proposed by national authorities for implementation as of 1 January 2024. Specifically, the ECB increases the number of buckets of systemic importance from four to six and raises the floor level for the highest bucket to 1.5% (from 1% under the previous framework). However, it keeps the floor of the lowest bucket unchanged at 0.25%. This revision, with which the ECB tries to reduce the existing heterogeneity in the implementation of buffers for O-SIIs identified in the European banking union countries, also reflects the increase in the calibration admissible for this buffer in accordance with the latest revision of European prudential regulations. The new ECB framework will entail the adaptation of the Banco de España's own O-SII buffer framework.

ECB Banking Supervision has published the results of its thematic review on climate-related and environmental risks,[12] noting several areas of improvement for banks and issuing a supervisory guide of good practices observed in the management of such risks. The thematic review aimed to assess whether credit

12 See ECB Banking Supervision, *"ECB sets deadlines for banks to deal with climate risks"*, press release of 2 November 2022.

institutions adequately identify and manage climate and environmental risks, focusing on their internal strategies and governance (see Chart 3.2.2). The results show that banks still need to better identify and manage climate and environmental risks. Specifically, the report highlights the need for banks to develop granular and long-term approaches, at counterparty or asset level, to manage these risks. Also, they should be integrated into rating systems and collateral valuations, and their impact when financing activities with adverse environmental consequences should be considered. The ECB has set deadlines for banks to meet the supervisory expectations announced[13] in 2020 by end-2024. In parallel, the ECB has published a report[14] on good practices observed in this area, in relation to the assessment of risk materiality, strategy, governance, risk appetite and risk management. Although this analysis was carried out by the microprudential supervision area and the corrective measures proposed relate to this area, the need for broader improvements identified in the management of climate and environmental risks is also relevant to the analysis of systemic risks.

The ECB has also published a good practice guide to climate risk stress testing.[15] Owing to their forward-looking nature and ability to analyse alternative scenarios, climate risk stress testing exercises are a key tool for authorities to assess the impact of climate-related risks on the banking system. The good practices outlined in the report include the use of several transition risk scenarios, the use of physical risk scenarios that are relevant for the geographies where banks have exposures, and the use of internally developed scenarios and different time horizons. The use of both static and dynamic balance sheet approaches, and the inclusion of all portfolios that might be materially impacted by climate-related risks are also considered positive.

The ESRB has issued a recommendation on medium-term vulnerabilities in the commercial real estate (CRE) sector in the EEA.[16] The ESRB's analysis shows that adverse developments in the commercial real estate sector can have a systemic impact on the financial system and the real economy. It also identifies associated vulnerabilities such as heightened inflation, the tightening of financial conditions which limit the scope for refinancing existing debt and extending new loans, and the deterioration of the growth outlook following Russia's invasion of Ukraine. For this reason, the ESRB recommends that EU and national authorities

13 See ECB Banking Supervision, *"Guide on climate-related and environmental risks"*, November 2020.

14 See ECB Banking Supervision, *"Good practices for climate-related and environmental risk management"*, November 2022.

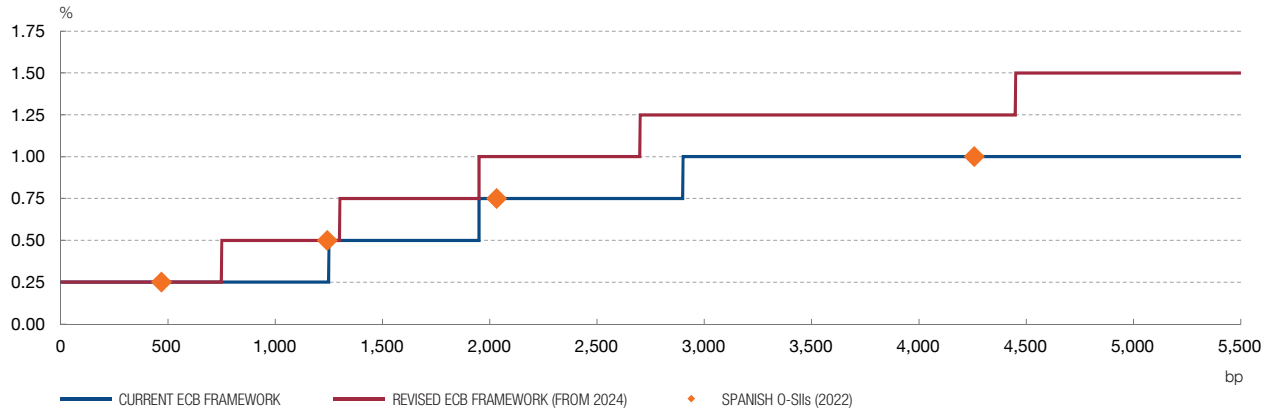
15 See ECB Banking Supervision, *"ECB report on good practices for climate stress testing"*, December 2022.

16 ESRB Recommendation of 1 December 2022 on vulnerabilities in the commercial real estate sector in the European Economic Area (ESRB/2022/9). See also ESRB "ESRB issues a recommendation on vulnerabilities in the commercial real estate sector in the European Economic Area", press release of 25 January 2023, and ESRB report *"Vulnerabilities in the EEA commercial real estate sector"*, January 2023.

Chart 3.6

THE ECB's REVISION OF ITS FLOOR METHODOLOGY FOR ASSESSING MINIMUM CAPITAL BUFFERS FOR O-SIIs WILL RAISE THE REQUIREMENT FOR THE MOST SYSTEMICALLY IMPORTANT INSTITUTIONS (a)

The ECB will use a revised floor methodology – more stringent than the current one – to assess the O-SII buffers proposed by national authorities effective 1 January 2024. The floor level for O-SIIs in the highest bucket is raised from 1% to 1.5%, while the floor flevel for those in the lowest bucket remains unchanged at 0.25%. This new framework will entail the adaptation of the Banco de España's own O-SII buffer framework.



SOURCES: ECB and Banco de España.

a The steps in the lines corresponding to each framework indicate the change between buckets (four under the former framework and six under the revised one). The x axis indicates the systemic importance scores and the y axis denotes the minimum buffers envisaged under each framework.

improve the monitoring of systemic risks stemming from the commercial real estate sector with a view to assessing possible macroprudential policy actions from 2024.[17]

European co-legislators have continued to make progress on reviewing EU banking legislation to incorporate the latest Basel agreements. In January the European Parliament's Committee on Economic and Monetary Affairs approved proposals[18] for the new package of amendments to the Capital Requirements Regulation and the Capital Requirements Directive,[19] known as CRR III and CRD VI, respectively. The text aims to implement the latest Basel III reforms that are still pending. Among other aspects, the proposal recognises the importance of

17 In the area of microprudential supervision, the ECB carried out a thematic review in 2022 on risk management in relation to commercial and residential real estate lending, as mentioned in the ECB's Annual Report on supervisory activities 2022.

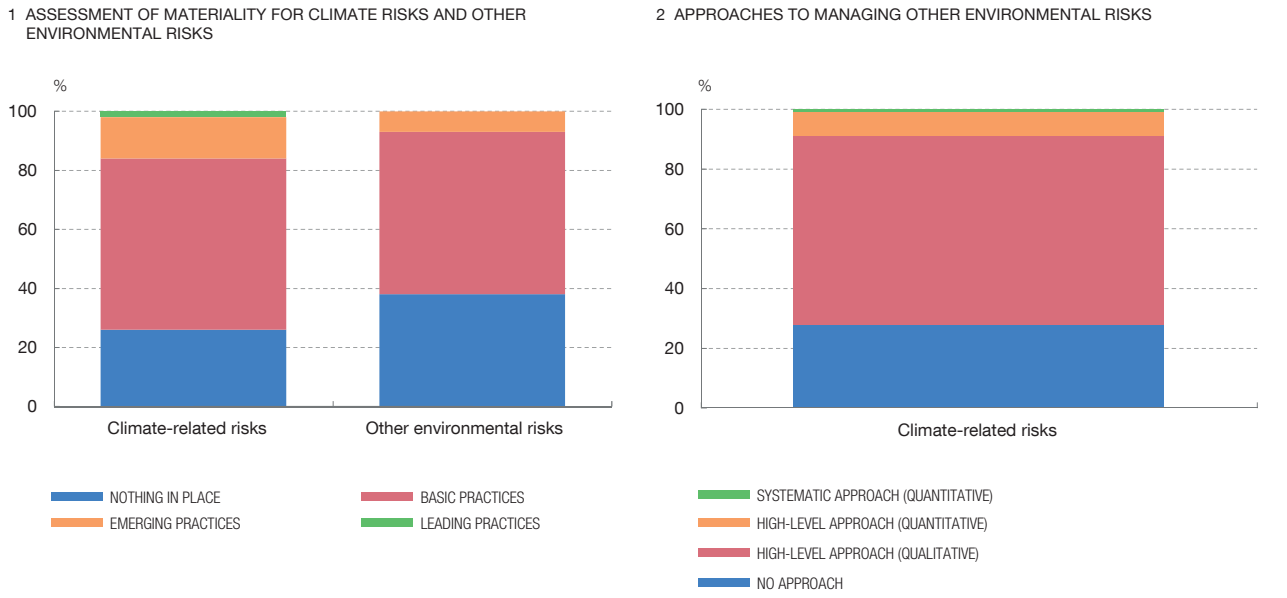
18 See European Parliament, *"Economic and Monetary Affairs Committee voted to finalise reforms of banking rules"*, 24 January 2023, *"REPORT on the proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) No 575/2013 as regards requirements for credit risk, credit valuation adjustment risk, operational risk, market risk and the output floor"*, 9 February 2023 and *"REPORT on the proposal for a directive of the European Parliament and of the Council amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks, and amending Directive 2014/59/EU"*, 10 February 2023.

19 Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 (Capital Requirements Regulation (CRR)) and Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 (Capital Requirements Directive (CRD)).

Chart 3.7

ECB BANKING SUPERVISION HAS IDENTIFIED SEVERAL AREAS OF IMPROVEMENT IN EUROPEAN BANKS' ENVIRONMENTAL RISK MANAGEMENT (a)

In a thematic report, the ECB highlighted the need for banks to develop granular and long-term risk measurement and management approaches, at counterparty or asset level. The current approaches are mainly basic or high-level approaches, and are even non-existent at some of the banks analysed. The ECB has given banks until 2024 to meet the supervisory expectations established in 2020.



SOURCE: ECB.

a Sample of 107 institutions in the banking union. For the assessment of the materiality of climate-related risks (left panel), the average is taken across all five risk types (credit, market, liquidity, operational and strategic risk).

introducing an output floor for the own funds required of the EU in order to have comparable risk weights among European banks and avoid their inducing an excessive variation in capital requirements. Also noteworthy in the European Parliament's proposal are the limitation of any potential extension of transitional periods for implementing new regulations to a maximum of four years and the establishment of more stringent reporting and disclosure requirements for environmental, social and governance (ESG) risks. In this connection, the Basel Committee reiterates the critical importance of implementing the Basel III standards in European legislation in a full and consistent manner, and as soon as possible.[20]

At end-2022 the European Commission, at the proposal of the European Securities and Markets Authority (ESMA), temporarily amended the collateral requirements for central counterparties (CCPs) to alleviate liquidity strains on

20 See *"Update on the work of the Basel Committee"*, BCBS presentation of 20 October 2022 and *"Implementing Basel III"*, BCBS speech by Pablo Hernández de Cos, 8 February 2022.

energy derivatives markets.[21] The rise in geopolitical risks during 2022 had a marked effect on energy markets, which saw sporadic moments of stress in some European countries, particularly in the energy derivatives market. In view of this, in September 2022 the European Commission requested advice from ESMA and the EBA.[22] In its response, ESMA put forward[23] concrete proposals to alleviate liquidity strains on non-financial counterparties active in gas and electricity markets cleared in EU-based CCPs and to smoothen the functioning of European financial and energy markets.[24] In particular, the pool of eligible collateral was temporarily expanded to include uncollateralised bank guarantees for non-financial corporations acting as clearing members and to public guarantees for all types of counterparties. For its part, the EBA responded[25] that banks were providing energy companies with a wide range of services to manage volatility in energy derivatives markets and that it was not necessary to make regulatory changes in banking.

Moreover, the European Commission published a proposal for a review of the European Market Infrastructure Regulation (EMIR) which aims to promote the capital markets union.[26] EMIR pursues improving the attractiveness and resilience of clearing services and harmonising corporate insolvency rules in the EU internal market, supporting cross-border investments and reducing administrative burdens for firms, especially SMEs, to strengthen their access to financing through the markets. The regulation also aims to address the risks associated with excessive exposures of EU clearing members and clients to third-country CCPs to thereby ensure the integrity and stability of the EU financial system. To this end, it envisages requiring market participants to hold active accounts at EU-based CCPs, to clear at least part of the services identified as of systemic importance.

Global committees

In December the Basel Committee on Banking Supervision (BCBS) published a document on frequently asked questions to clarify how climate-related

21 Commission Delegated Regulation (EU) 2022/2311 of 21 October 2022 amending the regulatory technical standards laid down in Delegated Regulation (EU) No 153/2013 as regards temporary emergency measures on collateral requirements.

22 See letters from the European Commission to ESMA and to the EBA, "Response to the current level of margins and of excessive volatility in energy derivatives markets", 13 September 2022.

23 See ESMA response to the European Commission of 22 September 2022.

24 See ESMA, *"ESMA Final Report Emergency measures on collateral requirements – draft Regulatory Technical Standards amending Commission Delegated Regulation (RTS) 153/2013"*, 14 October 2022.

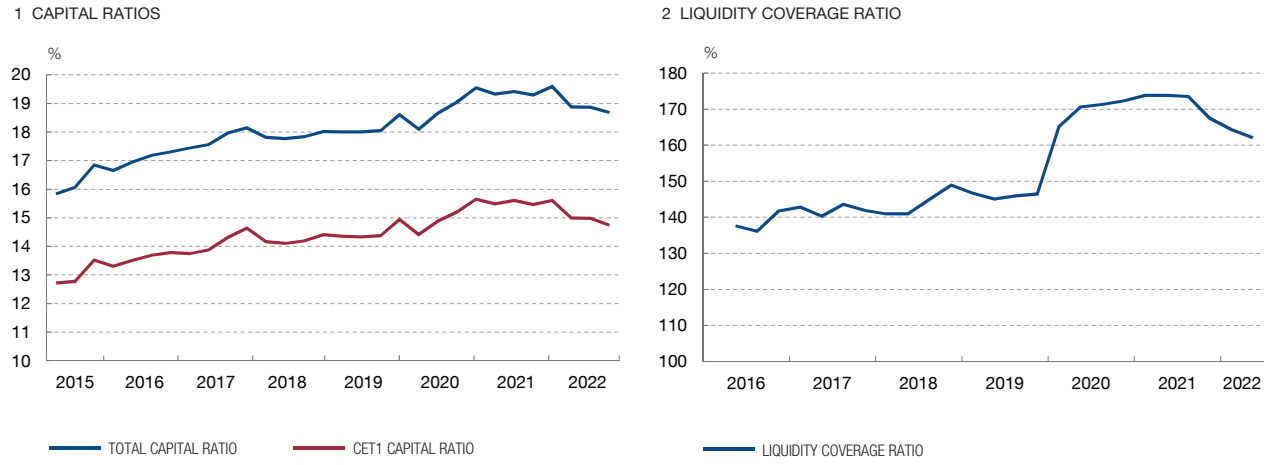
25 See EBA, *"EBA response to the European Commission on the current level of margins and of excessive volatility in energy derivatives markets"*, 29 September 2022.

26 See European Commission, *"Proposal for a regulation of the European Parliament and of the Council amending Regulations (EU) No 648/2012, (EU) No 575/2013 and (EU) 2017/1131 as regards measures to mitigate excessive exposures to third-country central counterparties and improve the efficiency of Union clearing markets"*, 7 December 2022.

Chart 3.8

FOLLOWING THE IMPLEMENTATION OF THE BASEL FRAMEWORK, WHICH WAS REVISED IN THE WAKE OF THE GLOBAL FINANCIAL CRISIS, EUROPEAN BANKS HAVE STRENGTHENED THEIR CAPITAL AND LIQUIDITY RATIOS (a)

Reinforcing the regulatory capital and liquidity framework after the 2008 global financial crisis has prompted European banks to increase their capital ratios, particularly their CET1 ratio, and they continued to do so even during the COVID-19 crisis in 2020-2021. The liquidity coverage ratio has also been reinforced, thanks in part as well to the monetary policy response to the health crisis.



SOURCES: ECB and Banco de España.

a Includes information on all significant credit institutions at the highest level of consolidation in the banking union area.

financial risks may be captured in the existing Basel framework.[27] The document aims to facilitate a globally consistent interpretation of existing Pillar 1 standards given the unique features of climate-related financial risks and should not be interpreted as changes to the standards. The responses are consistent with the BCBS Principles for the effective management and supervision of climate-related financial risks.[28]

The BCBS has also published its third report on the evaluation of the Basel reforms implemented since 2016.[29] This exercise is the first holistic evaluation of how the agreed reforms are affecting bank resilience and systemic risk, and of the possible negative side effects on banks' lending and capital costs. The report indicates that the implemented reforms have driven the increase in bank resilience (see Chart 3.2.3) and shows that market-based measures of systemic risk have also improved. The report finds no considerable evidence of negative side effects of the reforms, while acknowledging greater regulatory complexity. Other priority topics for

27 See BCBS, *"Frequently asked questions on climate related financial risks"*, 8 December 2022.

28 See BCBS, *"Principles for the effective management and supervision of climate-related financial risks"*, June 2022.

29 See BCBS, *"Basel Committee evaluation shows that the implemented Basel III reforms contributed to increase bank resilience"*, press release of 14 December 2022.

the BCBS[30] are emerging risks, climate-related financial risks, the review of existing standards and guidance, and the digitalisation of finance – including crypto-assets (see Box 3.2 on the latest regulatory developments in this field). The BCBS will also review recent developments in March 2023, to draw conclusions from a regulatory and supervisory standpoint.[31]

The FSB has published a report including proposals to address systemic risk in non-bank financial intermediation (NBFI), identified as one of the most significant areas for financial system stability. The report[32] was published in November 2022, following major strains in commodities and bond markets, and analyses the main vulnerabilities identified in money market funds and open-ended funds. These are especially related to potential liquidity mismatches in response to sudden declines in the volume of funding, above all owing to increases in redemption requests, and are more significant under stressed market conditions. Based on these vulnerabilities, the report details proposals focused on promoting the use of liquidity management tools and addressing the structural liquidity mismatch in open-ended funds. It also includes proposals to address the procyclicality of margins in securities and derivatives markets. The FSB considers NBFI one of the most important issues for financial stability in the coming years and this is reflected in its work programme for this year.

The FSB has also published an assessment[33] of the effectiveness of the recommendations issued in 2017 on liquidity mismatches in open-ended funds.[34] The recommendations aimed to improve regulatory reporting to facilitate liquidity risk analyses, promote the introduction of liquidity management tools at the time the fund is initially designed and on an ongoing basis, foster the development of liquidity management tools and promote stress testing at fund and system level. The FSB concludes that, although much progress has been made in implementing the recommendations, the lessons learnt these years pose new challenges, especially in relation to the liquidity management tools, their use and their effectiveness in identifying these funds' vulnerabilities. IOSCO also published a report following up on the liquidity risk management recommendation for investment funds, which was published in 2018.[35]

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30 See BCBS, *"Basel Committee work programme and strategic priorities for 2023/24"*, 16 December 2022.

31 See BCBS, *"Basel Committee to review recent market developments, advances work on climate-related financial risks, and reviews Basel Core Principles"*, press release of 23 March 2023.

32 See FSB, *"Enhancing the Resilience of Non-Bank Financial Intermediation, Progress Report"*, and Table 1 Planned deliverables under the FSB's NBFI Work Programme, 10 November 2022.

33 See FSB, *"Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities"*, 12 January 2017 and *"Assessment of the Effectiveness of the FSB's 2017 Recommendations on Liquidity Mismatch in Open-Ended Funds"*, 14 December 2022.

34 According to the CNMV, an open-ended fund is an investment fund that allows unit-holders to join or depart at any time, without such increase or decrease in the number of units entailing any change for the other investors.

35 See IOSCO, *"Recommendations for Liquidity Risk Management for Collective Investment Schemes"*, February 2018 and *"Thematic Review on Liquidity Risk Management Recommendations"*, November 2022.

Box 3.1

IMPACT OF THE MACROECONOMIC CYCLICAL POSITION AND CREDIT STANDARDS ON MORTGAGE DEFAULTS

Not only is mortgage credit for house purchase the main component of Spanish household debt (according to the Spanish Survey of Household Finances, 56.3% of households had bank debts in 2020, of which mortgage debt accounted for 62.8%), it also represents a significant segment of financial institutions' credit portfolios (42.8% of lending to the resident private sector in business in Spain at end-2022). These two factors make it essential to analyse the quality of such credit from a financial stability standpoint.

With this in mind, it is well worth identifying the factors driving trends in mortgage defaults so as to be able to anticipate such events and set in place prudential measures to reduce their impact.[1] To this end, it is important to work with time series with sufficient historical depth (including expansionary and recessionary cycles) and data that are sufficiently granular (enabling the key features of loans to be distinguished) and properly representative.

The aim of this box is to analyse the main determinants of the probability of default in the flow of new mortgages granted in Spain since 2001, focusing on macroeconomic factors, certain characteristics included in the credit standards for such lending, such as the loan-to-income (LTI) and loan-to-value (LTV) ratios, and household income levels and trends (which would capture any shocks relating to employment developments, for example),[2] by drawing on data from the Banco de España's Central Credit Register (CCR).

Thanks to its broad time frame and the fact that it serves as a census of all mortgage loans granted in Spain, this database is the natural candidate for this purpose, although it does pose several challenges. In particular, the CCR's historical time series offers scant information on the circumstances of individual debtors or on the collateral put up (both when a mortgage is granted and during the life of the loan).[3] In particular, it does not include any measure of the LTI ratio, since household income is not recorded in the period of analysis, while the LTV ratio has only been available at transaction level since 2016, when the value of the collateral securing outstanding mortgages began to be reported to the CCR.

To overcome these difficulties by making use of all the information available, the postcode of the oldest person among the borrowers under a single mortgage loan (identified as the household reference person) is used. This postcode is then used to proxy the household's income level, as well as any changes in such income over time. Meanwhile, for analyses of the effects of the LTV ratio, the sample is restricted to outstanding mortgages at end-2016, thus partially limiting the representativeness of such findings for the entire set of mortgage credit granted since 2001.

The database used in the analysis includes a representative sample of the new mortgages granted every month between 2001 and 2015.[4] This time frame means that information is available on trends in mortgage credit quality during the global financial crisis, the boom that preceded it and the recovery that followed. Each new loan is monitored over four years to ascertain whether it became non-performing at any point in that period (defining non-performing as failure to pay during a period of more than 90 days).[5] This event (classification as non-performing) is precisely what this study seeks to explain. This database

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1 Previous studies on the situation in Spain include the articles by J. M. Casado and E. Villanueva. (2018). "Spanish household debt defaults: results of the Spanish Survey of Household Finances (2002-2014)". *Financial Stability Review,* Banco de España, No 35, November 2018, pp. 149-171; and by J. E. Galán and M. Lamas. (2019). "Beyond the LTV ratio: new macroprudential lessons from Spain". Working Papers, Banco de España, No 1931.

2 Box 3.1 of the Autumn 2022 Financial Stability Report looked at the impact of credit standards on the supply of mortgage loans and their quality, based, in the case of the second metric, on data on securitised mortgage loans from 1999 to 2007. In addition to using a more comprehensive database to confirm the importance of credit standards for mortgage defaults, the current study (based on the CCR) also enables an analysis of how macroeconomic factors impact such defaults and how they interact with credit standards.

3 Moreover, the CCR's historical data do not include any loan identifiers, making it hard to distinguish and, subsequently, monitor new loans. To this end, an analysis at borrower level is needed. In turn, the existence of a 100% mortgage is used as a criterion for identifying the relevant data, since information on the purpose of loans is not available for the entire historical time series.

4 For computational cost reasons, the decision was made to use a random sample of 10% of the total CCR mortgages based on the selection of a particular number in the fourth position on the national identify card or foreigner ID number of the borrower chosen as the household reference person, within the group of borrowers under a single mortgage loan. Meanwhile, the amounts of the mortgages chosen range between €20,000 and €1,000,000. The final database contains more than one and a half million mortgages.

5 A four-year period was chosen so as to avoid considering the COVID-19 crisis for the more recent mortgages in the sample, given the particular characteristics of this period. The results are similar where a five or six-year time horizon is used.

IMPACT OF THE MACROECONOMIC CYCLICAL POSITION AND CREDIT STANDARDS ON MORTGAGE DEFAULTS (cont'd)

Chart 1
DEFAULT RATE, LTI, LTV AND CUMULATIVE RATE OF CHANGE IN GDP BY ORIGINATION DATE (a)

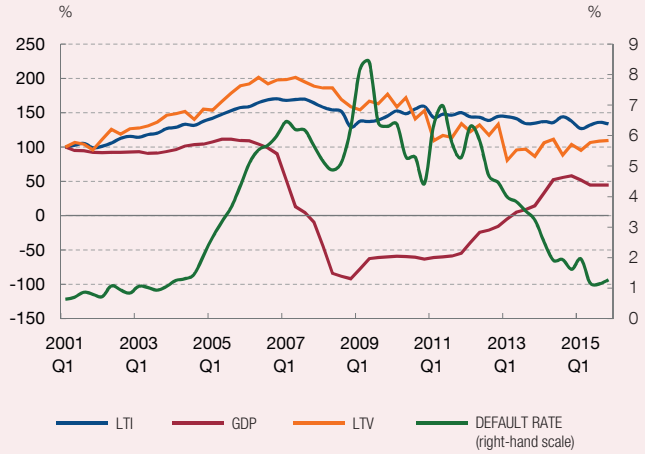


Chart 2
IMPACT OF DIFFERENT ADVERSE SHOCKS ON THE PROBABILITY OF MORTGAGE DEFAULT (b)

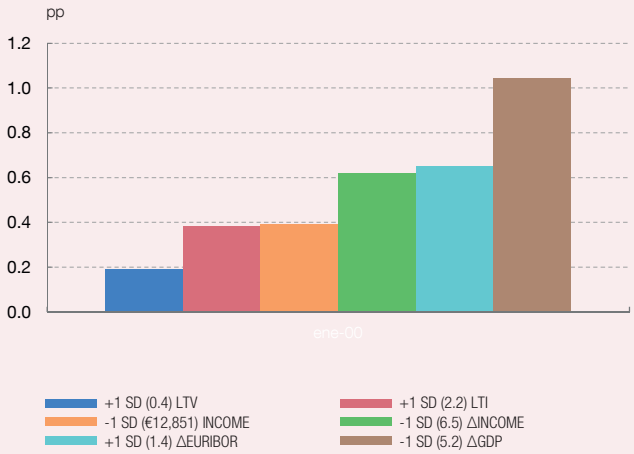


Chart 3
IMPACT ON THE PROBABILITY OF DEFAULT OF A -1 PP CHANGE IN GDP BY INCOME QUINTILE AND FOR DIFFERENT LEVELS OF INCOME VARIATION (b) (c)

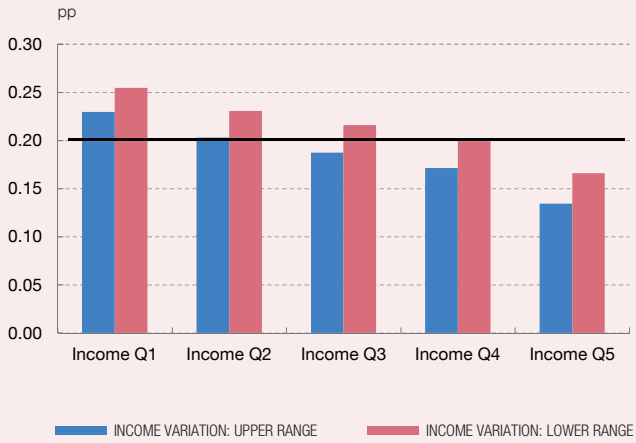
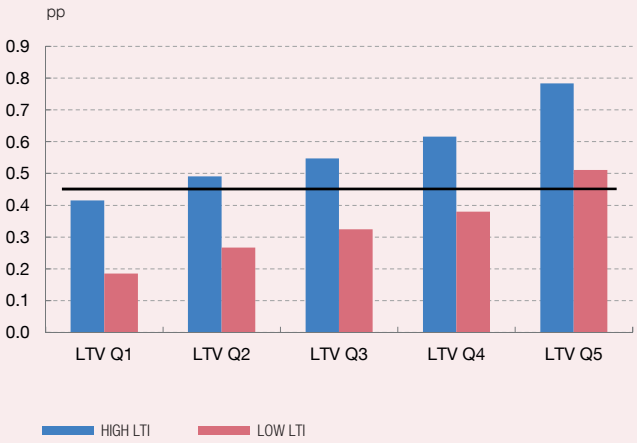


Chart 4
IMPACT ON THE PROBABILITY OF DEFAULT OF A +1 PP INCREASE IN THE EURIBOR BY LTV QUINTILES AND FOR DIFFERENT LEVELS OF LTI (b) (d)



SOURCES: Banco de España, INE and Agencia Tributaria.

a Chart 1 shows, by origination date of the new mortgages analysed, grouped quarterly, the average value of the LTI and LTV ratios and the 4-year cumulative change in GDP (100 = January 2001), as well as the default rate in the first 4 years.
b Charts 2, 3 and 4 show the effect (in pp) of shocks to certain variables on the probability of default of new mortgage credit between January 2001 and December 2015, using a linear probability model that controls for loan, household and lending bank characteristics, as well as for macroeconomic factors and other non-observable factors. Specifically, Chart 2 shows the direct impact of shocks to income, LTI and LTV ratios, changes in income (ΔINCOME), the EURIBOR (ΔEURIBOR) and GDP (ΔGDP). In each case, the size of the shock is of 1 standard deviation within the sample, triggering an increase in the probability of default. Thus, the model envisages increases for LTI, LTV and ΔEURIBOR, and decreases for the other variables.
c Chart 3 depicts income quintiles and the upper range/lower range income variation groups are based on the median of the distribution. The horizontal line shows the median effect of a 1 pp decline in GDP.
d Chart 4 depicts LTV quintiles and the high/low LIT groups are based on the median of the distribution. The horizontal line shows the median effect of a 1 pp increase in interest rates.

is combined with financial information from banks (from their periodic reporting to the Banco de España), as well as with data on average gross household income by postcode (from the State tax revenue service) and macroeconomic variables such as GDP or the EURIBOR rate.

The model includes loan-related explanatory variables such as the LTI or LTV ratios (the latter only in certain specifications), the number of borrowers, whether any of the borrowers is a foreigner, a sole proprietor or a woman, and the month in which the loan was granted. It also factors in household-specific characteristics, such as estimated gross income, the changes in such income over the first four years of the mortgage, the age of the oldest borrower and whether borrowers had another mortgage at the mortgage origination date or had defaulted on other mortgages at any point between 1999 and the date on which the mortgage is originated.

In terms of the lending banks' profile, the model includes their assets and leverage, liquidity and profitability ratios, as well as their NPL ratios, all of these prior to the mortgage origination date. Given the importance of the macroeconomic components, the estimate includes changes in GDP and interest rates during the four years following the granting of the loan. Lastly, other non-observable bank (and, in certain specifications, postcode) factors are controlled for.[6]

By way of illustration, Chart 1 shows that both mortgage default frequency and credit standards, particularly the LTI and LTV ratios, are subject to a high degree of cyclical variation. For example, the average probability of default during the first four years following the granting of the mortgage loan for the sample as a whole is 3.6%, but the variable ranges from minimum of around 1% to a maximum of 8.5%.

The results of the estimation show that the variables with a greater individual impact on the probability of mortgage default are the existence of past mortgage defaults (with the average probability rising by 26 pp) and the fact that one of the borrowers is a foreigner (with the probability increasing by 10 pp). That said, the former account for less than 1% of new mortgages, while the latter account for 5%. Thus, despite their impact, these are not the most salient factors from a systemic standpoint. The probability of experiencing payment difficulties rises by 0.9 pp where the core household members include a sole proprietor,[7] by 0.5 pp where the oldest borrower is under the age of 55, and by 2.2 pp where the household has more than one mortgage.[8] Moreover, the probability of default falls slightly (by 0.1 pp) where the borrowers include a woman.

As regards the amount of the mortgage as a share of income at the origination date, a one standard deviation (1 SD) rise in the LTI ratio (equivalent to 2.2 units) increases the probability of default by 0.4 pp, while lower household income at the origination date (a 1 SD reduction, i.e. €12,851) is associated with a 0.4 pp increase in the probability of default (see Chart 2). In particular, the effect of income is non-linear. Thus, the probability of default falls by 1 pp for the top 20% of wealthiest households, a decline that increases to 1.3 pp for the top 10%. Lastly, if, rather than household income levels, changes in such income over time are examined, a 1 SD decrease (6.5 pp) over the first four years of the life of the mortgage loan would trigger a 0.6 pp increase in the probability of default.[9] For most households, changes in household income are very closely linked to the employment status of their members, which is used as a proxy for such income for the purposes of this study.

The exercise with the mortgages for which LTV data are available (67% in terms of the number of loans) reveals that the results obtained for the different variables detailed in the preceding paragraphs are qualitatively similar. The LTV ratio has a highly non-linear effect on

6 Standard errors are corrected for the possibility of correlations at the level of loan origination date, bank and postcode.

7 Sole proprietors are associated with more volatile household income. This outcome is similar to the one found across the euro area by J. Gaudêncio, A. Mazany and C. Schwarz. (2019). "The impact of lending standards on default rates of residential real estate loans". Occasional Paper Series, ECB.

8 By using an estimation of income at postcode level in this study, the socio-economic variables whose impacts are described in this paragraph can shed additional light on the unobserved individual component of income, although they are also likely to contain specific differential information, e.g. on the level of rootedness. The effects of this factor on mortgage credit have been studied in, for example, J. E. Galán, M. Lamas and R. Vegas. (2022). "Roots and recourse mortgages: Handing back the keys". Working Papers, Banco de España, No 2203.

9 In the event of a 1 pp fall in household income over that four-year period, the probability of default would rise by 0.1 pp.

the probability of default, which rises sharply above the 94% LTV threshold. Any increase in the LTV ratio above this threshold would therefore entail a 0.4 pp increase in the probability of default.

Turning to the macroeconomic factors, a 1 SD increase (1.4 pp) in the EURIBOR benchmark interest rates at any point during the first four years of the loan would be associated with a 0.6 pp rise in the probability of default, while a 1 SD decrease (5.2 pp) in GDP would cause a 1 pp rise. Expressed in other terms, a 1 pp rise in the EURIBOR interest rates would entail a 0.45 pp increase in the probability of default,[10] while a 1 pp fall in GDP would cause it to rise by 0.2 pp.[11]

Notably, the effects of individual household income levels and any changes therein are influenced by the position in the business cycle (see Chart 3). Thus, during a downturn in activity, the impact on defaults is exacerbated for households with a decline in their income (e.g. for employment reasons) or lower income levels (structurally more vulnerable households). Consequently, a 1 SD decrease in GDP (5.2 pp), combined with a fall in individual household income (by 1 SD, or 6.5 pp) would increase the probability of default by 1.1 pp. Moreover, the probability of default would rise by 1.2 pp for lower income households (decrease of 1 SD, or €12,851). All of these effects would be in addition to those already associated with lower levels of individual income or any adverse changes in such income.

Meanwhile, changes in benchmark interest rates have a greater impact among households that had higher LTI or LTV ratios at origination (see Chart 4) or that have experienced a negative income shock. Thus, the impact of a rise in interest rates (1 SD, 1.4 pp) would double for mortgages with a higher LTI ratio (a 1 SD increase in this ratio, 2.2 pp), to 1.3 pp, while the probability of default would rise by 0.9 pp for households with reduced income (a 1 SD decrease, 6.5 pp). Moreover, benchmark interest rate hikes have a bigger impact among mortgages with a high LTV ratio (above the 94% threshold), rising by 0.8 pp. Again, these aggregate adverse effects of a shock to a macroeconomic variable (in this case, interest rates) are in addition to the individual income effects.

The above findings reveal that macroeconomic developments, household income levels and credit standards alike are factors with a significant impact on mortgage credit quality.

Prudent lending criteria in terms of LTI and LTV ratios make mortgage defaults less likely, thanks both to their direct impact – in terms of lower indebtedness and greater servicing capacity – and to the composition of the mortgage portfolio in terms of borrowers' overall risk profile. In this regard, the stability of these ratios in recent years (at moderate levels by historical standards) points to the resilience of the quality of these types of loans.

Nonetheless, the interest rate hikes seen since 2022 are proving to be very steep, exerting pressure on households' ability to pay, and there are both expectations of and upside risks linked to further rate hikes. All of these risk factors would affect more vulnerable, lower income households to a greater degree. With all of this in mind, it is important that banks continue to keep a close eye on any deteriorations in the quality of this portfolio. Similarly, an appropriate use of potential restructuring arrangements, analysed in a special chapter of this Financial Stability Report, could be beneficial for both banks and the households affected. It is therefore essential that such arrangements be implemented appropriately.

10 For the dates analysed, the CCR has no information on whether mortgages have fixed or variable interest rates. Nonetheless, according to the National Statistics Institute (INE), more than 96% of the home mortgages granted between 2003 and 2015 had variable rates. In an exercise similar to the one carried out for collateral value (i.e. collecting these data for outstanding mortgages in 2018), it can be seen that, as is only to be expected, fixed-rate mortgages are not affected by changes in the EURIBOR rate.

11 Note that, according to the INE, 52.5% of the new mortgages granted on residential property over the last five years were fixed-rate loans, making this segment more resilient in the face of interest rate hikes.

Box 3.2

CRYPTO-ASSETS: RECENT REGULATORY DEVELOPMENTS AND FUTURE OUTLOOK

The foundations of the crypto-asset ecosystem were based on a decentralised consensual decision-making process, enabled by sophisticated cryptographic blockchain technology giving rise to a decentralised ledger.[1] Many national and international authorities have issued warnings about the risks to financial stability posed by this unregulated ecosystem,[2] particularly if crypto-assets were to replace bank deposits as a means of saving or become a dominant means of payment.

These warnings and the European and international regulatory initiatives described in this box (MiCA Regulation and the Basel Committee's prudential standards) have been borne out by a number of factors. These include their high volatility, implied by the recent abrupt corrections in value (with a concurrent loss of liquidity) and subsequent recovery of some instruments in the crypto-asset markets, and their interconnections with banks that have been revealed by the difficulties experienced by some medium-sized entities in the United States since 2023 Q1. However, these initiatives do not fully cover this ecosystem, and the authorities continue to work to protect individual investors and to limit the externalities for the financial system as a whole, given the high levels of risk the crypto-assets sector continues to pose.

MiCA Regulation

The Markets in Crypto-Assets (MiCA) Regulation defines crypto-assets as a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger or similar technology. However, not all instruments that meet this definition are covered by the Regulation.[3]

The crypto-assets subject to MiCA are classified as follows:

a) Electronic money tokens (EMTs) are a type of crypto-asset that purports to maintain a stable value by reference to the value of one fiat currency. They are considered as electronic money. Any person in the EU that offers EMTs to the public or seeks their admission to trading must be the issuer of the EMTs and authorised as a credit institution or as an electronic money institution, publish a crypto-asset white paper and notify the competent authority.

b) Asset-referenced tokens (ARTs) are a different kind of crypto-asset that aim to preserve a stable value by reference to another value or right, or a combination of both, such as one or several official currencies of a country. Any person that offers ARTs to the public in the EU or seeks their admission to trading must be the issuer of those ARTs and a legal person or undertaking established in the EU that has been duly authorised by the competent authority, or a credit institution that has produced a white paper which has been approved by the competent authority.

c) All crypto-assets other than those described above, included in the sphere of the Regulation. A person intending to offer these crypto-assets to the public in the EU or that seeks their admission to trading in the EU will not be subject to authorisation, but is required to comply with several obligations. Among other requirements, it must be a legal entity, draft a white paper (which it must notify to the competent authority) and publish it.

As regards the issuers of these crypto-assets, MiCA contains various provisions on their authorisation, supervision, operations, organisation and governance.

MiCA also regulates the provision of crypto-asset services in the EU. These services may be provided either by authorised crypto-asset service providers or by certain entities already subject to prevailing legislation (credit institutions, investment firms, electronic money institutions, etc.). The Regulation does not, however, apply to fully

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1 The ledger technology used by most crypto-assets is called blockchain, which is a specific kind of distributed ledger technology (DLT). The term DLT is broad and refers to decentralised databases that are managed by several users and employ various technical resources (e.g. cryptography) to implement the desired features, such as levels of transparency and security. Further details on the technological characteristics of crypto-assets can be found in C. Conesa. (2019). "Bitcoin: a solution for payment systems or a solution in search of a problem?". Occasional Papers, Banco de España, No 1901.

2 See, for example, the Joint Statement of 3 January 2023 by the Federal Reserve System and other US authorities on crypto-asset risks to banking organisations. For Europe, see, for example, the ESAs' warning to consumers on the risks of crypto-assets of 17 March 2022. For Spain, see, for example, the Special Chapter on these instruments in the Spring 2022 FSR.

3 The Regulation does not apply, inter alia, to crypto-assets that qualify as financial instruments, funds or other products that are already regulated in the legislation on financial services. Nor does it apply to crypto-assets that are unique and not fungible with other crypto-assets. Lastly, the Regulation does not apply to the European Central Bank or to national central banks of the EU Member States when acting in their capacity as monetary authority (i.e., it would not apply to a central bank digital currency).

decentralised services that are provided with no intermediaries.[4]

The following crypto-asset services are regulated in MiCA:

a) The custody and administration of crypto-assets on behalf of clients.

b) The operation of a trading platform for crypto-assets.

c) The exchange of crypto-assets for funds or other crypto-assets.

d) The execution of orders for crypto-assets on behalf of clients.

e) The placing of crypto-assets.

f) The reception and transmission of orders for crypto-assets on behalf of clients.

g) The provision of advice on crypto-assets.

h) The management of crypto-asset portfolios.

i) The provision of crypto-asset transfer services on behalf of clients.

As regards the providers of these services, MiCA regulates certain aspects relating to organisation, information to clients, the safeguarding of funds, conflicts of interest and outsourcing. The Regulation also contains various provisions on the prevention of market abuse involving crypto-assets.

The supervisory powers of the competent authorities include the possibility of performing on-site inspections, requesting information and suspending activities, as well as the possibility of temporarily prohibiting or restricting the marketing of certain crypto-assets.

The Regulation is expected to enter into force on the 20th day following that of its publication in the *Official Journal of the European Union.* It will be applicable 18 months after the date of entry into force, except for the regulation on ARTs and EMTs, which will become applicable 12 months after it enters into force. Within that time, the European Banking Authority will need to complete the implementing regulations at the second level (regulatory technical standards, or RTS, and implementing technical standards, or ITS) and third level (guidelines). Moreover, MiCA provides for an additional 18-month period (that Member States may extend or reduce) for crypto-asset providers that already operated under pre-existing national legislation to adapt to the requirements established in this Regulation. An immediate assessment of this new regulatory framework will therefore not be possible, as time will need to elapse for its effective application and, subsequently, for all its effects on this sector to be realised.

Basel Committee prudential standards on banks' exposures to crypto-assets

In December 2022 the Basel Committee on Banking Supervision (BCBS) published the final standard on the prudential treatment of banks' exposures to crypto-assets.[5] The standard is applicable to all crypto-assets, except for central bank digital currencies (CBDCs), whose treatment will be addressed in the future, as they are issued. The Committee has agreed to implement the standard by 1 January 2025.

The prudential treatment is established on the basis of a set of conditions determining the classification of crypto-assets into two groups. Crypto-assets that meet in full the conditions are classified in Group 1; otherwise, they are classified in Group 2, which entails more stringent prudential requirements. Each group is in turn divided into two sub-groups (see Figure 1).

Group 1 includes tokenised traditional assets and stablecoins whose issuer is supervised and regulated and is also subject to prudential capital and liquidity requirements.[6] Tokenised traditional assets must pose the same level of credit and market risk as traditional assets. For stablecoins, the standard stipulates that they must have a stabilisation mechanism that is effective in linking their value to the traditional (reference) assets (e.g. the dollar). The effectiveness of the mechanism will be assessed, among other criteria, through a redemption risk test that seeks to ensure that the reserve assets backing the stablecoin are sufficient to enable the crypto-assets to be fully redeemable at all times for the peg value.

4 One example being crypto lending through the use of applications that are completely decentralised.

5 BCBS. (2022). "Prudential treatment of cryptoasset exposures", December.

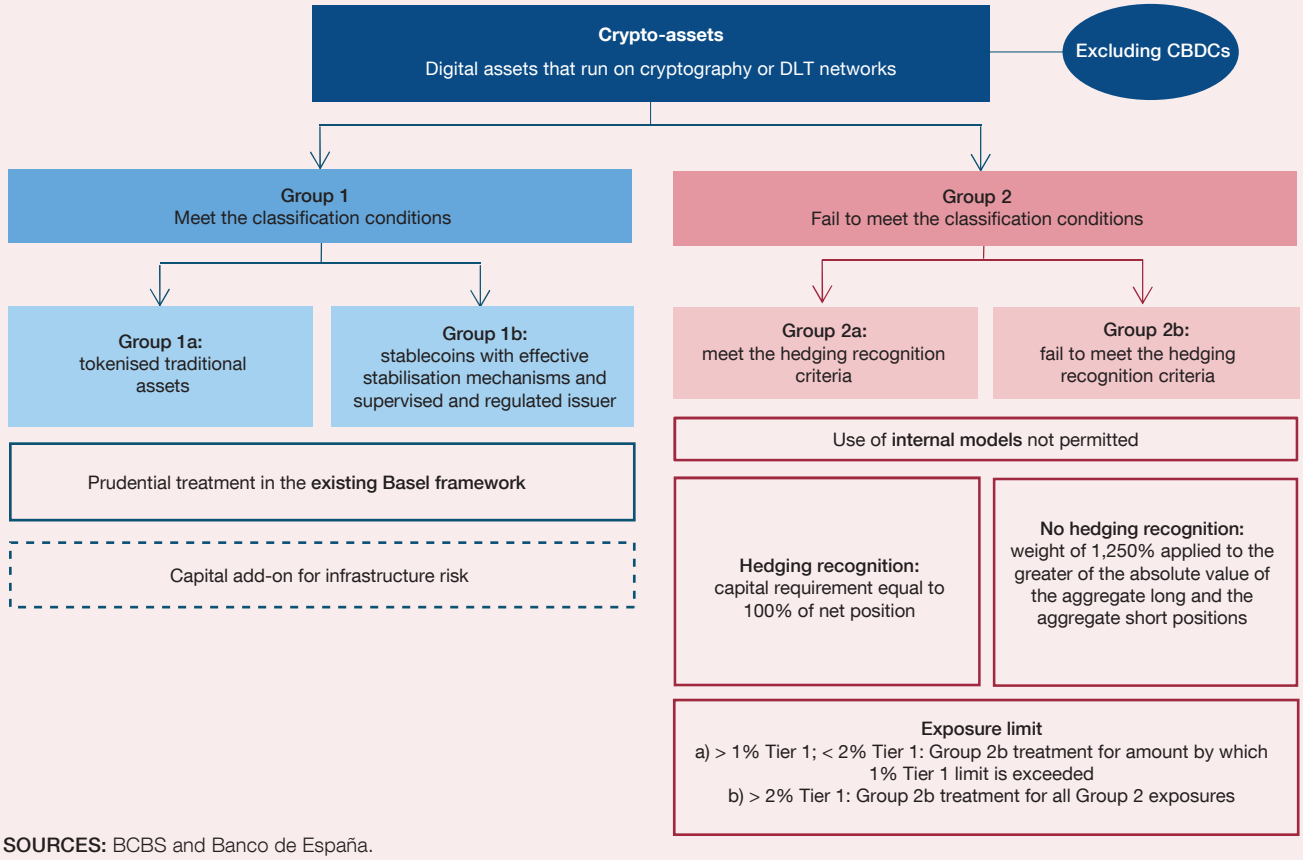
6 Tokenised traditional assets are defined in the standard as representations of traditional assets using cryptography, DLT or similar technology to record ownership. Stablecoins are defined as crypto-assets that aim to maintain a stable value relative to a specified asset or a pool or basket of assets.

Moreover, in order for a tokenised traditional asset or a stablecoin to be classified in Group 1, it must meet other requirements relating to the definition of legal aspects, network security and the regulation of participating agents.[7] In practice, these requirements will exclude crypto-assets traded on public or permissionless networks.

The capital requirements for crypto-assets that meet the Group 1 classification conditions will essentially be based on the existing Basel framework. Thus, in the case of tokenised traditional assets, the requirements will be equivalent to the Basel requirements for traditional financial assets. In the case of stablecoins, the standard takes account of their unique characteristics, and the risk weight calculation considers the risks associated with the issuer, from the reference asset, from the reserve assets and the risk of the redeemer, as well as those arising from any intermediaries involved.

Tokenised traditional assets and stablecoins that fail to meet any of the Group 1 classification conditions, as well as all unbacked crypto-assets, will be classified in Group 2. As

Figure 1
BCBS CLASSIFICATION OF CRYPTO-ASSETS FOR PRUDENTIAL TREATMENT OF BANKS' EXPOSURES



SOURCES: BCBS and Banco de España.

7 All the rights and obligations arising from the crypto-asset must be clearly defined and legally enforceable in all jurisdictions where the asset is issued and traded; all transactions and participants must be traceable, and the entities executing key functions (e.g., issuance, validation, redemption and transfer) must be subject to appropriate risk management policies and procedures. Moreover, entities that execute functions related to redemptions, settlements, transfers, storage or reserve asset management, including node validators, are also required to be regulated and supervised, or subject to appropriate risk management standards.

8 Specifically, (i) the crypto-asset must be a direct holding of a spot crypto-asset where there exists, at least, a derivative, an exchange-traded fund (ETF) or an exchange-traded note (ETN) that solely references the crypto-asset and is traded on a regulated exchange; a derivative, ETF or ETN that references a Group 2 crypto-asset that is traded on a regulated exchange or has been approved by the markets regulators for trading or, in the case of a derivative, that is cleared by a qualifying central counterparty (QCCP); a derivative or ETF/ETN that references a derivative that meets the criterion described; or a derivative or ETF/ETN that references a crypto-asset-related reference rate published by a regulated exchange; (ii) the average market capitalisation must have been at least USD 10 billion over the previous year, and the 10% trimmed mean of daily trading volume must have been at least USD 50 million over the previous year; and (iii) there must have been at least 100 price observations over the previous year, and sufficient data on trading volumes and market capitalisation of the crypto-asset.

Group 2 crypto-assets pose greater risks, the standard provides for a more stringent specific treatment. Moreover, a set of criteria (relating, inter alia, to trading volume and the availability of valuation data)[8] have been established for Group 2 crypto-assets, which, if met, permit a certain degree of hedging recognition (Group 2a). The standard does not permit the offsetting of positions in other cases (Group 2b).

Thus, Group 2a crypto-assets will be subject to a capital requirement equal to 100% of the net exposure, i.e. between the aggregate long and short positions for each type of crypto-asset.[9] In the case of Group 2b crypto-assets, a weight of 1,250% will be applied to the greater of the absolute value of aggregate long positions and the absolute value of aggregate short positions. Consequently, positions may not be offset.

Lastly, the standard includes two further specific aspects, namely:

a) a potential add-on for infrastructure risk applicable to Group 1 crypto-assets, to be decided by the competent authorities, to reflect possible risks stemming from the underlying technological infrastructure. This add-on will initially be set at 0% and may be activated (with no limit foreseen) based on ad hoc assessments by the authorities; and

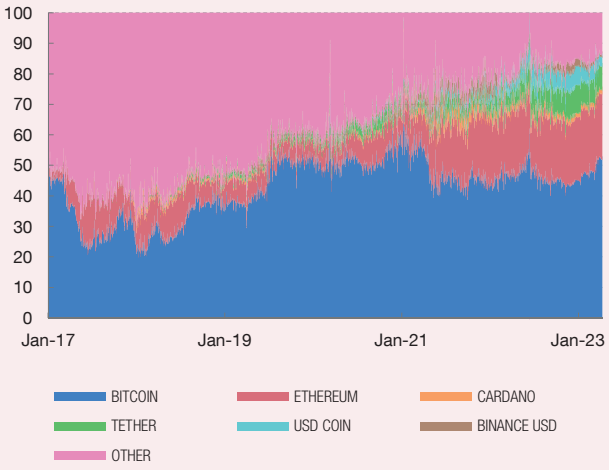
b) a limit on (direct and indirect) exposures to Group 2 crypto-assets.[10] Banks should generally keep their aggregate exposures to Group 2 crypto-assets below 1% of their Tier 1 capital, although a margin of up to 2% is allowed, with different associated penalties. If these limits are breached, the capital requirements will increase.

Future outlook

The BCBS will continue to review some aspects of the prudential standard, given the lack of extensive experience

Chart 1
PRICE OF SOME CRYPTO-ASSETS AGAINST THE DOLLAR

Chart 2
MARKET VALUE SHARES OF THE MAIN UNBACKED CRYPTO-ASSETS AND STABLECOINS (a) (b)



SOURCES: FSB, Refinitiv and CoinMarketCap.

a Each area of the chart depicts the share of each crypto-asset in the total market value of the crypto-assets represented. Bitcoin, ethereum and cardano are unbacked crypto-assets, and Tether, USD Coin and Binance USD are stablecoins.
b The total market value of the crypto-assets is estimated drawing on data from an FSB report *(Assessment of Risks to Financial Stability from Crypto-assets)* and considering changes in the MVIS CryptoCompare Digital Assets 100 Index.

9 Only products traded on a regulated exchange or cleared by a QCCP can be used to calculate the net position. Moreover, positions may only be offset in the case of products that are traded on the same exchange or platform. Also, under the Simplified Standardised Approach, coverage is limited to 65% of the smaller of the absolute value of the long position and the absolute value of the short position.

10 For the purposes of the limit, the exposure will be calculated as the aggregate of the higher of the gross long and gross short position for each crypto-asset represented in the portfolio.

with these instruments and how swiftly they have evolved. In addition, the BCBS's work programme envisages further assessments of bank-related developments in crypto-asset markets, including their role as stablecoin issuers, their risk management practices as custodians of crypto-assets and potential interconnections. Moreover, the Committee will continue to collaborate with other international standard-setting bodies and with the Financial Stability Board (FSB) to ensure a consistent global treatment of crypto-assets.

Other national and supranational authorities are also working to expand the scope of other relevant regulations. Thus, the successive crisis episodes within the crypto-asset ecosystem during 2022 have not only borne out the regulatory impulse described above, but they have also stimulated the initiatives under way (for example at the FSB and the European Systemic Risk Board), to monitor the risk posed by crypto-conglomerates and that of decentralised finance (DeFi) protocols.

The bankruptcy of FTX was particularly revealing of the agency and fraud risks of opaque centralised and interconnected contract structures. FTX operated both an exchange platform and a crypto-asset fund within the same business group. The lack of segregation and scrutiny of the two activities allowed for client funds to be diverted, until the underlying solvency problems came to light. This prompted a sell-off of FTX native tokens, with the consequent loss of value (see left-hand panel of Chart 1) and, ultimately, a spillover to a range of companies closely connected to FTX.

FTX's collapse has put various crypto-asset service providers in a complex financial situation: crypto-asset lenders (such as BlockFi and Genesis), Gemini (an exchange platform closely linked to Genesis) and, more broadly, a whole range of entities within FTX's ecosystem. This succession of spillovers has not had systemic consequences for the overall banking sector, which to date has had little exposure to the crypto-asset sector as a whole, thanks in part to the warnings by the authorities.

Some crypto-asset market segments, specifically DeFi, have not been affected by the FTX crisis. Yet DeFi poses its own risks. For instance, the Terra-Luna crash (see right-hand panel of Chart 1) already prompted alarm bells about the risks specific to an ecosystem with novel interconnections and operations. The authorities continue to underscore the risks posed while work progresses on a regulatory solution to address them.

In the short term, the marked downward corrections in crypto-asset valuations in 2022 have reduced the potential systemic risk posed by these instruments. However, these recent developments do not rule out the possibility of there being further growth in the future. Indeed, on the data available for 2023, the valuations of some of these assets are once again seeing rapid increases.

Among the possible scenarios for the crypto-asset market, it is reasonable to believe that concentration in more stable instruments that have a lower risk profile may increase. Based on the time series available, there has been a progressive increase in concentration in a smaller number of instruments (see Chart 2). If this trend were to take hold, it seems likely that the interconnections with the traditional financial system will grow stronger (for example, through stablecoins backed by traditional assets). While certain operational risks will plausibly decrease in this scenario, a potentially larger crypto-asset sector that is more closely interconnected to the traditional financial sector could nevertheless increase systemic risk. Indeed, the crisis at some medium-sized banks in the United States has clearly shown how the bank deposits held in connection with these stablecoins as part of the reserve assets can be a channel of contagion for these vulnerabilities. To avoid such a situation, it is therefore important that the regulation continues to adapt to this and other dynamics in the sector.

Special Feature

CODES OF GOOD PRACTICE FOR PRINCIPAL RESIDENCE MORTGAGES AND SUPPLEMENTARY MEASURES

SF CODES OF GOOD PRACTICE FOR PRINCIPAL RESIDENCE MORTGAGES AND SUPPLEMENTARY MEASURES

The global financial crisis had important consequences for mortgagors in terms of adjustments to their spending levels, defaults on their financial obligations and, in certain cases, the loss of the mortgaged residence. Royal Decree-Law (RDL) 6/2012[1] was approved to protect the most vulnerable households. This RDL implemented the creation of a "Code of Good Practice" (CGP) to which credit institutions and other professional mortgage lenders could voluntarily sign up. This CGP bound those that did so and established certain arrangements, essentially aimed at fostering, in accordance with the terminology used in RDL 6/2012, the viable forbearance[2] of the mortgage loans of those mortgagors facing extraordinary difficulties to meet their repayment obligations.

Against the economic and geopolitical backdrop following Russia's invasion of Ukraine, RDL 19/2022 amended some of the measures in the CGP under RDL 6/2012 and established a new temporary code for potentially vulnerable mortgagors, which will remain in force until December 2024, alongside other additional measures, such as the temporary waiver of fees for converting variable-rate into fixed-rate mortgages. On this occasion, the rationale for the new RDL was, first, to help alleviate the situation of vulnerable households with variable-rate mortgages and smooth their adaptation to the new higher interest rate environment. At the same time, these measures aimed, more generally, to facilitate the switch from variable-rate to fixed-rate mortgages and prevent high inflation and rising interest rates from placing certain segments of the at-risk households in a situation of vulnerability.

This special feature details the measures in RDL 19/2022 and explains how much they differ from those envisaged in RDL 6/2012. It also contains an analysis of the historical data on application of the CGP under RDL 6/2012, assessing its possible structural and conjunctural functions, and the potential warning signs in the characteristics of forborne transactions in the recent period. On the basis of the criteria established under RDL 19/2022 and the historical experience of RDL 6/2012, ranges are estimated for the potential size of the population of eligible mortgagors under the different CGPs in force after the 2022 reform and for the actual proportion of them that were ultimately able to opt for the measures.

The easing of vulnerable and potentially vulnerable households' debt burden resulting from application of the CGP measures will foreseeably boost consumption

1 RDL 6/2012 on urgent measures to protect mortgagors experiencing financial hardship.

2 This special feature uses the terms forbearance and forbearance plans in line with the terminology in RDL 6/2012. The consideration of a loan as forborne for loan loss provision purposes depends on specific legislation which is separate from RDL 6/2012. Section SF.3.3 of this special feature analyses this matter in greater detail.

and economic activity in the short term. However, the counterpoint to some of these measures would be a higher level of household debt for longer and an increase in interest cost in the long term. They could also have implications for these households' access to new loans in the future. These different macroeconomic and financial effects are also analysed in later sections.

Lastly, this special feature analyses the credit quality of the mortgage loans on banks' balance sheets that have been identified as forborne, in accordance with accounting regulations for banks. Amending the terms and conditions on loans for borrowers experiencing financial hardship may, when appropriately implemented, enable defaults to be managed and corrected or, in the best case, prevent them, lowering impairment charges as a result.

Overall, the information in this special feature aims to aid comprehension of the CGP measures adopted and contribute to the ex ante analysis of their economic and financial consequences. This prior analysis combines the characteristics of these measures with different data available to December 2022, before the reformed CGP framework stemming from RDL 19/2022 began to be applied. Future Financial Stability Reports will conduct an ex post analysis, once information is available on the actual outcomes of applying this reform.

SF.1 The Codes of Good Practice in Royal Decree-Law 6/2012 and Royal Decree-Law 19/2022

SF.1.1 Description and main characteristics of the Royal Decree-Law 6/2012 Code of Good Practice

The RDL 6/2012 CGP was approved primarily in order to facilitate the forbearance of mortgage loans amid the fallout from the global financial crisis. In 2012, after four years of economic crisis, the prolonged unemployment or economic inactivity of certain groups of households limited their debt servicing capacity, leading to a sharp rise in defaults and, ultimately, mortgage foreclosures. To prevent the adverse socioeconomic effects of losing their dwelling for those mortgagors facing significant financial hardship, measures were introduced to facilitate mortgage loan forbearance and to relax mortgage foreclosure.[3]

RDL 6/2012 also sought to safeguard and maintain the soundness of the Spanish mortgage system by making the adoption of the CGP by lenders voluntary and limiting its effects to the most vulnerable mortgagors. Credit

3 A mortgage is a form of collateral whereby the property provided as the security directly or indirectly ensures a particular obligation is discharged. It should be entered in the real estate registry to duly qualify as a right in rem. Under Articles 106 and 107 of the Spanish Mortgage Law, immovable property and other rights in rem can be mortgaged.

institutions and other professional mortgage lenders could sign up to the CGP under RDL 6/2012 voluntarily. Having done so, the provisions of the CGP became obligatory[4] for those mortgage loans where certain conditions were met regarding the immovable property and, primarily, mortgagors who had provided their principal residence as collateral,[5] considering whether they were below an exclusion threshold that prevented them from fulfilling mortgage repayment obligations and being able to feed the household.

Under RDL 6/2012, a mortgagor would be considered as being below the exclusion threshold on account of having low income, the household unit's purchasing power having become significantly deteriorated and having a high mortgage servicing ratio. With respect to income, the overall income of the members of the household unit could not exceed a limit of three times the Multipurpose Public Indicator of Income (IPREM),[6] which was raised under certain circumstances.[7] To identify the deterioration in the household unit's purchasing power,[8] in the four years prior to submitting the application for mortgage forbearance, the mortgage servicing ratio needed to have increased by 1.5x, or unforeseen circumstances rendering the household unit particularly vulnerable needed to have arisen in that period (large families, single-parent households, etc.). In addition, mortgage instalments needed to exceed 50% of the net income received by all members of the household unit (40% if any member of the household unit had above a certain degree of disability). In any of the above-mentioned cases, mortgagors were required to prove that their household unit had no other assets or sources of income that they could use to repay the debt. This CGP also limited the selling price of the dwelling associated with eligible loans based on the size of the municipality and the household's circumstances.[9]

The mortgage debt burden relief measures under RDL 6/2012 basically involved the establishment of a payment holiday and amended maturities and interest rates. Under the CGP,[10] the mortgagee was to submit a financial viability plan to the mortgagor within one month of receipt of the application for mortgage

4 To oversee compliance with RDL 6/2012, the Royal Decree-Law created an oversight committee comprising representatives from the Ministry of Economic Affairs and Competitiveness, the Banco de España, the National Securities Market Commission and the Spanish Mortgage Association.

5 The scope of RDL 6/2012 included mortgagors with a mortgage on their principal residence, in addition to sureties and guarantors, vis-à-vis their principal residence.

6 14 payments per year. The IPREM is a benchmark index used in Spain for granting aid, subsidies and unemployment benefits. It was launched in 2004 as a new benchmark, replacing the national minimum wage.

7 This limit would increase to four or five times the IPREM based on the disability or legal incapacity of the members of the household unit.

8 The conditions regarding the deterioration in purchasing power and the mortgage servicing ratio detailed in this special feature refer to the Amendment of 15 May 2013 to the original wording of RDL 6/2012, which envisaged different criteria that were not in force for particularly long and are not detailed any further in this special feature.

9 See Article 5 of the Amendment of 15 May 2013 to the original wording of RDL 6/2012.

10 Forbearance plan conditions in accordance with the CGP in the Annex to RDL 6/2012, as per the Amendment of 15 May 2013. The substitutive and supplementary measures in the following paragraph are also from this version of the RDL.

loan forbearance. The forbearance measures involved applying an interest-only period[11] of up to five years, extending the term to 40 years (from the loan origination date) and applying, during the interest-only period, an interest rate equal to the relevant EURIBOR + 0.25 percentage points (pp). Banks could consolidate all the mortgagor's debts in the viability plan.

Should the loans prove to be unviable after forbearance, possible substitutive and supplementary measures were envisaged. If, despite the established forbearance, the mortgage loan was still unviable,[12] the mortgagor could request a partial acquittance of the outstanding principal, which the bank could then choose to accept or not. In addition, should none of the measures envisaged prove viable, mortgagors were entitled to request dation in payment of the principal residence. The bank was required to accept it, and this would discharge the mortgage debt. Furthermore, the mortgagor could remain in the dwelling as a lessee for two years, paying an annual rent equal to 3% of the outstanding mortgage debt on the date of the dation in payment. Rental was also possible in the case of stayed foreclosure.

SF.1.2 Changes introduced in Royal Decree-Law 19/2022

The reform of the Royal Decree-Law 6/2012 Code of Good Practice

RDL 19/2022 envisages the reform of the CGP initially established under RDL 6/2012 and other additional measures with a view to preventing the socioeconomic costs stemming from the inflationary episode and the sharp rise in interest rates in 2022. Despite the reduction in household debt between the global financial crisis and 2022,[13] robust employment data and the measures deployed to mitigate the effects of rising energy prices, inflationary pressures and the surge in the EURIBOR (e.g. more than 350 basis points (bp) in the 12-month EURIBOR since January 2022) have made defaults and mortgage foreclosures more likely. Ahead of further potential increases in borrowing costs, the reform of the CGP seeks to bolster the financial viability of vulnerable households, make it less likely that average-income households become vulnerable and make it easier for all households with variable-rate mortgages to adapt to the new interest rate environment. See Figure SF.1 for a summary of all the measures described below.

After the reform under RDL 19/2022, the CGP under RDL 6/2012 continues to target vulnerable households, although the exclusion threshold has been

11 Loan payment holidays mean those periods where the borrower is not required to repay either the principal or interest, or both. In the case of the CGP under RDL 6/2012, the payment holiday referred solely to the principal. The amount unpaid during the interest-only period was to be paid after the payment holiday, either upon maturity in a final instalment or prorated in the remaining repayment instalments, or via a combination of the two.

12 For these purposes, an unviable plan means one in which the mortgage servicing ratio exceeds 50% of income.

13 The consolidated debt of households and non-profit institutions serving households amounted to 54.4% of GDP in 2022 Q3, compared with the peak of 85.6% during the global financial crisis.

Figure SF.1

CODES OF GOOD PRACTICE IN FORCE AFTER THE REFORM UNDER RDL 19/2022 (a)

Structural arrangements. CGP, RDL 6/2012	Temporary arrangements. NCGP, RDL 19/2022
Eligibility criteria	**Eligibility criteria**
Socioeconomically vulnerable households: — **Income** not exceeding between three and five times the IPREM, based on the degree of disability in the household — **Increase,** in the four years prior to the application, in the mortgage servicing ratio or circumstances rendering the household especially vulnerable — **Mortgage servicing ratio** exceeding 40%-50% — **Selling price** of the mortgaged residence lower than €300,000	Potentially socioeconomically vulnerable households: — **Income** not exceeding between three and a half and five and a half times the IPREM, based on the degree of disability in the household — **Increase,** in the four years prior to the application, of 1.2x in the mortgage servicing ratio or circumstances rendering the household especially vulnerable — **Mortgage servicing ratio** exceeding 30% — **Selling price** of the mortgaged residence lower than €300,000 — **Loans arranged** before 31 December 2022 and term of two years
Forbearance measures	**Contractual amendments**
If the mortgage servicing ratio increases by less than 1.5x and there are no circumstances rendering the household especially vulnerable: — **Interest-only period** of up to two years — **Extension of the term** by up to seven years (maximum term of 40 years) — **Interest rate** limited during the payment holiday, resulting in a 0.5 pp reduction in the loan's NPV (b) If the mortgage servicing ratio increases by more than 1.5x or there are circumstances rendering the household especially vulnerable: — **Interest-only period** of up to five years — **Extension of the term** (maximum term of 40 years) — **Interest rate** limited to EURIBOR - 0.1 pp during the payment holiday	Geared towards stabilising mortgage instalments at their June 2022 level: — **Extension of the term** by up to seven years (maximum term of 40 years) — Option for an **interest-only period** of up to one year alongside the **extended loan term** — **Interest rate** limited during the payment holiday, resulting in a 0.5 pp reduction in the loan's NPV (b) — Possibility of converting the variable interest rate on the mortgage loan to a fixed rate
Substitutive/supplementary measures	**Substitutive/supplementary measures**
If the forbearance plan is unviable (c): — Possibility of a **partial acquittance** of the outstanding debt, subject to the bank's approval If the partial acquittance does not suffice to ensure the loan's viability: — Right to apply for **dation in payment** during a period of up to two years — In the event of dation in payment, the mortgagor may remain in the residence as a **lessee** for two years, paying an annual rent equal to 3% of the mortgage debt — The possibility of mortgagors **leasing** the property whose **mortgage foreclosure** is stayed is maintained	N/A

SOURCE: Banco de España.

a RDL 19/2022 reforms the criteria and conditions in the Code of Good Practice (CGP) established by RDL 6/2012, establishes a New Code of Good Practice (NCGP) and introduces further measures.
b NPV = net present value.
c For these purposes, an unviable plan means one where the mortgage servicing ratio exceeds 50%.

lowered. The requirements for income level – which should generally be below three times the IPREM (up to five times where a household member has a disability) – and the mortgage servicing ratio – which should exceed levels of between 40% and 50% – are unchanged. However, the criterion for judging whether there has been a deterioration in the household's purchasing power in the four years prior to submitting the application has been lowered. It now suffices for the mortgage servicing ratio to have increased by any amount, even if by not as much as 1.5x. Such an increase is, however, used as a benchmark to calibrate the characteristics of the forbearance plans under this CGP. The reform under RDL 19/2022 simplifies the limits on the prices of eligible mortgaged residences, which may not exceed €300,000 under any circumstance.

RDL 19/2022 lowers the interest rate applicable during payment holidays under forbearance plans subject to the CGP under RDL 6/2012 for the most vulnerable households, while other conditions remain unchanged. Where the increase in the mortgage servicing ratio in the four years prior to submitting the application exceeds 1.5x or where households are particularly vulnerable (e.g. large households), the interest rate applicable during the payment holiday is the relevant EURIBOR - 0.1 pp in variable-rate mortgage loans, thus lowering the rate by 0.35 pp compared with the conditions previously in force in the RDL 6/2012 CGP.[14]

For these cases, the interest-only period of up to five years and the extension of the term to a maximum of 40 years from loan origination are maintained.

The reform of the RDL 6/2012 CGP also introduces possible forbearance measures for households that, while vulnerable, have seen their purchasing power deteriorate less. However, these measure are more limited. It also introduces the possibility of a second forbearance plan for all households. If the household's mortgage servicing ratio in the four years before submitting the application has increased by less than 1.5x and there are no circumstances rendering it especially vulnerable, the interest-only period will be restricted to two years and the term may only be extended by seven (again, without exceeding 40 years from loan origination). In this case, the interest rate applicable during the interest-only period will be that which reduces the net present value of the loan by 0.5 pp. Both in these cases and for the most vulnerable households, under certain circumstances mortgagors may request, at the end of the interest-only period, a second forbearance plan with a five-year interest-only period.

The conditions for some of the substitutive forbearance measures in the RDL 6/2012 CGP are now more in the borrower's favour following the RDL 19/2022 reform, while the conditions for partial acquittance are unchanged. The time

14 RDL 19/2022 also stipulates that in fixed-rate mortgage loans, the fixed rate shall be applied at its present value throughout the payment holiday.

frame for applying for the dation in payment of the residence if the forbearance plan proves to be unviable is extended by a year to two years. The possibility of the mortgagor requesting to lease the dwelling for a period of two years when applying for dation in payment is maintained. In addition, the period in which the mortgagor can apply to lease the property whose mortgage foreclosure has been stayed has been extended from six to 12 months. By contrast, the conditions for the partial acquittance of the principal as a supplementary measure to the forbearance plan are not substantially different under RDL 19/2022.

Creation of a new Code of Good Practice under RDL 19/2022

The new Code of Good Practice (NCGP) established under RDL 19/2022 is aimed at households that are not vulnerable but are at risk of becoming vulnerable. Thus, the income and financial burden thresholds are less stringent than according to the CGP under RDL 6/2012. The NCGP will apply to loans or credits taken out up to 31 December 2022 that are secured by a mortgage on the principal residence of the borrower or guarantor and whose acquisition price does not exceed €300,000. Certain additional requirements must be met to qualify as potentially vulnerable. The limits to household income for mortgage borrowers availing themselves of the NCGP are, in this case, 3.5, 4.5 and 5.5 times the IPREM, based on the level of disability or incapacitation of household members. The mortgage servicing ratio must also have increased at least 1.2 times during the four years preceding the request and the mortgage instalment must be at least 30% higher than the net income of the household members' joint net income.[15] Households that meet the requirements to opt for the CGP under RDL 6/2012 will also generally be able to alternatively avail themselves of the NCGP under RDL 19/2022.

As debtors within the scope of the NCGP have greater economic capacity, the measures to alleviate their mortgage burden are restricted to different loan novation options.[16] First, the extension of the loan's term by up to seven years is considered, without the new total term exceeding 40 years from the date it was granted. A twelve-month total or partial capital repayment holiday in addition to the term extension is also considered, with the aim of setting the mortgage instalment at its June 2022 amount or at the first instalment amount.[17] The unamortised principal amounts will accrue interest at a rate reducing the loan's net present value by 0.5%.

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15 The NCGP applicable to households at risk of vulnerability is detailed in the Resolution of 23 November 2022 of the State Secretariat for Economic Affairs and Support to Enterprise, whereby the Resolution of the Council of Ministers of 22 November 2022 is published.

16 The novation of a loan generally refers to any change in its terms subsequent to signing, while forbearance under the CGP of RDL 6/2012, amended by RDL 19/2022, refers more specifically to changes in conditions which seek to prevent difficulties in complying with the loan obligations.

17 The instalment would be set at the amount of the first instalment in the case of loans arranged after June 2022. This is something that may occur, since the NCGP under RDL 19/2022 addresses mortgage loans arranged up to December 2022. In any event, if the total capital payment holiday were unable to reduce the instalment amount to the target value, the effects of the change in conditions will be limited to this total capital payment holiday.

In any event, the extension may not lower the mortgage instalment level below the level at June 2022 or at the first reference date. The lender may offer the mortgagor the possibility of converting the variable-rate loan to fixed rate, at whichever level is freely determined, through a clear, transparent and comparable offer.

The voluntary nature of the CGP under RDL 6/2012 is maintained in this NCGP. However, the latter is conjunctural and temporary (in force for 24 months), as it was driven by the specific economic situation following the start of the war in Ukraine in 2022. Credit institutions and other professional mortgage lenders may voluntarily adhere to the NCGP, but once adopted they will be bound by it, in this case during this specific 24-month period. As noted earlier, the inflation and interest rate increases observed in 2022 pose specific risks to middle-income households of becoming vulnerable. According to the RDL, this increase in the probability of households having financial problems is not structural. It therefore limits how long this new measure to help households adapt to the new circumstances will be effective.

Measures additional to the Codes of Good Practice under RDL 19/2022

RDL 19/2022 also includes measures to limit fees linked to early repayment or to the conversion of the type of interest rate on mortgage loan contracts. When a variable interest rate is converted to a fixed one under the framework of a revision to mortgage loan conditions,[18] the early repayment fee will be limited to 0.05% of the capital repaid early. From entry into force of RDL 19/2022 to end-2023, in certain circumstances no fees shall accrue for total or partial early repayment of variable rate mortgages,[19] or for converting the variable rate to a fixed one (see Figure SF.2).

Lastly, RDL 19/2022 establishes measures to facilitate the subrogation of creditors and to promote financial education. The definition of real estate lenders which can be subrogated as creditors is broadened,[20] information is required about the subrogation expenses in the binding offer made to the borrower and the requirements for the original creditor to oppose the subrogation are tightened. These measures seek to promote greater competition and transparency in this field in order to improve debtors' possibilities of modifying their loan terms and conditions. As regards financial education, the Banco de España should publish a guide for mortgagors with payment difficulties including the CGP measures discussed earlier.

18 In particular, RDL 19/2022 addresses novation of the interest rate applicable and a third party's subrogation to the creditor's rights. If there is no early repayment of the principal, then no fee may be charged in this connection.

19 Specifically, for early repayments or redemptions under the factual situations provided for in Sections 5 and 6 of Article 23 of Law 5/2019 of 15 March 2019 regulating real estate credit agreements.

20 Subrogation means that a new creditor substitutes the original creditor in the loan contract.

Figure SF.2
ADDITIONAL MEASURES ENVISAGED IN RDL 19/2022 (a)

Mortgage Loan Fees	Financial Education	Subrogation
Indefinite measures envisaged: — Maximum limit of 0.05% on the early repayment fee when a variable rate is converted to a fixed rate in certain loans Temporary measures envisaged, from the entry into force of RDL 19/2022 in November 2022 to end-2023: — Suspension of the acrrual of fees for early repayment of variable rate mortgage loans under certain circumstances envisaged in Law 5/2019 — Suspension of the accrual of all kinds of fees for the conversion of mortgage loans from variable rate to fixed rate	The Banco de España will publish on the Internet material to facilitate the dissemination and understanding of the measures included in the Codes of Good Practice: — Guide of tools for mortgagors with payment difficulties, including information on the RDL 6/2012 CGP and the RDL 19/2022 NCGP — Simulators of eligibility criteria and of the impact of the measures	Measures aimed at promoting competition and transparency in the subrogation of creditors: — Amendment of the definition of creditors which can be subrogated, which will refer to real estate lenders — Binding offers of subrogation are to include a summary of associated expenses — Introduction of more restrictive conditions for the original creditor to oppose the subrogation

SOURCE: Banco de España.

a RDL 19/2022 amends the criteria and conditions of the Code of Good Practice (CGP) provided for by RDL 6/2012, establishes a New Code of Good Practice (NCGP) and introduces additional measures.

It will also publish simulators of eligibility criteria and of the impact of applying the CGP or the NCGP.

SF.2 Analysis of the use of Codes of Good Practice

The economic results of the Codes of Good Practice depend on credit suppliers' and households' decisions on the use of the framework. The CGPs do not prescribe specific actions for these agents, but rather set a range of possibilities which can be applied in different ways. Depending on the macro-financial environment and the characteristics of pre-existing loans, lenders and households may choose the optimal option. To better understand the economic impact of these decisions, this section analyses the historical experience in the use of the CGP under RDL 6/2012 and presents a range for the households potentially covered by the new framework following the reform of RDL 19/2022.

SF.2.1 How application of the CGP under RDL 6/2012 evolved

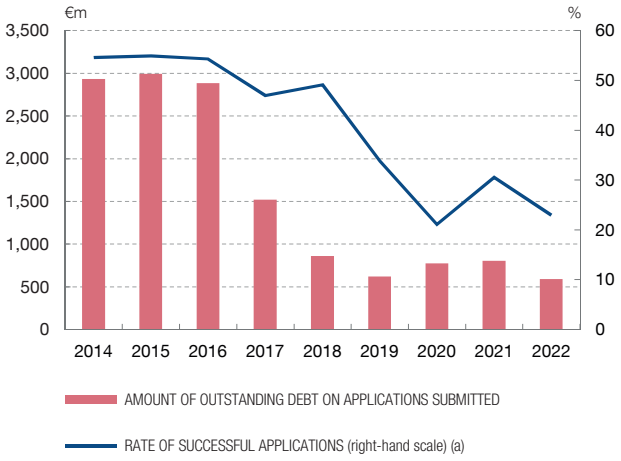
The largest volume of loans under the original RDL 6/2012 CGP was concentrated in the years closest to the end of the global financial crisis. Thus, in the period 2014-2016 the annual average volume of loans for which application of

Chart SF.1

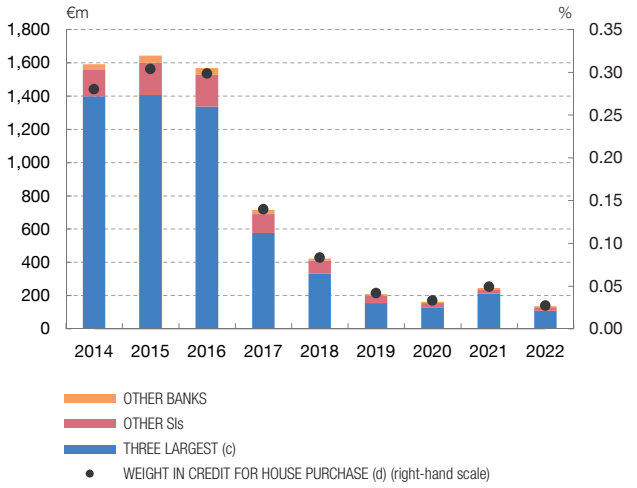
USE OF THE CGP UNDER RDL 6/2012 IS CONCENTRATED IN THE YEARS CLOSEST TO THE END OF THE GLOBAL FINANCIAL CRISIS AND IN THE LARGEST BANKS, WITH LITTLE WEIGHT IN THE TOTAL NUMBER OF MORTGAGES

The period 2014-2016 saw an annual average volume of around €3 billion of outstanding debt associated with applications for the use of the RDL 6/2012 CGP and a rate of successful application of nearly 50%; both figures are much higher than the average in subsequent years. Measures implemented under the CGP are concentrated in the largest banks, in line with their bigger mortgage portfolios overall. The percentage of CGP measures implemented in any given year does not exceed 0.3% of total mortgage credit in Spain.

1 APPLICATIONS AND RATE OF SUCCESSFUL APPLICATIONS



2 AMOUNT OF OUTSTANDING DEBT ASSOCIATED WITH MEASURES IMPLEMENTED, BY BANK, AND WEIGHT IN CREDIT FOR HOUSE PURCHASE (b)



SOURCE: Banco de España.

a Ratio of outstanding debt associated with measures implemented to applications submitted in the period. Some measures may have been applied for one year and implemented the next. In any event, the rate of successful applications relative to the cumulative volume of applications submitted since 2014 shows a declining pattern.
b The amount of outstanding debt accumulated during the year is shown.
c These banks have the largest volume of debt outstanding on loans during the period 2016-2022, considering the composition of the financial groups existing at December 2022.
d The weight is calculated by adding the amount pending payment on loan transactions conducted in the year as a whole and dividing that amount by the outstanding blance of credit to households for house purchase at the end of each year.

this CGP was requested was around €3 billion,[21] corresponding to an annual average number of requests of close to 25,000 (0.5% of the total number of households with mortgages at the start of the global financial crisis). A declining trend is observed from 2017, to €600 million in 2019, with under 6,000 requests that year (approximately 0.1% of the total number of households with mortgages at the start of the health crisis). The rise associated with the onset of the COVID-19 pandemic, with the average volume of loans amounting to €800 million for the 2020-2021 requests, is very moderate and temporary (see Chart SF.1.1).

21 Under RDL 6/2012, institutions adhering to the Code are required to report monthly to the Banco de España information on the application of the CGP, including the number of applications and measures implemented (and outstanding debt on associated loans) and distinguishing by type of measure (forbearance, dation in payment, etc.). The analysis of this sub-section is underpinned by the information included in these reports from 2014, following completion of the amendment of 15 May 2013. Measures implemented under the CGP in 2014-2022 represent approximately 90% of the total carried out over the period 2012-2022.

The rate of successful applications follows a declining path in line with that of the volume of loans. The proportion (in terms of volume of debt outstanding on associated loans) of successful applications (those resulting in viable forbearance, debt reduction or dation in payment) has also declined, from 54.7% in 2014 to 23.5% in 2022, in line with the rate of successful applications. Once again, the onset of the COVID-19 pandemic marked a temporary and moderate interruption of the declining trend (see Chart SF.1.1).

The patterns observed in the volume of loans and the rate of successful applications are consistent with the greater conjunctural importance of the RDL 6/2012 CGP in response to severe crisis episodes, but also with a structural function that has a narrower scope. The greater volume of applications in the years around the global financial crisis is consistent with a greater number of households with mortgage debts and in a vulnerable situation as a result of this crisis. A priori, determining the relationship between the rate of successful applications and the economy's cyclical position is more complex,[22] but, in any event, the available data show that the number of applications has performed cyclically. This type of mechanism would thus have a stabilising role against severe crises. Use of the CGP decreases notably during recovery years, but does not disappear, and can be identified as structural support for households affected by idiosyncratic shocks. The weak rise in the use of the CGP during the health crisis appears to be attributable to the strength of other measures adopted to ensure households' ability to pay, such as specific moratorium schemes associated with COVID-19, short-time work schemes (ERTE by their Spanish abbreviation) and tax moratoria.

Measures under the RDL 6/2012 CGP have been highly concentrated in certain larger banks and only represent a very small percentage of total mortgage credit in the Spanish banking sector. The three most active banks in the application of the CGP,[23] which are subject to banking supervision by the European Central Bank (ECB), account for 84.5% of the debt amount[24] associated with the CGP measures implemented (considering total measures from January 2014 to December 2022). Other significant institutions (supervised by the ECB) represent 12.8% of this amount and other institutions 2.7% (see Chart SF.1.2). Significant institutions' greater CGP activity is logically related to their bigger mortgage credit portfolios. This concentration has declined slightly over the years. In any event, CGP measures implemented as a percentage of the total balance of credit to households for house purchase is very limited, ranging for any given year between 0.3% in 2014-2016 and a mere 0.03% in

22 During a weak phase in the economic cycle, households may effectively decide to apply for CGP measures, despite the future costs they will have to bear in the form of less access to credit or more indebtedness, and although banks' scope for decision-making is limited by the CGP, they would also have greater incentives for using these options to avoid defaults that are more likely to arise than in a better part of the cycle.

23 For mergers and acquisitions, the banking group structure at end-2022 is applied to the 2014-2022 period as a whole.

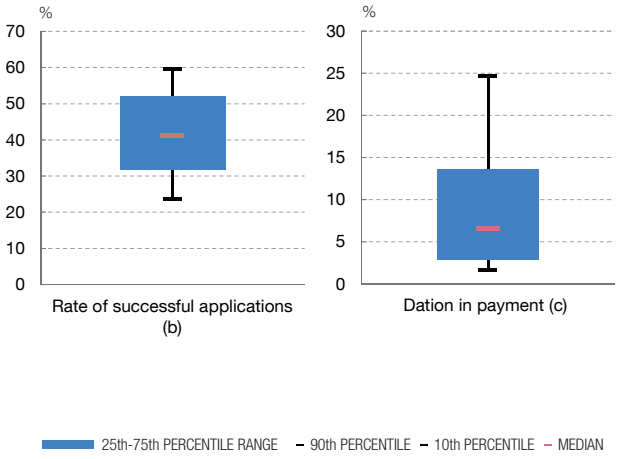
24 The debt is measured as the amount outstanding when the measure under the RDL 6/2012 CGP is implemented.

Chart SF.2

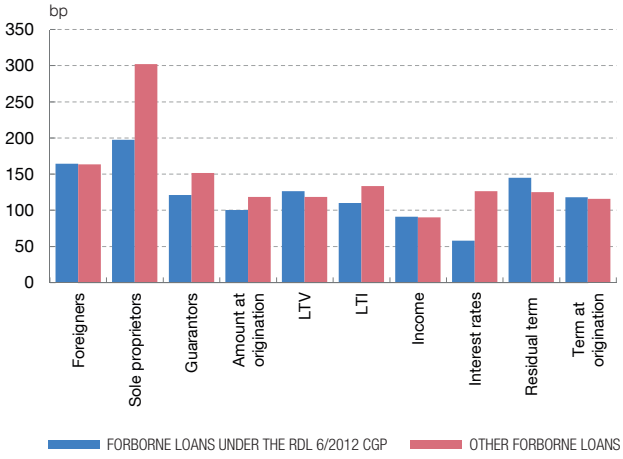
THE PRACTICAL IMPLEMENTATION OF THE RDL 6/2012 CGP HAS BEEN HETEROGENOUS AMONG BANKS. IT IS ALSO NOTEWORTHY THAT, IN THE MOST RECENT PERIOD, LOANS FORBORNE UNDER THE RDL 6/2012 CGP DO NOT HAVE RISKIER PRE-EXISTING CHARACTERISTICS THAN OTHER FORBORNE MORTGAGE LOANS

Between 2014 and 2022 the rate of successful applications and the proportion of measures implemented involving dation in payment has changed substantially in the cross-section of banks, which seems to reflect differences between them in terms of the pre-existing vulnerable mortgagors' portfolios. No evidence has been observed, for the most recent period, that the pre-existing characteristics of forborne loans under the RDL 6/2012 CGP are riskier than others. In fact, their LTI ratios at origination are lower than and close to those of loans that have not been forborne.

1 DISTRIBUTION, BY BANK, OF THE RATE OF SUCCESSFUL APPLICATIONS AND PERCENTAGE OF DATION IN PAYMENT THEREIN (a)



2 COMPARISON OF CHARACTERISTICS OF FORBORNE LOANS AND THE MORTGAGE PORTFOLIO AS A WHOLE (d)



SOURCE: Banco de España.

a The distribution between the 10th and 90th percentiles in the cross-section of banks during the period 2014-2022 is shown for each variable. Only banks whose market share in the amount of outstanding debt on the loans for which forbearance has been requested is higher than 0.1%, in cumulative terms since January 2014, are shown.
b The rate of successful applications is defined as the ratio of outstanding debt associated with forbearance measures implemented to that relating to forbearance measures applied for. The period 2014-2022 as a whole is considered.
c The proportion of dation in payment is defined as the ratio of outstanding debt associated with forbearance implemented with dation in payment to that relating to all loans for which forbearance has been implemented. The period 2014-2022 as a whole is considered.
d The ratio of the value of each characteristic in forborne loans (under the CGP of RDL 6/2012 and other forborne loans) to its reference value in the portfolio of loans that have not been forborne is shown. The reference values for the portfolio of loans that have not been forborne (=100) are as follows: foreigners: 11%; sole proprietors: 15%; guarantors: 25% of loans; amount at origination: €179,726; term at origination: 33 years; LTV at origination: 86.4%; LTI at origination: 4.9%; income: €39.210; residual term: 25.9 years. CCR data at loan level for the period 2017-2022 are used.

2022 (see Chart SF.1.2). Overall, the total volume of measures implemented under the 2012 CGP in 2014-2022 was very low, amounting to €7 billion (more than 60,000 loans), which is equivalent to 1.4% of the mortgage debt outstanding at end-2022 (approximately 1.2% of households with mortgages at that date).

Considerable heterogeneity is observed among banks in terms of rates of successful applications and dations in payment as a percentage of total CGP measures. For 2014-2022 as a whole, the rate of successful applications (in terms of volume of outstanding debt at the time of the application) has a median value among institutions of nearly 40%, but ranges between 23% and 59% in the 10th and 90th percentiles. Although the median value among banks for dations in payment is

low (around 6.5%), there is also some dispersion, reaching 25% in the 90th percentile (see Chart SF.2.1). There are multiple causes for this variation among banks, which is largely based on the characteristics of the pre-existing mortgage portfolios, thus reflecting the importance of the framework's flexibility and of not excessively restricting the possibilities therein envisaged.

SF.2.2 Recently observed characteristics in forbearance according to the Code of Good Practice under RDL 6/2012

The Banco de España's Central Credit Register (CCR) is used to analyse, for the most recent period, the characteristics of forbearance under the RDL 6/2012 CGP and of other forbearance measures. This database is used to consider the stock of mortgage loans to individuals and sole proprietors for the purchase of their principal residence, month by month, from January 2017 to December 2022.[25] Each loan is checked to ascertain whether it has been declared to be forborne under the RDL 6/2012 CGP at some point or whether it has been subject to any other forbearance process. A comparison is made of the two types of forbearance and with the set of mortgage portfolio loans that have never been forborne.

Loans forborne under RDL 6/2012 have features that are riskier ex ante than the total mortgage loan portfolio risk; however, compared with other forborne loans, their LTI ratio and amount at origination are lower. As regards the overall mortgage debt, forborne loans generally relate to lower income (proxied by average household net income according to the National Statistics Institute (INE) for the loan's postcode), greater LTV and LTI ratios at origination, a longer term (both at origination and residual at the time of forbearance), an older main debtor (considering the age of the oldest borrower on the mortgage), more borrowers and guarantors on the mortgage and a larger number of foreign mortgagors (see Chart SF.2.2). All of which suggests that forborne loans had greater ex ante risk, which has materialised over time. Also, the LTI ratio and the amount at origination are slightly higher for forborne loans outside the RDL 6/2012 CGP. This would indicate a better ex ante risk profile for those carried out under this framework, although the differences in other variables are not very pronounced.

The descriptive analysis based on the CCR would thus find no evidence, for the recent period and in a normalised cyclical situation, that forborne loans under the RDL 6/2012 CGP have a worse risk profile. It should be borne in mind that loan forbearance is a credit risk management tool which banks may use, regardless of the existence of the RDL 6/2012 CGP, to maximise the economic value of the loan without

25 The information in the CCR was expanded substantially from 2016, allowing for this type of analysis to be made. This was not possible previously, owing to the lack of granular information that would enable loans subject to transactions CGP measures to be specifically identified. See Circular 1/2017. The exercise was commenced in 2017 to avoid transition effects and to more adequately identify forbearance characteristics.

being prescribed to do so by the legislator. The fact that the loan forbearance characteristics under the RDL 6/2012 CGP are not riskier than those of other measures of this kind in the period 2017-2022 indicates that this framework would not be forcing the adoption of riskier forbearance measures than those which banks are willing to assume under their own forbearance policies. This should be interpreted with caution since, in a period of greater tension on households' ability to pay, this comparison of characteristics could change. Moreover, even when banks have their own incentives to grant forbearance or adopt other measures modifying loan terms and conditions, the CGP framework may make them more efficient, by introducing some degree of standardisation, and may influence how the benefits of forbearance are shared by lenders and debtors.

SF.2.3 Eligible households and participation in transactions subject to CGPs following RDL 19/2022

The broadening of the mortgagor eligibility criteria under RDL 19/2022 has significantly increased the proportion of mortgagor households entitled to benefit from the CGPs. Were the mortgage reference rate to rise by 400 bp (similar to that observed since the start of 2022), some 549,000 households would be eligible to benefit from the temporary NCGP introduced by RDL 19/2022 (see Chart SF.3).[26] This is around 404,000 households more than would have been eligible under the original version of the CGP introduced by RDL 6/2012. The outstanding principal of the households entitled to benefit from the RDL 19/2022 NCGP would be around €46.9 billion, around €37.7 billion more than under the original conditions of the previous CGP. Further, nearly 218,000 households could benefit from the more structural mechanism of the RDL 6/2012 CGP in its version amended by RDL 19/2022 (see Chart SF.3),[27] 73,000 more than would have been eligible under the previous version of the code. The principal outstanding of these households would amount to some €17.9 billion, around €4.8 billion more than under the original version of the RDL 6/2012 CGP.

The process of household deleveraging following the global financial crisis limits to some extent the absolute volume of debt affected by the CGPs. By 2022, the total volume of lending to households for house purchase had declined by 23.7% from its peak in 2010. The reduction in the systemic weight of the real estate sector over the last decade and more prudent mortgage lending standards have gone some way to limiting the aggregate impact of the mortgagor support programmes.

Further, not all households eligible under the CGP are likely to apply for the measures, and nor will all applicants ultimately benefit from them. Expectations for the number of households that might benefit from the CGPs following the RDL

26 These estimates are based on data from the 2020 Spanish Survey of Household Finances.

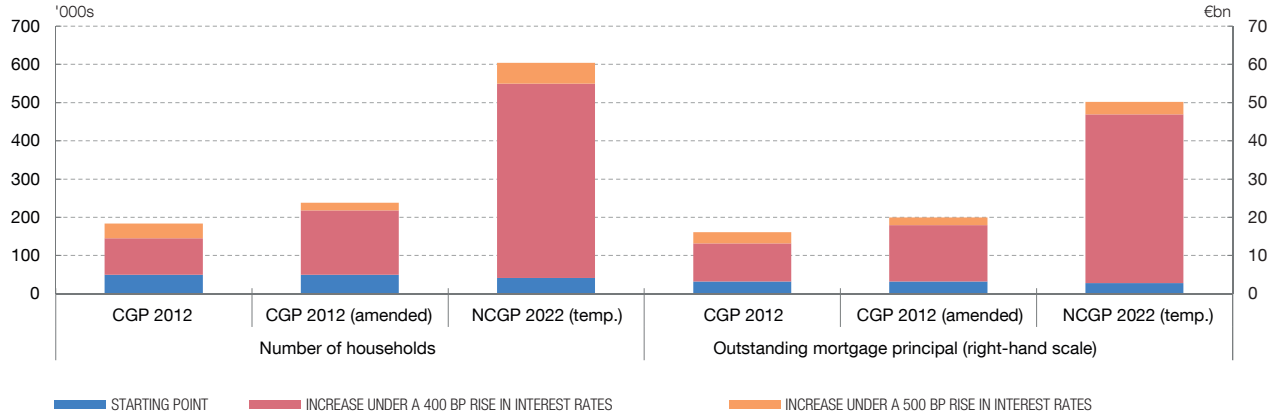
27 Eligible households under the RDL 6/2012 CGP as amended in 2022 will, generally speaking, also be eligible under the NCGP of RDL 19/2022, having the option to choose between one or the other. Accordingly, the number of eligible households under these two mechanisms should not be added together, nor their outstanding principal.

Chart SF.3

RDL 19/2022 SIGNIFICANTLY INCREASES THE PROPORTION OF THE POPULATION ELIGIBLE TO BENEFIT FROM CODES OF GOOD CONDUCT RELATIVE TO THE MEASURES ENVISAGED UNDER RDL 6/2012

Were the mortgage reference rate to rise by 400 bp, some 549,000 households would be eligible to benefit from the temporary Code of Good Practice approved in late 2022 (NCGP 2022). This figure is around 404,000 households more than would have been eligible under the 2012 Code of Good Practice (CGP 2012). The outstanding principal of households eligible under NCGP 2012 would be around €46.9 billion, some €37.7 billion more than under the CGP 2012.

1 HOUSEHOLDS WITH PRINCIPAL RESIDENCE MORTGAGE ELIGIBLE FOR THE CODES OF GOOD PRACTICE (a) (b) (c)



SOURCES: Banco de España and Spanish Survey of Household Finances (2020).

a This chart estimates the eligible population and the associated mortgage debt for three codes of good practice: that established under RDL 6/2012 of 9 March 2012 (CGP 2012, designed to be structural); its version amended by RDL 19/2022 of 22 November 2022 (amended CGP 2012) and the temporary Code of Good Practice (NCGP 2022, temporary) introduced by the last RDL and implemented in the Resolution of the Council of Ministers of 22 November 2022.
b Eligible households under the amended CGP 2012 will, generally speaking, also be eligible under the temporary NCGP 2022, having the option to choose between one or the other. Accordingly, the number of eligible households under these two mechanisms should not be added together, nor their outstanding principal.
c It is assumed that interest rate increases are fully passed through to the cost of variable rate debt.

19/2022 reform will need to be revised, based on the information available on applications that ultimately led to measures being applied under the previous CGP of RDL 6/2012. Given that neither the possible beneficiaries nor the current context are directly comparable with those observed in previous years, two scenarios are considered to approximate the percentage of valid applications.

The first scenario – more representative of the consequences of a profound crisis – is based on the two consecutive years with the highest number of beneficiaries under the previous CGP (2015 and 2016). In that period, 64% of eligible households applied for the measures under the CGP of RDL 6/2012, although just 35% ultimately benefited from them.[28] As Chart SF.4 illustrates, based on this beneficiary rate and a 400 bp increase in the reference interest rate, some 193,000 households would benefit from the NCGP under RDL 19/2022, with outstanding principal of €16.4 billion. The CGP of RDL 6/2012, in its version amended in 2022, would benefit some 76,000 households with outstanding principal of €6.3 billion.

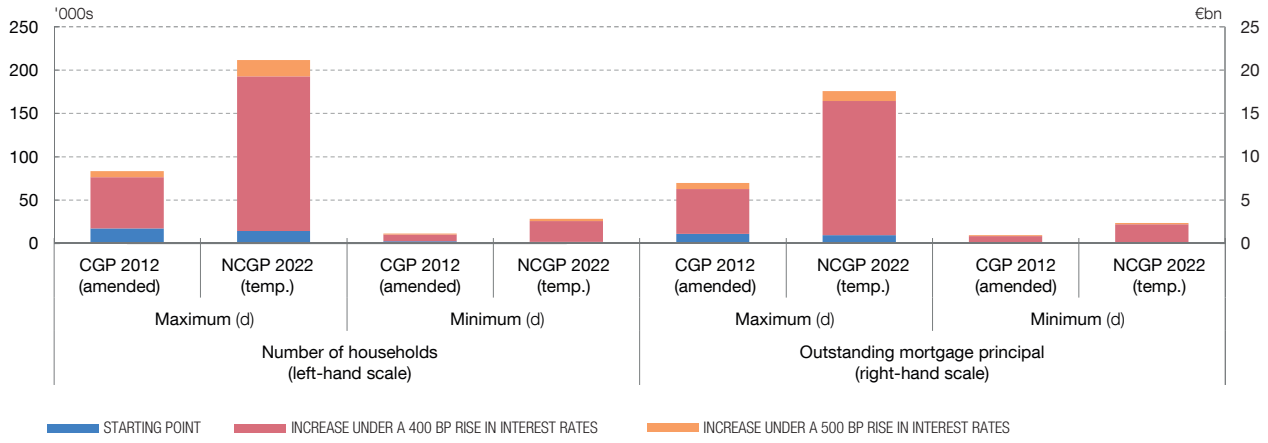
28 The same percentages are applied to obtain the outstanding principal of the households that ultimately benefit from the CGP.

Chart SF.4

THE ELIGIBLE POPULATION THAT ULTIMATELY BENEFITS FROM THE CGPs MAY VARY SUBSTANTIALLY BASED ON THE NUMBER OF APPLICATIONS AND TRANSACTIONS

For a 400 bp increase in the reference interest rate and a percentage of successful applications similar to the two consecutive years with the highest number of beneficiaries under the CGP 2012 (2015-2016: 35% of eligible households), some 193,000 households would benefit from the RDL 19/2022 NCGP, with outstanding principal of €16.4 billion. Around 76,000 households would benefit from the more structural mechanism provided by the amended version of the CGP 2012, with outstanding principal of €6.3 billion. Were the number of successful applications to match that of the two-year period with the lowest number of beneficiaries (2019-2020: 4.7% of eligible households), the number of beneficiary households and their outstanding capital would be far lower.

1 RANGE OF HOUSEHOLDS WITH PRINCIPAL RESIDENCE MORTGAGE THAT COULD ULTIMATELY BENEFIT FROM THE NEW CODES OF GOOD PRACTICE (a) (b) (c)



SOURCES: Banco de España and Spanish Survey of Household Finances (2020).

a This chart estimates the eligible population and the associated mortgage debt for three codes of good practice: that established under RDL 6/2012 of 9 March 2012 (CGP 2012, designed to be structural); its version amended by RDL 19/2022 of 22 November 2022 (amended CGP 2012) and the temporary Code of Good Practice (NCGP 2022, temporary) introduced by the last RDL and implemented in the Resolution of the Council of Ministers of 22 November 2022.
b Eligible households under the amended CGP 2012 will, generally speaking, also be eligible under the temporary NCGP 2022, having the option to choose between one or the other. Accordingly, the number of eligible households under these two mechanisms should not be added together, nor their outstanding principal.
c It is assumed that interest rate increases are fully passed through to the cost of variable rate debt.
d Approximation of the number of households applying to benefit from the CPGs that are ultimately approved, based on the maximum and minimum number of successful applicants under the 2012 CPGs (out of total eligible households) in two consecutive years in the period 2012-2020.

The second scenario – more representative of a financial situation of no significant strain on households' ability to pay – considers the two consecutive years with the lowest number of beneficiaries under the previous RDL 6/2012 CGP (2019 and 2020). In this reference period, just 4.7% of eligible households benefited from the code. Under these assumptions, the RDL 19/2022 NCGP would benefit some 26,000 households, with outstanding principal of €2.2 billion. The CGP under RDL 6/2012 would affect around 10,000 households with outstanding capital of close to €0.8 billion (see Chart SF.4).

SF.3 Macroeconomic and financial impact of the CGPs

SF.3.1 The potential impact of RDL 19/2022 on consumption and activity

The direct relief of financial pressure on vulnerable mortgagors provided by the CGPs would, in the near term, entail a very moderate stimulus to the level of

household consumption and real GDP. The vulnerable households eligible for the measures under the RDL 6/2012 CGP and those under the RDL 19/2022 NCGP stand at the lower end of the income distribution (less so in the case of the NCGP) and have a high marginal propensity to consume (MPC). Accordingly, much of the reduction in mortgage instalments – resulting from the forbearance or novation measures – is likely to translate into higher levels of consumption in the near term. For example, under the assumption of relatively high beneficiary rates, and based on the experience of the RDL 6/2012 CGP, in 2023 the measures would increase the level of consumption by approximately 0.1 pp and the level of real GDP by approximately 0.03 pp (see Chart SF.5).[29] The programmes would elicit a relatively short-lived response from these variables, partly due to the eligible households' high MPC, which would see the savings in terms of mortgage payments used fairly immediately to uphold consumption.

Extended payment holidays and other measures, such as dation in payment or reduced fees, could introduce more prolonged stimuli for consumption and activity. Extending payment holidays beyond 2023 would, at least for some households, entail additional positive shocks in terms of the funds available for consumption, foreseeably providing a further boost to such spending. Likewise, the additional measures introduced by RDL 19/2022 (e.g. the suspension of certain bank fees) and the substitutive and supplementary measures introduced in the CGP of RDL 6/2012 are also conducive to easing the financial pressure on households and boosting their spending power in the short term, and in some cases would also reduce their level of indebtedness, thus playing something of a stabilising role in the economic cycle. In any event, the scale of these additional effects would be moderate.

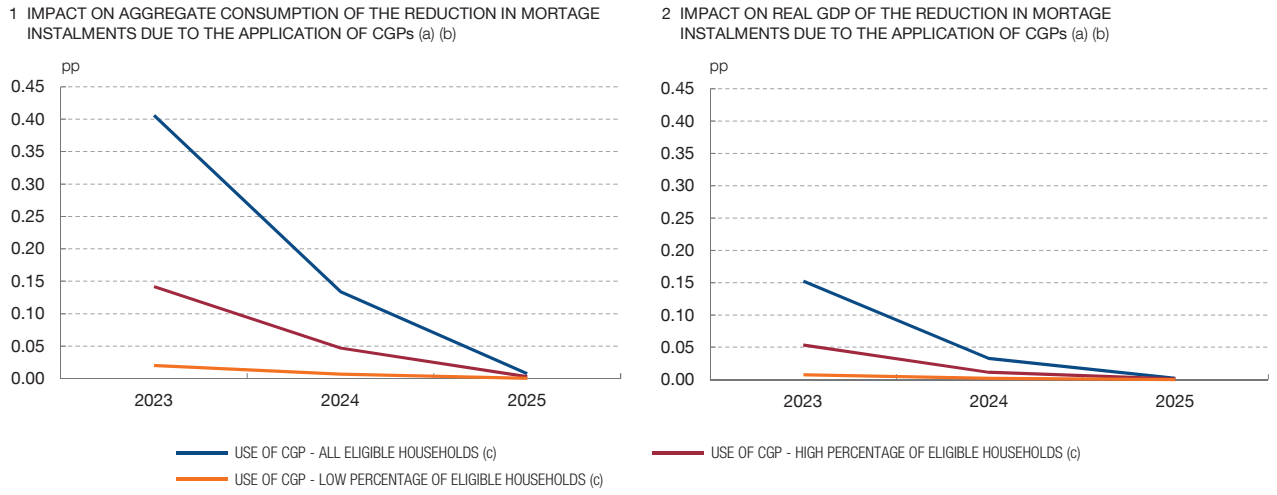
The aggregate effect of the measures is likely to be limited by the relative size of the eligible population and the slim prospect of the entire eligible population benefiting from them. As described in more detail in previous subsections, the eligible population for these measures is restricted to mortgagor households which are vulnerable or potentially vulnerable, which make up a relatively small share of the overall household sector. This is a desirable feature of the programme, thus limiting potential distortions to the mortgage lending market and preventing changes in contractual conditions that entail a transfer of income from lenders to non-vulnerable borrowers. Further, past experience with the CGP under RDL 6/2012 indicates that just a fraction of the eligible households would actually benefit from the measures. Were the current uncertain economic environment to have a smaller-than-expected impact on households' ability to pay and if the percentage applying for the measures were relatively low, the historical data for RDL 6/2012 CGP suggest that the impact on consumption and GDP would be negligible. The effect on these macroeconomic

29 The macroeconomic benefits of such forbearance could include preventing households from defaulting on mortgage payments, which would weigh on their confidence and consumption level. In this section, only the direct effect of a lower debt burden is quantified.

Chart SF.5

RECOURSE TO THE STRUCTURAL AND TEMPORARY MEASURES UNDER THE CODES OF GOOD PRACTICE MAY PROVIDE SOME STIMULUS FOR THE LEVELS OF CONSUMPTION AND ACTIVITY IN THE SHORT TERM

Under the assumption that the current crisis prompts a high percentage of households (based on the past experience of applications and acceptance under the CGP of RDL 6/2012) to opt for the measures under the CGP and NCGP, the levels of consumption and real GDP could grow in 2023 by 0.15 pp and 0.05 pp, respectively, with the response proving relatively short lived. If the payment conditions of households remain stable despite the crisis environment and a low percentage opts for the measures, the macroeconomic impact would be negligible. The assumption that all eligible households opt for the measures represents a very high upper bound for the effect, given the past experience of limited participation in the CGP of RDL 6/2012.



SOURCE: Banco de España.

a Shown is the response of the variable of interest (level of aggregate consumption or real GDP) to a positive income shock in 2023 for households in lower-income groups and with a high marginal propensity to consume. The positive income shock is calibrated according to the expected reduction (vis-à-vis a baseline scenario of no measures) in mortgage payments due to application of the measures for vulnerable households under the RDL 6/2012 CGP and for potentially vulnerable households under the RDL 19/2022 NCGP. Likewise, this calibration considers the proportion of the total household sector accounted for by vulnerable and potentially vulnerable households, along with different assumptions regarding the application and success rates for the measures under the CGP and NCGP. The reduction in mortgage instalments in years subsequent to 2023 as a result of these measures would generate additional effects.

b Shown is the deviation (in pp) of the level of the variable in each year vis-à-vis the scenario of no measures.

c Three assumptions are considered regarding the percentage of vulnerable households that ultimately benefit from the relief measures under the CGP and the NCGP: i) all eligible households benefit from the measures; ii) a high percentage of eligible households benefit from the measures, based on high rates of application and acceptance observed in the time series for the CGP of RDL 6/2012, and iii) a low percentage of households benefit from the measures, based on low rates of application and acceptance observed in the time series for the CGP under RDL 6/2012.

aggregates if all eligible households were to benefit from the measures should be viewed as a high upper bound for the potential effects only (see Chart SF.5).

Over a longer time horizon, the impact of the various measures introduced by RDL 19/2022 on pre-existing levels of household debt would also have implications for activity. As discussed in greater detail in the next subsection, when payment holidays and extended repayment terms are applied to mortgage borrowing, mortgage debt tends to hold at higher levels for longer. This may increase the interest expenses paid over a household's lifetime, thus diverting funds away from the consumption of goods and services in subsequent periods. Were this adverse impact to occur during periods of lower vulnerability in the household's lifetime, it would still be consistent with the stabilising function of such measures. Conversely, measures such as reduced early repayment fees or the substitutive and supplementary measures envisaged in the RDL 6/2012 CGP would help to reduce

the pre-existing level of household debt, limiting its negative impact on activity growth in the long term.

Recourse to the CGPs may also restrict access to new credit in the future. Making use of these measures might signal a debtor's lower creditworthiness. This would increase the anticipated cost of lending to such borrowers in terms of impairment provisions, thus diminishing the capacity of, and incentives for, banks and other credit providers to grant them new loans.[30] Such barriers to the credit market going forward would reduce these households' capacity to cushion adverse income shocks in the future or to anticipate stronger growth expectations. This limits the incentives for vulnerable households still able to service their debts to make strategic use of the CGPs. For households which, in the absence of changes to contractual conditions, would be unable to make their repayments, the signal of poor creditworthiness attached to recourse to the CGP of RDL 19/2022 would not constitute a differential cost, since the alternative (default) would likewise be a negative signal and would put even greater constraints on their future access to credit.

SF.3.2 The potential impact of RDL 19/2022 on households' indebtedness and debt burden

In the short term, the various measures under RDL 19/2022 could help to limit the growth in households with a high debt burden.[31] As discussed in the main body of this report, the share of these households (see Chart 1.9 of Chapter 1) will foreseeably increase – in the absence of measures – as a result of higher reference interest rates. By definition, these households are more likely to satisfy some of the CGPs' eligibility criteria – such as increased mortgage burden or the minimum level of this relative to their net income – and thus benefit from measures such as payment holidays, which by their very design could, in the near term, significantly reduce their borrowing costs and potentially offset the effect of the higher interest rates. The use of the supplementary and substitutive measures envisaged in the RDL 6/2012 CGP, such as debt reduction and dation in payment, would have an even greater impact in terms of reducing the debt burden. Part of the growth in households with high debt burden will foreseeably take place outside of the lower income groups (above the 40th percentile), which, generally speaking, would not be eligible for payment holidays, term extensions or other measures under the CGPs. These higher-income households could still benefit from lower fees for converting to fixed rate mortgages and reduce their interest rate risk at a lower cost.

30 Such opposing effects of the support measures for households are important in the framework of other policies. These effects can even extend to the entire eligible population and not just the portion benefiting from the measures. For instance, the introduction of certain measures intended to protect tenants may reduce the supply of rental housing. See, for example, D. López Rodríguez and M.ª de los Llanos Matea (2020) "Public intervention in the rental housing market: a review of international experience".

31 Net financial burden is considered high when it exceeds 40% of the household's income.

However, the application of payment holidays and lengthy term extensions may be conducive to a higher average level of indebtedness over a household's lifetime, debt that would be sensitive to the future level of interest rates. By definition, such measures prolong the term of mortgage debt, while further interest rate increases would cause this debt to be higher for longer. Under the most commonly used amortisation schedules (e.g. the French method), the earlier the instalment, the lower the share of principal repayment relative to interest payment. As a result, extending the term automatically means the principal is repaid more slowly. The higher the future level of interest rates, the more acute this effect becomes since interest payments would make up a larger share of the earlier instalments (see Chart SF.6.1). Conversely, the reduction in fees for early loan repayment – which may provide incentives for households to increase such early repayments – and the substitutive and supplementary measures in the RDL 6/2012 CGP would reduce household indebtedness. Further, the measures adopted to encourage borrowers to convert variable rate loans to fixed rate would, for households taking advantage of this option, eliminate sensitivity to future interest rates changes.

Likewise, a household having higher debt levels for longer could translate into higher interest expenses over the lifetime of the loan. A higher level of mortgage debt would increase the calculation base for interest payments in multiple future periods.[32] Some of the measures, such as the limit, under the RDL 6/2012 CGP, on the interest rate applicable during the payment holiday for the most vulnerable households (EURIBOR less 0.1 pp), may at least partially offset this increase in interest expenses. Over the lifetime of a variable rate loan, particularly if it has a lengthy term, future reference interest rates that deviate from initial expectations can have a material impact on cumulative interest expenses (see Chart SF.6.2). Again, households benefiting from measures that reduce their debt would experience the opposite effect.

The effects of RDL 19/2022 on households' debt levels and borrowing costs entail various costs and benefits for both households and credit providers which should be assessed as a whole. The primary objective of the forbearance and novation measures envisaged in the RDL 6/2012 CGP and the RDL19/2022 NCGP is to prevent the liquidity constraints of vulnerable or potentially vulnerable households from ultimately resulting in the loss of their home. This comes at a severe socio-economic cost, both directly for the household in question and for society as a whole, since the household members will plausibly become less productive and see their consumption plans disrupted, in addition to the loss of value of the property serving as collateral. The forbearance and novation measures

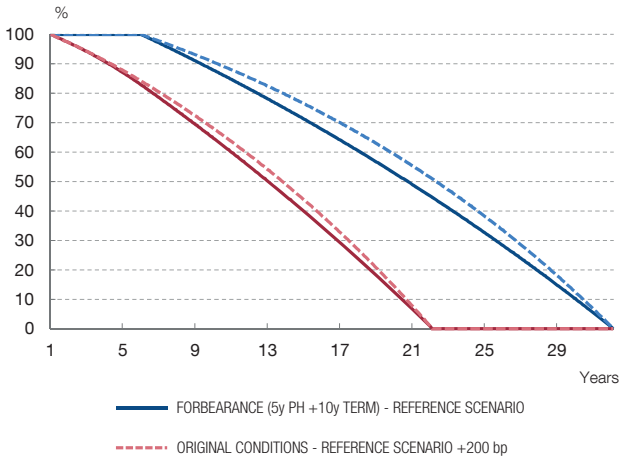
32 Even if the forbearance were to reduce the net present value of the loan for the creditor, it might entail the debtor facing higher interest payments and principal repayments on certain future dates, thus straining the household's ability to pay. For instance, concentrating all previously agreed instalments plus a small interest surcharge on the loan maturity date would reduce the net present value of the loan, but would exert severe pressure on the borrower's ability to pay on that final date.

Chart SF.6

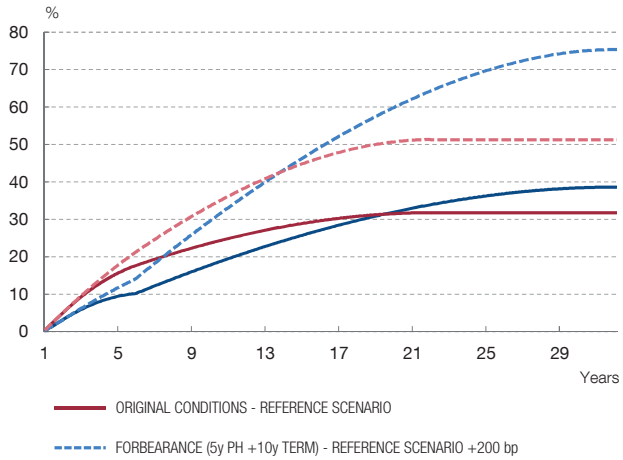
SOME CHANGES TO CONTRACTUAL CONDITIONS UNDER THE CGPs ALSO ENTAIL A COST FOR HOUSEHOLDS, IN THE FORM OF HIGHER DEBT LEVELS FOR LONGER, AND HIGHER EXPENSES

The primary objective of the measures envisaged in the RDL 6/2012 CGP and the RDL19/2022 NCGP is to prevent the liquidity constraints of vulnerable households from ultimately resulting in the loss of their home, which comes at a severe socio-economic cost. However, measures such as payment holidays or term extensions result in households facing higher debt levels for longer, and a higher level of interest expenses in the long term, in addition to greater sensitivity to any future interest rate increases.

1 FORBEARANCE UNDER RDL 6/2012 CGP: EFFECT ON PRINCIPAL (a) (b) (c)



2 FORBEARANCE UNDER RDL 6/2012 CGP: EFFECT ON CUMULATIVE INTEREST EXPENSES (a) (b) (c)



SOURCE: Banco de España.

a Based on a mortgage with its original conditions, a term of approximately 21 years and an interest rate of 4.8%. These assumptions are representative of the conditions of a pre-existing variable rate mortgage loan at the beginning of 2023. Forbearance assumptions are based on the forbearance measures under the RDL 6/2012 CGP for a loan with a 5-year payment holiday (at EURIBOR -0.1 pp) and a term extension to 10 years. During the payment holiday, the principal remains unchanged and repayment is resumed and completed between the end of the 5th year and the 31st year. Under the reference scenario, the EURIBOR and the average mortgage rate decrease in unison by approximately 300 bp from the end of the first remaining year of the term and until the end of the fifth year, remaining constant thereafter through to maturity of the loan. Under the alternative scenario, the EURIBOR and the mortgage rate at the end of the first five years are 200 bp higher than under the reference scenario, holding constant at this higher level thereafter.

b These simulations are presented for illustrative purposes only. In practice, among other factors, deviations from the assumptions in terms of interest rate paths, payment holiday terms and maturity applied, or the pro rata approach to outstanding principal payments during the payment holiday, may generate different paths for repayment of the principal and payment of the interest accrued. The interest rate scenarios used should not be viewed as forecasts.

c At each date, the ratio between outstanding principal and principal at the initial date of the simulation exercise is shown.

d At each date, the ratio between the interest expenses accumulated to that point and the principal at the initial date of the simulation exercise is shown.

support the extra financial effort required to address sudden liquidity needs, thus helping eligible households to avoid this dire outcome, but do not eliminate the need to incur the associated borrowing costs. The substitutive and supplementary measures under the RDL 6/2012 CGP (e.g. debt reduction and dation in payment), the suspension of fees and the support for early repayment all reduce households' financial debt, but at the cost of transferring higher financial costs to credit providers, whose solvency may be eroded to some extent. As indicated above, this might also weigh on their intermediation capacity, while households benefiting from the measures could plausibly have limited access to credit to cover their spending needs in the future.

SF.3.3 Measures in the CGPs and quality of the portfolio of bank loans secured by residential properties

In accounting regulations, forbearance is linked to mortgagors with payment difficulties. Forbearance, along with similar changes a lender can make to a loan transaction (e.g. refinancing), differs from a straightforward renewal or renegotiation of terms because the borrower may have difficulties meeting their repayment obligations if it is not granted.[33] From an accounting point of view, the financial position of a mortgagor requiring forbearance or refinancing tends to be associated with risk flags that lead to their mortgage being classified as Stage 2[34] (e.g. they have payments that are between 30 and 90 days past due) or even as non-performing.[35] In this latter case, it is important to distinguish between payment arrears (which reduce banks' cash flows and are more burdensome) and classification of a loan as non-performing for subjective reasons (when no payment is more than 90 days past due), but the characteristics of the mortgagor or the mortgage mean that such a situation is deemed very likely. However, it must be remembered that these contractual modifications are a risk management tool that can prevent or help rectify a further deterioration in credit quality. In any case, when forbearance and refinancing are applied to a non-performing or Stage 2 loan, the regulation – in line with proper risk monitoring from an accounting perspective – sets out strict requirements for its eventual reclassification as performing.[36]

When there are no repayment difficulties, an amendment to the terms would not be considered forbearance nor would it necessarily be linked to a downgrade of the credit quality for accounting purposes. For such a downgrade to occur, payment difficulties must have been demonstrated and the lender must have granted some contractual leeway to the specific borrowers involved in the lending transaction. Similarly, it is also worth noting that the cap of 0.5 pp on the discounted present value of mortgages as the result of updates to interest rates in certain periods – envisaged for novations in the NCGP under RDL 19/2022 –, along

33 Paragraphs 18 et seq. of Annex 9 of Circular 4/2017 define several situations by which a loan's terms can be modified, differentiating refinancing and forbearance from renewals or renegotiations. The main difference between these two types is that refinancing and forbearance are options granted by a bank so that the borrower can stay up to date with their payment obligations. In refinancing or renewal, a new loan is made to encourage fulfilment of the original loan, while forbearance and renegotiation make changes directly to the original loan's terms. The CGP under RDL 6/2012 and the NCGP under RDL 19/2022 only contemplate changes to contractual terms, not refinancing or renewal.

34 In line with paragraph 92 of Annex 9 of Circular 4/2017, mortgages that do not qualify for classification as non-performing or write-offs but show significant jumps in credit risk since their initial balance sheet recognition shall be classified as Stage 2. Circumstances that entail forbearance can, in many cases, also lead to the mortgage being classified as Stage 2.

35 Being classified as an NPL can be the result of objective non-payment (non-payment for more than 90 days) or subjective circumstances (e.g. a sharp fall in the turnover of a company with a mortgage). The deterioration of the solvency of the mortgage or mortgagor is deemed to be manifest and irreversible in the case of write-offs. See paragraphs 103 and 126, respectively, of Annex 9 of Circular 4/2017.

36 For example, see paragraphs 100 et seq. and paragraphs 115 et seq. of Annex 9 of Circular 4/2017. In particular, reclassifications out of Stage 2 require a probation period long enough to confirm the improvement in credit quality.

with the measures for vulnerable households with a smaller loss of purchasing power – envisaged in the CGP under RDL 6/2012 –, should directly limit the likelihood of these loans being classified as prudential default, even if the mortgage is in forbearance.[37]

The various measures in the CGPs thus have a range of probabilities associated with classification as impaired credit quality. In general, from an accounting perspective, novation or the renegotiation of contractual terms occurring in the absence of signs of a significant jump in credit default risk, when accounting for the whole life of the transaction, does not require reclassification away from performing. In this case, the measures would be essentially preventive and temporary. The amendment of contractual terms in line with the CGP under RDL 6/2012, reformed by RDL 19/2022, in particular in the case of forbearance, tends to be linked to higher levels of classification as Stage 2 – if the signs of credit quality impairment are clearer – or even as non-performing for accounting or prudential purposes[38] – if there are even more marked signs of impairment or past-due payments –, and especially if there is a material reduction in the mortgage's discounted present value. Applying measures entailing longer maturities or payment holidays may increase the likelihood of a mortgage being classified as non-performing.[39] Granting debt reductions as a supplementary measure alongside viable forbearance – as envisaged in the CGP under RDL 6/2012 – would generally be linked to classification as non-performing. Dation in payment, as envisaged in the CGP under RDL 6/2012, would lead to the handover of the home securing the mortgage, while the lender would recognise the loss corresponding to the portion of the mortgage not covered by the value of collateral.

The banking sector would bear the impact of the macro-financial downturn and of the potential reclassifications – resulting of application of measures in the CGP – from an initially favourable situation in terms the credit quality of mortgage lending to households. As a proportion of total bank mortgage exposures to households, loans subject to forbearance and refinancing have been trending down since the end of the global financial crisis. In particular, consistent with the normalisation of economic activity and the broad improvement in the quality of banks' balance sheets in the wake of that crisis, the proportion of non-performing forborne

37 The application since 1 January 2021 of EBA guidelines (EBA/GL/2016/07) relating to the new definition of default pursuant to Article 178 of (EU) Regulation No 575/2013, has given rise to some differences in the amounts classified as "NPLs for accounting purposes" (accounting definition contained in Banco de España Circular 4/2017) and "prudential default" (according to the above-mentioned EBA guidelines). One of the criteria for determining prudential default is whether the discounted present value of the loan has fallen by more than 1%.

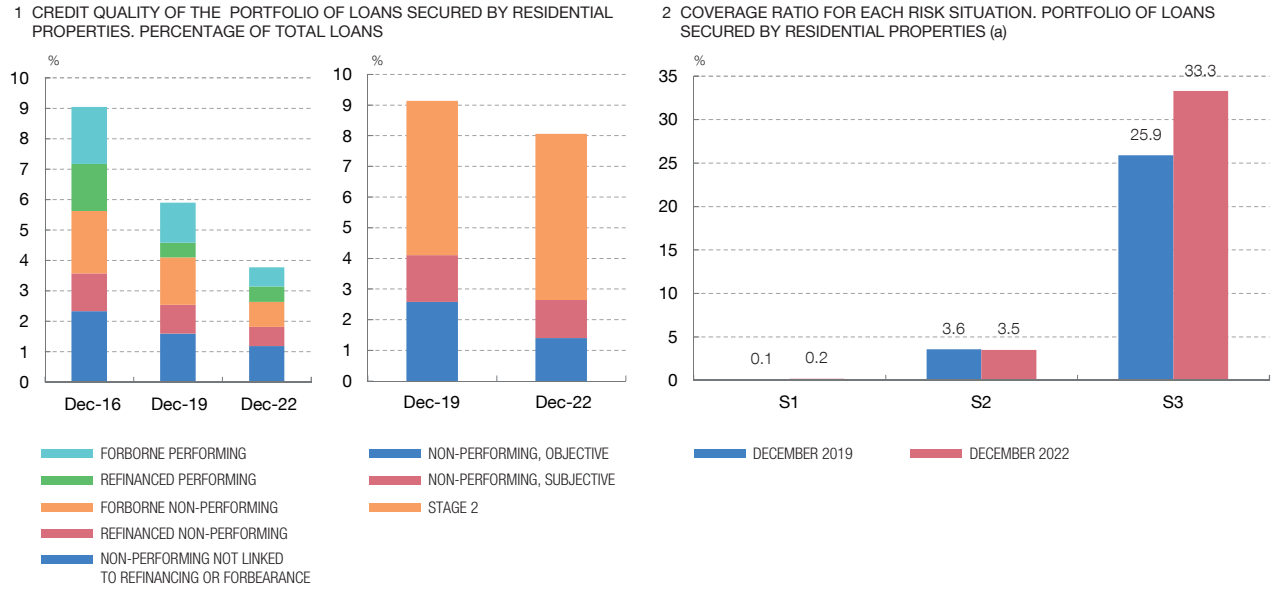
38 Article 47 bis(2) of (EU) Regulation No 575/2013 stipulates that exposures with non-payment as set out in Article 178 of this regulation ("prudential defaults") and exposures considered to be impaired under the applicable accounting framework shall be classified as "non-performing exposures" (when Circular 4/2017 applies, they shall be "NPLs for accounting purposes" as set out in its accompanying Annex 9).

39 Specifically, in accordance with paragraph 116 of Banco de España Circular 4/2017, payment holidays longer than two years would lead to a mortgage in forbearance or that has been refinanced being classified as non-performing.

Chart SF.7

FORBORNE AND REFINANCED LOANS REPRESENT A SIZEABLE FRACTION OF NON-PERFORMING MORTGAGE LOANS, BUT THESE MEASURES ALSO HELP TO PREVENT OR REMEDY NON-PERFORMING STATUS AND LIMIT THE ASSOCIATED COSTS

As a proportion of total mortgage lending to households, forborne and refinanced loans declined in the period 2016-2019, which is consistent with the normalisation of economic activity and the improved average quality of balance sheets. The portion of such loans classified as non-performing is larger than that classified as performing, indicating that in the past these have been used more as corrective rather than preventive measures. There is a large difference between non-performing loans and others in terms of provisions coverage, indicating the potential benefit of properly applying the measures to amend contractual terms under the CGP.



SOURCE: Banco de España.

a The stages of impairment S1, S2 and S3 shown in the chart relate very closely to the "performing", "Stage 2" and "non-performing" stages in Circular 4/2017.

mortgages has fallen by 1.2 pp since 2016, standing at approximately 0.8% in 2022. The share of non-performing refinanced mortgages has fallen by 0.6 pp to 0.6% (see Chart SF.7.1). The easing in pressure on households' ability to pay has led to reduced reliance on these financial tools to manage mortgage borrowers' liquidity and solvency difficulties. The weight of NPLs not subject to forbearance or refinancing measures also fell between 2016 and 2019. However, in the most recent period there was a 0.4 pp uptick in the weight of Stage 2 loans in the total portfolio, reaching 5.5% in 2022 (see Chart SF.7.1).

Forborne and refinanced mortgages account for a higher volume of impaired credit. Specifically, in 2022 non-performing forborne (refinanced) loans accounted for 26% (30%) more of the total portfolio than performing forborne loans. In 2022, refinanced and forborne mortgages classed as non-performing accounted for 1.5% of the total portfolio, compared with 1.2% for those classed as performing. This pattern – the bulk of forborne and refinanced mortgages being classified as non-performing – was likewise seen in years past (see Chart SF.7.1). This shows that these tools are playing a leading role in managing credit impairment in the portfolio as a whole, rather than being used as preventive measures. It must also be noted that, in

accordance with the regulations, a portion of the performing forborne and refinanced mortgages corresponds to loans that have been reclassified from non-performing to Stage 2. However, even for loans classified as non-performing, granting forbearance can still prevent their falling into payment arrears and being classified as past due. These observations are consistent with the fact that these tools can help, in some cases, to limit new NPLs, and that this function could potentially be more significant in forbearance measures under the CGPs.

Forbearance and refinancing may increase banks' short-term costs as a result of impairment provisions, but in the medium term these measures can contribute to lower costs if they can prevent loans from sliding into worse classifications or smooth their subsequent return to performance. In residential mortgage lending to households, use of the home to secure the loan helps to keep the expected loss relatively low in the event of non-payment. In spite of this, mortgage loss provisions, and their associated expenses, rise considerably when a loan is reclassified away from performing. 2022 data for all deposit-taking institutions point to the coverage ratio (loan loss provisions relative to loaned amount) rising from 0.2% for performing loans to 3.5% for Stage 2 exposures and 33.3% for non-performing loans (see Chart SF.7.2). In addition, dation in payment and the resulting settlement of the borrower's liabilities requires coverage of the full amount of the mortgage above the value of the collateral property. Insofar as forbearance measures in the CGP under RDL 6/2012 and the NCGP under RDL 19/2022 contribute to slowing loans' movement down the classification scale or help them to recover to better classifications, they will lead to lower impairment costs for banks.

It is important to note that the CGPs are primarily intended to help vulnerable or potentially vulnerable households. It is mortgagors in these groups whose ability to pay is most sensitive to a downturn in macro-financial conditions. This is the case regardless of whether any contractual amendments or, in particular, forbearance measures are applied in line with the CGP under RDL 6/2012, reformed by RDL 19/2022. The credit quality impairment suffered by those who see their employment situation or income worsen during a time of crisis is expected to be as severe or even worse in the absence of measures to amend contractual terms. In fact, in these cases forbearance may serve to mitigate the consequences of the macro-financial shock for both lenders and borrowers. By contrast, if the measures in the CGPs were not targeted and were overly prescriptive, income could be simply transferred from lenders to borrowers, driving up additional provisions for the former and thereby limiting their intermediation capacity. Thus, it is important that these measures are implemented properly in line with the eligibility criteria stipulated in the implementing regulations. In this respect, it should be remembered that classifying a loan as non-performing means that the borrower may have greater difficulty accessing credit as long as this position persists, and possibly also in the future. This limits the potential moral hazard that this type of measure could originate, since there is a cost to the borrower.

SF.4 Conclusions

RDL 19/2022 establishes a broad protective framework for vulnerable and potentially vulnerable households, thus broadly helping all mortgage borrowers to adjust to the higher interest rate environment. As set forth in Sections SF.1 and SF.2, the share of households eligible for the various measures under the CGPs of this RDL is significantly higher than the share that could benefit from the original version of the CGP under RDL 6/2012. Furthermore, additional measures in RDL 19/0222, such as the temporary suspension of fees for the conversion of loans from variable rate to fixed rate, affect all mortgage borrowers. However, it must be borne in mind that the measures applicable to households affected by the broadened scope of eligibility are generally more limited in their coverage and duration than those contained in the original drafting under RDL 6/2012. This is a reflection of their lesser relative vulnerability and short-term nature, insofar as the risks they address are linked to macro-financial shocks in the wake of the Russian invasion of Ukraine.

The experience of applying the CGP under RDL 6/2012 suggests that this type of measure has a particularly relevant role to play as a way to absorb the consequences of a crisis and play a more limited role under normal conditions. Both the volume of applications to benefit from the CGP under RDL 6/2012 and the acceptance rate were significantly higher in the years immediately after the global financial crisis and saw an uptick during the pandemic, albeit a more moderate one since the pandemic had a lesser effect on households' ability to pay given the support measures that were rolled out. In non-crisis situations, the CGP under RDL 6/2012 has been applied on far fewer occasions, although there have been some, meaning that it also provides a secondary structural support to vulnerable households affected by idiosyncratic factors under normal conditions of the economic cycle. The reform in RDL 19/2022 has a predominantly near-term orientation, introducing an entirely temporary measure in the form of the NCGP, suspending certain bank fees until 2024, and amending the conditions of the CGP under RDL 6/2012 (which is a permanent mechanism), depending on the degree to which the household's purchasing power has declined, which can be expected to be greater in times of crisis.

It is to be expected that the implementation of these measures will have a moderate positive effect in the short term on consumption and GDP. The vulnerable and potentially vulnerable households targeted by these measures have a high marginal propensity to consume, in particular in an unfavourable macroeconomic environment. The short-term reduction in borrowing costs associated with the various measures under the framework set out in RDL 19/2022 can be expected to lead to a boost in consumption, which should also be passed through to real GDP. The full extent of the macro stimulus would, however, be restricted by the limited number of eligible mortgagors. Moreover, not all eligible

households will choose to benefit from the measures, as seen historically with the CGP under RDL 6/2012.

The measures under the framework of RDL 19/2022 may also entail costs for households in the form of higher debt levels and reduced access to credit in the future. Measures such as payment holidays or term extensions play a critical role in preventing a loss of liquidity leading to the loss of the home, which would entail higher levels of debt for the household for longer. The increased indebtedness also drives up the interest expenses borne by households to whom these measures apply for the lifetime of the mortgage and raises their sensitivity to future rate hikes. Some of the measures covered, such as the temporary suspension of early repayment fees under RDL 19/2022, or the substitutive and supplementary measures in the CGP under RDL 6/2012, have the opposite effect and may reduce households' debt. Converting variable rate mortgages to fixed rate may inhibit sensitivity to future rate hikes. In any case, a household resorting to these measures is a negative sign in terms of their credit quality and may hinder their future access to credit. The latter could cause their future expenses to be more sensitive to income shocks.

In general, contractual amendments are a tool that can allow banks to remedy, or prevent further impairment to, credit quality, particularly when carried out under the CGPs. Without any mitigating measures, such as forbearance or other contractual amendments, the credit quality of a vulnerable mortgage borrower would be impaired by a greater degree in the face of severe macroeconomic shocks, which increases the likelihood of their mortgage being classified as non-performing or written off. Granting extensions or payment holidays may help to prevent, or to manage and avert, further deterioration in credit quality, containing banks' coverage costs. By contrast, other measures, such as debt reduction or dation in payment, would constitute a net cost to banks and would, to some extent, reduce their intermediation capacity. The framework set out in RDL 19/2022 must be properly implemented in order to fully harness its potential and limit the costs for households and lenders. As highlighted in this ex ante analysis, based on available data up to December 2022, establishing an appropriate a time frame and focusing the measures on financially vulnerable groups will be key to achieving the expected outcomes. An ex post assessment of these issues will be needed in future reports as more information comes to light on the deployment of the overhauled CGPs.

Annex 1

CONSOLIDATED BALANCE SHEET (a)
DEPOSIT INSTITUTIONS

Assets	Dec-22	Change Dec-22/Dec-21	% of total assets Dec-21	% of total assets Dec-22
	€m	%	%	%
Cash and balances at central banks	446,587	-19.7	14.1	11.1
Loans and advances to credit institutions	230,169	5.5	5.5	5.7
General government	108,648	5.1	2.6	2.7
Other private sectors	2,295,434	5.1	55.2	56.8
Debt securities	547,570	11.7	12.4	13.6
Other equity instruments	29,044	-38.2	1.2	0.7
Investments	21,948	-9.2	0.6	0.5
Derivatives	156,985	28.3	3.1	3.9
Tangible assets	58,180	-0.4	1.5	1.4
Other	145,248	-4.2	3.8	3.6
TOTAL ASSETS	**4,039,814**	**2.1**	**100.0**	**100.0**
MEMORANDUM ITEMS				
Financing to private sector	2,350,842	5.3	56.4	58.2
Financing to general government	559,700	10.4	12.8	13.9
Total NPLs	81,583	-8.6	2.3	2.0
Total NPL ratio	2.3	-26 (b)		

Liabilities and equity	Dec-22	Change Dec-22/Dec-21	% of total assets Dec-21	% of total assets Dec-22
	m€	%	%	%
Balances from central banks	223,434	-43.3	10.0	5.5
Deposits from credit institutions	238,608	13.4	5.3	5.9
General government	126,516	2.7	3.1	3.1
Other private sectors	2,429,088	6.6	57.6	60.1
Marketable debt securities and subordinated debt	442,512	8.2	10.3	11.0
Derivatives	147,111	22.3	3.0	3.6
Provisions (including provisions for pensions)	22,555	-17.4	0.7	0.6
Other	160,230	13.5	3.6	4.0
TOTAL LIABILITIES	**3,790,056**	**2.3**	**93.7**	**93.8**
MEMORANDUM ITEMS				
Eurosystem net lending (a)	192,970	-33.4	7.3	4.8
Own funds	295,057	3.0	7.2	7.3
Minority interests	12,140	-19.7	0.4	0.3
Valuation adjustments	-57,439	13.4	-1.3	-1.4
TOTAL EQUITY	**249,758**	**-0.5**	**6.3**	**6.2**
TOTAL LIABILITIES AND EQUITY	**4,039,814**	**2.1**	**100.0**	**100.0**

SOURCE: Banco de España.

a Difference between funds received in liquidity-providing operations and funds delivered in liquidity-absorbing operations. December 2022 data.
b Difference calculated in basis points.

Annex 2

CONSOLIDATED INCOME STATEMENT DEPOSIT INSTITUTIONS (a)

	Dec-22		Dec-21	Dec-22
	€m	% change Dec-22/Dec-21	% ATA	% ATA
Interest income	127,790	40.4	2.33	3.19
Interest expense	49,523	104.6	0.62	1.24
Net interest income	78,267	17.1	1.71	1.95
Return on equity instruments	1,119	-6.7	0.03	0.03
Net financial income	79,386	16.7	1.74	1.98
Share of profit or loss of entities accounted for using the equity method	3,369	9.7	0.08	0.08
Net fees and commissions	29,465	7.9	0.70	0.74
Gains and losses on financial assets and liabilities	4,622	-6.1	0.13	0.12
Other operating income (net)	-2,214	—	0.00	-0.06
Gross income	114,628	11.0	2.65	2.86
Operating expenses	53,424	1.7	1.35	1.33
Net operating income	61,204	20.5	1.30	1.53
Impairment losses	17,135	19.7	0.37	0.43
Other provisioning expense (net)	2,974	-50.7	0.15	0.07
Other gains or losses (net)	-5,138	—	0.09	-0.13
Profit before tax (including discontinued operations)	35,957	5.6	0.87	0.90
Net profit	25,451	-1.5	0.66	0.64
Memorandum item				
Profit attributable to the controlling entity	23,888	2.4	0.60	0.60

SOURCE: Banco de España.

a The consolidated income statement includes pro-forma information pertaining to the months of activity of two significant institutions absorbed in 2021.

The Banco de España publishes various types of documents providing information on its activity (economic reports, statistics, research papers, etc.), which can be consulted in the Institutional Repository at https://repositorio.bde.es/?locale=en.

Most of these documents are available in PDF format and can be downloaded free of charge from the Banco de España website at http://www.bde.es/webbde/en/secciones/informes/.

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SYMBOLS AND ABBREVIATIONS

AT1	Additional Tier 1 Capital
ATAs	Average total assets
BBMs	Borrower-based measures
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
bn	Billion
bp	Basis points
CBQ	Banco de España Central Balance Sheet Data Office Quarterly Survey
CCP	Central counterparty
CCR	Banco de España Central Credit Register
CCyB	Countercyclical capital buffer
CET1	Common Equity Tier 1
CLOs	Collateralised loan obligations
CNMC	Comisión Nacional de los Mercados y la Competencia (National Commission on Markets and Competition)
CoCos	Contingent convertible bonds
COVID-19	Coronavirus disease 2019
CPI	Consumer Price Index
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
DeFi	Decentralised Finance
DFR	Deposit facility rate
DIs	Deposit institutions
EBA	European Banking Authority
EBAE	Encuesta del Banco de España sobre la Actividad Empresarial (Banco de España Business Activity Survey)
ECB	European Central Bank
EDIS	European Deposit Insurance Scheme
EDW	European DataWarehouse
EEA	European Economic Area
EFF	Encuesta Financiera de las Familias (Spanish Survey of Household Finances)
EMIR	European Market Infrastructure Regulation
ESFS	European System of Financial Supervision
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
€STR	Euro short-term rate
EU	European Union
EURIBOR	Euro Interbank Offered Rate
FDIC	Federal Deposit Insurance Corporation
FINMA	Swiss Financial Market Supervisory Authority
FLESB	Forward-looking exercise on Spanish banks
FOMC	Federal Open Market Committee
FSB	Financial Stability Board
FSR	Financial Stability Report
GDP	Gross domestic product
G-SIBs	Global systemically important banks
G-SIIs	Global systemically important institutions
GVA	Gross value added
H	Half-year
HICP	Harmonised Index of Consumer Prices
HQLA	High Quality Liquid Assets
ICO	Instituto Oficial de Crédito (Official Credit Institute)
ID	Data obtained from individual financial statements
IGAE	Intervención General de la Administración del Estado (National Audit Office)
IIP	International investment position
IMF	International Monetary Fund
INE	Instituto Nacional de Estadística (National Statistics Institute)
IOSCO	International Organization of Securities Commissions
LCR	Liquidity Coverage Ratio
IRS	Interest-rate swap
LSIs	Less significant institutions
LTI	Loan-to-income ratio
LTP	Loan-to-price ratio
LTV	Loan-to-value ratio
m	Million
MCD	Mortgage Credit Directive
MiCA	Markets in Crypto-assets Regulation
MMSR	Money Market Statistical Reporting
MREL	Minimum Requirement for own funds and Eligible Liabilities
NBER	National Bureau of Economic Research
NDERs	Narrowly defined effective rates
NFCs	Non-financial corporations
NGEU	Next Generation EU
NPISHs	Non-profit institutions serving households
NPLs	Non-performing loans
NSFR	Net Stable Funding Ratio
OIS	Overnight Interest Swap
O-SIIs	Other systemically important institutions
P2G	Pillar 2 Guidance
PD	Probability of default
PER	Price-to-earnings ratio
PMI	Purchasing Managers' Index
pp	Percentage points
Q	Quarter
q-o-q	Quarter-on-quarter
Repo	Repurchase agreement
ROA	Return on assets
ROE	Return on equity
RWAs	Risk-weighted assets
SCR	Solvency Capital Requirement
SHSS	Securities Holdings Statistics by Sector
SICR	Significant increases in credit risk
SIs	Significant institutions
SLIs	Specialised lending institutions
SMEs	Small and medium-sized enterprises
SNP	Senior non-preferred
SPEs	Special purpose entities
SRI	Systemic risk indicator
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism
TLTRO III	Targeted longer-term refinancing operations
TPI	Transmission Protection Instrument
VAR	Vector autoregression
WUI	World Uncertainty Index
y-o-y	Year-on-year

ISO COUNTRY CODES

AT	Austria	DE	Germany	IE	Ireland	NL	Netherlands
AU	Australia	DK	Denmark	IT	Italy	NO	Norway
BE	Belgium	EE	Estonia	JP	Japan	PL	Poland
BG	Bulgaria	ES	Spain	KR	South Korea	PT	Portugal
BR	Brazil	FI	Finland	KY	Cayman Islands	RO	Romania
CA	Canada	FR	Francia	LT	Lithuania	SE	Sweden
CH	Switzerland	GB	United Kingdom	LU	Luxembourg	SI	Slovenia
CL	Chile	GR	Greece	LV	Latvia	SK	Slovakia
CN	China	HR	Croatia	MT	Malta	TR	Turkey
CY	Cyprus	HU	Hungary	MX	Mexico	US	United States
CZ	Czech Republic						