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)*.

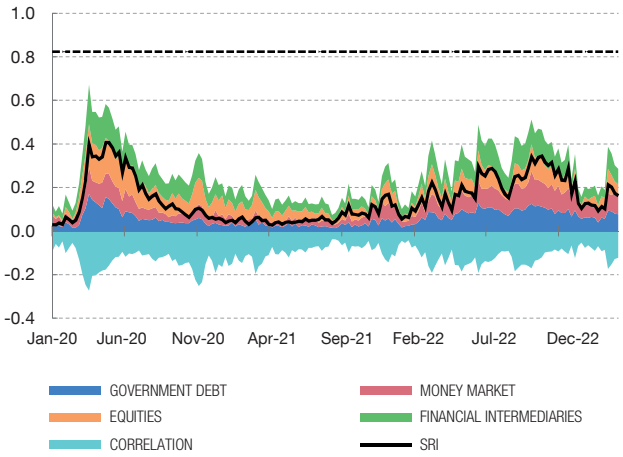
2 Brownlees and Engle. (2017). This indicator measures the market value of the regulatory capital shortfall of an individual bank or the banking sector overall following a significant correction in the equity market. It thus constitutes a systemic risk metric, since the high cost of making up a capital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

Chart 3.1

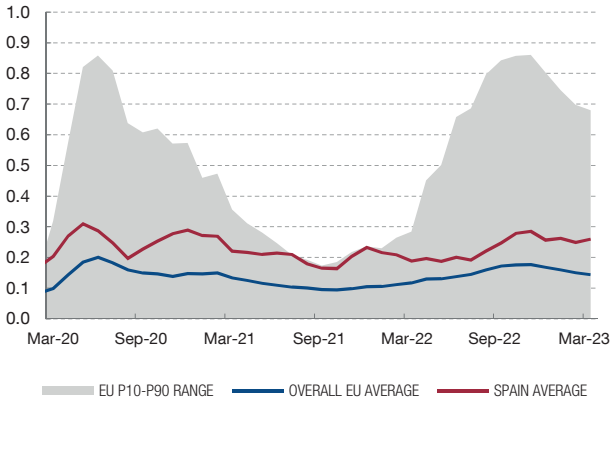
THE FINANCIAL TURMOIL OF MARCH 2023 HAS PARTIALLY REVERSED THE IMPROVEMENTS OBSERVED SINCE END-2022 IN THE SYSTEMIC RISK INDICATOR

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.

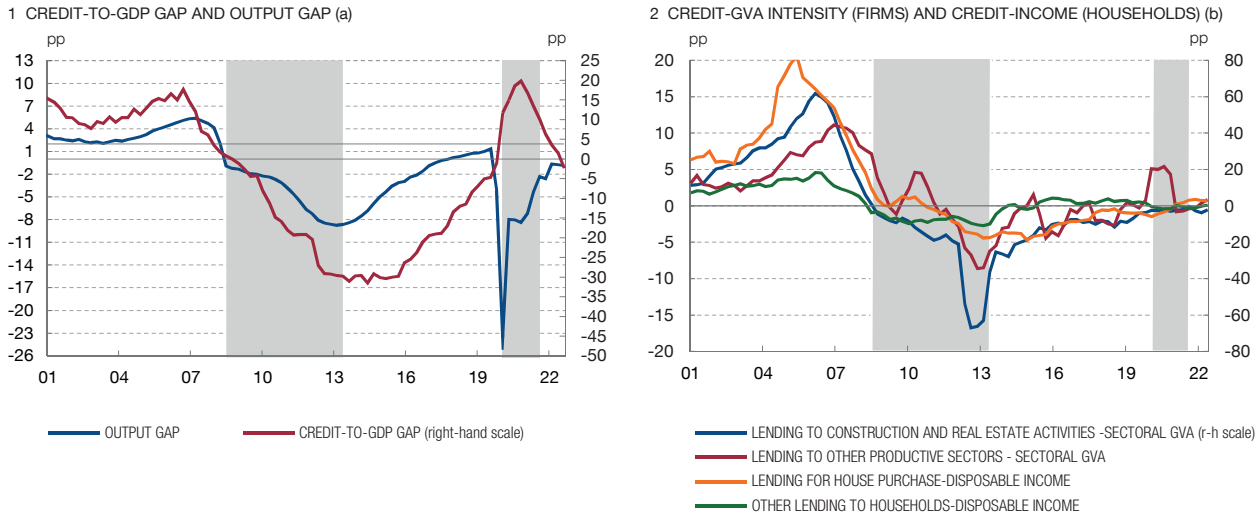
The indicators for monitoring sectoral credit cycles show no signs of imbalance. The Banco de España monitors sectoral credit cycles closely, by

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.

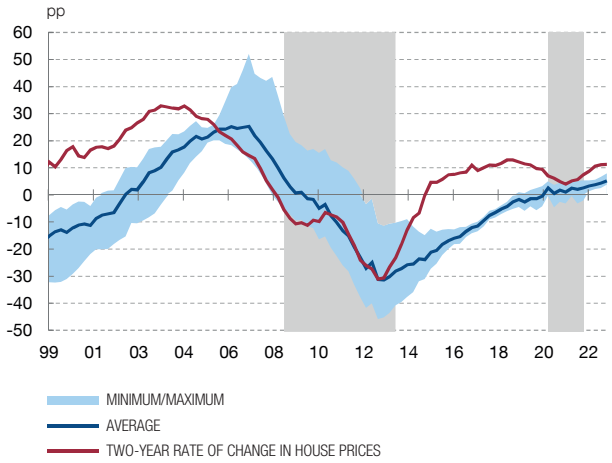
The credit standards applied to new loans for both households and firms have tightened, according to the surveys conducted with banks, and household demand for credit has decreased. The supply of credit to the non-financial private sector contracted in 2022, as a result of credit standards tightening 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

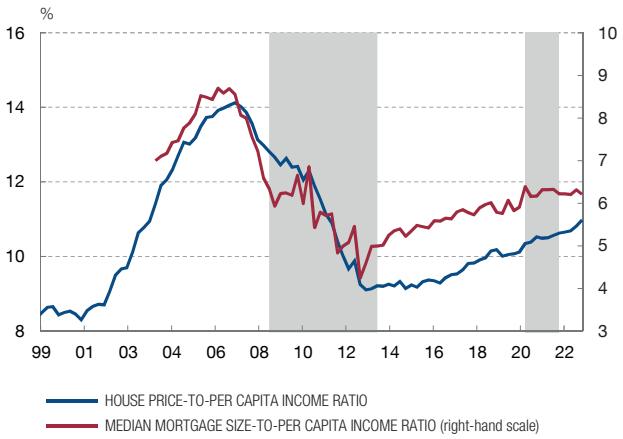
MODERATE SIGNS OF OVERVALUATION HAVE BEEN OBSERVED IN THE HOUSING MARKET, WITH HOUSE PRICES AND MORTGAGE AMOUNTS OUTPACING HOUSEHOLD INCOME

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

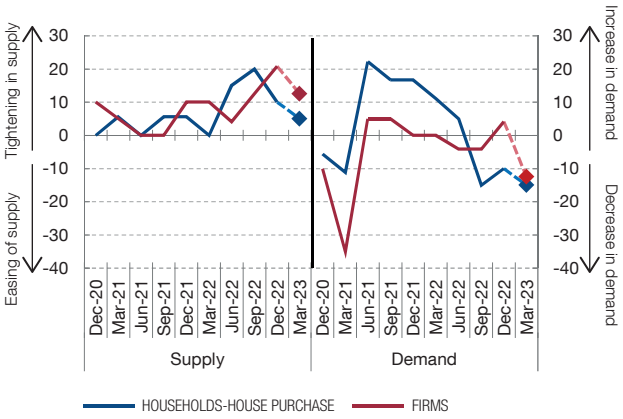
6 Á. Menéndez and M. Mulino. (2023). January 2023 Bank Lending Survey in Spain. *Economic Bulletin - Banco de España, 2023/Q1.*.

Chart 3.4

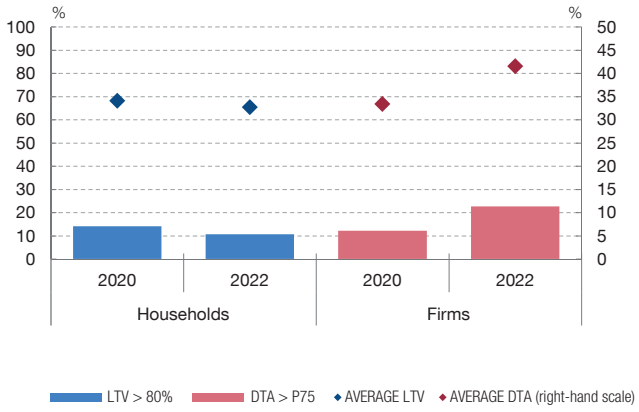
DEMAND FOR NEW CREDIT BY HOUSEHOLDS AND FIRMS IS EXPECTED TO DECREASE IN 2023 Q1 WHILE CREDIT STANDARDS ARE TIGHTENING. INTEREST RATE SPREADS FOR NEW LOANS CONTINUED TO NARROW IN 2022

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 2022 in both credit categories in 2022.

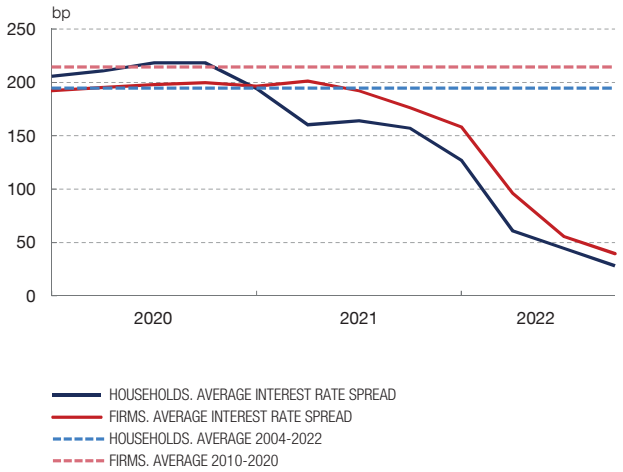
1 BANK LOAN SUPPLY AND DEMAND (a)



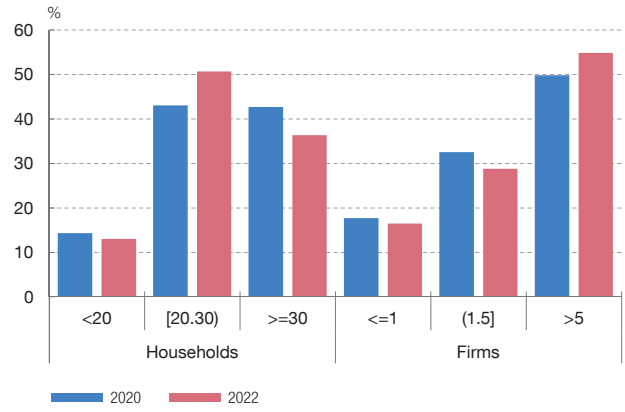
2 DEGREE OF LOAN LEVERAGE (b)



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.

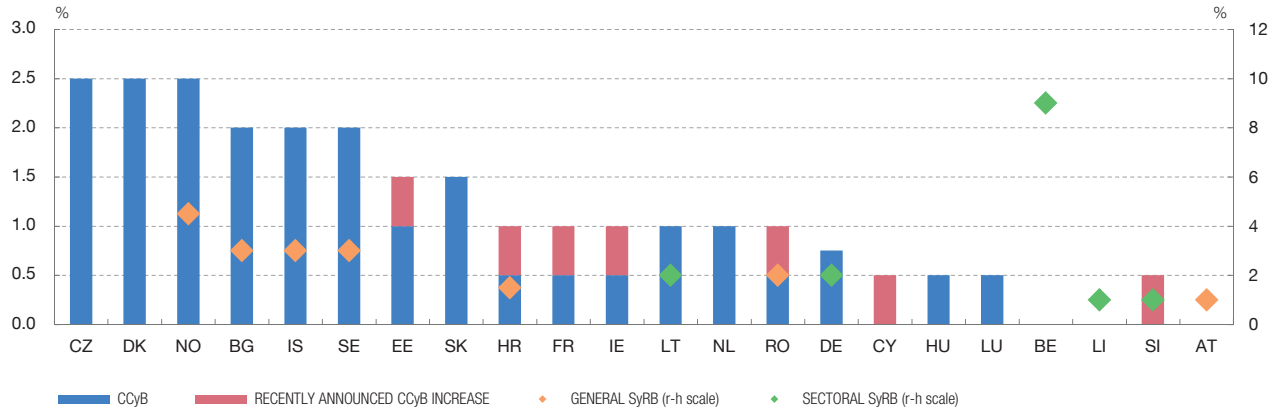
10 This Banco de España measure is a macroprudential action envisaged in the prevailing EU and Spanish legislation, formalising the prior designation of this bank as a global systemically important bank by the FSB. See *"2022 List of Global Systemically Important Banks (G-SIBs)"*, FSB press release,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

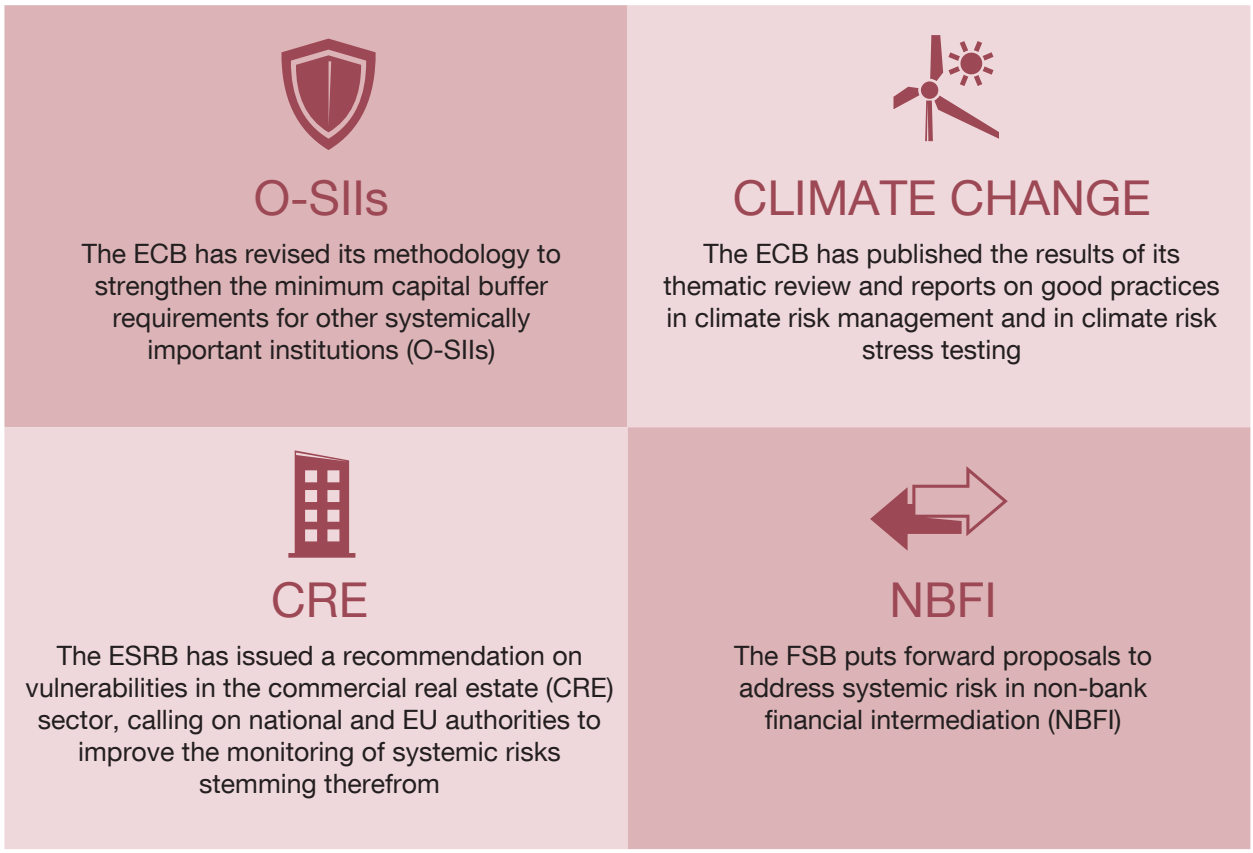
3.2 Regulatory and supervisory developments relevant to financial stability

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.

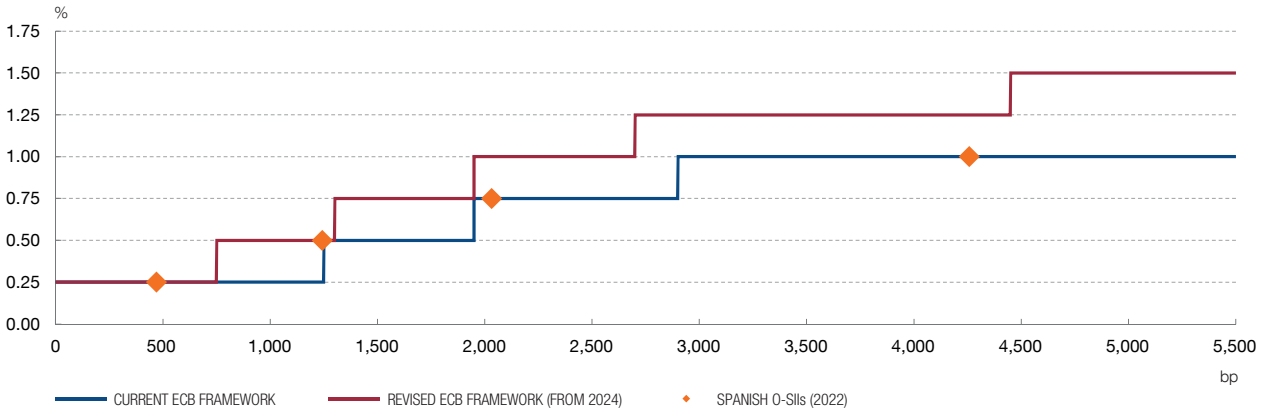
15 See ECB Banking Supervision, *"ECB report on good practices for climate stress testing"*, December 2022.

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.

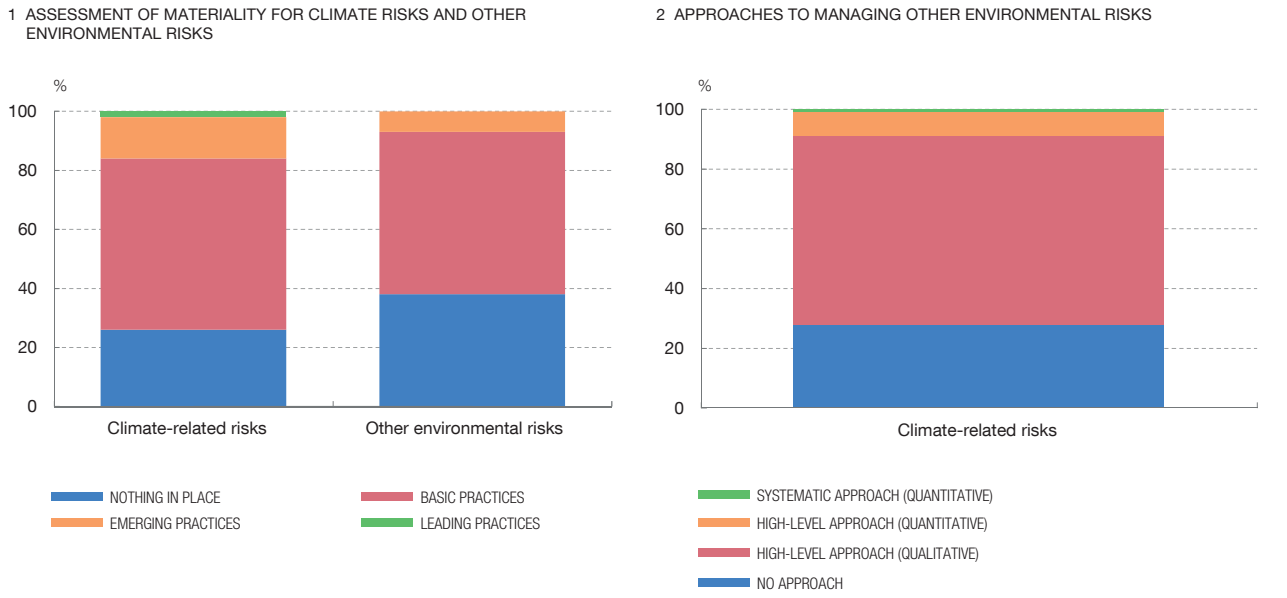
18 See European Parliament, *"Economic and Monetary Affairs Committee voted to finalise reforms of banking rules"*, 24 January 2023, *"REPORT on the proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) No 575/2013 as regards requirements for credit risk, credit 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.

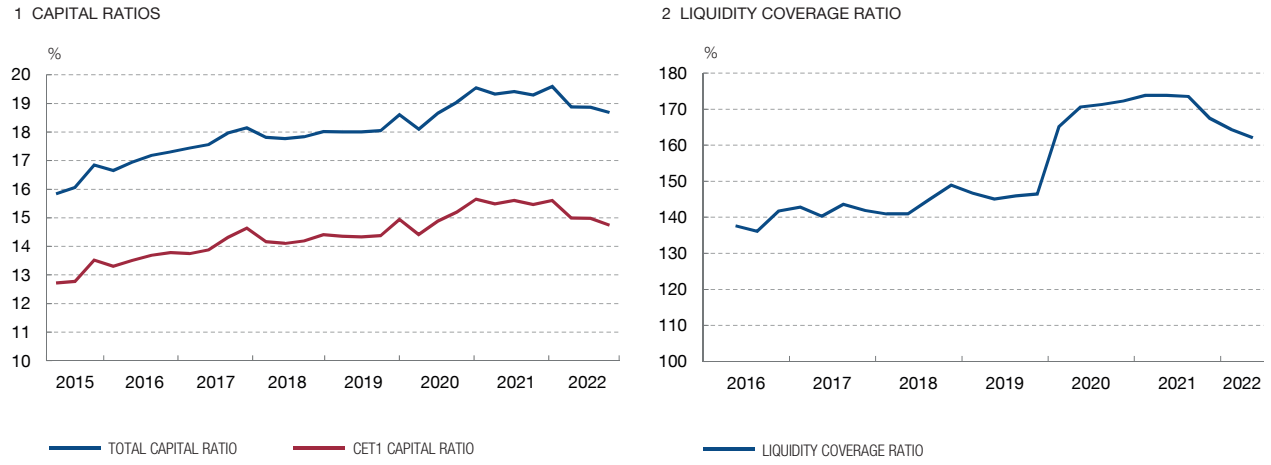
25 See EBA, *"EBA response to the European Commission on the current level of margins and of excessive volatility in energy derivatives markets"*, 29 September 2022.

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.