Ausschuss für Finanzstabilität

Tenth report to the Bundestag on financial stability in Germany

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Foreword

The Financial Stability Committee (*Ausschuss für Finanzstabilität*) is the central committee for macroprudential supervision in Germany. Established at the beginning of 2013 under the Financial Stability Act (*Gesetz zur Überwachung der Finanzstabilität*), the Financial Stability Committee (FSC) is made up of the Federal Ministry of Finance, the Deutsche Bundesbank and the Federal Financial Supervisory Authority (BaFin). Each of the member institutions has three voting representatives. BaFin's Chief Executive Director of Resolution and Prevention of Money Laundering is also a committee member, but does not have a vote. The FSC usually convenes once a quarter.

The FSC discusses matters of importance to the stability of the German financial system on the basis of analyses prepared by the Bundesbank. For the FSC, the stability of the financial system (financial stability) means a state in which the financial system is able to fulfil its key economic functions at all times, especially when faced with unforeseen events, in periods of stress and during structural upheavals. These functions encompass coordinating savings and investment, distributing risk appropriately and settling payment, securities and derivatives transactions. The purpose of the FSC's macroprudential policymaking is to identify, assess and reduce cyclical and structural vulnerabilities in the German financial system, and also to strengthen its resilience. The FSC's macroprudential policy covers all areas of the financial system that might be a source of risk to financial stability in Germany. To address such risks, the FSC can issue warnings and recommendations. Evaluating macroprudential measures is another key component of the policy cycle because macroprudential policy is designed to be preventive and measures are taken amid uncertainty.

The FSC also acts as the interface with macroprudential supervisors across Europe. It serves as the point of contact with the European Systemic Risk Board (ESRB) and the macroprudential authorities of other Member States of the European Union (EU). The FSC communicates its warnings and recommendations to the ESRB and provides advice on ESRB warnings and recommendations concerning Germany.

The FSC is discharging its statutory obligation by presenting to the Bundestag its tenth report on the financial stability situation and developments in Germany and on its activities. This report covers the period from April 2022 to March 2023.

The members of the FSC and the schedule of its meetings during the reporting period can be found in the Annex hereto.

Contents

1 Overview

The macro-financial environment came under significant strain in the reporting period. Inflation and market interest rates rose sharply, and economic activity was lacklustre. Economic growth was hampered substantially by Russia's war of aggression against Ukraine and the associated developments in energy markets. Financial markets saw considerable price corrections, partly because monetary policy was tightened to address the high inflation. Valuations declined and risk premia increased. The increase in interest rates triggered write-downs on securities portfolios in the German financial system, and hidden reserves were run down in the banking sector. Interest rate risk that already existed in the system thus partly materialised during the reporting period.[1] The increase in financing costs and high inflation were major factors preventing a continuation of the multiyear upswing in the German residential real estate market during the reporting period.

Vulnerabilities in the German financial system are high overall. The spring of 2023 saw volatility in financial markets spike briefly as bank closures in the United States and distress at one major Swiss bank triggered market turmoil. Decisive policy responses in the United States and Switzerland contributed to keeping direct spillovers to the German financial system in check, however. Despite the adverse macro-financial setting and realised losses, Germany's financial system remained stable overall.

Developments in the macro-financial setting

High energy prices, supply chain disruptions and losses in purchasing power acted as a drag on economic activity in Germany. The impact of monetary policy tightening added to this situation. Whilst economic growth for 2022 remained in positive territory overall at 1.9%, gross domestic product contracted by 0.5% in the fourth quarter of that year. At the end of the reporting period, economic growth was projected to be slightly positive in 2023.[2] The somewhat more favourable economic outlook was due in part to the significant easing of conditions in energy markets in the winter of 2022-23. Expectations among German firms and households brightened to some extent as the reporting period drew to a close, and the trend in manufacturing improved. The tighter financing conditions dampened the outlook for growth, however. Yet, there remains a substantial risk that the economy might fare significantly worse eventually, not least in light of the high geopolitical uncertainty.

The steep and rapid rise in interest rates marked a sea change for the financial system. Between July 2022 and the end of the reporting period, the Governing Council of the European Central Bank (ECB) raised the key interest rates by 350 basis points in total.[3] Uncertainty as to how far interest rates would rise in the future remained. While falling energy prices have eased supply-side price pressures of late, core inflation in the euro area has remained at a persistently high level. If headline inflation proves to be stubborn on the back of the improved economic outlook, robust labour market conditions and high wage settlements, interest rates could increase more quickly and more strongly. The level of interest

[1] See Financial Stability Committee (2022b).
[2] See German Council of Economic Experts (2023).
[3] See European Central Bank (2023).

rates could remain elevated for longer than markets are currently expecting. Further declines in asset prices could be the result.

Risk situation in the German financial system

The sharp rise in interest rates has caused macroprudential supervisors to devote more attention to interest rate risk. The German banking system is characterised by a high level of maturity transformation. Consequently, institutions take on increased liquidity and interest rate risk. This is notably the case for institutions engaged predominantly in traditional lending business. Higher interest rates typically produce higher levels of net interest income over the long run. Yet, an institution's net interest income may fall in the short run if its interest expenditure increases by more than its interest income. During the reporting period, this short-term effect was not evident, especially at smaller and medium-sized institutions that use customer deposits as a source of funding. The year 2023, however, is likely to see pressure build up in the market to align the remuneration paid on customer deposits with the higher level of interest rates. If that were to happen, institutions would benefit less from the increase in interest rates. The hike in interest rates meant that banks' securities portfolios haemorrhaged value in the reporting period, often forcing banks to run down their hidden reserves and in some instances register hidden losses.

The distress evident in the US banking sector in the spring of 2023 highlighted the importance of interest rate risk. These events pushed up volatility in financial markets and led to losses of confidence in the resilience of certain banks in other countries. Decisive policy responses in the United States and Switzerland kept direct spillovers to the German financial system in check, however. The FSC will follow the work reviewing the regulatory standards in light of developments in the United States over the coming quarters.[4]

The sharp rise in interest rates was a major factor preventing a continuation of the multi-year upswing in the German residential real estate market. Loan demand softened significantly in the second half of 2022,[5] partly as a result of the rising cost of living and mounting borrowing costs. Going forward, the downturn in new business for higher-interest residential real estate loans during the reporting period is likely to drag on banks' profitability. This is exacerbated by huge stocks of low interest residential real estate loans with long interest rate fixation periods. This presents a challenge for German banks, given that residential real estate loans remain a crucial source of income. Price growth slowed down as well. House prices kept climbing until mid-2022, but declined in the second half of the year for the first time in a long while. It cannot be ruled out that prices will decline further in the near term. Even so, due to the substantial price increases in recent years, residential real estate in Germany was still significantly overvalued. Ongoing supply shortages and high construction prices prevented prices from falling by any substantial measure. Banks' residential real estate loan portfolios did not see any upturn in defaults, partly thanks to continued robust labour market development. Moreover, in most cases, expiring fixed rate residential real estate loans

[4] Amongst other things, the Basel Committee is discussing the potential need for adjustments in the field of banking supervision and in the calibration of the Basel rulebook in response to developments in the United States.
[5] See Deutsche Bundesbank (2023).

were not rolled over at significantly higher lending rates. Indeed, most of the residential real estate loans that are up for renewal in 2023 date back to older loan vintages.[6] Since the interest rate environment back then was similar to that of today, the risk from the rise in interest rates is limited for these loans.

The market for retail and office real estate experienced a downturn in the reporting period. Prices and transaction volumes started declining significantly in the second quarter of 2022, mainly due to the abrupt rise in interest rates and weak economic activity. However, banks' loan portfolios did not suffer major losses. There was no evidence of an increased build-up of risk in banks' portfolios of commercial real estate loans, with the percentage of non-performing loans remaining more or less unchanged. Nor did available indicators point to a lowering of lending standards.

Allocation risks in banks' balance sheets remained high, whereas loan loss allowances were low. According to analyses carried out in the reporting period, banks' credit portfolios held a disproportionately large share of loans to enterprises that were relatively highly indebted.[7] Due to the sharp rise in interest rates, these enterprises could run into funding problems, as the fixed interest periods for corporate loans are comparatively short. The economic slowdown and declining debt sustainability amongst enterprises and households have thus far not led to a significant increase in loan loss allowances and risk weights in banks' balance sheets. Overall, there is a risk that banks will continue to underestimate the risk of adverse developments.

Insurers were able to increase their solvency ratios while liquidity risks increased. Life insurers, in particular, benefited from rising interest rates and recorded significantly higher solvency ratios. However, the higher interest rate level increased the risk of customers terminating their policies in greater numbers. In light of fixed surrender values, alternative investments became increasingly attractive. Nonetheless, lapse rates did not show any irregularities during the reporting period. Derivatives transactions could generate additional liquidity risks for insurance corporations and pension funds. Further interest rate increases or exchange rate fluctuations could lead to extensive margin calls from hedging transactions. The FSC therefore welcomes the introduction of improved liquidity monitoring by BaFin, which is intended to enable the timely monitoring of liquidity risks of insurance corporations and pension funds. The persistently high inflation rates could have a negative impact on property insurers, casualty insurers and reinsurers going forward, as obligations arising from claims settlements are likely to rise.[8]

Despite some significant mark-to-market losses, the German investment fund sector saw only limited withdrawals. In the low interest rate environment of recent years, interest rate risks had also built up in investment funds' securities portfolios. Funds were able to cope with the mark-to-market losses on their bond holdings and investors made only limited withdrawals. Changes were made to the structure of securities holdings. At the end of the

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[6] Around three-quarters of the mortgages that are up for renewal in 2023 were granted prior to 2019. See Deutsche Bundesbank (2022).

[7] See Deutsche Bundesbank (2022).

[8] In a calculation for an exemplary insurance corporation, the European Insurance and Occupational Pensions Authority (EIOPA) estimates the decline in the solvency ratio resulting from a persistent rise in inflation to be around 10 percentage points. For this calculation it analyses an increase in the inflation rate of around 2 percentage points in the short term and around 0.75 percentage point in the long term. See European Insurance and Occupational Pensions Authority (2022).

reporting period, investment funds had increased their holdings of bonds with residual maturities of up to two years. In addition to the effects of further rising interest rates, a slump in the real economy is also a risk scenario for the fund sector. Extensive rating downgrades of the securities held by German investment funds could lead to large outflows of funds and possible amplification effects, which could increase strain on the sector.

The FSC examined financial stability risks arising from developments in the energy markets. Russia's war of aggression against Ukraine and the suspension of deliveries of Russian gas caused price increases in the energy markets to accelerate. The sharp rise in prices and volatility led to significantly higher collateral requirements for market participants in the commodity and energy markets. The risks to financial stability stemming from developments in the energy markets were lower at the end of the reporting period, as gas and electricity prices fell back from the peaks recorded in August 2022. The FSC will continue to monitor developments in the energy markets and potential risks to financial stability.

The FSC discussed concentration risks resulting from the outsourcing of banking sector processes and services to third-party information and communication technology providers. Although transparency regarding IT service providers increased, the FSC identified, amongst other things, a further need for improvements relating to the role of subservice providers and data availability. The FSC considers the creation of a framework for monitoring critical third-party IT providers through the implementation of the EU's Digital Operational Resilience Act (DORA) for the financial sector to be a suitable approach.

The FSC also examined the growing challenges posed by climate risks and the structural change associated with decarbonisation. The aim was to assess the current risk situation as far as possible and to set priorities for future work. The analyses to date indicate that the German financial system is moderately vulnerable to risks arising from the transition to a climate-friendly economy. However, individual intermediaries may be significantly more vulnerable. A late and therefore abrupt transformation towards a climate-neutral economy may heighten losses in the financial system. The FSC will continue to address the risks arising from climate change and increasingly take physical risks into consideration.

The FSC explored the work at the European level on central bank digital currency. It looked into the potential risks to financial stability posed by the introduction of a digital euro. In the short term – depending on the digital euro's design – the withdrawal of customer deposits could lead to a liquidity shortage at banks. In the medium to long term, its introduction could also lead to changes in funding structures or have an impact on lending. Assuming a careful design, the risks to financial stability were deemed manageable on the basis of the available analyses. The FSC welcomes the work on the digital euro to date and will continue to monitor the project.

The FSC welcomed the International Monetary Fund's Financial System Stability Assessment for Germany. In its overall assessment (as part of the Financial Sector Assessment Program, or FSAP), the International Monetary Fund (IMF) found that the German financial system remains stable and resilient overall.[9] The IMF welcomed the good progress in strengthening microprudential supervision since the last review in 2016, as well as the decisive use of macroprudential instruments. However, due to a continued rise in cyclical vulnerabilities,

[9] See International Monetary Fund (2022).

the IMF saw the need for additional action, including the introduction of a legal basis for income-based macroprudential tools that address borrowers' debt sustainability.

Macroprudential policy

The FSC acted on its brief under the coalition agreement to examine the macroprudential toolkit in Germany for gaps. This task is not yet complete.

Owing to the persistently high risks to financial stability, the FSC still considers BaFin's macroprudential package of measures to be adequate. The measures imposed in the spring of 2022 significantly increased the resilience of the German banking sector to potential losses.[10] Banks have had to meet the capital requirements of the countercyclical capital buffer and of the sectoral systemic risk buffer for the residential property sector in full since 1 February 2023. Overall, the package of measures strengthens the resilience of the financial system. In the reporting period, the FSC found no evidence that the banking system had restricted its credit supply due to the package of measures. It will continue to closely monitor developments in the risk situation and, if necessary, discuss possible adjustments to macroprudential measures.

In September 2022, the ESRB issued a general warning on vulnerabilities in the European financial system in view of high uncertainty, rising inflation rates and tightening financing conditions.[11] The FSC supports the ESRB's call to preserve or enhance the resilience in the financial system in view of the existing risks. The ESRB publicly affirmed that adequate risk provisioning is important to enable banks to better cope with potential setbacks in a challenging environment.[12] It called on all financial market participants to act in a forward-looking manner and to assess risks conservatively. Against the backdrop of rising construction and financing costs, declining yields, a weak macro-financial outlook and a structural decline in commercial real estate demand, the ESRB also issued a cross-country recommendation on vulnerabilities in the commercial real estate sector in the European Economic Area on 25 January 2023. It recommended improving the monitoring of systemic risks stemming from the commercial real estate market, ensuring sound financing practices and prudent risk management, and increasing the resilience of financial institutions.

The FSC took note of the current list of other systemically important institutions (O-SIIs). The list was expanded to include two banks whose parent groups had relocated significant parts of their EU business to Germany in the wake of Brexit. At the end of the reporting period, such Brexit banks accounted for 18% of the aggregate total assets of all O-SIIs.[13] Owing to Brexit banks relocating business to Germany, the measured relative systemic importance of O-SIIs with a longer history in the German banking market is declining. As a result, their capital buffer requirements could fall without their business activities changing. In

[10] See Federal Financial Supervisory Authority (2022).
[11] See European Systemic Risk Board (2022).
[12] See Financial Stability Committee (2022a).
[13] While no Brexit bank had yet been classified as an O-SII at the end of 2019, the share of systemic importance attributable to Brexit banks amongst the O-SIIs under the scoring system rose from 8% in the fourth quarter of 2020 to 20% in the fourth quarter of 2022.

2023, BaFin and the Bundesbank are due to review the O-SII methodology and assess whether the buffer calibration is appropriate.

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2 Risk situation in the German financial system

2.1 The international macroeconomic and financial environment

The international environment was predominantly shaped by Russia's war of aggression against Ukraine and its negative implications for the real economy and the financial system. The situation was compounded by the impact of monetary policy tightening in many regions of the world. After the global economy had at least partially recovered from the effects of the coronavirus pandemic, the outbreak of the war once again put the resilience of the global macroeconomic and financial environment to the test. One major factor was the sharp rise in many commodity prices, especially those for energy, which was triggered by the adverse supply shock after Russia cut off gas supplies. Inflation, which had already begun to climb in 2021, soared as a result of the supply shock created by the war. Uncertainty weighed on aggregate demand, leading to a slowdown in economic activity around the world. Higher energy and commodity prices and, to a lesser extent, supply chain problems significantly increased the cost of many goods and put a strain on the corporate sector. With the exception of the energy crisis in Europe, supply-side bottlenecks in international trade increasingly took a back seat in the second half of 2022 – especially after China lifted its zero-COVID policy at the end of 2022. Meanwhile, the global financial markets saw significant price corrections, with valuations declining and risk premia rising.[14] Uncertainty about future economic developments and downside risks were high during the reporting period.

Global economy and price developments

The global economy lost momentum and the real economic outlook deteriorated at the beginning of the reporting period. Forecasts for global GDP growth were significantly revised downwards in the second and third quarters of 2022, followed by another slight downward adjustment in the fourth quarter of 2022.[15] Economic activity was hampered by the high energy prices resulting from Russia's war of aggression against Ukraine, losses in purchasing power due to the sharp rise in consumer prices, and tighter monetary policy in many regions of the world. Uncertainty also increased, especially in European countries that were dependent on Russian energy supplies.

Inflation turned out to be higher than previously expected around the world. Even before the war began, commodity prices had risen as demand recovered after the pandemic and supply-side shortages occasionally occurred. The outbreak of the war saw global energy and food prices rise to long-term record highs. A hike in the prices of key intermediate goods was increasingly passed through to finished goods, too, with higher prices being observed for most of the goods and services that make up the basket of goods.

The macro-financial environment brightened somewhat towards the end of the reporting period. GDP forecasts in March 2023 were somewhat more optimistic, putting global growth at 3.4% in 2022 and 2.8% in 2023. The economic reopening of China and the

[14] See Deutsche Bundesbank (2022), International Monetary Fund (2022c).
[15] See International Monetary Fund (2022d, 2022e, 2022c).

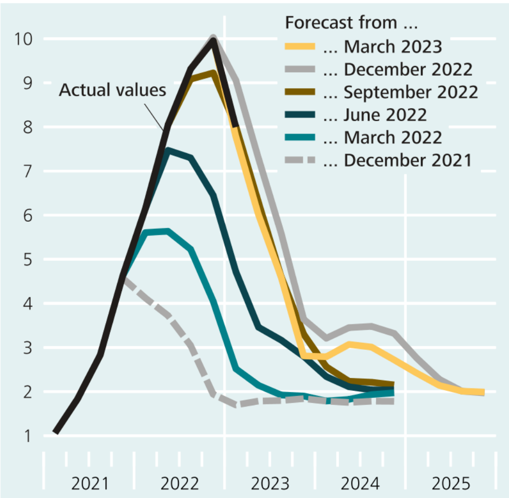
scrapping of its zero-COVID policy helped to improve the outlook.[16] Nevertheless, GDP growth of just 1% was projected for the euro area in 2023. It is expected to recover to 1.6% in 2024.[17] Inflation appeared to have peaked at the end of 2022. After prices rose by a global average of 8.8% on the year in 2022, lower inflation rates were expected for most countries in 2023. However, core inflation in the euro area continued to rise at the end of the period under review. Most recently, a global inflation rate of 6.6% was forecast for 2023.[18] With core inflation rates still high and many regions experiencing wage growth, the risk of inflation becoming entrenched at an elevated level remains a major concern.

Monetary policy and global financial market developments

Central banks raised interest rates, with further interest rate moves expected at the end of the reporting period. Central banks in the United States, the United Kingdom and the euro area responded to rising inflation with policy rate hikes that were substantial in some cases. Central banks in emerging market economies also continued to tighten their monetary policy stance, but with large regional differences.[19] At the same time, market interest rates have risen sharply since the second quarter of 2022.

Inflation forecasts for the euro area* Chart 2.1.1

Year-on-year percentage change, quarterly data



Source: Eurostat. * HICP projections produced by Eurosystem experts (June and December) and ECB staff (March and September). See charts published by the ECB at https://www.ecb.europa.eu/pub/projections/html/index.en.html

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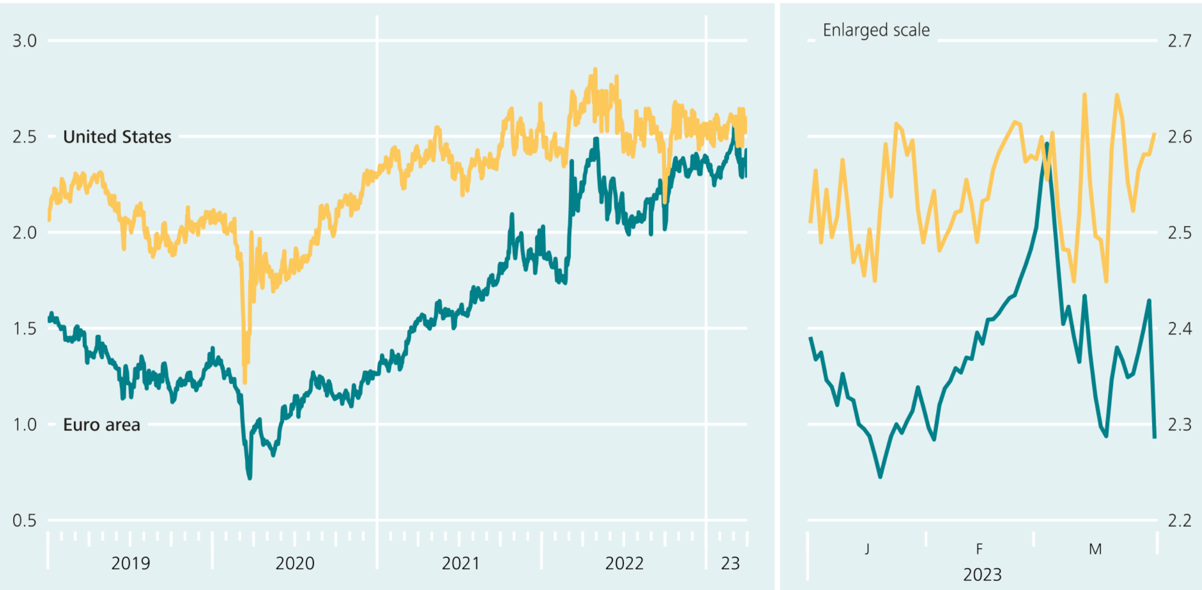
Overall, there was uncertainty about the pace of monetary policy normalisation during the reporting period. Inflation rates in Europe and the United States were surprisingly high in most cases, and market participants adjusted their expectations as to the necessary degree of monetary policy tightening. Euro area inflation reached its highest monthly level at 10.6% in October 2022 (see Chart 2.1.1). Since then, inflation has declined slightly overall. Core inflation, however, continued to show a rising trend, reaching 5.7% in March 2023. In March 2023, the European Central Bank (ECB) expected euro area inflation to recede from an average of 8.4% in 2022 to 5.3% in 2023 and 2.9% in 2024.[20] The risk of a de-anchoring of inflation expectations remained. At the same time, from the end of June 2022, the yield curve flattened and even temporarily inverted for US Treasuries and Bunds, especially in the light of concerns about economic developments. Relevant indicators, such as increased hedging premiums for interest rate risk, pointed to increased uncertainty about future interest rate developments.

[16] See International Monetary Fund (2023a).
[17] See European Central Bank (2023).
[18] See International Monetary Fund (2023b).
[19] See International Monetary Fund (2022b).
[20] See European Central Bank (2023).

Inflation may prove more persistent than expected owing to the brighter economic outlook towards the end of the reporting period, the robust labour market situation, and wage growth.[21] Although the decline in commodity prices at the end of 2022 and weaker economic activity will dampen inflation going forward, high wage increases could also create further inflationary pressure.[22] The economic recovery in China following the scrapping of the zero-COVID policy could also increase global inflationary pressure in the medium term if it pushes up global demand for commodities and energy. In this case, monetary policymakers may consider it necessary to pursue a more restrictive interest rate path than market participants were expecting at the end of the reporting period. Interest rates would then rise more and possibly remain in restrictive territory for longer than had been priced in. Long-term market-based inflation expectations for the euro area and the United States increased during the period under review (see Chart 2.1.2).

Market-based inflation expectations* in the euro area and the United States Chart 2.1.2

%, daily data



Source: Bloomberg Finance L.P. * Five-year inflation expectations, starting in five years, derived from inflation swaps.

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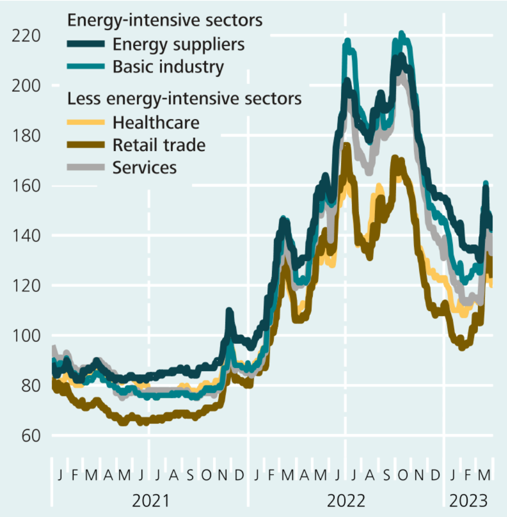
Global financing conditions tightened in most regions, partly owing to more restrictive monetary policy, but also due to growing uncertainty about the outlook. For example, increased volatility in financial markets and widening spreads for credit and liquidity risks in some market segments also contributed to the tightening of financial conditions.[23] In an environment of significantly higher interest rates, financial markets experienced temporary tensions in specific segments of the financial system. These had a marked impact on some market participants, affecting UK pension funds in autumn 2022 and banks in the United States and Switzerland in spring 2023, for instance. International equity markets initially lost considerable value when the war of aggression against Ukraine broke out. Unexpected interest rate increases also caused share prices around the world to plummet. The equity markets

[21] See Deutsche Bundesbank (2023).
[22] See Deutsche Bundesbank (2023).
[23] See Deutsche Bundesbank (2022).

Corporate bond spreads by sector

Chart 2.1.3

Basis points, daily data



Sources: Bloomberg Finance L. P. and ICE data, used with their permission. The chart shows spreads of euro-denominated corporate bonds from the investment grade segment.

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largely recovered in the wake of falling energy prices. Risk premia in the bond markets went up significantly (see Chart 2.1.3). The consequences of the sharp rise in energy prices affected the entire corporate sector. Risk premia for investments in emerging market economies – especially those in the high yield segment – also rose steeply. From the end of 2022 onwards, however, there was a marked easing of pressure here too. The banking turmoil in spring 2023 was accompanied by comparatively moderate increases in corporate bond risk premia.

Debt levels

The deterioration in financial conditions weighed on the public sector, households and non-financial corporations. Around the world, these developments interacted with existing vulnerabilities both in the real economy and the financial system. These vulnerabilities had built up in an environment of low interest rates, low inflation, rising asset prices and sound economic developments.[24] Changes in the macro-financial environment, especially the rise in inflation, weighed on the public sector, households and non-financial corporations.

High inflation, interest rate rises and a clouded growth outlook increased the risks stemming from the high levels of private sector debt around the world. Higher interest rates pushed up the interest burden on new borrowing and debt refinancing. Cross-country analyses indicate that in most countries, the immediate vulnerabilities stemming from indebtedness in view of rising interest rates are smaller in the household sector than in the corporate sector.[25] However, it is more common for enterprises to hedge against interest rate risk using derivatives.

For many countries, high levels of government debt pose a risk to debt sustainability. Amongst other things, fiscal support measures in response to the coronavirus pandemic have contributed to the rise in government debt in recent years. Higher inflation can benefit government budgets in the short term, as tax revenue increases and the real debt burden declines. However, this is offset by negative factors stemming from the current macro-financial environment. Higher interest rates, rising government spending and potentially subdued tax revenue in the medium term owing to weaker growth prospects, due, inter alia, to a reluctance to invest, are putting pressure on government budgets. Funding costs for countries with high debt ratios could continue to rise if market participants' confidence is

[24] See Deutsche Bundesbank (2022).
[25] See Bank for International Settlements (2022).

eroded.[26] There is a risk that problematic developments in the government sector or the financial system will spill over to other sectors and countries or amplify each other.[27]

Emerging market economies were particularly strongly affected by tighter global financial conditions. Emerging market economies are more reliant on external financing. Uncertainty about their economic outlook grew in light of high inflation and volatile commodity markets. Setbacks in the recovery of the Chinese economy weighed on neighbouring Asian countries, in particular. The tightening of global financial conditions also contributed to significant capital outflows from emerging market economies in 2022. Between April 2022 and the end of 2022, cumulative capital outflows from emerging market economies were similar to those recorded in March 2020 at the onset of the coronavirus pandemic. From the beginning of 2023 until the end of the reporting period, capital flows to emerging market economies, especially those with stronger fundamentals, increased again. The FSC will continue to keep a close eye on the risks to the German financial system stemming from developments in the global setting.

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[26] See International Monetary Fund (2022a).
[27] See Deutsche Bundesbank (2022).

2.2 Risks in the German banking sector

The German banking sector proved stable in the reporting period. However, vulnerabilities continued to mount due to the deterioration in macro-financial conditions, particularly as a result of significantly higher interest rates and heightened uncertainty regarding future economic developments. For years after the global financial crisis of 2007-08, the financial environment was characterised by low interest rates, low inflation and constant economic growth. The many years of favourable economic developments as well as the fiscal support measures implemented since the outbreak of the coronavirus pandemic may have led to banks being less aware of risk and systematically underestimating their credit risk. In this context, credit institutions' loans to enterprises and loans to households for house purchase have both experienced dynamic growth over the past few years. This has raised vulnerabilities in the German banking sector.

Macroeconomic conditions deteriorated during the reporting period; the interest rate reversal, in particular, laid certain risks bare. The banking sector was already facing considerable valuation losses on its securities holdings as a result of higher interest rates. In addition, lending growth weakened in the second half of the reporting period due to lower demand. New lending to households for house purchase has been in decline since the third quarter of 2022. By contrast, there was generally no increase in risk provisioning in lending business relative to gross lending. Above and beyond the losses that have already been realised, institutions remain vulnerable to further interest rate changes and abrupt market corrections. Against this background, the FSC agrees with the ESRB's warning on vulnerabilities in the European financial system published in September 2022.[28] In view of the prevailing risks, the FSC considers it essential for banks to preserve their resilience.[29]

In the spring of 2023, market turmoil triggered by bank closures in the United States and distress at one big bank in Switzerland put additional strain on the macro-financial environment. Decisive policy responses in the United States and Switzerland kept direct contagion effects on the German financial system in check, however. The German banking system proved stable during the turbulence. The FSC will continue to routinely monitor and assess the risk situation.

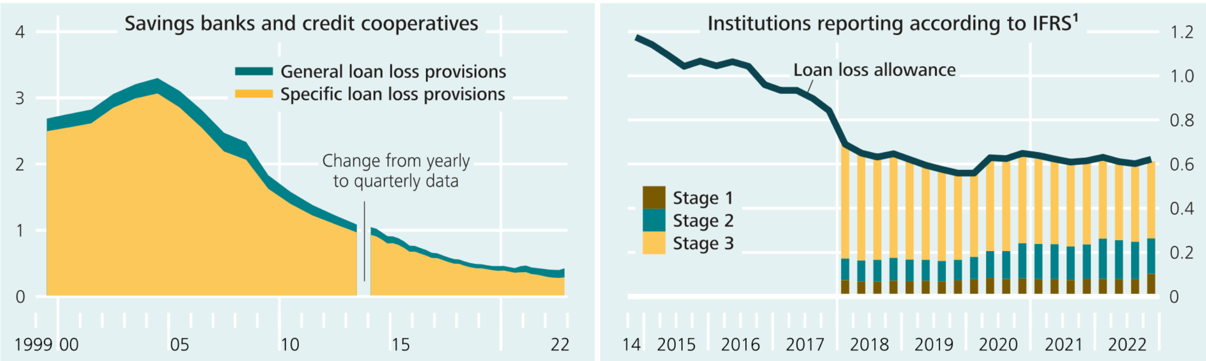
Potential underestimation of credit risk in some credit segments

German banks estimated the risk of credit default to be comparatively low during the reporting period. Banks' loan loss provisions in lending business relative to gross lending have been at a low level for several years. Although the economic outlook deteriorated during the period under review and credit risk increased accordingly, loan loss provisions remained virtually unchanged and even decreased at times (see Chart 2.2.1). Small and medium-sized banks, in particular, released part of their risk provisions during 2022, likely in order to compensate for losses from securities portfolios. At the end of the reporting period, actual credit default ratios were very low. However, these usually respond to changes in economic conditions with a time lag.

[28] See European Systemic Risk Board (2022).
[29] See Financial Stability Committee (2022a).

Components of risk provisioning in lending business* Chart 2.2.1

As a percentage of gross lending



Source: Deutsche Bundesbank. * Loan loss allowance. The underlying credit definition includes book credits, certain bonds and the nominal value of contingent liabilities. Accordingly, the components of risk provisioning contain both write-downs for book claims and allowances for contingent liabilities. **1** Comprises 14 institutions. The IFRS 9 loss allowance accounting standard, in force since 2018, defines three stages for the accounting treatment of exposures: performing (stage 1: all instruments upon origination or purchase), underperforming (stage 2: instruments with a significant increase in credit risk), and non-performing (stage 3: credit-impaired).

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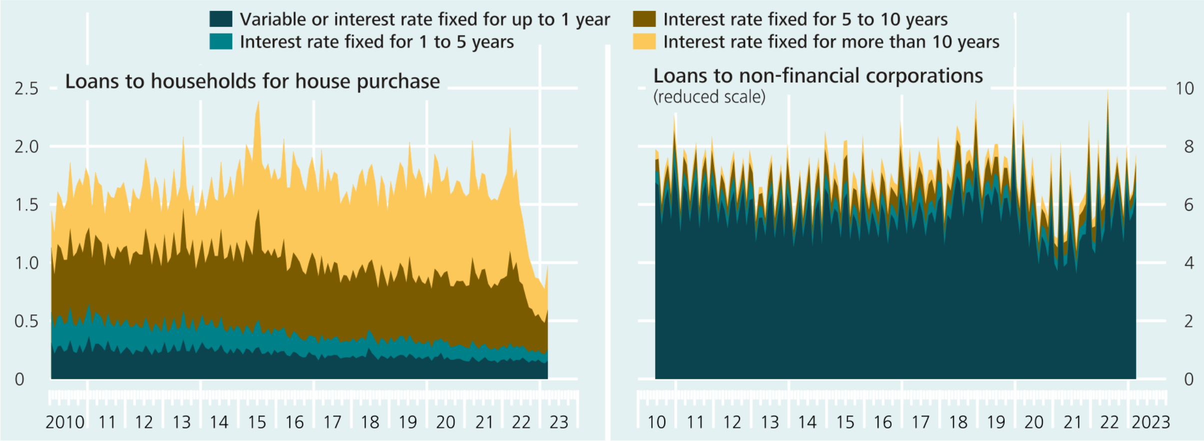
Defaults on loans to enterprises, in particular, can lead to losses for banks; these loans continued to grow dynamically in the reporting period. Weaker economic activity, higher prices for intermediate inputs and supply bottlenecks could depress the earnings of non-financial corporations over the medium term. The creditworthiness of these enterprises could suffer as a result, which would then be reflected in greater credit risk for banks. Short-term loans, which were mainly used by enterprises to avoid liquidity bottlenecks and absorb higher energy prices, initially saw strong growth. In this context, the promotional loans granted by the KfW Group to energy firms helped bolster credit demand to a large degree up until the summer of 2022. At the end of 2022, however, demand was waning. On the supply side, banks reported in surveys that they had tightened their lending standards as of the fourth quarter of 2022.[30] There were no signs of a credit crunch, though. Despite the weakening trend, lending to enterprises was at a high level overall in the reporting period (see Chart 2.2.2). Nevertheless, the bleaker economic outlook and the higher interest rate level led to a considerable decline in demand for loans to households for house purchase.

Banks' allocation risk was relatively high and may continue to grow as interest rates rise. For some years now, relatively highly indebted enterprises have been represented in banks' balances sheets to an above-average degree, as have enterprises that have comparatively little leeway in servicing their liabilities.[31] Loans to these enterprises accounted for 73% and 70% of total corporate exposures, respectively, at the end of 2021. These shares could grow significantly, especially if interest rates continue to rise.[32] Nevertheless, banks estimated the default risks associated with these loans to be mostly low. This was especially the case for large banks that use internal models to assess the creditworthiness of

[30] See Deutsche Bundesbank (2023a).
[31] These enterprises are either above or below the respective median and are in the riskier half in each case. Here, the median is calculated based on distribution per year and the corresponding classification of the economic sector to which the enterprise belongs. For more information, see Bednarek (2021).
[32] If lending rates were to rise by 200 basis points, the share of enterprises with a below-average interest coverage ratio could increase from 70% as at the end of 2021 to more than 82%. An interest rate rise of a similar magnitude was observed in 2022. See Deutsche Bundesbank (2022b).

New lending business Chart 2.2.2

As a percentage of previous month's gross lending, sample of approx. 200 MFIs



Source: Deutsche Bundesbank.

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enterprises.[33] It is possible that the time series used in these models do not take full account of the bleaker economic outlook and greater interest burden; they could thus underestimate the probability of default of the corporate exposures in question.

Potential losses from lending to energy-intensive sectors appeared manageable for German banks. The FSC discussed the extent to which, in an adverse scenario in which the energy crisis worsens, losses within the banking system caused by credit defaults amongst enterprises in energy-intensive sectors could be incurred. Direct credit claims on these enterprises amounted to only 6.5% of the total lending volume.[34] In this scenario, potential amplification and contagion effects along the value-added chain were taken into account, as the German economy as a whole is highly dependent on energy. Corresponding analyses put the losses for all corporate exposures in the banking system at 1.5% of risk-weighted assets in the banking system. However, loans to enterprises comprised only around one-fifth of credit institutions' risk-weighted assets. These losses would therefore be manageable for the banking system, not least given that the banking system had tier 1 capital reserves amounting to 6.9% of risk-weighted assets.[35] Furthermore, government measures to limit high energy prices, such as the introduction of the energy price brakes, are likely to temporarily reduce the risk of default to a considerable degree.[36]

German banks' vulnerabilities stemming from real estate loans remain high. In recent years, small and medium-sized banks, in particular, have greatly expanded their lending to households for house purchase. Realisation of default risk has not increased thus far, in part because the long terms of housing loans, with correspondingly long interest rate fixation

[33] These credit assessments are used to determine risk weights that are then included in the calculation of capital requirements. See Deutsche Bundesbank (2022b).
[34] This figure refers to the second quarter of 2022.
[35] Capital reserves comprise common equity tier 1 (CET1) capital from the (usable) combined buffer requirements and excess capital.
[36] Prices brakes on gas, electricity and district heating for households and small and medium-sized enterprises have been in effect since the start of 2023. See https://www.bmwk.de/Redaktion/DE/Artikel/Energie/strom-gaspreis-bremse.html

periods, shield borrowers from interest rate rises. But these long terms mean that the banks are exposed to high interest rate risk. In addition, rising inflation in 2022 increased the risk of credit default, as inflation depressed real incomes. The rising interest rates also increased household debt service ratios, impacting new borrowers, in particular. Thus far, however, aggregate household debt in relation to disposable income has been fairly moderate by longer-term standards.[37] Furthermore, growth in lending to households for house purchase slackened during the reporting period. Demand for these loans has declined significantly since mid-2022 and the prices of residential real estate have generally fallen. On the supply side, banks reported in the Eurosystem's Bank Lending Survey (BLS) that they had considerably tightened their lending standards in recent months.[38] In the commercial real estate market, too, both prices and the volume of credit transactions declined further in a continuation of the downward trend that began in the second quarter of 2022. Credit defaults were low for both commercial and residential real estate loans.

Vulnerability of the banking sector to rising interest rates

The financial market turmoil triggered in the United States in the spring of 2023 highlighted the relevance of interest rate risk, which is also significant for the German banking sector; however, German banks proved resilient. One major reason for the bank closures in the United States was realised losses resulting from the sale of fixed-income securities not hedged by derivatives. These securities had decreased in value due to the significant rise in interest rates, and were sold when highly concentrated deposits were withdrawn. Contagion effects also led to a loss of confidence in the resilience of individual banks in other countries. However, German banks have so far proved resilient. The FSC will take developments in the United States as an opportunity to play a part in the work reviewing the regulatory standards over the coming quarters. [39]

The resilience of German banks was undermined by losses in their securities portfolios. The abrupt rise in interest rates led to considerable losses in value, inter alia in banks' bond portfolios. Although losses were mitigated in many cases by releasing hidden reserves, these reserves had been largely exhausted by the end of the reporting period, and high hidden charges were accumulated by numerous banks. Such charges would reduce banks' capital if securities were to be sold before maturity due to large, unforeseen liquidity needs. By contrast, value losses had a direct dampening effect on capital at banks reporting their securities at market value. Large banks and savings banks, in particular, tend to hedge more against rising interest rates, thus mitigating losses in their securities portfolios. In the fourth quarter of 2022, losses in value became more moderate; savings banks and credit cooperatives started reversing write-downs of securities.

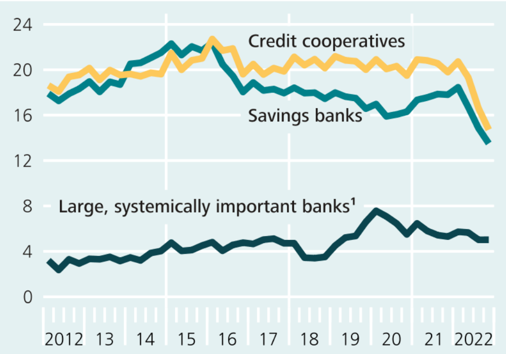
In view of the high level of maturity transformation, interest rate risk in the German banking system remains pronounced. A high maturity transformation level means that the capital commitment period for assets significantly exceeds the capital commitment period for liabilities. Institutions with traditional lending business, in particular,

[37] See Deutsche Bundesbank (2022b).
[38] See https://www.bundesbank.de/en/tasks/monetary-policy/economic-analyses/-/bank-lending-survey-for-germany-618070
[39] In response to developments in the United States, the Basel Committee is discussing potential adjustments to banking supervision and the calibration of the Basel framework, amongst other things.

are affected by the risks of a high level of maturity transformation. At the end of the reporting period, following the long period of low interest rates, there was a large share of low-interest loans with relatively long interest rate fixation periods on the assets side of the balance sheet. In conjunction with modest issuance of new higher-interest loans and a flat or inverted yield curve, asset-side interest income could rise more slowly than liability-side refinancing costs following interest rate increases. This means that banks may profit from the interest rate hike to a lesser extent than expected. In the medium term, however, the higher interest rate level is likely to increase banks' interest income.

Present value loss following an interest rate shock* Chart 2.2.3

As a percentage of own funds, weighted average



Source: Deutsche Bundesbank. * Parallel shift in the yield curve of 200 basis points. **1** Comprises the 16 other systemically important institutions (O-SIIs).

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The level of interest rate risk calculated for regulatory purposes decreased at the end of the reporting period, but it may be underestimated. The Basel interest rate coefficient is a regulatory yardstick for interest rate risk emanating from maturity transformation. [40] According to this supervisory indicator, interest rate risk decreased up to the fourth quarter of 2022 (see Chart 2.2.3). This may be due in part to the fact that interest rate shocks had already occurred that reduced the present values of assets and liabilities feeding into the calculation of the indicator. However, institutions may also be underestimating the extent of their maturity transformation. For instance, they often estimate maturities for customer deposits that are based on past experience and are longer than contractually stipulated. That said, in the event of an abrupt rise in interest rates, customers may shift a greater portion of their deposits than expected to higher-yielding alternatives, and assumptions regarding the holding period may prove to be too optimistic. Despite the decline in the Basel interest rate coefficient, maturity transformation remains at a high level in large parts of the banking system.

A survey by the Bundesbank and the Federal Financial Supervisory Authority (BaFin) confirmed the challenges posed by the interest rate reversal and the tense economic situation for the profitability of small and medium-sized banks in Germany. In the survey, small and medium-sized banks were asked about how their profitability would develop between 2022 and 2026 in several predefined interest rate scenarios.[41] In addition, the institutions reported their own planning and forecasting data. According to the survey, profitability remained low. While subdued economic growth exerted additional pressure, this should be eased in the medium term by the interest rate reversal. At the time of the survey, the majority of the institutions had not yet factored in the reversal in interest rates, which means that contributions from net interest income over the medium term

[40] See Deutsche Bundesbank (2012). To calculate the Basel interest rate coefficient, banks establish the present value of their assets and liabilities and examine how it would change if the interest rate level rose abruptly by 200 basis points. This loss is expressed in relation to own funds.

[41] See Deutsche Bundesbank (2022a). The survey conducted by BaFin and the Bundesbank and the stress test for less significant banks (LSIs) in 2022 comprised around 1,300 small and medium-sized credit institutions that are directly overseen by German supervisors. Owing to the coronavirus pandemic, the survey had been postponed by one year. Information on the importance of climate and IT risks was also requested. The results of the stress test were incorporated into the supervisory activities of BaFin and the Bundesbank. At the same time, a similar study was conducted for building and loan associations.

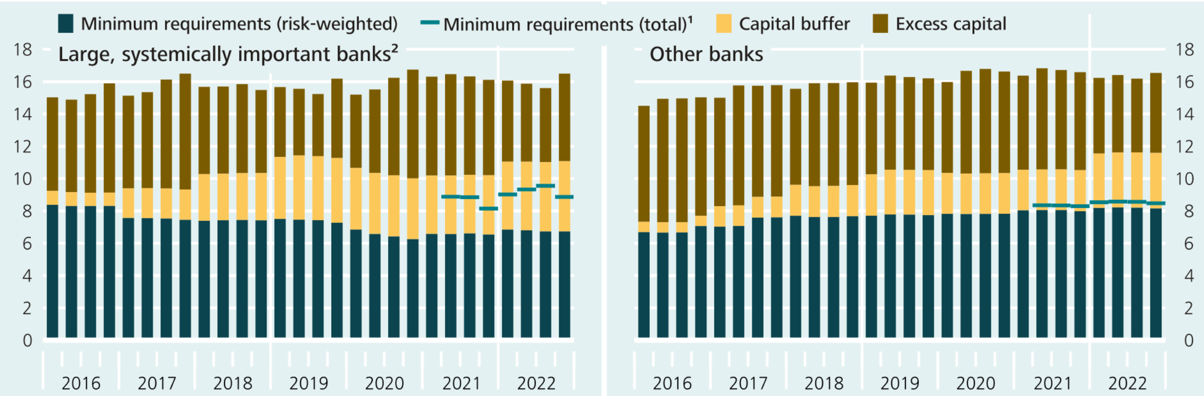
are likely to be on the positive side as interest rates increase. At the same time, according to the banks' forecasts, their risk-weighted assets will rise more strongly than their total assets. This points to an additional risk that banks must consider in the context of their risk management. In addition to the survey, a stress test was conducted in which the institutions simulated their profitability and capital levels for three years. The results indicate that the past and current crisis situations pose a challenge for banks, but are manageable. This is partly attributable to their predominantly good level of capitalisation. In the stress scenario, the CET1 capital ratio would fall by 3.2 percentage points to 14.5%, meaning that the German banking system would still be adequately capitalised. In the qualitative section of the survey, most institutions deemed climate risk to be of low to moderate importance to their business models. Great importance was attributed to digitalisation. Accordingly, the majority of the institutions stated that they were planning on increasing their spending to protect against IT risks.

CET1 capital ratios, i.e. CET1 capital relative to risk-weighted assets, rose year on year in the fourth quarter of 2022. As a result, risk-weighted assets for credit risk and market risk decreased. For the first time in a year, banks' capital reserves also increased (see Chart 2.2.4).[42] This was partly attributable to the fact that the large, systemically important banks were shrinking their balance sheets. Capital requirements imposed by the leverage ratio therefore decreased. In addition, annual profits that had already been taken into account increased the capital base. At small and medium-sized banks, too, following intra-year losses caused by the interest rate reversal, CET1 capital rose again thanks to accounting-related management measures.[43]

German banks' CET1 capital

Chart 2.2.4

As a percentage of risk-weighted assets



Source: Deutsche Bundesbank. **1** Banks must fulfil either the risk-weighted CET1 requirement (4.5% + P2R + AT1/T2 gap) or the unweighted CET1 requirement (leverage ratio, applicable from Q2 2021), whichever is greater. Where the unweighted requirement is binding, the usability of the combined buffer requirements is limited. **2** Comprises the 16 other systemically important institutions (O-SIIs).

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42 The ratio of capital reserves is calculated as the sum of surplus capital and the usable capital buffers in relation to risk-weighted assets.

43 Primarily, these are the realised release of hidden reserves or realised accumulation of hidden charges, the release of provisions for impending losses from pending transactions and reclassifications from current assets to fixed assets.

Monitoring of the package of macroprudential measures

During the period under review, the FSC examined the impact of BaFin's macroprudential package. In January 2022, BaFin announced a macroprudential package of measures to address systemic risks in the financial system and strengthen the resilience of the banking system.[44] On 12 January 2022, the FSC welcomed an increase in the countercyclical capital buffer (CCyB) to 0.75% of domestic risk exposures and the introduction of a sectoral systemic risk buffer (sSyRB) of 2% for loans secured by residential real estate located in Germany.[45] The banks had until 1 February 2023 to satisfy the buffer requirements in full. The FSC monitored the extent to which the objective of the package of measures was already achieved during the build-up phase and whether side effects on lending and lending conditions were observed.

The package of macroprudential measures significantly increases the resilience of the banking system, preserving existing excess capital and providing an incentive to build up additional excess capital in the medium term. Starting from 1 February 2023, banks have had to fully meet the buffer requirements, which preserve existing excess capital in the German banking system.[46] Based on figures from the fourth quarter of 2022, this would amount to €23.5 billion, or 5% of CET1 capital. BaFin can release the preserved capital during periods of stress, thus counteracting any excessive reduction in lending. Most banks have been able to meet their buffer requirements using existing excess capital. Around half of the few banks on which the package of measures would have imposed additional capital requirements at the time of its announcement were able to meet those requirements in the course of 2022. These banks mainly built up new capital.

The FSC found no evidence that the banking system had issued fewer loans as a result of the package of measures. Since the announcement of the package of measures, banks have continued to significantly expand their lending to non-financial corporations. In the first quarter of 2023, this was 16% higher than in the previous year. New loans to households for house purchase declined by 54% in annual terms over the same period.[47] Banks with higher and lower capitalisation both reduced their lending to a similar extent, countering the idea that balance sheet restrictions as a result of the package of measures were the main reason for the decline. Instead, the decline is likely to be largely due to the changed interest rate environment, slackening momentum in the housing market and lower demand for credit.[48]

The FSC found no signs that buffer requirements had increased interest rates on loans to households for house purchase or loans to enterprises. Lending rates developed in line with the general level of interest rates. Specifically, the spread between the interest rate on loans to households for house purchase and loans to enterprises and the risk-

[44] See Financial Stability Committee (2022b).
[45] See Financial Stability Committee (2022c). In addition, supervisors called on lenders to adhere to conservative lending standards when granting housing loans.
[46] Excess capital is defined as CET1 capital above regulatory requirements.
[47] New business excluding extensions.
[48] Data from the Eurosystem's BLS suggest that demand for loans to households for house purchase has fallen significantly in Germany since the second half of 2022.

free interest rate has not changed significantly since the announcement of the package of measures.

Owing to persistently high risks, the FSC still considers the package of macroprudential measures to be appropriate. During the reporting period, the FSC regularly discussed how the resilience of the banking sector could change in the future. The latest analyses predicted a slight improvement in the macro-financial environment while market conditions remain tight.[49] The high rise in interest rates has already led to valuation losses at credit institutions; profitability was in some cases better and in others worse, depending on the balance sheet structure and business focus of the institutions in question. Analyses showed that it is important to maintain the resilience of the German banking sector in order to mitigate the adverse effects of potential losses from lending and any future trend decline in the interest margin on capitalisation. Therefore, the FSC noted that the package of macroprudential measures announced by BaFin in January 2022 remained appropriate. Both the CCyB and the sSyRB against specific risks in the real estate market should remain unchanged at their current levels. The FSC will continue to closely monitor the risk situation and banking sector resilience while discussing possible adjustments to the macroprudential measures.

Systemic effects from the resolution of institutions

The FSC analysed the stabilising effects of the resolution regime for banks; a bail-in of creditors as part of a resolution would lead to smaller losses in the financial system than an insolvency. Under the European regulatory resolution regime, losses must be borne primarily by shareholders and creditors – public funds are generally not to be used to support banks in distress. Analyses for Germany showed that a bail-in would serve this intended purpose. Even in adverse scenarios with relatively high losses, there were no contagion effects that would lead to severe disruptions in the financial system. This was particularly true of private big banks. Contagion effects both within the banking system and amongst insurers and investment funds were examined. The analyses are based on work that the FSC had already undertaken in 2019.[50]

Owing to internal division of labour, the central institutions of the Savings Bank Financial Group and the Association of Cooperatives are strongly interconnected with primary institutions, amongst other things through the mutual holding of bail-inable liabilities. This can result in contagion effects when a central institution is wound up, depending on the intensity of the shock. Each banking association has additional protection in the form of its own institutional protection scheme (IPS). This is intended to mitigate risks arising from one or more institutions in the association running into difficulties at an early stage, i.e. before the application of resolution measures, and thus avert the need for a bail-in. Nevertheless, credible resolution strategies are also important for IPS members.

[49] See Deutsche Bundesbank (2023b).
[50] See Financial Stability Committee (2020).

Annual O-SII classification and review of buffer size

The FSC took note of the list of other systemically important institutions (O-SIIs). O-SII classification is reviewed annually by BaFin and the Bundesbank. The list comprises institutions that are systemically important for the German financial system owing to their size and other characteristics. These institutions are subject to additional supervisory requirements. In addition, they must have a capital buffer (O-SII buffer), the size of which BaFin determines depending on the institution's systemic importance. This is based on a methodology developed jointly by BaFin and the Bundesbank in line with the guidelines of the European Banking Authority (EBA) on the identification of O-SIIs.[51] In the reporting period, 16 institutions were classified as O-SIIs, two more than in the previous year.[52] In the case of the two additional institutions, their parent groups had transferred significant parts of their EU business to Germany in the wake of Brexit. At the end of the reporting period, these "Brexit banks" accounted for 18% of the aggregate total assets of all O-SIIs.[53]

The calibration of O-SII buffers will be reviewed in 2023. Owing to Brexit banks relocating business to Germany, the measured relative systemic importance of O-SIIs with a longer history in the German banking market is declining. As a result, their capital buffer requirements could shrink without any change in their business activities. In 2023, BaFin and the Bundesbank are scheduled to review the O-SII methodology and assess whether the buffer is appropriately calibrated.

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[51] See European Banking Authority (2020).
[52] See Federal Financial Supervisory Authority (2022).
[53] While no Brexit bank had yet been classified as an O-SII at the end of 2019, the share of Brexit banks designated as systemically important pursuant to the O-SII scoring system increased from 8% in the fourth quarter of 2020 to 20% in the fourth quarter of 2022.

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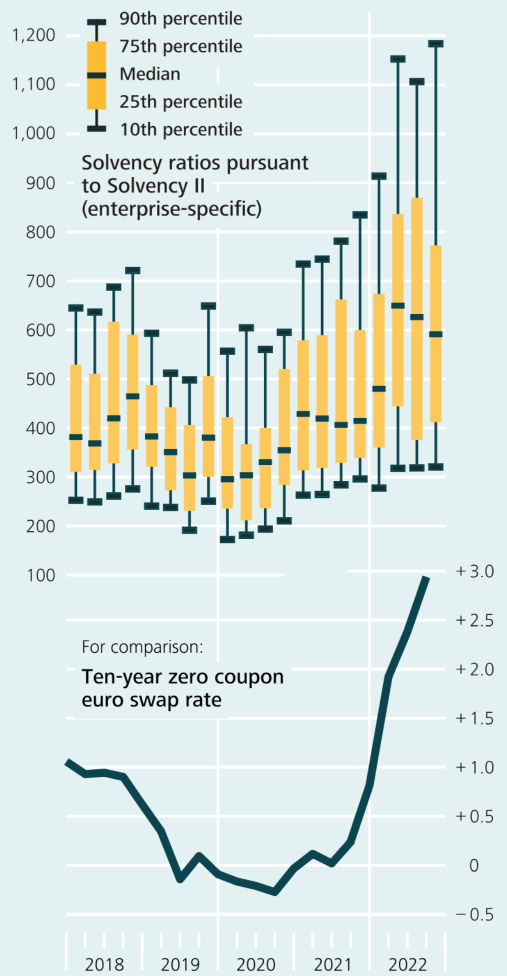
2.3 Risks in the German insurance sector

Rising interest rates, high inflation and uncertainty about asset prices shaped the risk situation in the German insurance sector in the reporting period. This shifted the risk focus of insurers and pension funds to a degree. For example, it has become easier for life insurers to generate the guaranteed returns promised to their policyholders. At the same time, a persistently strong rise in interest rates could expose life insurers to liquidity risk.

Solvency ratios of German life insurers according to Solvency II* — Chart 2.3.1

%



Sources: BaFin and Deutsche Bundesbank. * Solvency ratios of the 63 life insurance companies for which quarterly reports are available throughout.

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Life insurers have benefited from rising risk-free interest rates. This is mirrored in life insurers' solvency ratios, the median of which rose from a little more than 400% to nearly 600% in 2022 (see Chart 2.3.1).[54] This is the strongest increase since the introduction of Solvency II in 2016.[55]

The increase in solvency ratios was limited by higher risk premia in capital markets. The insurance sector has become more vulnerable to an increase in risk premia on securities in recent years, as the share of corporate bonds with below average credit quality in insurers' bond portfolios has risen. This is likely to have been due to the search for yield in an environment of low interest rates lasting many years. In addition, rating downgrades have contributed to the lower credit quality in insurers' asset holdings. Recent years have seen life insurers continue to match the maturities of their assets and liabilities as a way of reducing their exposure to interest rate risk. In the reporting period, this also limited the increase in solvency ratios.[56]

A continued sharp rise in interest rates could entail liquidity risk for life insurers.[57] At the end of the reporting period, the yield on Bunds with a residual maturity of ten years was up at around 2.5%, an interest rate level at which a significant increase in policy lapses could not be ruled out. From a policyholder perspective, however, there are key factors that militate against lapsing policies, such as tax effects for publicly subsidised policies. Lapse rates did not change noticeably in the reporting period. The FSC welcomes the fact that BaFin has

[54] Owing to the longer maturities, life insurers' liabilities are more sensitive to changes in interest rates than their assets. For this reason, amongst others, solvency ratios increase as interest rates rise.
[55] See Deutsche Bundesbank (2022).
[56] See Deutsche Bundesbank (2022).
[57] See Deutsche Bundesbank (2022).

introduced a liquidity monitoring, thereby enabling the liquidity risks of insurers and pension funds to be monitored in a timely manner.

Interest rate increases or exchange rate fluctuations can also lead to liquidity needs arising from derivatives transactions. Insurers and pension funds use derivatives transactions to hedge against interest rate risk and exchange rate risk. In the event that macro-financial conditions change, this may result in margin calls. In the first half of 2022, such margin calls led to liquidity outflows. Unlike in other European countries, where insurers and pension funds use derivatives transactions much more extensively, there were no self-reinforcing processes in Germany, however.[58]

The geopolitical risks impacting on the financial system in the period under review also affected the insurance sector. The German insurance sector's business activities in Russia, Ukraine and Belarus were low, as were its investments in those countries. However, insurers could be indirectly vulnerable owing to their exposure to energy-intensive sectors, which accounted for just over 10% of insurers' exposure to non-financial corporations.[59]

The high inflation rates could potentially impact adversely on property and casualty insurers as well as reinsurers. Owing to higher prices, the obligations arising from claims settlements are likely to increase in these sectors. This could reduce solvency ratios.[60]

The FSC discussed the results of the climate stress test for institutions for occupational retirement provision (IORPs) conducted by the European Insurance and Occupational Pensions Authority (EIOPA).[61] This stress test assessed the resilience of IORPs to climate change-related risks. An adverse scenario was considered in which the price of carbon emissions initially barely rises but, from 2030, increases very sharply in order to comply with the 2°C target under the Paris Agreement. In the stress scenario, this hypothetical shock was brought forward to the end of 2021. The participating German IORPs would sustain losses as the market value of their assets would fall by 14%.[62] The market value of the liabilities would decline similarly to the value of the assets because, in the stress scenario, a simultaneous increase in the risk-free interest rate was assumed. In the absence of such an increase in the risk-free rate, a funding gap would have resulted under the remaining assumptions of the stress test. If, owing to a funding gap, German IORPs were unable to fully meet their commitments, there are arrangements under which employers are liable for occupational pensions in full.

The results of the stress test show that climate change can pose significant risks to IORPs. If these risks impacted in the same manner on other sectors, this could increase the stress in the financial system. The FSC therefore supports that, in future, IORPs should address the risks of climate change to an even greater extent.

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58 See Deutsche Bundesbank (2022).
59 See Deutsche Bundesbank (2022).
60 The European Insurance and Occupational Pensions Authority (EIOPA) estimates that the increase in inflation could reduce the solvency ratio by 10 percentage points in a calculation for an exemplary insurance group. See European Insurance and Occupational Pensions Authority (2022b).
61 See Federal Financial Supervisory Authority (2022), European Insurance and Occupational Pensions Authority (2022a).
62 This result is based on a common balance sheet for European IORPs developed by EIOPA which is oriented to market values and not to the German Commercial Code.

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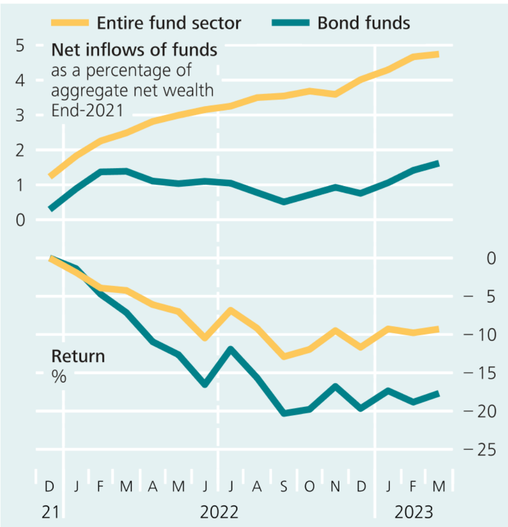
2.4 Risks in the German investment fund sector

Cumulated net inflows and returns in the German investment fund sector

Chart 2.4.1



Source: Deutsche Bundesbank.

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Net outflows in sub-segments of the German investment fund sector were only temporary, despite losses in market value owing to the sharp rise in interest rates. In the low interest rate environment of recent years, German investment funds have tried to increase their return by raising the share of long-dated bonds in their portfolios.[63] This has made them more vulnerable to interest rate changes. As long-dated bonds lost value as a result of the rise in interest rates last year, the German investment fund sector sustained mark-to-market losses. Although the cumulated return fell to -9% between the end of 2021 and the end of March 2023, inflows into German investment funds exceeded outflows in the past year (see Chart 2.4.1).[64] Net outflows were also only temporary in the bond funds sub-segment, which has been particularly affected by the rise in interest rates, although the cumulated return in this sub-segment declined to -18%. In periods of stress, net outflows can force many investment funds to simultaneously sell off securities in order to be able to service the outflows. This can amplify price declines.[65] However, since the German investment fund sector had to sell off securities only to a small extent last year in order to service withdrawals, such amplification effects were limited.

In 2022, the German investment fund sector scaled back the portfolio share of long-dated bonds, partly in order to lower interest rate risk. The share of long-dated bonds with residual maturities of more than two years declined last year. One reason was that rising interest rates eroded the value of long-dated bonds. Another was that, from the middle of last year onwards, German investment funds increasingly sold off long-dated bonds and instead purchased bonds with a residual maturity of up to two years.[66] Investment funds thus reduced their remaining interest rate risk. A further rise in interest rates is therefore likely to cause smaller mark-to-market losses.

The investment fund sector would be affected not only by a further sharp rise in interest rates, but also by a severe economic downturn. In case of a severe economic downturn, there is a risk of extensive rating downgrades for securities held by German investment funds. These downgrades can also lead to mark-to-market losses, trigger net outflows and amplify falling prices if funds sell off the affected securities. Bond funds, for instance, might be obligated through their investment guidelines to sell bonds that have been downgraded from the investment grade to the high-yield segment.[67] The investment fund sector would therefore be severely affected if an economic downturn and a further sharp rise

[63] At the end of 2021, the average weighted portfolio duration in the German investment fund sector was just under nine years.
[64] This is a monthly comparison. Temporary periods of stress even within a calendar month could lead to turmoil.
[65] See Deutsche Bundesbank (2019), Fricke and Wilke (2020).
[66] See Deutsche Bundesbank (2022).
[67] For a discussion of such a scenario, see Deutsche Bundesbank (2020).

in interest rates were to occur simultaneously. The expected amplification effects in such a case are stronger than those that would accompany an isolated rise in interest rates. Given the current high degree of uncertainty regarding developments in inflation and the real economy, the materialisation of such a scenario cannot be ruled out. The FSC will continue to monitor the risks in the German investment fund sector closely.

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2.5 Risks emanating from the real estate market

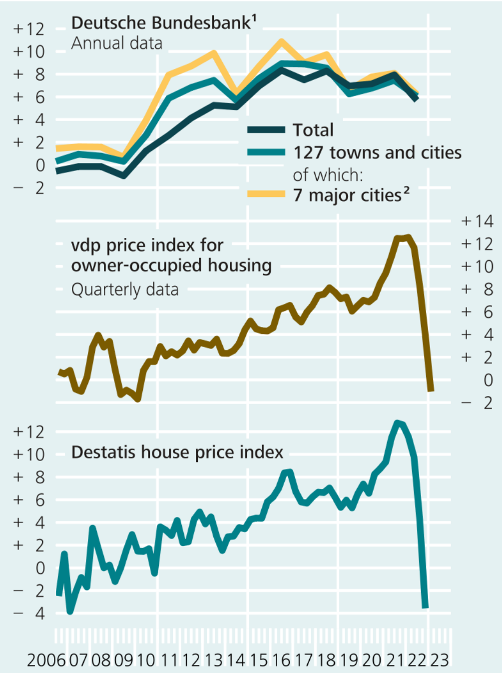
The year 2022 marked a trend reversal in the German residential and commercial real estate market. Growth in the stock of housing loans declined significantly over the course of last year. In line with this, residential real estate prices no longer rose as strongly as in previous years. The stock of loans in the commercial real estate market continued to grow, but likewise significantly more slowly than in preceding years. Retail property prices declined. Prices for office buildings were also down on the year at year-end. This development was driven by the general geopolitical and macroeconomic situation, which led to higher interest rates and a rise in inflation.

The risks emanating from the German real estate market stabilised at an elevated level. On the one hand, the moderate average annual price increases meant that no new vulnerabilities emerged in 2022. On the other hand, prices have fallen since the end of 2022, especially for existing properties, leading to a decline in the value of real estate as loan collateral. This means that credit institutions would sustain higher losses if a loan were to default. The cost of living increased last year due to the high rates of inflation. This will make it more difficult for low-income households, in particular, to service their loans. Moreover, households will have to pay more interest when the interest rate fixation period of their residential real estate loan expires and they are forced to refinance at a higher interest rate. However, despite the higher cost of living and interest rates, defaults on residential real estate loans did not increase sharply in 2022. Given the high uncertainty about how interest rates, economic activity and inflation will develop, more residential real estate loans could default in future. Banks accordingly tightened their credit standards considerably in 2022 to counter an increase in risks in new business.

Residential real estate prices in Germany

Chart 2.5.1

Year-on-year percentage change



1 Transaction weighted. Calculations based on price data provided by bulwiengesa AG. 2 Berlin, Cologne, Düsseldorf, Frankfurt am Main, Hamburg, Munich and Stuttgart.

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Risks stemming from the financing of residential real estate

Growth in residential real estate prices has weakened significantly since the beginning of 2022. While residential real estate prices rose sharply in the first half of 2022, they declined in the second half of the year (see Chart 2.5.1). Against this backdrop, on an annual average, residential real estate in Germany remained roughly just as overvalued as in 2021. Measured in terms of prices, residential real estate was overvalued by between 25% and 40% in towns and cities.[68] This means that the vulnerabilities that have built up in recent years as a result of the sharp rise in residential real estate prices and loans remain.

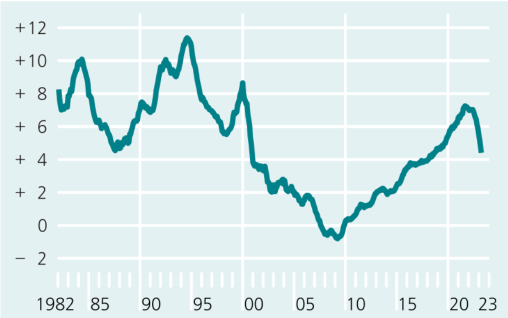
[68] See Deutsche Bundesbank (2023).

Future developments in residential real estate prices are uncertain. On the one hand, further price declines are possible. The reasons behind this can primarily be found on the demand side. The higher financing costs as well as the increased cost of living due to high inflation are making housing less affordable for households, which is dampening demand for residential properties. In line with this, surveys conducted by the European Commission show that there has been a decline in buyer interest.[69] On the other hand, a further reduction in the supply of housing due to high construction prices could have a stabilising effect on residential real estate prices.[70]

German banks' lending to domestic households for house purchase*

Chart 2.5.2

Year-on-year percentage change, seasonally adjusted, month-end data



Source: Deutsche Bundesbank. * Including non-profit institutions serving households. Up until 1991, data only for West Germany.

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The growth rate of residential real estate loans fell significantly over the course of the year. Although the stock of residential real estate loans grew significantly more slowly in the period under review than in previous years, it continued to increase considerably in a comparison over the last 20 years (see Chart 2.5.2). The growth rate is expected to decline further in the coming months since new lending decreased very sharply in the second half of 2022. This was due to falling demand for residential real estate. Demand for residential real estate loans rose significantly as a result of anticipatory effects, particularly in the first quarter of 2022. At that time, many households were actively looking to take out a loan in anticipation of rising interest rates so as to still benefit from lower rates. However, demand for loans weakened significantly from the second quarter of 2022 onwards. One key reason for this was the considerable rise in lending rates in line with the general level of interest rates. Combined with the increased cost of living, these higher lending rates significantly reduced the affordability of residential real estate for households in Germany.

The worsened macro-financial environment did not lead to increased loan defaults in 2022. The labour market developed robustly despite the slowdown in economic activity. This contributed to households that had taken out residential real estate loans still being able to repay their loans and pay interest due. However, loans that were previously concluded at lower interest rates will have to be refinanced at higher interest rates when the interest rate fixation period ends. An associated rise in the interest burden could render households' debt unsustainable and lead to loan defaults. This interest rate risk currently exists only for more recent loan vintages concluded from 2019 onwards at relatively low interest rates. Since these loans have long interest rate fixation periods, they account for just 22% of all loans that have to be refinanced in 2023.[71] By contrast, interest rate risk for older loan vintages – a category which most refinancing currently falls into – is low as the loans have already been repaid in part and were issued at higher interest rates. Furthermore, homeowners in Germany are

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[69] See https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/business-and-consumer-surveys/latest-business-and-consumer-surveys_en

[70] See Deutsche Bundesbank (2022a). For 2023 and 2024, the Bundesbank expects nominal residential real estate price growth of 1.2% and 3.2%, respectively.

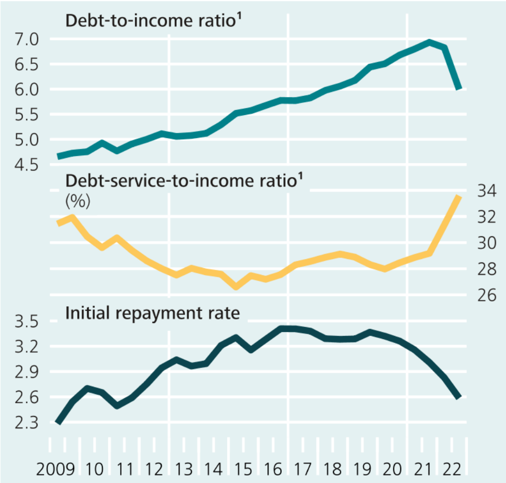
[71] See Deutsche Bundesbank (2022b).

typically households with high incomes. Such households are better able to cushion the impact of inflation on their cost of living and tend to be able to access liquid assets more easily than low-income households to service their residential real estate loans. This is one reason why credit risk in banks' residential real estate loan portfolios has not risen to date. However, households' recourse to their liquid assets, combined with real income losses, is likely to limit their ability to cushion future shocks. This increases the risk that existing residential real estate loans could default in future.

Lending standards for new loans for house purchase in Germany

Chart 2.5.3

Volume-weighted mean values



Source: Bundesbank calculations based on data provided by Interhyp Group. 1 Weighted using data from the Socio-Economic Panel (SOEP).

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Although banks tightened their credit standards in 2022, new vulnerabilities could emerge as a result of the rise in interest rates in the residential real estate market. According to the Eurosystem's 2022 Bank Lending Survey, the banks questioned reported that they had tightened their credit standards on balance.[72] The net share of banks that tightened their requirements was the highest seen since 2003. Banks cited the increased credit risk in new business associated with the higher cost of living and the outlook for the economy and the real estate market as the main reason for tightening credit standards. Data from Interhyp AG likewise suggest that banks tightened their lending standards. For instance, the average loan-to-value ratio (LTV) and the debt-to-income ratio (DTI) of new borrowers declined in the second half of 2022 (see Chart 2.5.3). However, given the rise in interest rates, it was also more attractive for households to contribute more equity to the financing of their home, as this reduces the loan amount required and thus also the interest burden. In contrast to the decline in the LTV, the debt-service-to-income ratio (DSTI) in new business rose significantly, since debt servicing increased on account of the sharp rise in interest rates.[73] As a result, the risk of loan defaults on newly issued residential real estate loans is likely to have grown. This risk probably also went up because the initial repayment rates on new loans fell considerably in 2022. For households, lower repayment rates ensure that the affordability of residential real estate is not eroded even further. For credit institutions, meanwhile, lower repayment rates mean that default risks increase because loans are initially repaid at a slower rate and the losses in the event of a loan default would be higher. In the medium term, new lending could therefore lead to new vulnerabilities emerging in the German residential real estate market.

The package of macroprudential measures is increasing the resilience of the financial system to the vulnerabilities in the German residential real estate market.

[72] The net balance is defined as the difference between the sum of the percentages for "tightened considerably" and "tightened somewhat" and the sum of the percentages for "eased somewhat" and "eased considerably".

[73] The collection of housing loan data (WIFSta) will mean that more detailed information on these ratios will be available as of mid-2023.

The FSC discussed the adequacy of the package of macroprudential measures. It noted that, despite the trend reversal in the residential real estate market, the sectoral systemic risk buffer applied to loans secured by residential real estate continues to be appropriate as vulnerabilities still remain high.[74] Moreover, there was no evidence that the package of measures has led to banks reducing their loan supply.[75] Although new residential real estate lending fell significantly during the reporting period, there were no signs that this decline was driven by the package of measures. Instead, the decline is probably attributable mainly to the changed macro-financial environment, which weakened dynamics in the residential real estate market and reduced demand for loans.[76] Furthermore, it is essential to expand the macroprudential toolkit to include income-based instruments in order to be able to address the vulnerabilities in the residential real estate market in a targeted way and at an early stage, should the need arise.

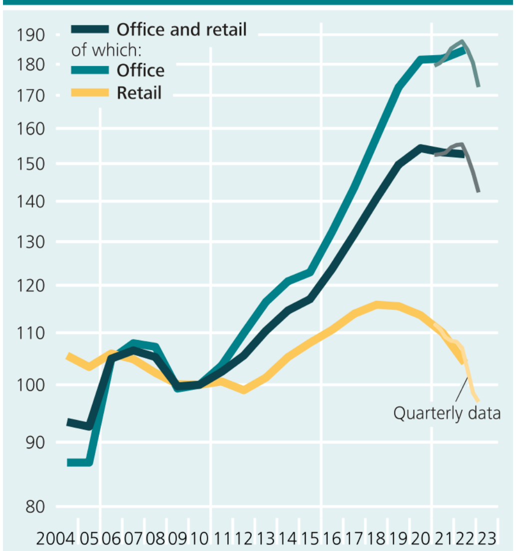
Risks stemming from the financing of commercial real estate

Unlike the residential real estate market, various types of financial institutions are active when it comes to financing commercial real estate. Besides German banks, these include investment funds, insurers and pension funds. Insurers are either directly involved as lenders or investors in the commercial real estate market or participate indirectly through investment funds. However, banks remain the biggest source of financing for commercial real estate. They are primarily active in the domestic commercial real estate market, with just under 80% of commercial real estate loans issued by German banks being to domestic borrowers.[77]

Commercial real estate prices in Germany by type of property

Chart 2.5.4

2010 = 100, log scale



Source: vdpResearch GmbH.

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The market for retail and office real estate was in a downturn in the reporting period. Prices and transaction volumes declined significantly from the second quarter of 2022, mainly owing to the abrupt rise in interest rates, weak economic activity and high inflation. In the first quarter of 2023, prices for office and retail real estate were lower than in the three preceding years (see Chart 2.5.4). Prices for office real estate in particular had increased strongly in recent years. The drop in prices meant there was a partial normalisation in commercial real estate valuation levels. This is likely to bring down risks in the commercial real estate market. That said, when prices fall sharply it can entail losses for real estate developers and investors as well as losses downstream among their lenders in the financial sector. In addition, sharply falling prices can make it more difficult to secure follow-up financing. Consequently, the downturn in the

[74] In addition, BaFin announced an increase in the countercyclical capital buffer to 0.75% of risk-weighted assets.
[75] See Financial Stability Committee (2022).
[76] Data from the Eurosystem's Bank Lending Survey suggest that demand for residential real estate loans fell significantly in Germany in the second half of 2022.
[77] The credit data contain information on the borrower's country of residence, but not the location of the property.

commercial real estate market has the potential to amplify an economic downturn. Losses experienced by credit institutions last year were small in scale.

Commercial real estate prices are likely to fall further. The higher financing costs, the unfavourable economic outlook and the fact that alternative financial investments have regained appeal now that interest rates have gone up again point to the market heading in that direction. This is likely to dampen demand for commercial real estate. In addition, fire sales could lead to a mounting commercial real estate supply. Fire sales can occur, for example, if project developers fail to obtain follow-up financing. Combined with lower demand, this could further depress commercial real estate prices. All of this could result in losses for borrowers and investors in the domestic commercial real estate market, as well as for the financial institutions that finance them in Germany and abroad.[78]

The number of non-performing commercial real estate loans fell slightly in 2022. Over the course of the coronavirus pandemic, non-performing loans (NPLs) in commercial real estate financing and commercial real estate loans under forbearance measures had temporarily risen slightly overall from a low level. Forbearance means measures granting relief to borrowers experiencing financial difficulties. Following the pandemic, increased energy and construction prices, higher interest rates, elevated inflation and an uncertain economic setting have brought additional factors into play and many construction projects will probably have needed to be repriced as a result. If projects turn out to no longer be profitable, borrowers might find themselves with incentives to default on loans for strategic purposes, which could increase the share of NPLs. In actual fact, however, the share of NPLs declined slightly in the fourth quarter of 2022. One reason for this could be that credit standards have not been lowered in recent years. Looking at loan portfolios, key risk characteristics such as the share of loans subject to variable interest rates and the maturities of loans, barely changed.[79] Issues in terms of data quality and reporting have so far prevented LTV data from complementing the risk picture in a reliable way, however. Further work in collaboration with the European System of Central Banks (ESCB) and the Single Supervisory Mechanism (SSM) is needed in this area. Furthermore, overcapacity does not appear to have been built up in the construction sector during the upswing. Investment in the commercial real estate sector as a percentage of GDP also remains low by international and historical standards.

Sharp price declines in foreign commercial real estate markets could affect the German financial system both directly and indirectly. Market participants and rating agencies eyed developments in commercial real estate prices in a number of foreign markets with concern in the fourth quarter, with the United Kingdom, Australia, Canada, New Zealand and Sweden among them. Although German financial institutions are not heavily active in these countries, they could be indirectly affected by a sharp fall in prices there should prices also drop in Germany or other places where German financial institutions have a particularly active presence. Such countries include, in particular, the United States, France and Luxembourg (see Chart 2.5.5). The risk that commercial real estate prices could take a tumble there too has increased since the financial crisis, as commercial real estate price patterns have started to exhibit stronger international co-movement.

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[78] Although it is hard to capture financing from overseas, transaction data point to interconnectedness between the German commercial real estate market and foreign market players.
[79] Data source: AnaCredit.

German banks' exposure to commercial real estate in selected countries*

Chart 2.5.5

Credit volume relative to CET1 capital
As at February 2023

Sources: AnaCredit and Deutsche Bundesbank. * Exposure to borrowers in countries not listed in the chart amounts to 15% of Common Equity Tier 1 capital. Analysis does not include the Kreditanstalt für Wiederaufbau (KfW).

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The ESRB issued a recommendation in early 2023 to address vulnerabilities in the commercial real estate sector and to bolster the resilience of financial institutions.[80] The ESRB's commercial real estate recommendation consists of four components: (i) improving the monitoring of systemic risks stemming from the commercial real estate market; (ii) ensuring sound commercial real estate financing practices; (iii) increasing the resilience of financial institutions; and (iv) adding activity-based tools to the existing macroprudential framework for commercial real estate in the EU. The current framework is based around the regulation of various types of financial institutions, such as banks or insurers. Activity-based regulation addresses individual activities, regardless of which financial institution is performing them. The timeline stipulates national implementation for the first three component recommendations by 31 March 2026.

There is an ESRB working group looking, at a conceptual level, into borrower-based measures with respect to commercial real estate loans in Europe. Heterogeneity, international interconnectedness and the complexity of the commercial real estate market are factors curtailing the benefits that might be expected from potential borrower-based measures for the commercial real estate market in Europe as well as their workability.[81] For this reason, the ESRB has set up a working group to address, at a conceptual level, the issue of borrower-based measures for commercial real estate loans in Europe. The first results from this working group are expected in the second half of 2023.

In 2022 the ESRB assessed how well national competent authorities have complied with its recommendation on closing real estate data gaps that was issued in 2016 and 2019.[82] The ESRB graded Germany's implementation as largely compliant on the whole.

Appropriateness of the privileged risk weights and minimum LGD values for exposures secured by real estate under Articles 124 and 164 of the Capital Requirements Regulation

BaFin has reviewed the appropriateness of the risk weights for exposures secured by real estate and informed the FSC of its findings in December 2022. The analyses revealed no grounds for raising the privileged risk weights and the minimum loss given default

80 See European Systemic Risk Board (2022a).
81 See European Systemic Risk Board (2022b). Borrower-based measures refers, in particular, to minimum requirements for lending standards such as the LTV, the debt service coverage ratio (DSCR) or the interest coverage ratio (ICR).
82 See European Systemic Risk Board (2016), European Systemic Risk Board (2019).

(LGD) values as things currently stand. Although the loss rates calculated for 2021 were up on the previous year, they were still many times lower than the upper limit laid down in the Capital Requirements Regulation (CRR). In addition, it was noted that there is a heightened level of uncertainty surrounding how the real estate market is going to develop going forward. To accommodate this elevated degree of uncertainty, BaFin will initially be conducting its review on a quarterly basis.

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2.6 Other topics

Risks to financial stability arising from developments in the energy markets

In 2022, Russia's war of aggression against Ukraine and the suspension of deliveries of Russian gas accelerated inflation in the energy markets. Tensions in the commodity and energy markets had led to significant price increases even before the war. These were aggravated by Russia's war of aggression. After the complete suspension of deliveries of Russian gas through the Nord Stream 1 pipeline, European gas prices late in the summer of 2022 soared to levels that were many times higher than before the war began. Electricity prices underwent a similar development given the importance of gas for electricity generation and reached unprecedented levels. As some gas importers had to replace Russian deliveries by buying expensive gas in the spot market, they increasingly ran into difficulties.[83]

Rising margin requirements weighed on market participants. The sharp rise in price volatility triggered significantly higher margin requirements for market participants in the commodity and energy markets. Price volatility and margin requirements peaked in August 2022. The increased margin requirements for clearing members – usually banks – were manageable overall. However, in some instances, they caused liquidity bottlenecks at clearing members' customers.[84] This mainly affected enterprises in the energy sector, which meant that it did not give rise to any immediate risks for the German banking system or the financial sector. However, there was a risk of second-round effects: scarce liquidity could have led to corporate insolvencies in the energy sector, which could also have spilled over to the financial system, for example through credit defaults. Such second-round effects could have had a significant impact on financial stability. In order to avoid possible price distortions in gas futures going forward, a market correction mechanism was introduced for the gas market in the EU in February 2023 to help prevent significant price increases and deviations from a reference price for certain gas futures.[85]

Financial stability risks from energy markets fell significantly as gas and electricity prices came down substantially from the highs of August 2022. At the end of the period under review, prices were at a similar level to before Russia's war of aggression against Ukraine. A relatively mild winter in Europe, well-stocked gas storage facilities and gas savings by citizens and businesses helped bring prices down.[86] However, energy savings will remain necessary for the coming winter, as renewed bottlenecks and sharp increases in gas prices cannot be ruled out. The FSC will continue to monitor developments in the energy markets and potential risks to financial stability.

[83] Ultimately, the German Federal Government had to take over gas importer Uniper in order to safeguard the energy supply in Germany.

[84] In order to finance enterprises' temporary liquidity needs from margin requirements, the Kreditanstalt für Wiederaufbau (KfW) last year launched a €100 billion loan programme, which is backed by a guarantee from the Federal Government.

[85] See Council Regulation 2022/2578 of 22 December 2022 establishing a market correction mechanism to protect Union citizens and the economy against excessively high prices.

[86] However, gas prices in Europe remain higher than in other regions of the world, which means that European firms are likely to remain at a competitive disadvantage.

Cyber risks

Against the backdrop of Russia's war of aggression against Ukraine, the FSC has taken a closer look at cyber risks. The financial system's interconnectedness and high degree of digitalisation mean that it is exposed to increased cyber risks. Barring isolated incidents, the heightened risk has so far not materialised in the financial sector. As the war on Ukraine continues, the threat situation is still tense, however.

During the reporting period, thirteen financial sector enterprises conducted a TIBER test.[87] In a TIBER (Threat Intelligence-based Ethical Red Teaming) test, ethical hackers attack an enterprise as part of a structured programme to identify vulnerabilities in its security measures and to improve its resilience to cyber risks. On balance, enterprises showed a high degree of resilience. As part of the Bundesbank's supporting work, cooperation within the TIBER community – where enterprises undergoing a TIBER test can network – was further intensified.

Regulatory requirements to strengthen the cyber resilience of the European financial sector were further increased with the EU Regulation that entered into force in the reporting period. Under the EU's Digital Operational Resilience Act (DORA), threat-led red team or penetration tests will become mandatory for large enterprises in the financial sector going forward, amongst other measures.[88] As of January 2025, these tests will have to be conducted regularly and will become part of financial supervisors' toolkit. The specific details are currently being established in the relevant regulatory technical standards for DORA with the involvement of the Bundesbank and BaFin, who are leading the German side. In this context, the Bundesbank and BaFin will intensify their cooperation.

The FSC also discussed concentration risks resulting from the outsourcing of banking sector processes and services to third-party providers of information and communication technology. The increasing interconnectedness not only heightens the complexity of the financial system, it also leads to concentration risks from IT third-party providers whose services are used by many customers in the financial sector. Although the transparency surrounding service providers has increased, the FSC identified the need for improvements relating to the role of subservice providers and data availability. Many critical IT third-party providers operate globally and are often headquartered not in Germany, but in the United States, especially. Given the importance of computer centres for the banking associations, risk-oriented and proportionate supervision of widely used IT third-party providers is essential to reduce concentration risk. The FSC considers creating a framework for monitoring critical third-party IT providers through the implementation of the DORA Act to be a suitable approach.

[87] For more information on TIBER tests, see, inter alia, https://www.bundesbank.de/en/tasks/payment-systems/tiber-de/tiber-de-817014.

[88] Red team tests refer to the attempt by professional hackers commissioned by the entity being tested to penetrate its systems. However, such attacks do not cross ethical or legal boundaries. Red team tests are considered an extremely realistic way for an entity to assess its defences.

Climate-related risks

The FSC addressed climate change and the associated risks to the financial system. The aim was to assess the current risk situation as far as possible and to set priorities for future work. The risks from climate change arise not only from its physical impact, such as more frequent extreme weather events or the rise in sea levels. The transition to a climate-neutral economy also harbours risks for the financial system. The later necessary climate action is taken and the higher the uncertainty surrounding the future pathway of climate policy, the greater these risks will be.

The analyses so far suggest that the German financial system has moderate vulnerability to risks arising from the transition to a climate-friendly economy.[89] Certain intermediaries, however, display considerable vulnerability to climate risks. A late and thus abrupt transition towards a climate-neutral economy may heighten losses in the financial system. Although other central banks arrive at similar results with regard to transition risks,[90] the results are subject to uncertainty.

The uncertainties associated with the analyses conducted so far are to be gradually reduced. The methodology is currently being improved in cooperation with international bodies such as the global Financial Stability Board (FSB) and the Network for Greening the Financial System (NGFS). This includes, in particular, mapping second-round effects in the financial system and analysing possible risk concentrations. In future, more adverse scenarios than before are also to be considered, in which high transition costs occur, especially in the short term. At the same time, the FSC's member institutions are promoting the collection of climate-relevant data and indicators in international forums. New analytical results and a more robust assessment of the vulnerabilities to transition risks are expected to be available by the end of 2023. The FSC will continue to address the risks arising from climate change, focusing increasingly on physical risks.

Central bank digital currency

The FSC examined developments in the digital euro. The ongoing investigation phase of the Eurosystem's digital euro project has already explored many fundamental issues relating to the design of retail central bank digital currency.[91] These include, for example, prioritising possible use cases and the way in which payments would be settled. A final decision on the introduction of a digital euro has not been taken yet. In the coming months, further outstanding issues, such as the finalisation of user requirements, are to be settled. At the end of this process, the Governing Council of the ECB will decide on the continuation of the project – probably in the third quarter of 2023.

The FSC looked into the potential risks to financial stability which may result from the introduction of a digital euro. As a potential alternative to sight deposits central bank

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[89] See Deutsche Bundesbank (2021).
[90] See Financial Stability Board (2022).
[91] For information on the Eurosystem's digital euro project, see https://www.ecb.europa.eu/paym/digital_euro/html/index.en.html.

digital currency could permanently change banks' funding structure, as households would be able to hold digital money not only in the form of bank deposits but also as central bank money.[92] This structural change may occur in the short term during the introductory phase of a digital euro, but it may also have long-term consequences in a new equilibrium. In the short term, the withdrawal of customer deposits could – depending on the digital euro's design – lead to liquidity shortages at banks. In response to this development, credit institutions could initially use existing excess liquidity. Furthermore, they could increase the attractiveness of sight deposits by raising interest rates. In the medium to long term, banks could also react to liquidity bottlenecks by making further changes to their funding structure or by restricting lending. By changing the interest rate and the balance sheet structure, a digital euro could also impact on profitability and thus impair banks' solvency as well as the supply of loans to the real economy, at least in the medium to longer term. These implications merit further investigation. In addition, it is generally conceivable that central bank digital currency could facilitate system-wide bank runs. However, the design options that the Eurosystem has discussed so far include measures to avoid such effects.[93]

Based on the findings relating to the design options discussed so far, the FSC takes the view that the risks that a central bank digital currency poses to the financial system are manageable. In the literature, there is much debate about the impact a central bank digital currency would, in fact, have on the banking system.[94] Within the design options discussed so far, the German banking system should have sufficient liquidity and, therefore, overall, not be subject to any liquidity restrictions even in the event of high demand for central bank digital currency. Nevertheless, liquidity levels differ from institution to institution. The impact on the profitability and solvency of individual institutions depends heavily on the design of a digital euro and the respective macro-financial framework. The same applies to the effects on lending. After the introduction of central bank digital currency, lending could even rise if the digital euro reduces banks' market power in the deposit market. This could lead to intensifying competition for deposits through higher deposit rates. The deposits gained in this way could ultimately result in an improvement in credit conditions for borrowers. The risk of potential system-wide bank runs is likely to be mitigated if appropriate countermeasures are implemented, such as limits on the amounts of digital euro held.

The FSC welcomes the work on the digital euro and will continue to stay informed. The FSC is open to the innovations that the digital euro could make possible. The analyses on the impact on financial stability should be continued and take into account decisions on the possible design of central bank digital currency and the ever-evolving macro-financial framework.

Macroprudential toolkit

The FSC acted on its brief under the coalition agreement to examine the macroprudential toolkit in Germany for gaps. This task is not yet complete.

[92] See Adalid et al. (2022), Brunnermeier and Niepelt (2019).
[93] See Ahnert et al. (2023), Popescu (2022).
[94] See Andolfatto (2021), Chiu et al. (2019), Fegatelli (2022), Keister and Sanches (2023), Kim and Kwon (2019).

Results of the International Monetary Fund's Financial Sector Assessment Program (FSAP) of relevance to financial stability

The International Monetary Fund noted that the German financial system was stable and resilient.[95] In the reporting period, the IMF concluded its report on the stability of the German financial sector. The IMF considers Germany to be systemically important for the global financial system. FSAPs are therefore carried out every five years. The outcome of the 2022 FSAP describes the German financial system as resilient, exhibiting large capital and liquidity buffers in the banking system and strong public and private sector balance sheets. The IMF commended the good progress made in strengthening the microprudential frameworks since the 2016 review. The decisive use of macroprudential tools was also welcomed. However, the IMF sees the need for additional macroprudential action as cyclical vulnerabilities continue to rise. This includes creating the legal basis for income-related measures to complete the macroprudential toolkit and strengthening the supervisory guidelines on residential real estate lending.

According to the IMF, low bank profitability and potential price corrections in the residential real estate market could be sources of vulnerability in the financial system. The overall risk situation in the residential real estate market is increasingly also requiring borrower-based macroprudential measures, not least given existing overvaluations, the IMF notes. In view of the current downside risks to the real economy, the IMF furthermore calls for close supervision of the fulfilment of capital and liquidity requirements. The FSC took positive note of the results of the IMF's report on the stability of the German financial system.

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[95] See International Monetary Fund (2022).

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3 Cooperation with the European Systemic Risk Board

To carry out its tasks, the Financial Stability Committee collaborates with other authorities and institutions working on financial stability topics. One particularly close interchange is with the European Systemic Risk Board (ESRB), whose mandate includes macroprudential monitoring of the financial system throughout the EU. The ESRB contributes to preventing and mitigating systemic risks to financial stability in the EU,[96] providing the FSC with information about relevant developments at regular intervals. During the period under review, the FSC dealt with one warning and one recommendation issued by the ESRB, amongst other things.

In September 2022, the ESRB issued its first general warning on vulnerabilities in the European financial system.[97] The ESRB argued that the higher-than-expected inflation tightened financing conditions, which could amplify stress in the financial sector. Russia's invasion of Ukraine raised uncertainty about future economic developments and inflationary pressures, mainly as a result of rising energy, commodity and food prices. The ESRB therefore called on private sector institutions, market participants and relevant authorities to continue preparing for the materialisation of risk scenarios. It stressed the major importance of preserving or enhancing the financial sector's resilience so that the financial system can continue to support the real economy should financial stability risks materialise. The ESRB noted that credit institutions can act as a first line of defence and should therefore ensure that their risk provisioning practices and capital planning properly account for expected and unexpected losses. This includes proactively and regularly adjusting their own capital projections under baseline and adverse scenarios. In addition to credit institutions' prudent risk management practices, macroprudential capital buffers should be maintained or built up in order to strengthen credit institutions' resilience. The ESRB stated that financial stability risks beyond the banking sector likewise need to be addressed. This requires overcoming vulnerabilities and increasing the resilience of non-bank financial institutions and market-based finance. Finally, the ESRB advocated tackling liquidity and funding strains for non-financial corporations participating in energy derivative markets without relaxing prudential requirements for central clearing.

At the end of January 2023, the ESRB also issued recommendation on vulnerabilities in the commercial real estate sector in the European Economic Area.[98] From the ESRB's perspective, adverse developments in the commercial real estate (CRE) sector could have a systemic impact on both the financial system and the real economy. It sees credit institutions as being particularly exposed to the CRE sector via credit risk on CRE loans. Data suggest high loan-to-value (LTV) ratios in several European countries. Falling prices of commercial property, which are used as collateral for CRE loans, could lead to higher LTV ratios and further losses due to loan defaults and a rising cost of capital. In addition, it believes that non-banks, such as real estate funds or insurers, are also affected by vulnerabilities stemming from the CRE sector. The systemic impact could be amplified by spillovers across countries and interconnectedness between financial intermediaries.

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[96] See Regulation (EU) No 1092/2010 Article 3(1).
[97] See European Systemic Risk Board (2022b).
[98] See European Systemic Risk Board (2022a).

The ESRB sees medium-term financial stability risks in the CRE sector as a result of rising construction and financing costs, declining yields, a deterioration in the economic outlook and a structural decline in demand, and has made recommendations to the supervisory authorities and the European Commission. The ESRB recommends a structured and coordinated monitoring of systemic risks stemming from the CRE market. First, current and potentially emerging vulnerabilities related to commercial real estate should be assessed across different risk categories or "stretches". These include collateral and prices, income flows and investment activity, financing, interconnectedness and spillovers. Furthermore, consideration should be given to the cyclical stage of CRE markets at the time. Second, sound financing practices must be in place for commercial real estate. Supervisory authorities should ensure that financial institutions providing CRE financing have prudent risk management practices. Third, efforts must be made to strengthen financial institutions' resilience. If systemic risks are identified, appropriate and efficient macroprudential measures should be taken, avoiding overlaps with microprudential measures. Fourth, activity-based tools need to be developed for commercial real estate in the EU. In this respect, the ESRB recommends that the European Commission assess the current macroprudential regulatory framework in the EU, ensuring that consistent rules apply across all financial institutions when they are involved in the same types of activities. While the current regulatory framework refers to the regulation of individual financial institutions, such as banks or insurers, activity-based regulation would target individual activities, irrespective of the financial institution performing them. If necessary, EU legislative proposals, amongst other things, need to be drawn up to complement existing entity-specific macroprudential tools with activity-based macroprudential tools. The aim is to avoid regulatory arbitrage and the shifting of risks between banks and non-banks.

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Annex

A | Members of the Financial Stability Committee

Federal Ministry of Finance:

Dr Carsten Pillath, State Secretary, Chair of the Committee

Dr Eva Wimmer, Head of the Directorate-General for Financial Market Policy

Dr Wolf Heinrich Reuter, Head of the Directorate-General for Economic and Fiscal Policy Strategy

Deutsche Bundesbank:

Professor Claudia M. Buch, Vice-President

Professor Joachim Wuermeling, Member of the Executive Board

Dr Benjamin Weigert, Head of the Directorate General Financial Stability

Federal Financial Supervisory Authority (BaFin):

Mark Branson, President

Raimund Röseler, Chief Executive Director of Banking Supervision

Dr Frank Grund, Chief Executive Director of Insurance and Pension Funds Supervision

Birgit Rodolphe, Chief Executive Director of Resolution and Prevention of Money Laundering (no voting rights)

B | Meetings held during the reporting period

- 27 June 2022
- 26 September 2022
- 12 December 2022
- 27 March 2023