Financial Stability Report

Spring 2024

Czech National Bank —— Financial Stability Report —— Spring 2024

CNB CZECH NATIONAL BANK

The Financial Stability Report – Spring 2024 was discussed by the CNB Bank Board at its regular meeting on financial stability issues on 6 June 2024 and published on 24 June 2024. With a few exceptions, it contains information as of 31 December 2023. It is available in electronic form on the CNB website, where the underlying data for the tables and charts used in this publication are also published.

The mandate of the CNB

Maintaining financial stability is defined as one of the CNB's main objectives in Act No. 6/1993 Coll., on the Czech National Bank, as amended:

Article 2

(2) The Czech National Bank shall perform the following tasks:

...

e) set macroprudential policy by identifying, monitoring and assessing risks jeopardising the stability of the financial system and, in order to prevent or mitigate these risks, contribute by means of its powers to the resilience of the financial system and the maintenance of financial stability; where necessary, it shall cooperate with the relevant state authorities in setting macroprudential policy,

...

The CNB defines financial stability as a situation where the financial system operates with no serious failures or undesirable impacts on the present and future development of the economy as a whole, while showing a high degree of resilience to shocks. The CNB's definition is based on the fact that financial stability may be disturbed both by processes inside the financial sector that lead to the emergence of weak spots, and by strong shocks, which may arise from the external environment, domestic macroeconomic developments, large debtors and creditors, economic policies or changes in the institutional environment. Any interaction between weak spots and shocks can result in the collapse of systemically important financial institutions and in disruption of the financial intermediation and payment functions of the financial system.

The CNB's aim with regard to financial stability is to ensure a degree of resilience of the system that minimises the risk of financial instability. To fulfil this aim, the CNB as the central bank and supervisory authority uses the instruments made available to it by the Act on the CNB, the Act on Banks and other applicable laws. Cooperation with other national and international institutions is also very important in this area. In order to maintain financial stability, the CNB focuses on prevention and broad communication with the public regarding the potential risks and factors posing a threat to financial stability. This Financial Stability Report is an integral part of such communication.

The global financial crisis led to a strengthening of the importance of the objective of financial stability in central banks. Macroprudential policy, which is intended to contribute to the maintenance of financial stability, was formally introduced in the Czech Republic in 2013 through an amendment of the Act on the CNB No. 227/2013 Coll. In line with the CNB's Strategy, the main aim of macroprudential policy is to mitigate systemic risk, i.e. the risk of instability of the financial system as a whole. A debate about the tools of macroprudential regulation, i.e. the set of pre-emptive measures intended to prevent financial instability, is going on at international level. The European Systemic Risk Board (ESRB) has been operating at the European level since the start of 2011. Together with three pan-European sectoral supervisory authorities (EBA, ESMA and EIOPA) it makes up the European System of Financial Supervision (ESFS). If it identifies increased risks of a systemic nature, the ESRB issues warnings and recommendations to mitigate those risks. CNB representatives are involved directly in the ESRB's work; the CNB Governor and another board member are members of the General Board of the ESRB, and CNB experts participate in its working groups. Since 2011, the CNB has also been represented in the Regional Consultative Group of the Financial Stability Board established by the G20.

The CNB regularly monitors and closely analyses developments in all areas relevant to financial stability. The members of the CNB Bank Board meet with experts from key sections at regular meetings on financial stability issues. A wide range of information on developments of risks in the domestic financial system and abroad is presented at these meetings. The position of the Czech economy in the financial cycle is assessed and – if any risks to financial stability are identified – discussions are held regarding the use of regulatory, supervisory and other economic policy tools to suppress such risks or their potential effects.

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Foreword

Dear Readers,

It is my pleasure to present the spring edition of the Financial Stability Report. This report is the main input to the Bank Board's assessment of systemic risks in the domestic financial sector and its decisions on the configuration of the CNB's macroprudential policy instruments.

At its June meeting on financial stability issues, the Bank Board decided to set a general systemic risk buffer rate for the first time. It also decided to lower the countercyclical capital buffer rate and to leave the settings of the credit ratios for mortgage loans unchanged. The decisions taken were based on traditional and new analyses of cyclical and structural risks in the domestic financial system, analyses you will find described in detail in this report.

Many of the macroeconomic indicators that affect financial stability have improved since the last two editions of the report were published. The short-term risk of a deeper recession accompanied by sharp growth in unemployment and corporate and household defaults, which was the primary source of concern in the previous year, is lower from today's perspective. The substantial decline in inflation in the domestic economy has led to renewed growth in real wages and consumer confidence. The growth outlook for the domestic economy has been revised up. Growth in loans to firms and households and growth in property prices are expected to be normal over the entire horizon of our forecast, owing to persisting relatively tight global and domestic financial conditions. The cyclical risks associated with the expected upward movement of the domestic economy in the financial cycle will therefore remain subdued. This, along with the longer-term gradual materialisation of credit risks originating in the previous expansionary phase of the cycle, was our main reason for lowering the countercyclical buffer rate.

Medium-term systemic risks linked with the structure of the domestic economy – in particular its high openness, foreign trade concentration and sectoral concentration of production and employment – have been gaining importance in recent years. These risks were mentioned in the previous edition of this report. The post-Covid period has brought with it some structural changes. The ongoing processes of deglobalisation and decarbonisation, along with persisting geopolitical tensions, are increasing uncertainty about future global economic developments. They have potential negative consequences for the domestic economy, which is grappling with an exhausted growth model and – due to its energy intensity – the challenge of climate transition. As a result of these trends, major structural shocks are becoming more frequent and more likely to occur in the future.

The structural systemic risks would materialise as potential additional losses that the banking sector in particular would face above and beyond the CNB's estimates and projections for the economic shocks considered. Our stress tests have confirmed that the domestic banking sector would be resilient even under an adverse scenario that considers risks of a structural nature. The subsequent drop in the overall capital ratio would imply a need not only to release the entire countercyclical buffer, but also to use other buffers. We have set a systemic risk buffer rate in order to maintain the resilience of the domestic banking sector in the medium term even if such scenarios were to materialise.

I would like to assure the public that the actions taken by the Bank Board are commensurate with the current economic situation and are sufficient to maintain financial stability. The CNB will continue to carefully monitor and evaluate the impacts of domestic and foreign conditions on the domestic economic sectors and on the stability of the financial system as a whole. The Bank Board also stands ready to respond immediately with macroprudential instruments to any risks that could weaken the resilience of the domestic financial sector.

On behalf of the Czech National Bank

Karina Kubelková

Bank Board member

I. DECISIONS AND ASSESSMENT OF RISKS TO FINANCIAL STABILITY

The CNB Bank Board decided at its meeting on financial stability issues on 6 June 2024 to lower the countercyclical capital buffer rate to 1.25% on the basis of an assessment of cyclical systemic risks. The Bank Board also agreed that the structural systemic risks identified were relevant and decided to react to them by setting a general systemic risk buffer rate of 0.5%. Banks will be required to maintain the buffer at this level from 1 January 2025. Further to an assessment of systemic risks associated with mortgage lending and the residential property market, the Bank Board decided to leave the upper limit on the LTV ratio unchanged at 80% (90% for applicants under 36 years purchasing owner-occupied housing).

The economic outlooks for the global and domestic economies improved slightly amid a fragile economic recovery. However, the financial cycle remained subdued in 2023 and 2024 Q1 due to restrictive monetary policy, and property prices declined in many European countries. Risk rose significantly at the global level in the commercial property sector, especially in the case of office property, which saw a decrease in occupancy along with an increase in prime yields. Restrictive monetary policy was accompanied by cautious fiscal consolidation in many countries. Financial market participants' expectations that interest rates would fall soon did not materialise and some assets remained overvalued and prone to a sharp correction. The risks and uncertainties in the global economy remain amplified by ongoing deglobalisation and decarbonisation and heightened geopolitical tensions. A significant decline in inflation in the domestic economy led to renewed growth in real wages. In line with this, consumer confidence strengthened and the outlook for growth in the domestic economy was revised upwards. At the same time, a return of inflation to the target heralded a start to the process of lowering monetary policy rates, which, however, are still restrictive. Against the backdrop of the current global structural changes and difficult geopolitical situation, the risks associated with the structure of the domestic economy and its production and export orientation have gained importance. These risks generally magnify the intensity of transmitted economic shocks and could thus foster greater credit risk materialisation.

The decline in residential property prices in the Czech Republic has halted and the year-on-year price growth can be expected to strengthen gradually, reaching 5% at the end of 2024. Transaction activity on the residential property market will also recover. The affordability of owner-occupied housing remains poor despite some improvement, and heightened demand for rental accommodation persists given the still wide gap between a mortgage loan instalment and the rent on the same apartment. The overvaluation of apartment prices for a liquidity-constrained median household increased slightly again in late 2023 after a period of decline. However, it remained relatively low in many regions due to sizeable price differences across regions.

The commercial property price correction is starting to halt, but the risk of loans secured by such property remains elevated in banks' balance sheets. Prime yields on the commercial property market rose slightly and the price correction has started to slow or has even halted. Despite that, commercial property prices remained slightly overvalued. Real estate funds also recorded downward pressure on the prices of commercial property in their portfolios. These funds are becoming significant investors on the domestic market. In line with the low activity on the market, the provision of new loan secured by commercial property was still relatively subdued. The credit risk of these loans in domestic banks' portfolios remains relatively elevated.

The financial sector showed favourable trends in the first half of 2024. All its sub-sectors saw growth in assets and maintained high profitability. The banking sector remained resilient due to high capitalisation and liquidity. Loan portfolio quality, which may be affected by the subdued domestic and global economies, remains the key risk.

The macro stress test of banks' capitalisation demonstrated the sector's ability to withstand very adverse economic developments. However, under the *Adverse Scenario* of a sharp and deep economic decline originating in the economies of the effective euro area, the CCyB would be used up entirely and a need to use part of the CCoB would arise at the sector level. At the individual level, some banks would also have to use the O-SII buffer. In an effort to avoid breaching non-releasable capital buffers, banks might curb lending substantially. This would further lengthen and strengthen the adverse effect on the real economy. Such a scenario signals a greater need for capital buffers that can be released in the event of strong economic shocks.

Domestic non-bank financial corporations remained resilient at the aggregate level due to sufficient capitalisation and a good liquidity position. This segment does not currently represent a source of significant systemic risk. The investment funds segment continued to grow apace. It had a dominant position among non-bank financial corporations in terms of asset size. An increase in uncertainty on global financial markets, accompanied by an abrupt repricing of risk

premia and a relatively significant decline in prices of investment assets, remains the primary risk scenario for investment funds.

The CNB Bank Board decided to lower the countercyclical capital buffer rate to 1.25%. The size of new cyclical risks taken on by the banking sector remained subdued, despite some recovery in the credit cycle. The existing cyclical risks in banks' balance sheets continued to decline. According to estimates, though, the decline has weakened. Setting the CCyB rate at 1.25% is slightly below the level indicated by the CNB's quantitative approaches The CNB expects the rate to be flat in the next few quarters, as the outlook for newly accepted cyclical risks is gradually rising and the disappearance of cyclical risks from banks' balance sheets may not continue. Should the economic situation worsen markedly and significant unexpected credit losses form in the domestic banking sector, the CNB is ready to lower the countercyclical capital buffer rate significantly or release the buffer fully in order to foster smooth lending to the real economy.

The CNB Bank Board decided to set a general systemic risk buffer rate of 0.5% in response to the increasing relevance of systemic risks of a structural nature. According to the CNB's analyses, the domestic banking sector is to a large extent exposed to certain systemic risks of a structural nature, which are primarily related to the Czech economy's great openness, high foreign trade concentration and strong concentration of production and employment by economic activity. The potential costs associated with the transformation of the energy-intensive domestic economy to a climate-neutral one are also a significant contributor to systemic structural risk, as they may affect the competitiveness of domestic non-financial corporations. Growth in cyber risk may also increase the banking sector's vulnerability under certain conditions. All these risks stem mainly from the characteristics of the domestic real economy. They are being intensified by continued geopolitical tensions and growing uncertainty surrounding future economic developments abroad, especially in key trading partner countries. If the reasons for setting a general SyRB rate or the relevance of the risks covered by it change, the CNB will change the rate or fully release this buffer.

The Bank Board decided to leave the upper limit on the LTV ratio unchanged. The systemic dimension of the risks stemming from new mortgage loans remained low and the CNB does not expect these risks to increase significantly at the horizon of its spring forecast either. This was confirmed over the outlook by the indicators monitored and simulations conducted via a stress test of households. For these reasons, the Bank Board left the upper limits on the DTI and DSTI ratios deactivated. Given the uncertainties of the forecast related to the speed of the mortgage market recovery and hence potential faster growth in highly risky mortgage loans, the Bank Board left in effect the upper limit on the LTV ratio at 80% (90% for applicants under 36 years purchasing owner-occupied housing).

The CNB will publish additional detailed analyses of risks to financial stability and information about the macroprudential policy settings in December 2024 in its publication *Financial Stability Report – Autumn 2024*, which will be the reference document for the autumn Bank Board meeting on financial stability issues.

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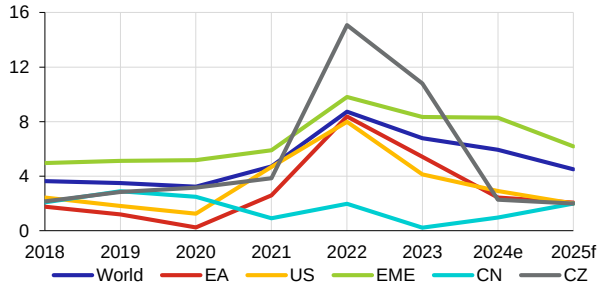
II. THE REAL ECONOMY AND FINANCIAL MARKETS

II.1 THE MACROECONOMIC AND FINANCIAL ENVIRONMENT

II.1.1 The international environment

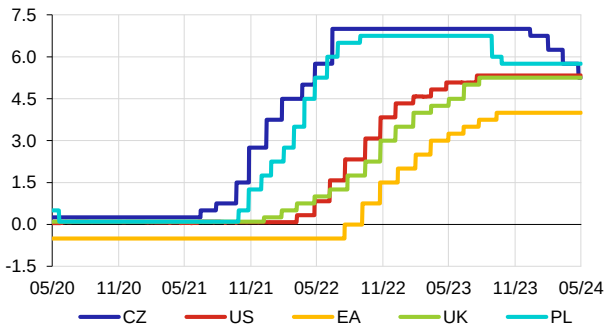
Financial markets were calm amid receding inflation and improving economic prospects…
Inflation declined gradually in the global economy in the second half of 2023 and early 2024 (see Chart II.1). It fell in practically every advanced economy. In response, central banks in the Central Europe region have begun to ease monetary policy (see Chart II.2) and financial markets expect interest rates to start coming down in developed countries as well. Against a background of improving economic outlooks (see Chart II.3), receding inflation and an expected decline in central bank rates, stock markets fared well (see Chart II.4). The situation on commodity markets, which saw no dramatic movements in key energy and agricultural commodities, and on corporate bond markets, where premiums stayed at their long-term averages (see Chart II.2 CB), also fostered a period of relative calm on financial markets (see Chart II.1 CB). Yields on the government bond market mostly stabilised following the end of the current monetary policy tightening cycle (see Chart II.5). However, a large proportion of market participants had to repeatedly revise their bets on an early reduction in interest rates. This made government bond prices relatively volatile (see Chart II.3 CB).

Chart II.1
Inflation in selected regions
(annual inflation rates in %)



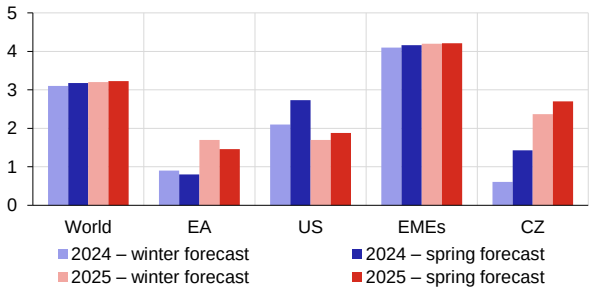
Source: IMF, CNB
Note: e = expected value, f = forecast. The forecast for the Czech Republic is based on the CNB's spring forecast (MPR – Spring 2024). The forecasts for the other economies are based on the IMF's April forecast published in *World Economic Outlook*, April 2024.

Chart II.2
Monetary policy rates of selected central banks
(%; latest observations as of 10 May 2024)



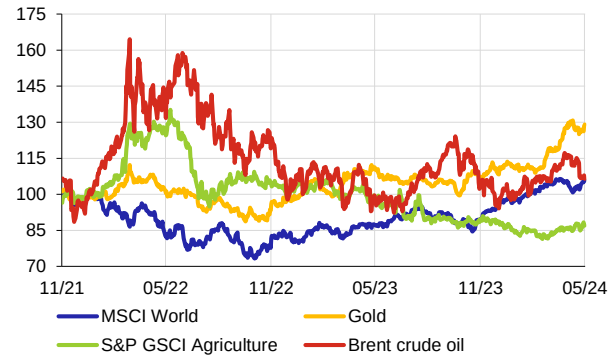
Source: Refinitiv Datastream
Note: Deposit rate for EA. Mid-range for US.

Chart II.3
Economic growth forecasts for selected regions
(annual real GDP growth in %)



Source: IMF, CNB
Note: The forecast for the Czech Republic is based on the CNB's winter and spring forecasts (MPR – Winter 2024 and MPR – Spring 2024). The forecasts for the other economies are based on the IMF's January and April forecasts published in *World Economic Outlook*, January 2024 and *World Economic Outlook*, April 2024.

Chart II.4
Selected financial market indices
(31 December 2021 = 100)



Source: Refinitiv

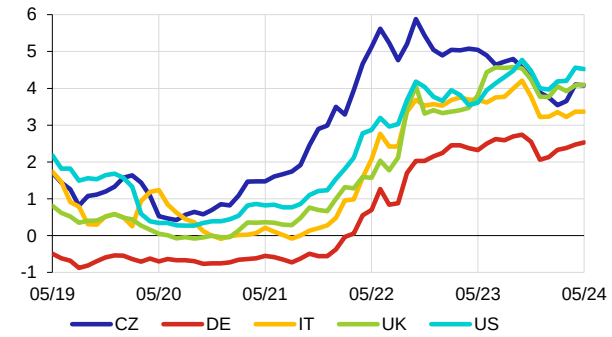
…but market participants systematically underestimated the length of the period of tighter monetary policy…
Financial markets' expectations regarding monetary policy rates turned out to be overly optimistic. The markets constantly expected rates to start falling soon, despite central banks' warnings that they would stay higher for longer to ensure a robust

return of inflation to the target (see Chart II.6 and Chart II.7). In the USA in particular, inflation is displaying a high degree of persistence and the Federal Reserve is currently struggling to steer it safely towards the target, while inflation expectations also remain slightly above the target (see Chart II.8). In the euro area, by contrast, the labour market has cooled substantially and growth outlooks remain subdued. The first rate cut can thus be expected to come in 2024 Q2 (see Chart II.3). Monetary conditions are still restrictive and real rates positive.[1]

Chart II.5

Five-year government bond yields for selected countries

(%)

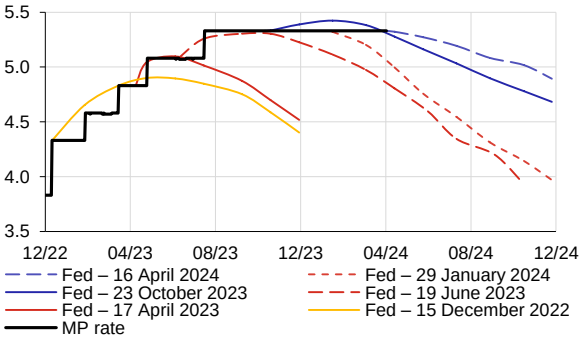


Source: Refinitiv

Chart II.6

Expected and actual paths of the Fed's monetary policy rates

(%)

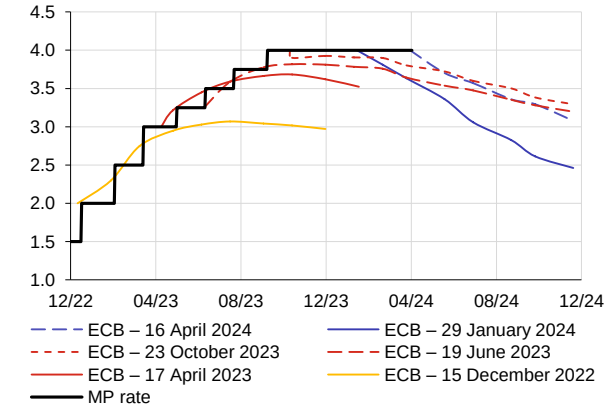


Source: Refinitiv

Chart II.7

Expected and actual paths of the ECB's monetary policy rates

(%)

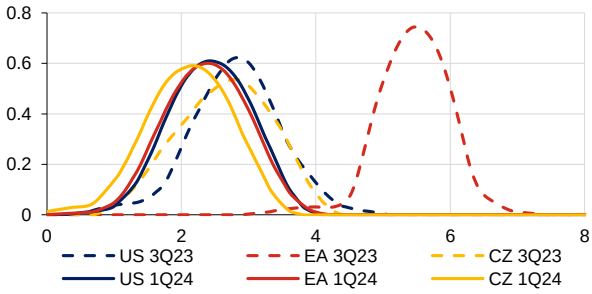


Source: Refinitiv

Chart II.8

Analysts' inflation expectations

(x-axis: expected annual inflation rate in %; probability density)



Source: CNB, ECB, Federal Reserve Bank of Philadelphia

Note: The chart shows the probability density of inflation expectations for the annual inflation rate. It was compiled from the individual analysts' point forecasts and adjusted by means of kernel smoothing. The data for the EU and the USA are taken from the SPF surveys of analysts. The data for the Czech Republic are taken from the CNB's *Financial Market Inflation Expectations*. Analysts in the USA, EA and CZ did not always provide their predictions at the same time, so the chart serves mainly to compare the evolution of inflation expectations over time for a given currency area.

…so prices of some assets remain overvalued and the risk of them correcting persists

The non-materialisation of market participants' monetary policy expectations and the lack of other impulses for significant price movements fostered persisting overvaluation of asset prices on some markets. This is confirmed by a difference in the pricing of risk between banks and the financial market in the euro area. Banks' credit conditions for non-financial corporations tightened in the second half of 2023, while credit spreads on bonds fell slightly. The estimated risk premia for the S&P 500 and Euro Stoxx 50 indices, which are very low by historical standards, suggest that stock markets are overvalued (see Chart II.4 CB). A sudden and disorderly price correction on financial markets thus remains a risk to global financial stability. Given the existing overvaluation of prices, such a correction could still be large. However, the likelihood of it occurring has decreased moderately following the period of rapid growth in interest rates, which the markets have so far managed to absorb without any major upheaval.

1 The phasing out of unconventional monetary policy instruments is continuing to tighten financial conditions in the euro area. Reinvestments of maturing instruments under the asset purchase programme (APP) have been ended, while those under the pandemic emergency purchase programme (PEPP) will slow at the start of the second half of 2024 and be discontinued at the end of the year.

Geopolitical tensions remain a significant source of global risks…

The direct impact of the conflict in Ukraine on the European and global economy has diminished slightly, as Black Sea shipping routes are relatively operational and countries' direct dependence on Russian commodities has decreased modestly. On the other hand, the tensions in the Middle East have increased significantly and are continuing to ramp up. There is great potential for these tensions to affect the global economy, from the ongoing restriction of maritime trade routes and rising shipping costs (due to attacks by Yemeni rebels; see Chart II.5 CB), through shocks to commodity prices, to the creation of conditions for the situation to escalate into a wider international conflict.

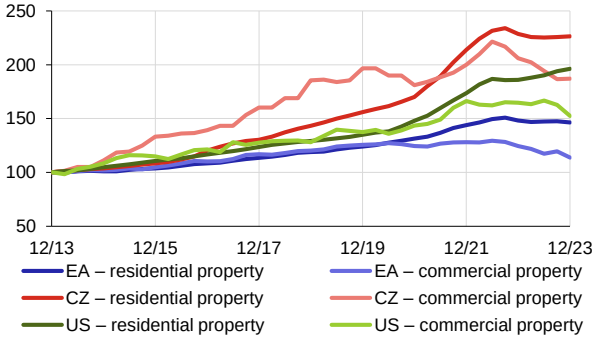
…as do high commercial property exposures in many advanced economies

The tightening monetary conditions and rising yield curves have induced quite large decreases in commercial property prices in many countries (see Chart II.9). This, combined with reduced income from office projects, where occupancy rates remain well below pre-Covid levels, is reducing the quality of commercial property loan portfolios. In particular, small and regional banks in the USA may run into difficulty, as they tend to have high concentrations of loans secured by such property.[2] Regulators and banks in some Western European countries are also voicing concerns about the impact of the commercial property crisis.[3] The situation in China, where property developers – previously one of the drivers of China's growth – continue to face problems, is also still a risk. The risks of the Chinese property market currently remain in the shade of others, but further negative developments would have a big impact on the entire global economy.

Chart II.9

Commercial and residential property price indices

(31 December 2013 = 100)



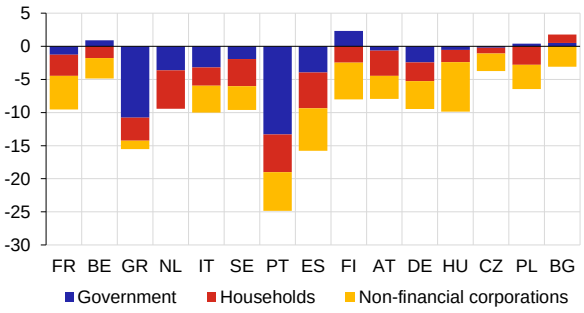
Source: BIS, iO Partners

Note: The commercial property price index for CZ is an estimate based on the average capital price across the commercial property segments.

Chart II.10

Change in the debt ratios of economic agents in selected EU countries

(pp; as of 31 December 2023)



Source: ECB

Note: Change compared to 31 December 2022. Debt is expressed relative to GDP.

The European financial cycle is close to its trough

The European financial cycle remains subdued amid elevated interest rates and weak lending activity. Euro area banks are currently recording a continuing decline in demand by non-financial corporations for loans. This decline is expected to continue in the first half of 2024.[4] By contrast, banks expect demand for loans to households to rise modestly for the first time in more than two years. Despite the generally muted demand, the share of rejected loan applications is still rising among both households and non-financial corporations. This indicates that banks are exercising caution in lending (see Chart II.6 CB). In line with the low lending activity, the debt ratios of the individual sectors also fell (with some exceptions; see Chart II.10). The sharp slowdown in lending to households was reflected in year-on -year house price growth, which was negative in many European countries during 2023 (see Chart II.11). The risks associated with credit expansion and growth in risky loans are thus currently subdued and are expected to start building up again only gradually over the longer term.

Governments' fiscal positions imply risks primarily in the longer term…

With inflation returning to the target and the need for support policies diminishing, gradual fiscal consolidation efforts can be expected in advanced economies. The speed of consolidation has so far differed greatly from country to country. A fiscal impulse far in excess of analysts' expectations was seen in the USA in 2023. By contrast, European governments reduced their issuing activity slightly year on year on average. Even so, some countries had budget deficits well above the 3% Maastricht criterion in 2023. According to projections, this will be the case in 2024 as well (see Chart II.12). Owing to the previous high inflation and rapid nominal GDP growth, however, most governments recorded a decrease in debt despite

2 Federal Reserve: *Banks' Commercial Real Estate Risks Are Uneven*.

3 Riksbank: *Property Companies Need to Reduce Debts* and ESRB: *Vulnerabilities in the EEA Commercial Real Estate Sector*.

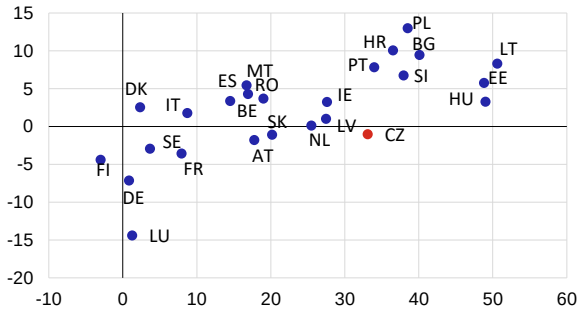
4 ECB: *The Euro Area Bank Lending Survey – First Quarter of 2024*.

running deficits. This has helped to reduce the deficit-related risks for the time being (see Chart II.10). The acute risks associated with the high government debt ratios in some countries (see Chart II.7 CB) and the high borrowing rates are meanwhile constrained by the relatively long average maturity of government bonds and a still high proportion of debt issued during the period of low interest rates. The values of credit default swaps, which are close to historical lows, also indicate a relatively low degree of currently perceived sovereign risk across EU countries.

Chart II.11

Residential property price growth in selected EU countries

(%; x-axis: three-year growth; y-axis: one-year growth)



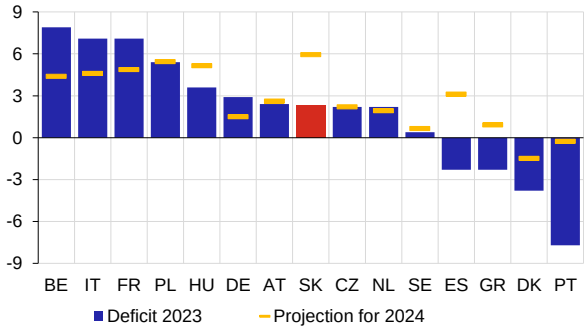
Source: Eurostat

Note: Data as of 31 December 2023. Due to different methodologies, the data for SK differ from those published by the NBS.

Chart II.12

General government deficits in selected EU countries

(% of GDP as of 31 December 2023)



Source: Eurostat, IMF

Note: The projections for 2024 are based on *Fiscal Monitor*, April 2024.

…and the need to consolidate public budgets may hinder the economic recovery

Although the acute risks have receded somewhat, increased debt financing costs combined with weak economic performance may make public finances vulnerable in the medium term. Highly indebted countries will need to strike a balance between long-term sustainability of public budgets and the scale of support policies and potential defence spending if geopolitical tensions escalate. To achieve this balance and create sufficient space for fiscal response if the existing macroeconomic risks materialise, many governments may soon be forced to embark on further and stronger fiscal consolidation. This is conducive to financial stability from a long-term perspective, but it could hinder the current economic recovery and increase the financial stress in part of the private non-financial sector in the short term.

II.1.2 The domestic environment

The CNB had already started the rate reduction cycle…

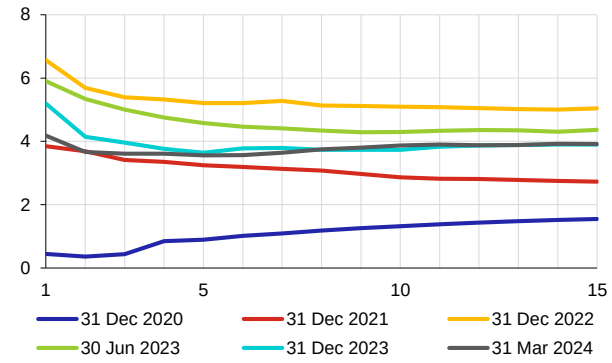
Inflation in the domestic economy reached the inflation target in the first few months of 2024 (MPR – Spring 2024) and the CNB was able to continue the rate reduction cycle it had started at the end of 2023 (see Chart II.2). The Czech government bond yield curve had peaked in late 2022 and early 2023 and had since been moving downwards, especially at its short end (see Chart II.13 and Chart II.8 CB). The relative stability at longer maturities was due to market participants' acceptance of a higher-for-longer scenario, i.e. that interest rates would be higher in the long term than had been observed over the past 15 years or so (see Chart II.8 CB, risk-neutral yield). Developments in the international environment also played a major role at the longer end of the Czech yield curve. The persistence of inflation induced the Federal Reserve to delay lowering interest rates and financial markets to revise their expectations regarding the duration of restrictive monetary policy (see section II.1.1, Chart II.6 and Chart II.7).[5]

…amid a fragile economic recovery…

Renewed real wage growth, a decrease in the effect of geopolitical tensions on energy prices and favourable tendencies in inflation expectations led to a cautious rise in consumer optimism in the domestic economy. This was reflected in an upward revision of the growth outlook (see Chart II.3). Consistent with this, the likelihood of an extremely adverse scenario accompanied by an appreciable decline in domestic GDP fell slightly (see Chart II.14). The risks associated with the current phase of the financial cycle remain highly subdued (see section V.3), while the gradual easing of monetary policy is also reducing the risks arising from higher interest costs for the real non-financial sector (see section II.2.2).

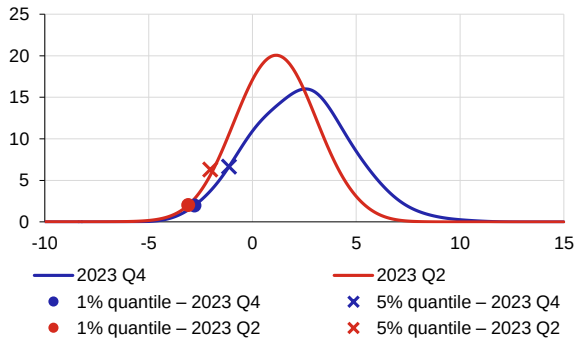
5 The Czech five-year government bond yield increased by more than 50 bp between the start of January and the end of April 2024, mainly in response to international developments.

Chart II.13
Czech government bond yield curve
(%; x-axis: residual maturity in years)



Source: Refinitiv, CNB

Chart II.14
Risk of adverse economic developments in the Czech Republic
(x-axis: year-on-year growth in %; y-axis: probability density)



…which may be affected by a range of structural risks in the medium term

On the other hand, however, the medium-term risks associated with the structure of the domestic economy and its industrial and export orientation are gaining in significance. There are particular concerns about the future performance of the German economy and its ability to cope with the country's ambitious energy, environmental and migration policies and with underinvestment and a falling working-age population[6] amid persisting geopolitical tensions. Close interconnectedness with a consistently weakly growing German economy would lead to subdued growth and weak investment activity in the Czech economy, too. It could also ultimately imply a loss of competitiveness for a large proportion of domestic firms, given their limited ability to penetrate new markets.[7] The structural risks also include risks associated with climate change. The domestic economy ranks among the European countries with above-average emissions intensity, so the impacts of the transition to a low-carbon economy could be sizeable. However, a lack of reliable data makes the potential risks hard to quantify. Newly published sustainability reports will help to change this situation (see Box 1).

BOX 1: Climate risk from the perspective of sustainability-related disclosures

Climate change-related risks are among the widely discussed risks to financial stability that the financial sector is gradually learning to handle effectively. In practice, comprehensive assessment of these risks is complicated by a lack of necessary data and by the low quality and considerable heterogeneity of the data that is available.[8] However, the situation is starting to change. Following the entry into force of the Corporate Sustainability Reporting Directive (CSRD), selected companies will gradually start to disclose sustainability information, which financial institutions will use and take into account in their risk management processes. This box presents the legal framework laying down the duty to disclose climate risk-related information, estimates what proportion of domestic companies may be subject to this reporting duty and describes how the CNB will use the data.

The legal framework in the EU

The obligation to disclose information on the environmental impacts of corporate activities has been regulated at EU level since 2013. The Non-Financial Reporting Directive (NFRD)[9] imposed a duty on large firms to disclose information on the negative environmental impacts of their activities in their annual reports. In 2022, it was replaced by the broader CSRD.[10] It widened the required disclosures to the environmental, social and governance (ESG) risks, opportunities and impacts of

6 IMF: *Germany's Real Challenges are Aging, Underinvestment, and Too Much Red Tape*.

7 Due to higher transport costs, duties and so on.

8 See *Financial Stability Report – Autumn 2022*, Box 7.

9 Directive 2013/34/EU on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings introduced reporting of non-financial information by large companies. To increase transparency on capital markets, Directive 2013/50/EU introduced a requirement to harmonise the transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market and about the prospectus to be published.

10 Directive 2022/2464 of 14 December 2022 entered into force on 5 January 2023. The transposition of CSRD into Czech law is under way. The transposing provisions relating to 2024 were implemented into the Accounting Act and other laws through Act No. 349/2023 Coll., amending certain laws in connection with the consolidation of public budgets. The bulk of the transposing provisions have been incorporated into a draft law amending Act No. 563/1991 Coll., on Accounting, as amended, Act No. 93/2009 Coll., on Auditors and on the amendment of certain laws (the Act on Auditors), as amended, and Act No. 416/2023 Coll., on top-up taxes for large multinational groups and large national groups. The bill is now in the legislative process and is proposed to take effect on 1 January 2025. The sustainability directive has been simultaneously transposed into the draft of the new Accounting Act, which is now in the legislative process.

firms' activities. It also extended the range of companies obliged to disclose this information and refined the formal reporting requirements.[11] CSRD thus aims to provide for standardised content ensuring transparent and relevant information, sufficient data quality and data comparability across the EU.

Climate risk disclosure requirements

The CSRD directive is based on binding European Sustainability Reporting Standards (ESRS) prepared by the European Commission in cooperation with the European Financial Reporting Advisory Group (EFRAG). These standards contain refined requirements for the quantitative and qualitative information disclosed, provide definitions of indicators and specify measurement methods to be used by companies when reporting on sustainability. In the area of climate risk (ESRS E1), companies falling under the scope of CSRD will have to monitor the following information and metrics:[12]

1. Greenhouse gas emission reduction targets
2. Energy consumption and mix
3. Gross greenhouse gas emissions (Scope 1, Scope 2, Scope 3 and total GHG emissions)[13]
4. Internal carbon prices[14]
5. Potential financial effects of material climate-related physical and transition risks

Companies will have to publish the information in the form of *sustainability reports* or *consolidated sustainability reports*, in which they will also provide their sustainability targets and key performance indicators (KPIs).[15] Not every company that will disclose sustainability information will have to do so in its own report. Companies that belong to a consolidated group may in some cases disclose sustainability information in a report of their parent company. An important part of these reports will be an overview of social responsibility throughout the value chain.[16] The proportionality principle[17] will be applied to determine to which companies will be subject to the duty to publish sustainability reports. Simplified ESRS standards are also being prepared for listed small and medium-sized enterprises (SMEs).

Table 1 (Box 1)

Start of application of CSRD in the Czech Republic

(indicative estimate of number of companies based on data as of 31 December 2022)

		Data for	Publication	Number of firms
Group 1	large public interest companies	2024	2025	Low dozens
Group 2	other large companies	2025	2026	Over a thousand
Group 3 and Group 4	SMEs	2026–2028	2027–2029	Low dozens

Source: Dun & Bradstreet, CZSO, CNB

Note: Group 1 and group 2 consist of large companies, which are defined by meeting at least two of the following three conditions: total assets of over CZK 0.5 billion, total annual net turnover of over CZK 1 billion and average number of employees for the accounting period of over 250. In the case of Group 1, a large company must also be an issuer of securities admitted to trading on a European regulated market and have more than 500 employees. Other large companies belong to group 2. Group 3 consists of SMEs that issue investment securities. A medium-sized company is defined by meeting two of the following three conditions: total assets of up to CZK 0.5 billion, total annual net turnover of up to CZK 1 billion and average number of employees of up to 250. A small company is defined by meeting two of the following three conditions: total assets of up to CZK 0.1 billion, total annual net turnover of up to CZK 0.2 billion and average number of employees of up to 50. If a small or medium-sized company decides to use the two-year transition period for exemption from the application of CSRD, it belongs to group 4, which consists of third-country companies operating in the EU through subsidiaries or branches. The table provides an indicative estimate of the number of reporting companies. Subsidiaries may be included in a consolidated sustainability report compiled by their parent company. Data will be reported for the period starting on 1 January of the given year or later if the calendar year and the accounting year are not the same.

11 These include, in addition to a requirement for machine readability, the duty to audit the information disclosed in order to ensure the reliability of data and reduce the risk of greenwashing.

12 See the ESRS.

13 Scope 1 (direct emissions) – emissions from activities that come under and are controlled by the company and are released directly into the air. Scope 2 (indirect emissions) – emissions associated with the consumption of purchased energy (electricity, heat, steam or cooling) and not directly generated in the company. Scope 3 (other emissions) – all other emissions that occur in the value chain and occur from sources not controlled by the company.

14 The price used by a company to assess the financial implications of changes to investment, production and consumption patterns, and of potential technological progress and future emissions abatement costs.

15 KPIs measure the efficiency of processes and are tracked over time to assess a company's overall long-term performance. They are quantifiable metrics such as profit and loss, employee turnover and average annual expenses. In their sustainability reports, companies will also disclose KPIs on the alignment of their activities with the EU taxonomy for environmentally sustainable activities under Article 8 of Regulation (EU) 2020/852 of the European Parliament and of the Council on the establishment of a framework to facilitate sustainable investment (the Taxonomy Regulation).

16 The CSRD uses the term *value chain*, which covers the entire process of the manufacture of a product or the provision of a service, from the initial design, through the procurement of all sources, commodities and materials, production, marketing, sale and delivery to the client, to after-sales service. This concept is broader than the traditional production chain captured in accounting.

17 The proportionality principle is laid down in Article 5(4) of the Treaty on the Functioning of the European Union. Its aim is to ensure that the measures taken by EU institutions are suitable and necessary to achieve the desired end, while not imposing an excessive burden on the individual concerned.

Companies required to report on sustainability

The duty to report sustainability information under CSRD will be introduced gradually depending on the type of company. The key factors for determining whether a company will be subject to the duty will depend on the size of the accounting entity, defined in terms of its balance sheet total, turnover and number of employees. In the case of SMEs, an additional necessary condition is that their securities must be traded on a European regulated market (see Table 1). Group 1 in the Czech Republic consists mainly of banks. Group 2 comprises large companies, most of which operate in the manufacturing sector (see Chart 1). The low number of companies in Group 3 and Group 4 is due to the characteristics of the domestic economy, in which entities traditionally rely on bank funding instead of using external funds raised on capital markets.

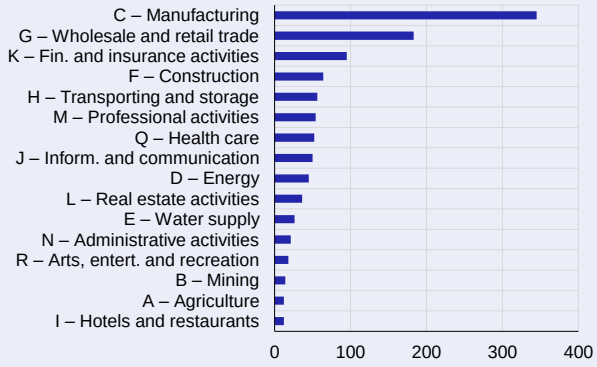
What matters is **how much of the domestic economy will be subject to CSRD**. We therefore provide an indicative estimate of the shares that the firms concerned have in employment in the various sectors (see Chart 2). In this respect, mining has the largest coverage, followed by energy. Both sectors are highly sensitive to climate transition risk. By contrast, the coverage of construction and agriculture, which are characterised by large numbers of small companies, is the lowest. In manufacturing, the share of companies subject to the duty to report on sustainability is about 20%. However, there is still considerable uncertainty about how the reporting duty will indirectly affect other companies in the value chain that do not have a direct reporting duty. There will be pressure on these entities to provide information as well, stemming from the obligation to report indirect emissions (scope 2) and other emissions (scope 3), too.

Another measure of the CSRD coverage of the domestic economy is the number of reporting companies among the **main greenhouse gas (GHG) emission producers in the Czech Republic**. According to estimates, CSRD will apply to approximately half of the 160 or so Czech entities participating in the EU Emissions Trading System (EU ETS). The remaining ETS participants are SMEs to which CSRD will not apply because they do not issue investment securities.

Chart 1 (Box 1)

Companies subject to CSRD by sector

(indicative estimate of number of companies)

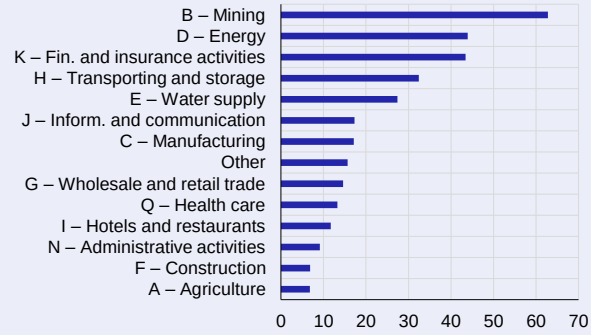


Source: Dun & Bradstreet, CZSO, CNB

Chart 2 (Box 1)

Shares of entities subject to CSRD in employment in sector

(indicative share of employment in sector in %)



Source: Dun & Bradstreet, CZSO, CNB

Note: "Other" comprises: L – real estate activities, M – professional, scientific and technical activities, R – cultural, entertainment and recreational activities.

CSRD and the banking sector

Given the key role of bank funding in the domestic economy, it is also important to analyse the relationship between companies subject to CSRD and the banking sector, especially from the perspective of the sectors which have the highest shares of GHG emissions in the Czech Republic[18] and which can be expected to undergo the largest changes associated with the transition to a low-emission economy (see Chart 3). Loans to these companies amounted to around CZK 62 billion at the end of 2022. This represents around 5% of the total stock of loans to the corporate sector. As regards loans drawn by companies with an obligation to report on sustainability, the largest shares are in mining (78%) and transport (59%). The largest amounts of loans generally go to real estate, trade and manufacturing (see Chart 4). However, the share of borrowers subject to CSRD is much lower in these sectors. CSRD will thus directly provide banks with new information on the management of climate risk in around 20% of their corporate exposures. To assess these risks in the remaining 80%, the banking sector will have to look for alternative sources. For example, agriculture, which has loans totalling

18 Electricity and heat generation had the highest share in GHG emissions (33%) in the Czech Republic in 2021, followed by industry (28%) and transport (16%).

CZK 58 billion and is most exposed to physical climate risk, is covered only marginally by the CSRD reporting duty in terms of share in loan portfolios.

Chart 3 (Box 1)
Loans broken down by selected sectors
(CZK billions; as of 31 December 2022)

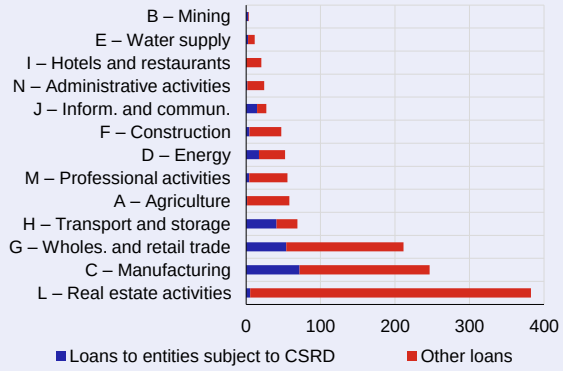
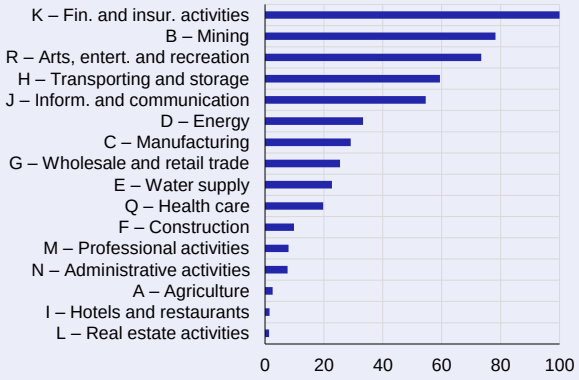


Chart 4 (Box 1)
Shares of entities subject to CSRD in loan portfolios
(share of total loans of sector in %; as of 31 December 2022)



Note: The chart only shows sectors with loans of over CZK 10 billion.

Use of data at the CNB
CSRD has imposed increased data collection and processing requirements on entities obliged to report on sustainability. High-quality data will allow for the application of quantitative approaches to the measurement and management of climate risks by the financial sector and the CNB. In banking supervision, the newly available information will be taken into account in the annual supervisory review and evaluation process (SREP). It will be also used to capture climate-related risks in the regular stress tests of financial institutions and to identify climate risks more accurately in credit risk analyses, collateral valuation and sectoral credit exposures.

The narrowing interest rate differential should have only a limited impact on the koruna exchange rate…
The monetary policy cycle in the Czech economy is slightly ahead of that in advanced economies. This is leading to a decrease in the interest rate differential between the koruna and the major currencies, which may make the domestic currency less attractive and put it under depreciation pressure. However, the likelihood of the koruna weakening markedly is limited to a large extent by the fact that the Czech banking system's foreign currency liabilities to non-residents with short maturity have long been broadly flat (see Chart II.15) and their share in relative terms is tending to decrease gradually as the overall balance sheet expands. The financial markets also view the risk of a major weakening of the koruna as low. This is suggested by options contracts[19] (see Chart II.9 CB) and relatively narrow cross-currency basis spreads for CZK/EUR currency swaps[20] (see Chart II.16), reflecting good availability of euro funding for the domestic banking sector. Besides financial factors, developments in the real economy – in particular expected growth in the trade surplus – should also partially offset any marked weakening of the koruna (MPR – Spring 2024).

…limited availability of foreign currency financing in the long term would be a risk to the real and financial sector
In the event of a significant increase in uncertainty on financial markets, the availability of foreign currency funding could worsen. This could ultimately lead to a sharp rise in euro funding costs for non-financial corporations. Growth in the share of foreign currency-denominated corporate loans since 2021 has increased the severity of the impact of this risk (see section II.2.2). If short-lived, however, the impact would be absorbed by non-financial corporations' relatively high rate of hedging against exchange rate movements. A particularly high rate of hedging is observed in export-oriented manufacturing, which uses natural hedging balancing foreign currency trade income and expenditure and partly also synthetic hedging in the form of derivatives. Businesses dependent on imports, for which reliable hedging data are not available, may therefore be a potentially vulnerable group.

19 Or rather by the risk-neutral distribution obtained from them. The risk-neutral distribution provides an estimate of the probability that market participants attach to the future evolution of prices (assuming investors are risk-neutral).

20 Cross-currency basis swaps are a sub-set of currency swaps with floating interest rates in both legs of the derivatives contract. The floating rates are determined on the basis of reference or swap rates. The price of the contract is expressed as a mark-up on the floating interest rate of the counter currency (PRIBOR for CZK/EUR contracts). Growth in the price (spread) of the contract would then reflect an increasing risk premium and signal a risk of a future weakening of the koruna.

Chart II.15
The Czech banking sector's liabilities to non-residents
(CZK billions)

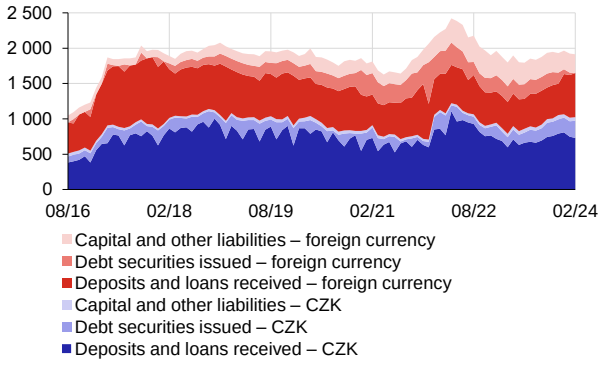
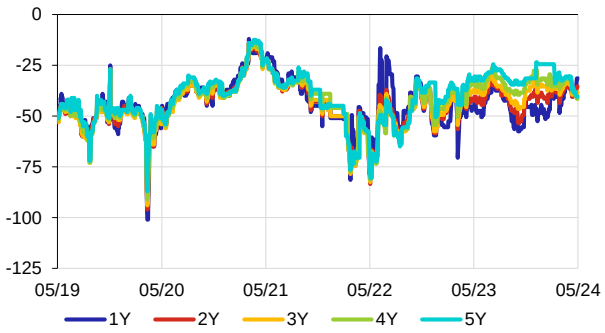


Chart II.16
Cross-currency basis spread – CZK/EUR
(bp)

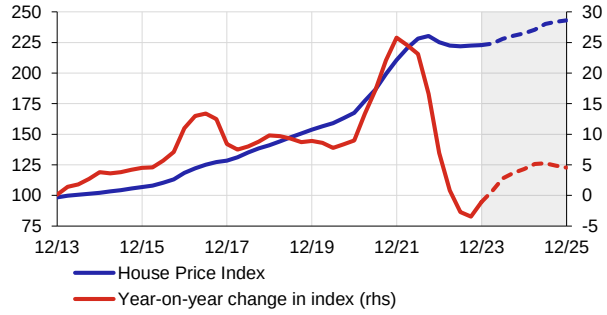


Source: Refinitiv Datastream

The decline in domestic residential property prices has halted

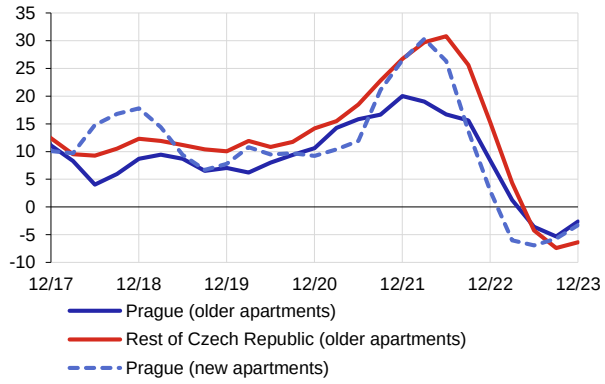
The decline in property transaction prices halted in the second half of 2023 after approximately one year, reaching almost 4% overall for the said period (see Chart II.17). Prices stabilised to a large extent across all regions and market segments, although the size of the earlier decrease and the speed of the turnaround differed slightly (see Chart II.18). The latest market data for apartments in particular suggest rather buoyant quarter-on-quarter growth in prices already in late 2023 and in 2024 Q1, especially for new builds (see Chart II.10 CB). This trend can be expected to be confirmed by official statistics in future months. It is also suggested by the latest figures on apartment asking prices (see Chart II.11 CB).

Chart II.17
Transaction prices of residential property in the Czech Republic
(2010 = 100; right-hand scale: %)



Source: CZSO, CNB
Note: The values in the grey area are projections based on the CNB's spring forecast (MPR – Spring 2024).

Chart II.18
Apartment transaction prices by region
(year-on-year growth in %)



Source: CZSO

The price growth will gradually pick up, reaching 5% at the end of 2024…

A projection based on the CNB's spring forecast expects the year-on-year growth rate of residential property prices to turn positive in 2024 Q1 and gradually increase to 5% at the end of 2024. In subsequent years, the price growth should stay at similar levels (see Table IV.1). This will be aided by a gradual decrease in interest rates on housing loans and by rapidly increasing nominal income. A decomposition of the historical movements of apartment prices reveals that these two factors have long had the dominant impact on them, while the effects of other factors have generally been fading (see Chart II.19). Due to the expected evolution of income and interest rates, the probability of a significant price drop in the coming quarters decreased markedly during 2023 (see section V.4). The risks of the residential property price projection are thus tilted towards faster growth, particularly at the end of the projection period.[21]

…together with a recovery in market activity

Activity on the property and mortgage markets is expected to recover gradually in line with prices (see section V.4). The number of transactions on the apartment market started to rise in Prague and the rest of the Czech Republic in the second

21 The probability of the re-emergence of year-on-year growth in residential property prices in excess of 20% is estimated at approximately 10% at the long end of the projection horizon.

half of 2023. Besides a gradual fall in client interest rates, this reflects improving household sentiment amid a sharp decrease in domestic inflation and inflation expectations. The amount of transfers remains low by the standards of recent years (see Chart II.12 CB) but will gradually return to its long-term average.

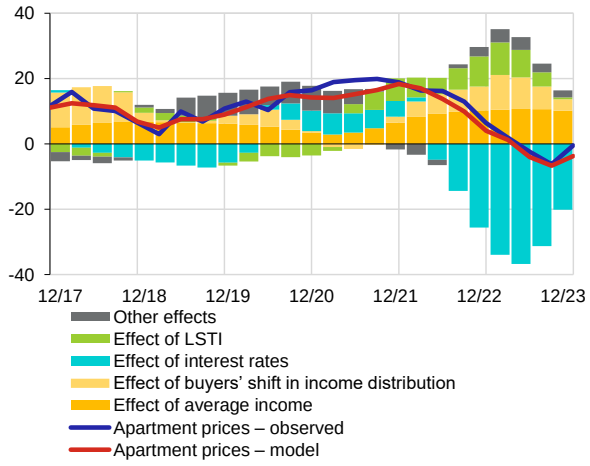
Insufficient construction may foster significant excess demand in the future…

The number of apartments on offer peaked in late 2022 and then started to decline gradually (see Chart II.13 CB). The first few months of 2024 saw some stabilisation at higher levels than in 2021, when supply had been almost completely exhausted. However, this mostly reflected demand-side movements, to which supply adapted. Supply will likely start to fall again once transaction activity on the property market returns to normal levels. Even though an upswing in apartment starts has been apparent since 2021, it has not been fully reflected in the number of completions (see Chart II.14 CB). Faced with falling demand and rising input prices, developers have begun to delay the implementation of projects that have already started. This may further increase the mismatch between supply and demand in the longer run.

Chart II.19

Growth in apartment prices and its contributing factors

(year-on-year growth in %; contributions in pp)



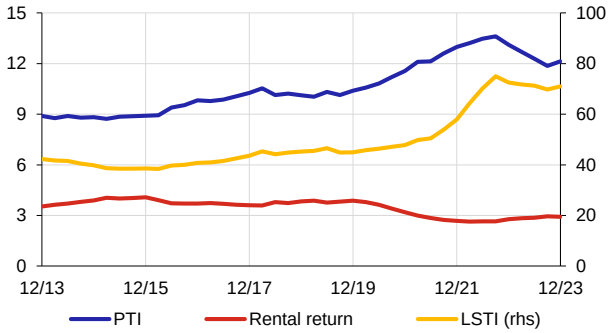
Source: CNB, CZSO, Dataligence, Deloitte

Note: The breakdown into contributions was carried out using the model applied for overvaluation assessment in the prudential approach, see Plašil, M., Andrle, M. (2019): Assessing House Price Sustainability, Thematic Article on Financial Stability 1/2019, CNB.

Chart II.20

Selected apartment affordability indicators

(PTI in years; yields in %; right-hand scale: %)



Source: CZSO, CNB, IRI, Deloitte/Dataligence

Note: PTI is the price-to-income ratio and LSTI the loan service-to-income ratio. The apartment price is defined as the average price of a 68 m^2 apartment in a regional capital. Income is defined as the annual moving total of the average gross wage. A loan with an LTV of 80% and a repayment period of 25 years was considered for the LSTI calculation. The actual LSTI ratios for loan applicants can be found in section V.4.

…and drive up prices in the largest cities in particular

The excess demand is highly regional in nature. Although almost 50% of new builds were in large regional centres (Prague, Brno and the Central Bohemia and Moravia-Silesia regions), from the structural perspective there is a large mismatch between the number of new apartments and the demographic trends in these agglomerations, which have been suffering from significant construction shortages for several years. Given the long-term supply constraints, increasing demand pressures could show up quickly in transaction prices and growth in prices could surge.

The improvement in the affordability of owner-occupied housing halted at the end of 2023…

The fall in property prices and partly also in client mortgage rates, coupled with growth in households' nominal income, made housing slightly more affordable during 2023. In recent months, however, this process has halted due to renewed growth in prices (see Chart II.20). The Czech Republic has one of the worst affordability levels by international standards (see Chart II.16 CB). There are sizeable differences in affordability across regions. As usual, the biggest cities (Prague and Brno) rank among the least affordable regions. Less developed regions (Ústí nad Labem and Moravia-Silesia) have long been at the other end of the spectrum.

…this may continue to motivate some households to switch to the rental market

The worsening affordability of owner-occupied housing was reflected in demand for rental housing and growth in new rental contracts.[22] Apartment rental returns increased in 2023 (see Chart II.20). However, they are rather low by historical standards, so there is still potential for them to rise further. The gap between the monthly instalment of an apartment

22 According to Eurostat, approximately 22% of households in the Czech Republic currently live in rented dwellings.

purchase mortgage and the rent on that same apartment remains very wide for typical initial LTV levels (see Chart II.21). The two options become comparable in terms of monthly expense only at LTV levels of less than 60% (see section V.4). Those levels imply that buyers need relatively high funds of their own to purchase a property. An environment of rising rents makes it more difficult for them to save up those funds. This will continue to be reflected in the demand for, and structure of, mortgage loans (see section V.4.1).

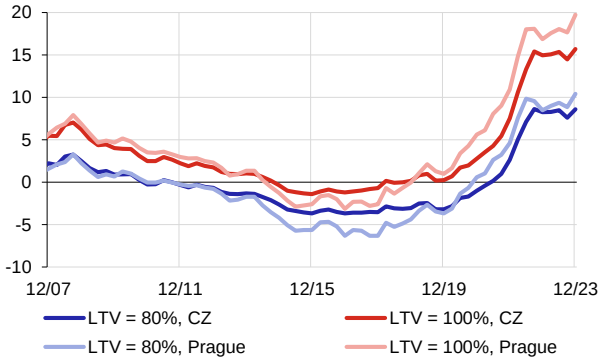
The overvaluation of apartment prices[23] increased slightly in late 2023 after a period of decline…

Like the housing affordability indicators, the degree of overvaluation stopped falling in late 2023. Under the macroprudential approach, apartments nonetheless remained overvalued by around 62%[24] for a liquidity-constrained, median-income household at the end of 2023 (see Chart II.22). The high values mean that this household has limited options for debt-financing an average apartment, as the loan size would exceed its ability to safely repay the loan from its available income, potentially exposing it to a high risk of future default.

Chart II.21

Gaps between mortgage loan instalments and apartment rents

(CZK thousands/month)



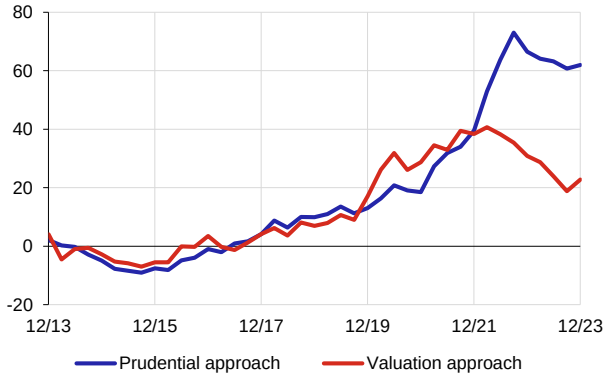
Source: CNB, IRI, Sreality, Deloitte, Dataligence

Note: The gap shows the difference between the instalment and the rent. The chart refers to 68 m^2 apartments in regional capitals. Rents are represented by the Deloitte Rent Index and apartment prices by the Deloitte Real Index. A 30-year repayment term is assumed. Sreality and IRI data were used to estimate some missing values for the pre-2020 period.

Chart II.22

Estimated overvaluation of apartment prices

(%)



Note: The methodology of the indicators is described in Plašil, M., Andrle, M. (2019): *Assessing House Price Sustainability*, Thematic Article on Financial Stability 1/2019, CNB. The overvaluation estimate is based on the CNB's spring forecast (MPR – Spring 2024).

…but is relatively low for a typical household with a new mortgage

Given the actual income composition of households that have been provided with housing loans, the observed degree of overvaluation[25] under the prudential approach is nevertheless substantially lower and thus implies significantly lower risks, especially when there are two joint borrowers. A household applying for a loan to purchase an apartment in January or February 2024 typically had a combined net income of CZK 68,000 per month (see Table V.2 CB). Where the loan is extended to a single borrower, the overvaluation of apartment prices is around 7% in this case. Where it is extended to two borrowers, the property purchased can be assessed as slightly undervalued – by around 4% (see Chart II.15 CB). Sizeable differences can be seen across regions. The highest overvaluation was estimated in Prague (around 22% for a single borrower), whereas the Ústí nad Labem Region recorded undervaluation of as much as 21% for two borrowers. The degree of overvaluation of buy-to-let apartments (under the valuation approach) was close to 23% at the end of 2023 (see Chart II.22).

23 This is a model-based overvaluation; it generally shows the affordability of housing for a Czech household with median income and limited own funds buying an average apartment. A positive model-based overvaluation indicates that the price of the average apartment is higher than the loan size that can be safely repaid, here with the DSTI ratio at 35%, plus the available own funds of the household (an LTV of 80% is considered). Risks to financial stability would arise if households reacted to limited availability of housing by taking on excessive debt.

24 This is the ratio of the observed market price of the average apartment (CZK 6.3 million at the end of 2023) to the fundamental value, i.e. the value of an affordable apartment from the perspective of a Czech household with normal income (CZK 54,000 at the end of 2023) and low own funds (a maximum of around CZK 1.2 million). The deviation of prices from fundamentals is not in itself a predictor of how much property prices will fall in the future.

25 The observed overvaluation shows the risks associated with mortgage loans already provided to households. This overvaluation compares the transaction price of a property financed by a mortgage loan in a given period with the value that can be considered safe for the household in question. Positive observed overvaluation thus indicates that the household has taken on a loan that is higher than can be considered safe in view of the set limits on credit ratios. See the cnBlog article *Nadhodnocení cen nemovitostí jako jedno z rizik hypotečního trhu* (*Property Price Overvaluation as One of the Risks of the Property Market,* in Czech only).

Prime yields on the commercial property market rose slightly and the price correction is starting to slow down

Prime yields on commercial property kept rising in the second half of 2023 (see Chart II.23) against a backdrop of tighter monetary policy in the Czech Republic and the euro area and higher foreign long-term interest rates (see section II.1.1).[26] If the expected economic scenario materialises, yields should tend to stagnate or rise negligibly during 2024. In connection with the rise in prime yields, commercial property prices continued to fall year on year. Going forward, however, the decreases should be only moderate, and a partial return to growth can even be expected. The market situation during 2023 continued to reflect uncertainty about the evolution of rents and rising property operating costs on the one hand and growth in prices of debt financing and construction work on the other. Renewed growth was hindered the most by considerable uncertainty regarding future demand, owing to the general economic situation and to Covid-related structural changes on the market (a greater preference for online shopping and remote working).

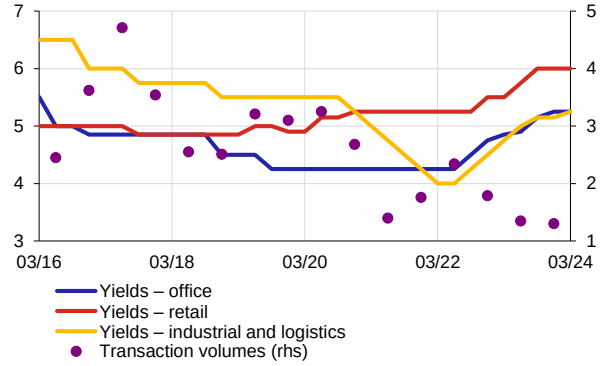
Despite having fallen, commercial property prices remain overvalued

Given the existing uncertainties, the growth in domestic prime yields has been moderate so far. Despite some increase in the risk premium (see Chart II.17 CB), the CNB thus assesses prime yields as still quite low relative to fundamentals. This points to persisting overvaluation of prices. Given a further increase in uncertainty, prime yields could continue to rise. This would ultimately mean a further decrease in the value of collateral used to obtain bank funding (see section V.4.2).

Chart II.23

Yields on commercial property and transaction volumes in the Czech Republic

(%; right-hand scale: EUR billions)



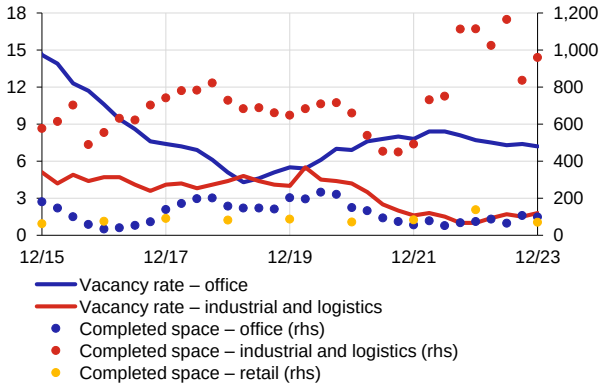
Source: iO Partners

Note: Prime yields. Transaction volumes are reported as annual moving totals at semi-annual frequency.

Chart II.24

Vacancy rates and completed space for commercial property

(vacancy rates in %; right-hand scale: space in thousands of m^2)



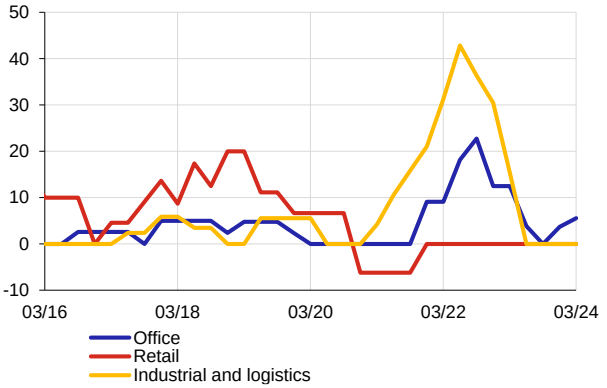
Source: iO Partners

Note: Stocks of completed space are reported as annual moving totals.

Chart II.25

Prime commercial property rents in the Czech Republic

(annual percentage changes)

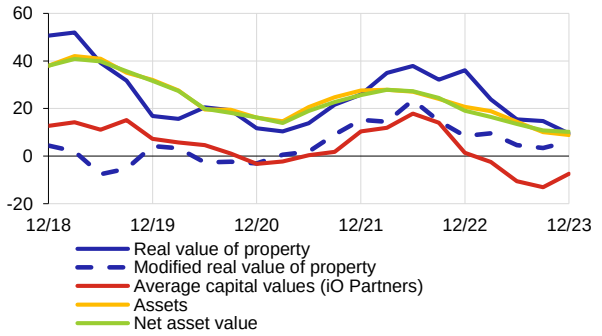


Source: iO Partners

Chart II.26

Open real estate funds in the Czech Republic

(annual percentage changes)



Source: CNB, iO Partners

Note: The average capital values are theoretical values on the Czech prime commercial property market representing their prices as estimated by iOPartners. They therefore do not originate from real estate fund statements. The modified real property value takes into account the fact that part of the growth in the value of the property owned is due to inflows of new investor funds rather than to growth in property prices.

26 A large proportion of commercial property transactions are made in euros. Rents are likewise set largely in euros.

Activity on the Czech commercial property market remained very low in the second half of 2023

After having decreased in 2022, transaction activity remained highly subdued throughout 2023. It is thus still far below the average for the last ten years (see Chart II.23). Newly completed space likewise remained low – close to a historical low in the case of office property. Newly completed industrial and logistics space was higher than it was before the pandemic (see Chart II.24). Given the very low vacancy rate and persisting demand for new space, this segment is likely to remain resilient to the risk of disorderly growth in prices over the next few quarters. By contrast, there is still a risk of a price correction in the case of retail space due to lower occupancy rates (see Chart II.24). Even here, though, rental agreements were mostly extended successfully and tenants were willing to accept current rents going forward. Rents for industrial and logistics property and offices were also flat at the end of 2023 (see Chart II.25). This trend continued into 2024 Q1, except in the office segment, where rents were now rising slightly. Generally speaking, the probability of commercial property-related risks materialising has been decreasing over the past few months.

Real estate funds also recorded downward pressure on the prices of commercial property in their portfolios

Domestic real estate funds have become significant investors on the domestic commercial property market over the past few years (the fair value of their property was around CZK 102 billion at the end of 2023; see section III.3) and their data can be used as another source of information about commercial property. There is generally a shortage of such information not only in the Czech Republic, but across Europe. The data that real estate funds report to the CNB includes the fair value of the property they own. This can be used as alternative information on property prices. After adjustment for new inflows of investor funds, it confirms that commercial property prices were previously under sizeable downward pressure (see Chart II.26), pressure which gradually eased in late 2023.[27] Overall, then, this indicator fits the picture from other sources.

27 The adjusted fair value of property shows very similar year-on-year growth to the capital prices sourced from iO Partners. However, this growth has not turned negative even in recent quarters. This might be due to other factors for which the indicator should be adjusted (besides inflows of new clients and hence purchases of new property). For example, a significant proportion of the property held is located outside the Czech Republic, where property price growth may differ to some extent from that in the Czech Republic.

II.2 THE NON-FINANCIAL SECTOR

II.2.1 General government

General government continued to run a budget deficit

The deficit of 3.7% of GDP in 2023 represented a slight year-on-year deterioration (see Chart II.27). If the *Baseline Scenario* materialises, the budget deficit will gradually decline to 0.9% of GDP in 2026. The consolidation package will have a significant effect in terms of gradually shrinking the deficit. It will also foster a modest decrease in general government debt, which will remain below 44% of GDP over the entire *Baseline Scenario* (see Chart II.28). The positive impact of the consolidation package on public finances has already been reflected in the country's rating, with Fitch upgrading its long-term rating outlook from negative to stable in February 2024. The Czech Republic thus still ranks among the EU countries with higher ratings (see Chart II.20 CB).

Chart II.27
General government balance
(% of GDP)

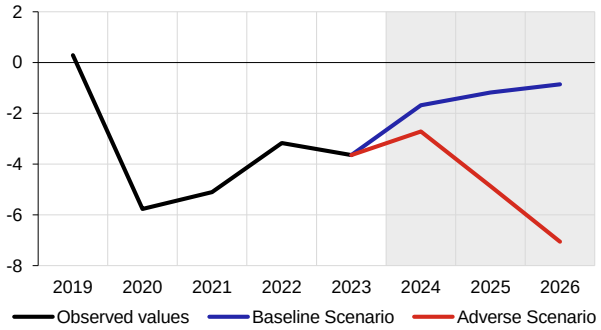
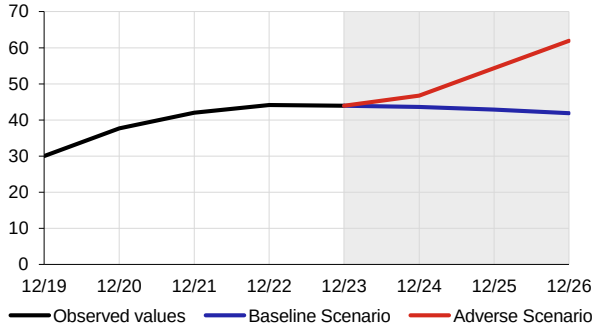


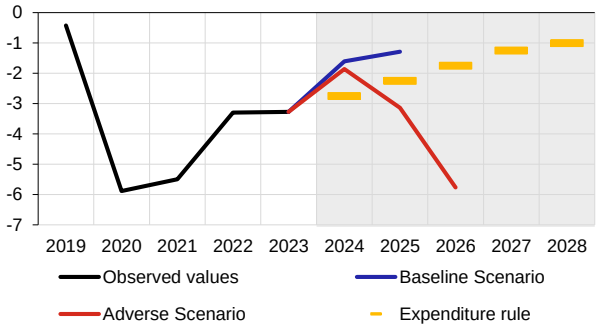
Chart II.28
General government debt
(% of GDP)



The fiscal space remains limited

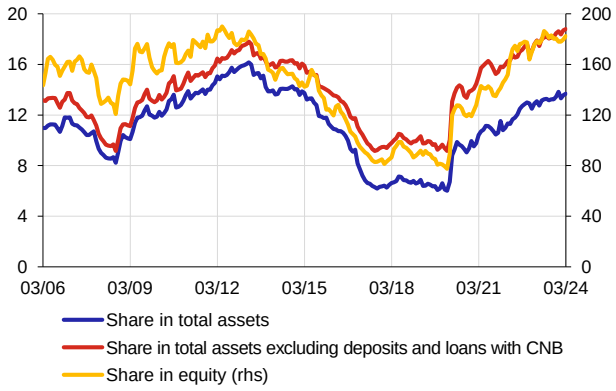
Despite the consolidation efforts, the fiscal space has remained relatively small and the debt brake of 55% of GDP could be rapidly exceeded in the event of an unexpected highly adverse shock. Another contributory factor is the long-term structural imbalance in the public finance system, which was 3.3% of GDP in 2023 (see Chart II.29). In the *Baseline Scenario*, a gradual decline in the structural deficit is expected, in line with the expenditure rule. However, the pace of decline will be relatively low and the structural balance will remain negative until 2025. Therefore, the consolidation efforts should not be reduced in the years ahead. The fiscal space should be increased to a level which would ensure the safe absorption of even highly adverse shocks and limit the risk to financial stability arising from the excessive interconnectedness of the financial and government sectors (see section IV.5). As agreed by the EU Council of Finance Ministers (Economic and Financial Affairs Council) at the end of 2023, sufficient fiscal space should be ensured, among other things, by running a public finance deficit of no more than 1.5% of GDP. According to the *Baseline Scenario*, the Czech Republic should achieve this level in 2025 (see Chart II.27).

Chart II.29
General government structural balance
(% of GDP)



Source: CNB, Ministry of Finance of the Czech Republic
Note: The expenditure rule is defined in Act No. 23/2017 Coll., on Budget Responsibility.

Chart II.30
Share of general government debt securities on the balance sheets of domestic banks
(%)



The interconnectedness of the banking sector and general government continues to grow

In 2023, Czech government bond issues reached their second-highest level ever (CZK 640 billion; see Chart II.19 CB). The government's high borrowing requirement is thus still fostering high issuance activity. According to Ministry of Finance data, general government's largest creditors as of the end of March 2024 were non-residents with CZK 1.06 trillion (see Chart II.18 CB) and the domestic banking sector with CZK 1.05 trillion. The share of Czech koruna government bonds held by banks fell at the end of 2023, when there was a transfer of government bonds from banks to non-residents in the context of their use as collateral for repo transactions between banks and non-residents (especially within financial groups). From an economic perspective, i.e. without taking repo-related transfers into account, the government debt is still mostly held by domestic banks. The share of Czech koruna government debt securities in the Czech banking sector's total assets rose to almost 14% (see Chart II.30). The potential risk to financial stability in the sense of mutual transmission of an adverse shock between the banking sector and general government has thus increased further over time (see section IV.5).

Developments under the *Adverse Scenario* confirm limited fiscal space

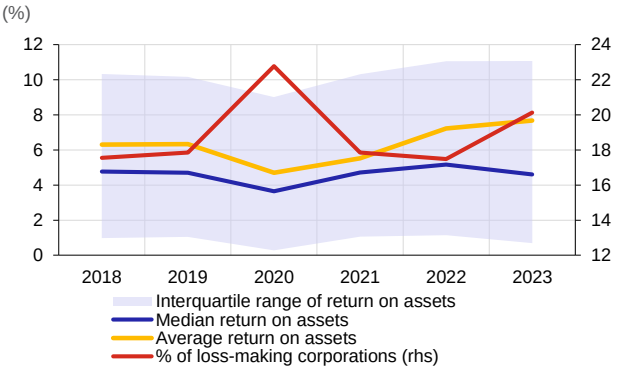
Under the highly adverse economic shock assumed in the *Adverse Scenario* (see Table IV.1), general government would record a sizeable budget deficit (see Chart II.27). In such a situation, the government would also implement measures going beyond the cyclical downturn, and the structural balance would exceed the limit of the expenditure rule, in accordance with the rules on budget responsibility[28] (see Chart II.29). The general government deficit would lead to rapid growth in the debt ratio (see Chart II.28). The debt brake of 55% of GDP and – assuming a relaxation of the budgetary responsibility rules – the Maastricht debt criterion of 60% of GDP would be exceeded in 2026. A further large rise in the issuance of Czech government bonds would further increase their share in the total assets of the Czech banking sector and potentially also of non-residents, with implications for financial stability (see section IV.5). The *Adverse Scenario* thus suggests that there is relatively limited fiscal space for active government policy in the event of a significant economic slowdown.

II.2.2 The private non-financial sector

Firms' profitability rose slightly on average, as did the share of loss-making corporations…

The average profitability of firms – as measured by the return on assets of the biggest domestic corporations – rose slightly year on year in 2023 from an already relatively high level (see Chart II.31). This is also evidenced by the aggregate profit rate (see Chart II.22 CB). However, the median profitability declined year on year and the share of loss-making corporations rose. These different developments reflect different profitability across sectors[29] and firm sizes. In individual sectors, though, the median profitability was comparable to pre-pandemic levels (see Chart II.23 CB and Chart II.24 CB). While the energy sector, for example, benefited from ever higher energy prices (and a drop in firms' assets also had a major effect), the lower profitability of industrial firms was due mainly to a decline in the profitability of car component suppliers (not that of car makers themselves, which increased year on year). In the coming years, firms' profitability may continue to be squeezed in a situation of only a gradual economic recovery (see section II.1). The CNB will now use also more detailed data sources to monitor developments in the non-financial corporations sector (see Box 2).

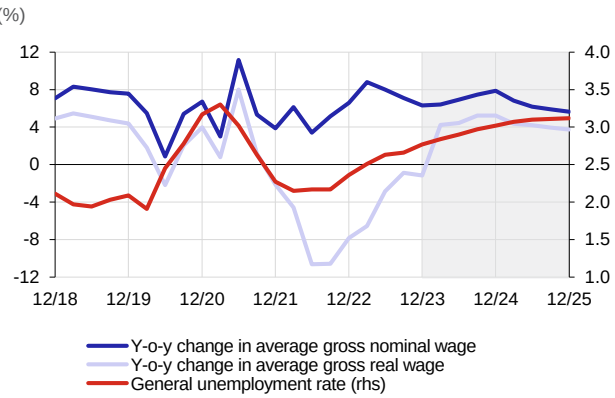
Chart II.31
Pre-tax return on assets and share of loss-making non-financial corporations



Source: CZSO

Note: The results are based on a sample of 1,590 non-financial corporations.

Chart II.32
Labour market indicators



Note: The values in the grey area are based on the CNB's spring forecast (MPR – Spring 2024). The general unemployment rate is seasonally adjusted.

28 Article 4 of Act No. 23/2017 Coll., on Budget Responsibility (in Czech only).

29 Adjusted for the energy sector, the average return on assets would also have fallen from 7.8% to 7.0% year on year in 2023.

…and the unemployment rate

The slight cooling of economic activity was reflected in a gradual rise in the unemployment rate. If the *Baseline Scenario* materialises, the unemployment rate will continue to rise moderately in the coming years and generally remain low (see Chart II.32). An only slight easing of labour market tightness will foster higher growth in the gross average wage (see Chart II.32) and the net average wage (see Chart II.25 CB). Wages will also start rising again in real terms in 2024 after a two-year decline.

BOX 2: Financial analysis of non-financial corporations

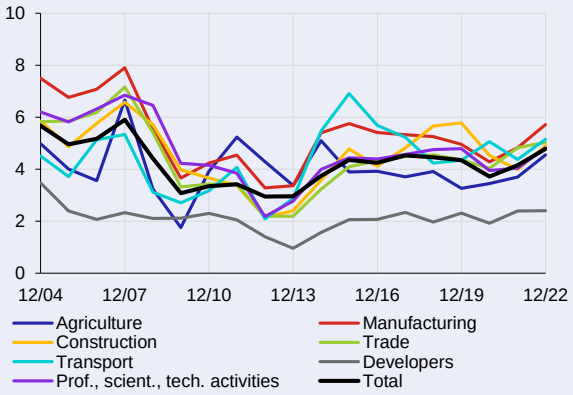
The CNB has new balance sheet data and profit/loss figures covering up to 280,000 non-financial corporations operating in the Czech Republic.[30] This allows for a more detailed analysis of the situation in the corporate sector across industries and firm sizes compared to the data sources used previously.[31] The aim of this box is to introduce the key indicators monitored at the level of individual non-financial corporations. Knowledge of these indicators for a broad sample of firms will also allow us to refine the stress testing of the non-financial corporations sector in the future (see section IV.3).

An analysis of the financial reports reveals that the financial condition of corporations has been improving since 2014, when the Czech economy began growing again after a long period of decline in real economic activity. This is also evident from the median **profitability of corporations** as measured by return on assets (see Chart 1) and return on equity (see Chart 2), which have stayed constantly above 4% and 8% respectively.[32] Labour market pressures started to be reflected in profitability in 2018–2019. However, a more significant decline was recorded during the pandemic in 2020. This was followed by renewed growth in 2021–2022 due to the materialisation of deferred demand and the high inflation environment. However, the trends varied across industries. While the median profitability declined in most industries in 2020, it increased for firms in transport and agriculture. Agriculture recorded the highest growth in the following two years as well. The relatively low profitability in the area of real estate activities (property development), which is crucial to financial stability (see Chart V.7), is due to specific factors in this sector. These include its high capital intensity, its high leverage levels and thus high interest expenses, and the long-term nature of its investments (and hence slow turnover).

Chart 1 (Box 2)

Return on assets by industry

(median in % of assets)



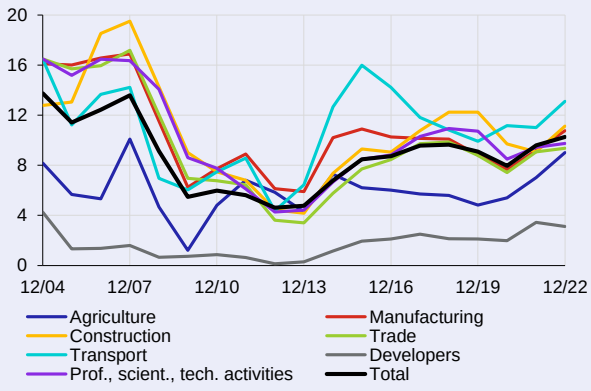
Source: Dun & Bradstreet, CNB

Note: The number of firms analysed ranges between 4,000 and 68,000 depending on the period. Earnings before interest and taxes (EBIT) were used to calculate RoA to eliminate different interest burdens.

Chart 2 (Box 2)

Return on equity by industry

(median in % of equity)



Source: Dun & Bradstreet, CNB

Note: The number of firms analysed ranges between 9,000 and 136,000 depending on the period. Only firms with positive equity were taken into account. Earnings after taxes (EAT) were used to calculate RoE.

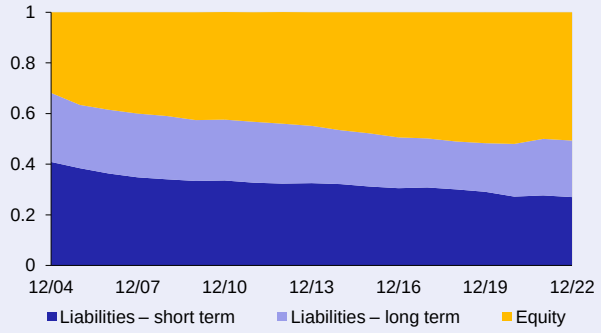
30 The data source is Dun & Bradstreet Czech Republic. The data are available with a lag of around one year, so the latest data are for 2022. The CNB has about 11,000 reports for 2004. The number then increases gradually to 76,000 by 2013 and ranges between 169,000 and 286,000 in 2014–2022. Due to incomplete data and different reporting obligations depending on corporation size, a lower or different number of reports usually enters the calculation of the ratios.

31 The main data source used previously for the financial situation of individual firms was CZSO report P6-04, which covers up to 2,000 of the largest non-financial corporations in the Czech Republic (by asset size). These data are used in particular to calculate profitability indicators (see Chart II.31 and the cnBlog article *Zisky, ziskovost, míra zisku, marže… Kdo se v tom má vyznat* (*Profits, Profitability, Profit Rate, Margin…Who is Supposed to Make Sense of All This?!*, in Czech only).

32 The return on assets in the wide sample of firms used corresponds in recent years to that in the largest firms according to CZSO reports (see Chart II.31).

The **debt ratio of non-financial corporations** is another key indicator. It has fallen at the median level over time (see Chart 3). Alongside return on equity, this indicates profitability growth based on equity and not on rising debt. The exception was 2021–2022, when the debt ratio rose slightly, due in part to inflation and the energy crisis. The interest coverage ratio (ICR) is another important indicator. It indicates the number of times by which earnings before interest and taxes (EBIT) exceed interest on debt. The ICR rose from a low level of around 2 in 2013 to above 5 in 2017 due to higher profitability and falling interest rates. A slight decrease in profitability and growth in interest[33] in the following years caused it to fall back to close to 4. The decline in the last observed year was due predominantly to faster growth in interest rates than profitability. An ICR of less than 1 is generally considered risky. This indicates a situation where the firm is unable to cover its interest rate expenses with its operating profits. The share of such firms was 27% in 2022 (see Chart 4). It broadly follows the share of loss-making firms[34] and mirrors the ICR. This means that the key factor affecting the ability of firms to cover their interest expenses is their earnings before taxes, not their debt service.[35]

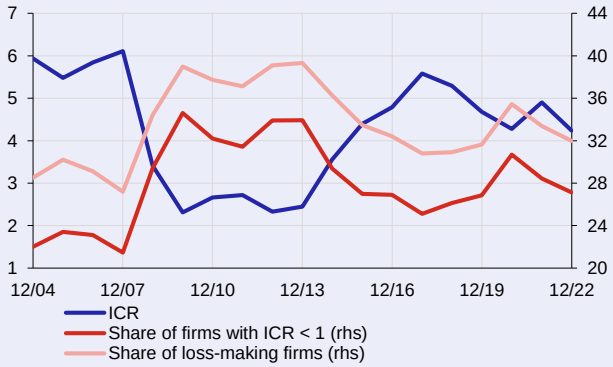
Chart 3 (Box 2)
Debt ratio of non-financial corporations
(median in % of assets)



Source: Dun & Bradstreet, CNB

Note: The number of firms analysed ranges between 11,000 and 241,000 depending on the period. The estimate of the structure of liabilities by maturity is based on a smaller sample of firms.

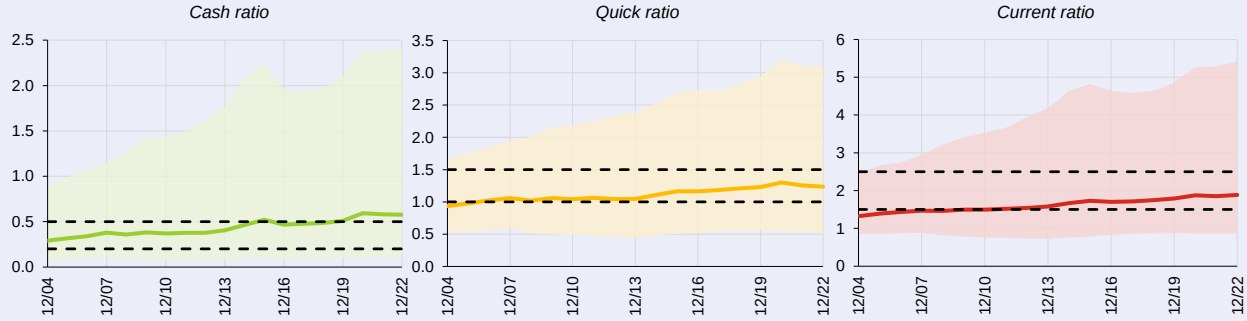
Chart 4 (Box 2)
Interest coverage ratio and share of loss-making firms
(median as multiple of interest expenses; right-hand scale: share in %)



Source: Dun & Bradstreet, CNB

Note: The number of firms analysed ranges between 4,000 and 68,000 for the interest coverage ratio and between 11,000 and 163,000 for the share of loss-making corporations depending on the period.

Chart 5 (Box 2)
Liquidity ratios of the non-financial corporations sector
(multiple of short-term liabilities)



Source: Dun & Bradstreet, CNB

Note: The coloured line denotes the median, the coloured background the interquartile range (25th to 75th percentiles) and the black dashed lines the generally recommended upper and lower limits on the ratios. The number of firms analysed ranges between 11,000 and 167,000 for the cash ratio and between 11,000 and 163,000 for the quick ratio depending on the period.

33 In August 2017, the CNB increased the 2W repo rate from 0.05% for the first time since 2012. The rate continued to rise steadily to 2.25% in February 2020. It was eased to 0.25% in May of the same year and only started to rise gradually again in June 2021.

34 The growth in the share of loss-making corporations in the wide sample of firms used corresponds in recent years to the trend in the largest firms according to CZSO reports (see Chart II.31). However, the figure for the broad sample is higher, reflecting a generally higher share of loss-making corporations in the case of the smaller enterprises not included in the CZSO's reports.

35 In 2022, of the corporations with an ICR of less than 1 (27% of the sample), the majority (22.5 pp) were loss-making and only a minority (4.5 pp) had a positive operating profit, albeit a smaller one than their debt service interest expenses.

The last key indicator of the financial soundness of corporations is **liquidity**.[36] The median cash ratio of non-financial corporations rose over the entire observed period and was inside the generally recommended[37] range of 0.2–0.5 (see Chart 5). In 2020–2022, it was even above this range, partly due to firms' caution and rising profitability. The growth in this ratio was in line with that in the bank deposits of non-financial corporations (see Chart II.30 CB). The median quick ratio, which measures the firm's ability to meet its short-term obligations without disrupting operations by selling inventories, also grew over time and was within the recommended range of 1–1.5. The median current ratio did not attain risky levels either. Unlike the cash ratio and the quick ratio, the current ratio saw no decline in its median value over the last two observed years, possibly due to problems in supply chains and a build-up of inventories. In addition to the median, however, it is important to take into account the specific features of each industry, as they will determine the individual "safe" levels of the liquidity ratios.[38] From a macroeconomic perspective, and given the overlap with risks to financial stability, the CNB thus monitors the liquidity situation of non-financial corporations over time.

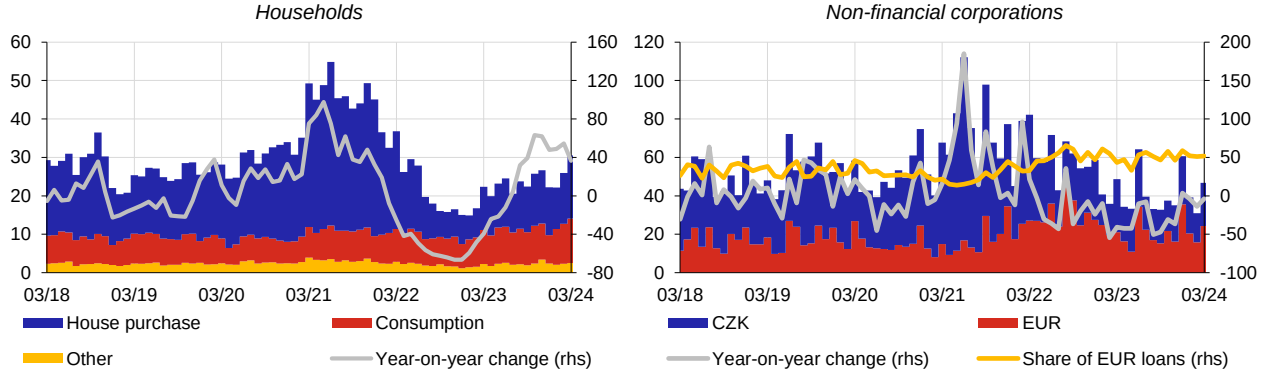
Lending to households and non-financial corporations remained mostly subdued…

The volume of pure new loans to households was still relatively low in the second half of 2023 (CZK 20 billion in December 2023, with housing loans accounting for CZK 12.5 billion). In 2024 Q1, loans for house purchase and loans for consumption both recovered slightly (to CZK 16.5 billion and CZK 11.6 billion respectively; see Chart II.33). In quarter-on-quarter terms, the loan volume increased by almost CZK 6 billion in 2023 Q4 and CZK 5.3 billion in 2024 Q1. Pure new loans to non-financial corporations rose temporarily at the close of 2023 (to CZK 60.5 billion in December) but fell back to an average of CZK 39 billion in 2024 Q1 (see Chart II.33). The rise at the end of the year was driven by demand (the negotiation and above all drawdown of loans; see Chart II.26 CB) for a large volume of investment loans on the part of several large corporations. Similar sectoral trends are also visible in banks' credit standards, which stayed mostly relaxed for loans to households for house purchase but remained stable for non-financial corporations (see Chart II.27 CB).

Chart II.33

Pure newly negotiated bank loans

(monthly volumes in CZK billions; right-hand scale: %)



Note: Pure new loans comprise increases in existing loans and are adjusted for refinanced and refixed loans. The figures include signed contracts regardless of drawdown. They do not include revolving loans.

…in line with that, the debt ratios of the two sectors remained subdued

The changes in the volume of pure newly negotiated loans to households were also reflected in the year-on-year growth rates of loans for house purchase and consumption, which slowed further in late 2023 and then stabilised at 2.9% (loans for house purchase) and 7% (loans for consumption) in 2024 Q1 (see Chart II.34). In line with that, the debt ratio of households fell further and was fairly low at the end of 2023 (see Chart II.35). Different developments were observed for non-financial corporations, which recorded a marked rise in the stock of loans of 8.7% at the end of 2023 and 9.9% in 2024 Q1 (see Chart II.34) and a related slight increase in the debt ratio (see Chart II.36). This was due to a low base, the

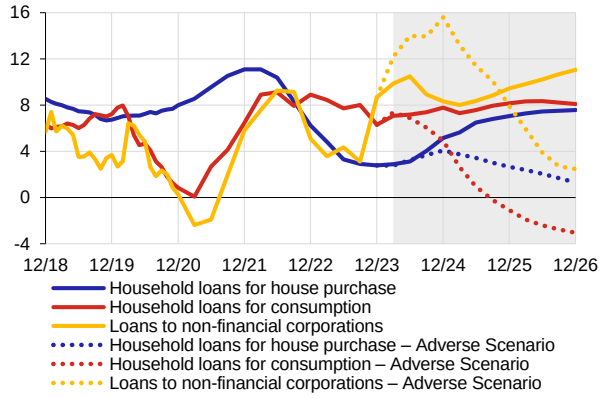
36 Liquidity can be measured by three tiers of indicators. The cash ratio (Tier 1 liquidity) is the ratio of financial assets to short-term liabilities. The quick ratio (Tier 2 liquidity) is the ratio of current assets (including financial assets) excluding inventories to short-term liabilities. The current ratio (Tier 3 liquidity) is the ratio of total current assets to short-term liabilities.

37 See, for example, Dluhošová et al. (2010): *Finanční řízení a rozhodování podniku* (*Financial Management and Corporate Decision-making*, in Czech only). Prague: Ekopress. ISBN 978-80-86929-68-2

38 Service sector industries typically have low inventory levels, so their current ratio is close to their quick ratio. This can be illustrated using the accommodation and food service activities segment (NACE I), where the quick ratio was 0.91 and the current ratio 1.1 in 2022.

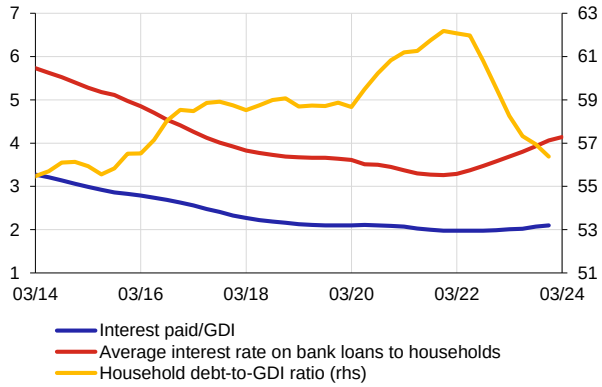
increase in the drawdown of investment loans in December and the revaluation of euro loans using a weaker koruna exchange rate. As the share of euro loans is now close to 50% in terms of both outstanding and newly negotiated loans, the debt in koruna terms will remain sensitive to exchange rate movements (see Chart II.28 CB and Chart II.33).

Chart II.34
Projections of growth of bank loans in the private non-financial sector
(year on year in %)



Note: The values in the grey area are based on a projection consistent with the CNB's spring forecast (MPR – Spring 2024).

Chart II.35
Debt ratio and interest paid by households
(%)



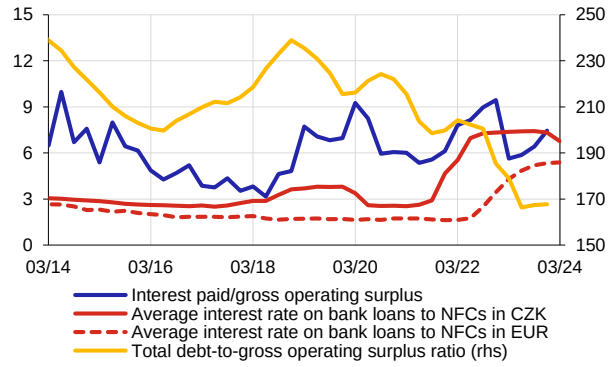
Source: CNB, CZSO

Note: The household sector also includes data for NPISHs. The interest rate is calculated as the average interest rate on the stock of bank loans to households.

The growth rate of loans for house purchase will start rising gradually due to decreasing interest rates…
The expected evolution of household income (see Chart II.32) and interest rates (see Table IV.1) in the *Baseline Scenario* is consistent with a mortgage market recovery. Year-on-year growth of loans for house purchase will rise, reaching around 5% at the end of 2024. It will strengthen to 7.5% during 2025 and 2026 (see Chart II.34). Year-on-year growth in loans for consumption will be stable at just below 8% in 2024–2026, owing to growth in household consumption and lower interest rates. However, given the increase in household income assumed in the *Baseline Scenario*, household debt can be expected to start rising only gradually.

…while the rate of growth of loans to non-financial corporations will be affected by investment activity
Continued swift growth in the stock of loans to non-financial corporations over the entire period under review is consistent with the renewed nominal investment activity in the *Baseline Scenario* (see Chart II.34). The trend will also be affected by increased demand for loans from small enterprises, which were hit harder by the higher koruna rates than large and medium-sized corporations funded in euro (see Chart II.37). The forecasted slight weakening of the koruna against the euro is another factor. The stock of loans will thus rise by 9.5% year on year on average in 2024–2026.

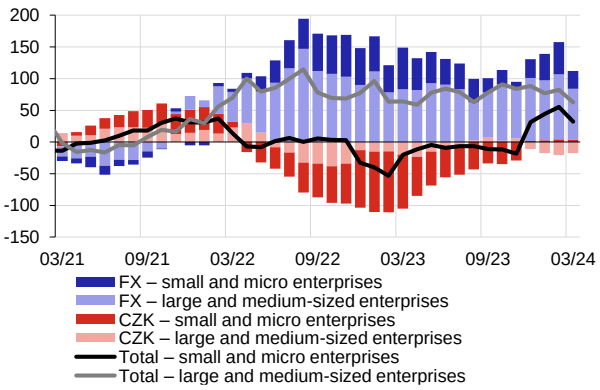
Chart II.36
Debt ratio and interest paid by non-financial corporations
(%)



Source: CNB, CZSO

Note: The interest rate is calculated as the average interest rate on the stock of koruna/euro bank loans to non-financial corporations.

Chart II.37
Change in the stock of loans to non-financial corporations by currency and corporation size
(year on year in CZK billions)



Note: FX stands for foreign currency loans.

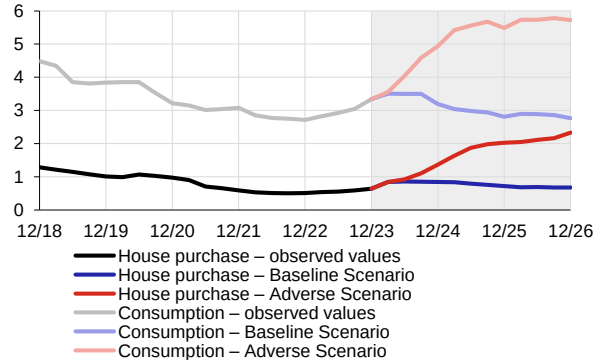
The default rate on loans to households rose slightly in 2023 but will remain close to an all-time low

In late 2023, higher living costs and growth in unemployment led to a slight increase in the 12M default rate[39] on loans to households for both house purchase and consumption (to 0.64% and 3.34% respectively; see Chart II.38). As a result of the continuing increase in the unemployment rate in the *Baseline Scenario*, the default rate on loans for house purchase will remain slightly higher year on year throughout 2024. It will then fall gradually again due to solid growth in wages. Overall, the default rate remains relatively close to an all-time low over the entire scenario horizon. These loan developments also indicate that the risks connected with the refixing of mortgage rates are of limited significance, as the risk of default has not materialised so far even with rates exceeding 5% since mid-2022.[40]

Chart II.38

12M default rate on loans to households by scenario

(%)

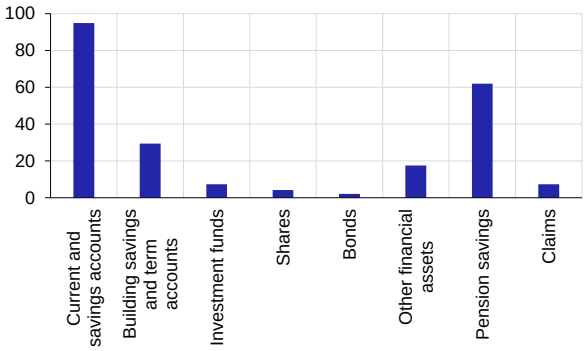


Note: Starting with this FSR, default rates are constructed in a backward-looking manner for ease of interpretation. This means that the 12M default rate reflects defaults in the past 12 months in relation to the stock of loans as of the start of this period. The first two years of the *Baseline Scenario* are consistent with the CNB's spring forecast (MPR – Spring 2024).

Chart II.39

Financial assets of households

(% of sample of households)



Source: CZSO, CNB

Note: The values are based on the 2022 Household Finance and Consumption Survey (HFCS).

High financial assets contributed to the resilience of households to unexpected shocks

At the end of 2022,[41] households were holding their financial assets mostly on current and savings accounts (almost 95% of the sample of households), in pension savings products (62% of households) and in building savings or on term accounts (29% of households; see Chart II.39). Other financial assets, which include cash and crypto-assets among other things, also accounted for a significant share of financial assets (18%). As regards the relationship between assets and debt, households with mortgage loans held the most financial and non-financial assets (with medians of CZK 403,000 and CZK 4.6 million respectively; see Chart II.40). This indicates that these households are relatively resilient to an unexpected shock in the form of a short-term loss of income. Their median ratio of debt to total assets was almost 19% (see Chart II.29 CB). Households that have both mortgage and other loans pose a greater risk to financial stability. Although the median of their non-financial assets was just under CZK 4.3 million, almost the same as for households with mortgage loans, the median of their financial assets was CZK 240,000 and the first quartile was CZK 112,000. These households thus have limited room to absorb a short-term loss of income. They also have the highest debt, with a median of 21% of total assets. These are among the reasons why the CNB has changed its recommendations, which will now also apply to the management of risks associated with the provision of loans for housing not secured by residential property (see section V.4). By contrast, households that only have non-mortgage loans display the lowest median debt (6% of total assets). However, the distribution is uneven, and while households that only have non-mortgage debt mostly have small loans of up to CZK 225,000, a small proportion of them are highly overindebted and have low financial asset holdings (see Chart II.40).

Growth in the default rate was also observed for non-financial corporations…

The volume of non-performing loans to non-financial corporations rose slightly at the end of 2023 and in the first months of 2024. The 12M default rate increased slightly to 0.9% at the end of 2023 and exceeded 1% as of March 2024 (see

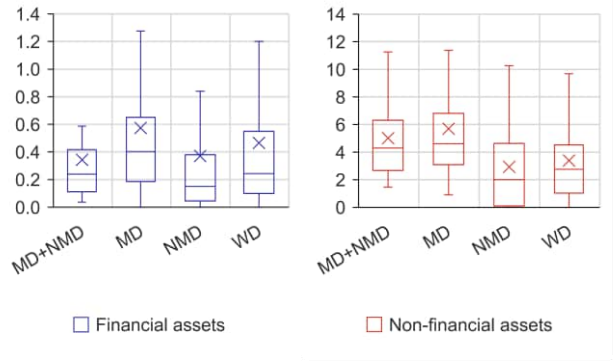
39 Starting with this FSR, default rates are constructed in a backward-looking manner for ease of interpretation. This means that the 12M default rate reflects defaults in the past 12 months in relation to the stock of loans as of the start of this period. So, the 12M default rate as of the end of 2023 is the ratio of loan defaults in 2023 to the stock of loans at the end of 2022. In previous FSRs, the indicator was forward-looking, i.e. the 12M default rate as of a certain date indicated the proportion of the stock of loans as of that date that would default over the next 12 months. The latest available value was thus lagged by one year.

40 The low sensitivity to an increase in interest rates is confirmed by a sensitivity analysis conducted in the household stress test (see section IV.4).

41 The data in this paragraph are based on the CZSO's 2022 Household Finance and Consumption Survey (HFCS).

Chart II.41). As in the case of households, though, it remained below the long-term average (1.7% over 2004–2023). The *Baseline Scenario* assumes a further gradual increase in the default rate. However, the rate will not exceed the long-term average, partly because of a relatively favourable trend in liquidity buffers (see Chart II.30 CB, Chart 31 CB and Box 2).

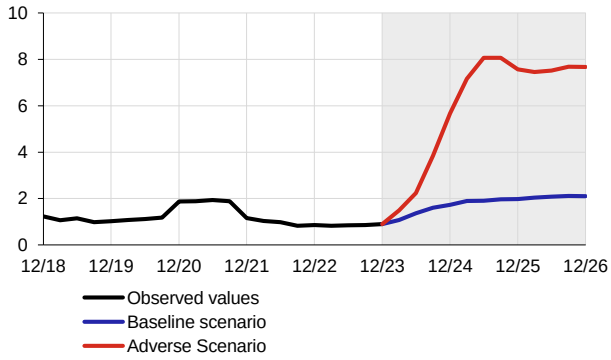
Chart II.40
Household assets in 2022 by debt situation
(CZK millions)



Source: CZSO, CNB

Note: MD + NMD = households with mortgage and non-mortgage debt, MD = households with mortgage debt, NMD = households with non-mortgage debt, WD = households without debt. The values are based on the 2022 HFCS. The crosses in the charts indicate the means and the horizontal lines inside the boxes the medians. The box edges represent the first and third quartiles. The chart does not display outliers.

Chart II.41
12M default rate on loans to non-financial corporations by scenario
(%)



Note: Starting with this FSR, default rates are constructed in a backward-looking manner for ease of interpretation. This means that the 12M default rate reflects defaults in the past 12 months in relation to the stock of loans as of the start of this period. The first two years of the *Baseline Scenario* are consistent with the CNB's spring forecast (MPR – Spring 2024).

…but developments were very mixed across industries[42]

Loan defaults increased above all in agriculture, energy, wholesale and retail trade and property development. The 3M default rates in energy in 2023 Q4 and agriculture in 2024 Q1 were the highest since 2013 (see Chart II.32 CB). While in the energy sector this mainly involved loans to a limited number of companies, agriculture recorded defaults on a larger number of smaller loans. The adverse situation in agriculture was due, among other factors, to lower purchase prices, continued growth in input costs and swings in the weather. An increase in defaults was also observed in transport in 2024 Q1, due among other things to low consumption, higher fuel costs and toll collection in Germany. This industry also recorded the highest share of Stage 2 loans at the end of 2023 (see Chart II.33 CB). A higher share of Stage 2 loans and growth in the 3M default rate in 2024 Q1 (still below the average since 2013) was also recorded in construction and property development, which were hit by higher prices of building materials and low demand for residential and commercial property (see section II.1 and section V.4). However, the potential for rapid growth in default rates in these industries (unlike agriculture and transport) is limited by a still rising amount of bank deposits of these industries (see Chart II.30 CB), a stable ratio of these deposits to bank loans (see Chart II.31 CB) and a turnaround on the property market (see section II.1).

42 In December 2023, the ratios of loans to the industries mentioned in this paragraph to total outstanding loans to non-financial corporations were 4.5% in agriculture, 4.4% in energy, 4% in construction, 15.5% in wholesale and retail trade, 4.4% in transporting and storage and 32.4% in property development (real estate activities).

III. THE FINANCIAL SECTOR

III.1 DEVELOPMENTS IN THE FINANCIAL SECTOR

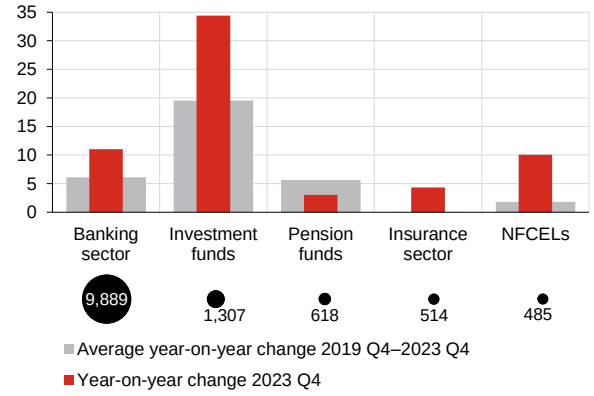
The financial sector recorded year-on-year growth

The financial sector's total assets increased by 12.3% year on year to CZK 12.8 trillion, or 175% of GDP, at the end of 2023 (see Chart III.1). All its sub-sectors recorded year-on-year growth. With the exception of the pension fund sector, the growth rates were above the average for the past five years. The investment fund sector showed the fastest growth (34%). Return on assets was comparable to the five-year average in the banking and insurance sectors and exceeded the average for pension funds (see Chart III.1 CB). The banking sector maintained its crucial position, accounting for 77% of assets and generating around one-half of the profit of the financial system as a whole.

Chart III.1

Rates of growth of sectors of the financial system

(%)

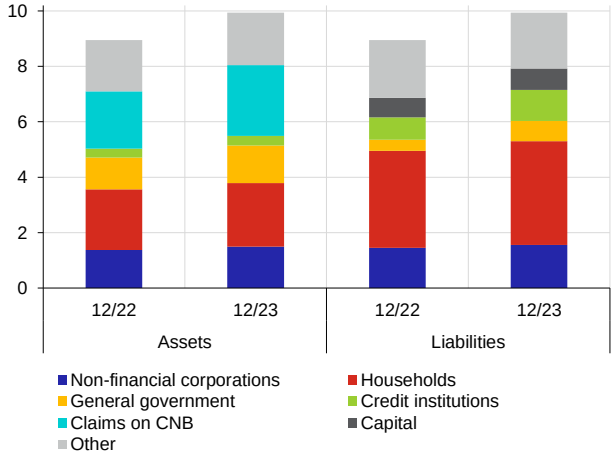


Note: NFCELs = non-bank financial corporations engaged in lending. The sizes of the circles proportionately show the value of the segments' assets in CZK billions as of 2023 Q4.

Chart III.2

Selected items of the domestic banking sector's balance sheet

(CZK trillions)



III.2 BANKING INSTITUTIONS[43]

III.2.1 Assets, liabilities and profitability

The year-on-year growth in the banking sector's total assets was due primarily to government deposits

The banking sector's total assets grew by 11% year on year to CZK 9.9 trillion at the end of 2023 (see Chart III.2). On the asset side, there were year-on-year increases in claims on the CNB (CZK 0.5 trillion), client loans (CZK 0.25 trillion) and government bonds (CZK 0.2 trillion). On the liability side, the biggest contributors to the year-on-year growth were liabilities to non-resident credit institutions (CZK 0.31 trillion), general government deposits (CZK 0.33 trillion) and household deposits (CZK 0.26 trillion). Both sides of the balance sheet were affected by a smaller temporary end-of-year transfer of government deposits from the banking sector's balance sheet to the CNB compared with a year earlier.[44]

The balance sheet developments indicated no major increase in potentially risky trends for households…

The downturn in the provision of housing loans during 2022 was not apparent to the same extent in loans for consumption. Their rate of growth exceeded that of housing loans in 2023 (see Chart II.34). The long-running downward trend in loans for consumption as a proportion of the overall portfolio of loans to households (15.9% at the end of March 2024) therefore reversed. If the growth rate of loans for consumption remains higher in future years, the structure of the systemic risks associated with loans to households could start to change gradually.

43 The Czech Export Bank and the National Development Bank are excluded from the analysis of the banking sector as a whole in the entire section III.2. This is because these banks are wholly owned by the Czech state (providing implicit state guarantees for their liabilities) and have different business models and volatile credit portfolios.

44 As a result of end-of-year operations, total assets decreased from CZK 9.6 trillion in November 2022 to CZK 8.9 trillion in December 2022, before rebounding to CZK 9.6 trillion in January 2023. In late 2023, by contrast, they fell from CZK 10.1 trillion in November to CZK 9.9 trillion in December and then rose to CZK 10.3 trillion in January 2024. In 2022, general government deposits decreased from CZK 973 billion in November to CZK 399 billion in December, whereas in 2023, they dropped from CZK 981 billion in November to CZK 724 billion in December. These deposit transfers had a relatively strong effect on liabilities to resident clients and claims on the CNB.

…or for non-financial corporations

In the case of non-financial corporations, the tightening financial conditions have been reflected in growth in the significance of euro-denominated loans since 2021. This growth continued at a slower pace during 2023. Euro loans accounted for roughly 50% of loans to non-financial corporations (in the case of both new business and outstanding loans) at the end of March 2024. In recent years, the CNB has been keeping a close eye on the risks associated with foreign currency lending at the level of microprudential supervision and in terms of risks to financial stability.[45] Given the high degree of exchange rate risk hedging on the part of the recipients of such loans, the CNB does not rate these risks as acute. Another potentially relevant trend in loans to non-financial corporations is rising counterparty concentration due to more frequent provision of relatively large loans, some of them in the high single-figure billions of koruna. The CNB does not regard this trend as a significant source of systemic risk at present either.[46] It will continue to monitor the situation closely.

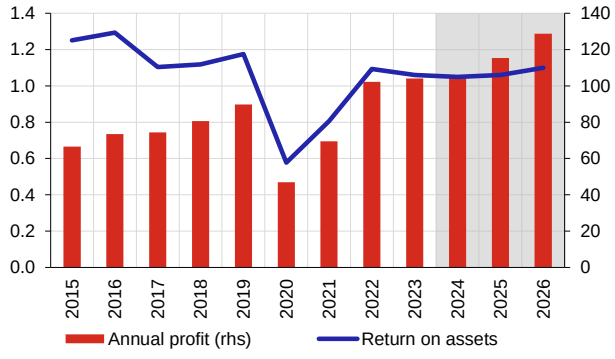
The profitability of the banking sector remained solid…

The sector made a profit of CZK 104 billion in 2023, a year-on-year increase of CZK 2 billion (see Chart III.3). Faster growth in assets than earnings (see Chart III.2) meant that return on assets (RoA) dropped slightly to 1.06% from 1.10% last year. However, it remained above the 2020 and 2021 levels and only just below the levels seen in 2017–2019. The solid profitability persisted in the first two months of 2024 (CZK 14.5 billion, up 17% year on year). Its level has long been signalling that the banking sector is capable of generating the capital it needs to expand its loan portfolio and of replenishing its capital buffers out of profits (see sections V.2 and V.3).

…despite a modest fall in interest profit

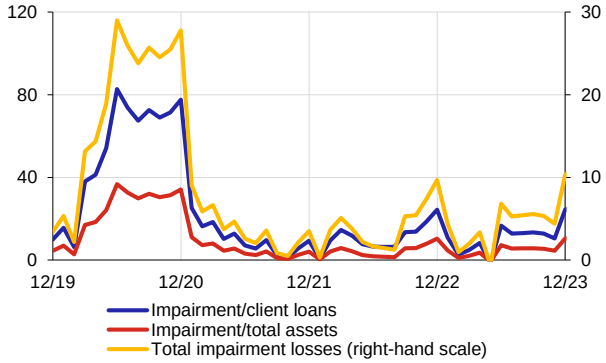
Interest profit remained a key source of profit. Despite declining from CZK 171 billion in 2022 to CZK 166 billion in 2023, it stayed above the average for the previous ten years (CZK 119 billion). However, the growth in recent years has been driven by nominal developments in the economy. Interest profit in relation to the banking sector's assets stood at 1.7% in 2023 (1.9% in 2022). This is 0.17 pp lower than the average for 2012–2021. Another relevant profit item in 2023 was profit from exchange rate differences of CZK 11 billion (as against CZK 2 billion in 2022). The largest cost items besides interest expenses in 2023 were administrative expenses of CZK 86 billion (CZK 79 billion in 2022) and taxes (CZK 18.7 billion in 2023, down CZK 0.9 billion year on year). The banking sector's cost-effectiveness, as measured by its cost-to-income ratio, was stable at 56%, which is good even by international standards.[47] Total impairments stood at CZK 10.3 billion in 2023 (CZK 9.7 billion in 2022). The bulk of the losses arose in the final months of 2023, predominantly because of a one-off increase in impairment of non-financial assets (see Chart III.4).

Chart III.3
Return on assets and profit
(%; right-hand scale: CZK billions)



Note: The grey area indicates the profit and RoA of the domestic banking sector according to the funding plans reported by banks.

Chart III.4
Asset impairment losses
(bp; right-hand scale: CZK billions)



Note: Impairment losses are annualised. Client loans comprise loans to the private sector.

Persisting alignment of interest costs and income contributed to stable profitability

The growth in monetary policy rates seen in 2021–2022 continued to be reflected in interest costs and income in 2023 via contracts with long fixed-rate periods (see Chart III.5). The year-on-year growth rates of interest income and costs weakened as monetary policy rates started to come down in late 2023. Total interest income went up by 28% year on year in 2023 (as against 94% in 2022). Interest costs recorded a year-on-year rise of 21% (after having more than tripled in

45 *Financial Stability Report – Autumn 2022*, Box 3 and Box 5.

46 The ten non-financial corporations with the largest amounts of loans provided by the domestic banking sector at the end of 2023 (CZK 116 billion in total) accounted for 7.7% of total bank loans to non-financial corporations. This share has been fluctuating close to 7% over the last four years. In the case of the 100 largest corporations (CZK 339 billion), it has been fluctuating close to 21% and stood at 22.5% at the end of 2023.

47 *Risk Assessment Report of the European Banking Authority – December 2023*, Figure 71.

2022). Matching of interest income and costs meant that interest profit was little changed, fluctuating at a monthly level of CZK 10–15 billion, or 1.5–2.0% of total assets, in 2023 (see Chart III.5). As regards the key components, banks' income on operations with the CNB dominated (see Chart III.6), totalling CZK 183 billion in 2023 (up 18.9% compared to 2022). It was counteracted mainly by rising interest costs of household deposits, which doubled year on year to CZK 85.5 billion.

Chart III.5
Decomposition of interest profit
(monthly contributions in CZK billions; right-hand scale in %)

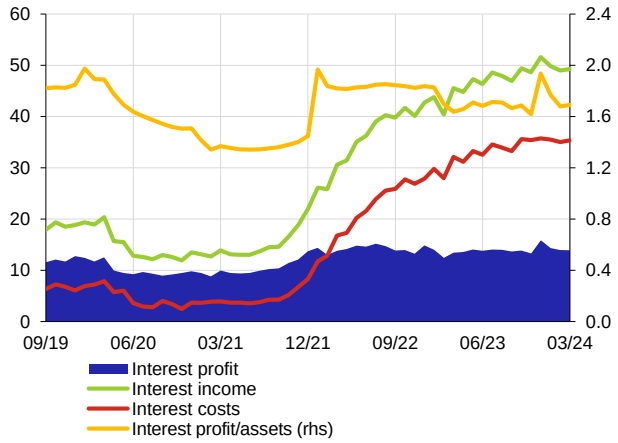
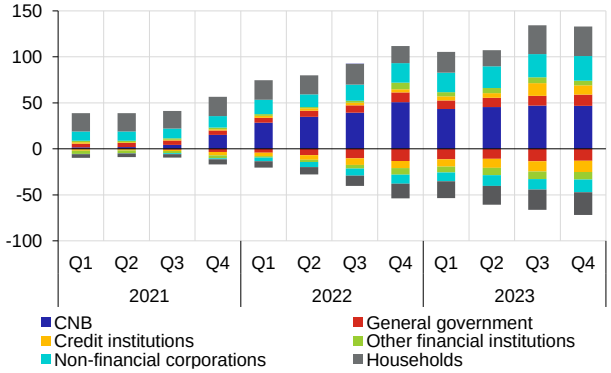


Chart III.6
Quarterly interest income and costs by counterparty
(CZK billions)

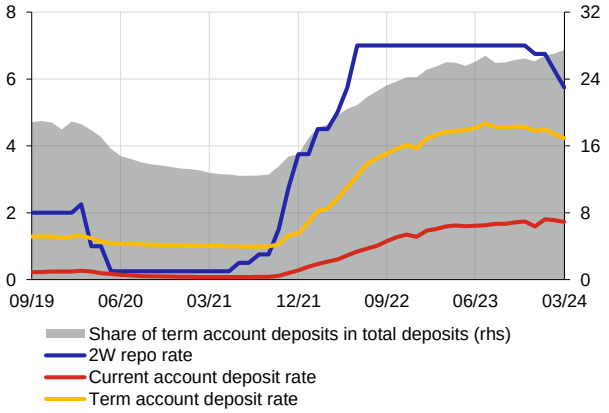


Note: For each segment, the positive value is its interest income and the negative value its interest expense. As regards instruments, interest income and costs arising from the bonds, loans and deposits of each segment are included.

Banks' margins on new loans fell moderately amid declining interest rates…

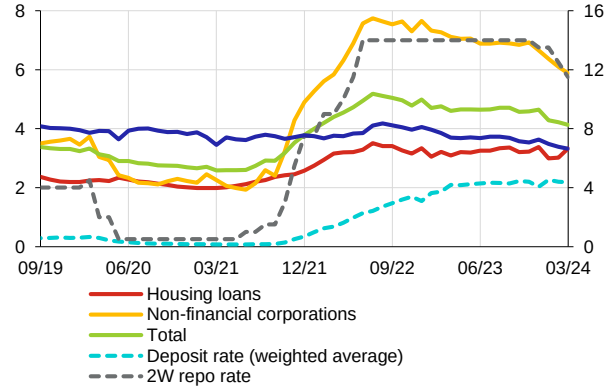
The relative stability of interest profit in 2023 was a result of the gradual pass-through of monetary policy rates to average client interest rates (see Chart III.7). However, aggregate interest margins on new business in 2023 indicated a potential decline in interest profit in the near future. In the course of 2023, interest margins on new loans fell by 1.06 pp and 1 pp year on year in the case of consumer loans and loans to non-financial corporations respectively and were broadly flat in the case of housing loans (see Chart III.8). The decline in margins was due mainly to growth in rates on new deposits (from 1.55% at the end of 2022 to 2.06% at the end of 2023).

Chart III.7
Interest rates on term and demand accounts
(%)



Note: The figures refer to rates and amounts in respect of the outstanding amounts of deposits in banks' balance sheets.

Chart III.8
Interest margins on new loans
(margins in pp; rates in %)



Note: Margins are calculated as the difference between average koruna loan and koruna deposit rates for the given sector. The non-financial corporations item excludes revolving loans and credit cards.

…the extent of the further decline in margins will depend on competition and changes in the liability structure

Banks' ability to face the decline in margins is closely linked to their ability to pass on the decline in interest rates on new loans to interest rates on liabilities. It is affected primarily by the maturity structure of those liabilities. The increase in the share of deposits on term accounts seen in 2021–2022 did not continue into 2023, and demand deposits accounted for 74% of total deposits at the year-end (see Chart III.7). Owing to competitive pressures, banks may be constrained in reducing rates on demand deposits as well, since clients may still be intent on moving their deposits from bank to bank in pursuit of the highest possible returns (see section III.2.4). Other relevant factors affecting margins and interest profit

include the terms of banks' contracts with other financial institutions, especially their foreign parents (see section III.4), margins on foreign currency contracts and banks' approaches to managing their foreign currency positions (see section III.2.4). Banking book interest rate risk remains generally present in the domestic banking sector, although the likelihood of it materialising is low in an environment of falling interest rates.

The banking sector expects its profitability to be stable

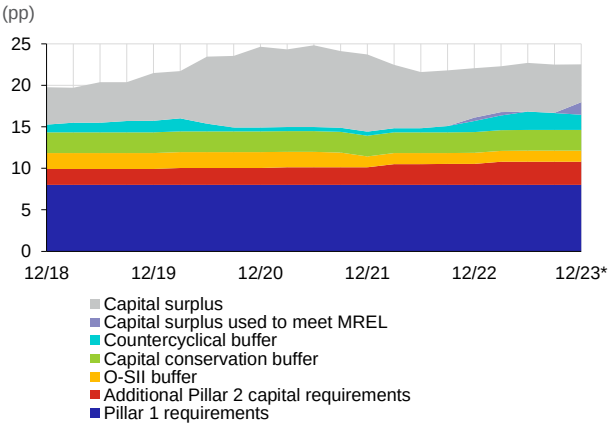
According to their funding plans, banks expect a steady rise in profits and stable RoA (see Chart III.3). Interest profit is expected to remain a major determining factor. The expected decline in interest income (7% over three years according to the plans) is slower than that in interest costs (18% over three years). This outlook is subject to a range of macroeconomic uncertainties going forward. According to the *Baseline Scenario* (see section II.1), interest margins can be expected to narrow. This poses a relevant risk to financial stability, with a potential consequence in the form of a decline in banks' profitability. In addition to interest profit, the banking sector's profitability may be affected by a rise in impairment losses (see section III.2.3). These risks were assessed in the stress test of banks (see section IV.1.1). According to its results, the banking sector will remain profitable if the *Baseline Scenario* materialises. Following a temporary modest fall in the first year of the scenario (to CZK 72 billion, or 0.76% of assets), profit rebounds above the initial level (to CZK 113 billion, or 1.08% of assets in 2026).

III.2.2 Own funds and eligible liabilities

The capitalisation of the banking sector rose…

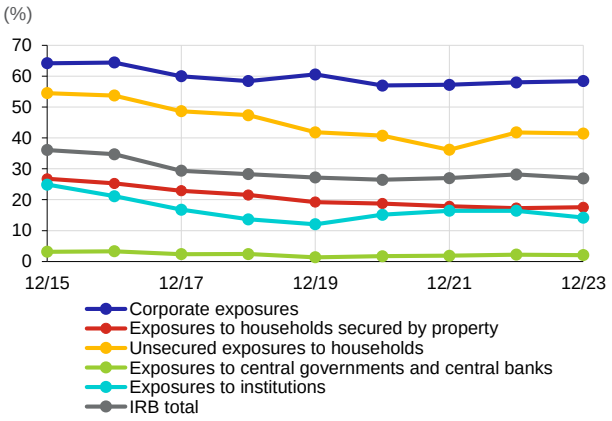
The sector's capital rose by CZK 49 billion year on year to CZK 674 billion at the end of 2023. The share of the highest-quality common equity Tier 1 capital stayed above 90%, despite having fallen slightly over the last two years. The overall capital ratio (the ratio of total capital to risk-weighted exposures) increased by 0.6 pp year on year to 22.6% (see Chart III.9). This was caused mainly by a decline in the aggregate risk weight (+1.7 pp of the capital ratio) and growth in capital (+1.7 pp) due primarily to dividend payments.[48] An increase in total exposures had the opposite effect (-2.8 pp).

Chart III.9
Structure of capital and capital requirements



Note: The end-2023 figure also takes into account the final MREL applicable as of 1 January 2024.

Chart III.10
Average risk weights of the main categories of exposures under the IRB approach



…and exceeded the risk-weighted capital requirement

At the aggregate level, banks met the regulatory risk-weighted capital requirement of 16.5% of total risk exposures[49] with an excess of 6.2 pp of the capital ratio. The capital surplus grew by CZK 0.7 billion year on year to CZK 185 billion at the end of 2023. In relative terms, however, it decreased by 0.2 pp of the capital ratio. This was partly due to a change in the CCyB rate (2% as of 31 December 2023, as against 1.5% as of 31 December 2022). The current capital surplus is a potential additional source of bank resilience on top of the current coverage of risks by the existing buffers, conditionally enhancing their capital position. In this regard, the CNB uses it in its regular macro-stress tests (see section IV.1), which suggested that the banking sector as a whole is resilient even to adverse developments. However, in the *Adverse Scenario*,

48 Dividend payments totalled CZK 85.6 billion in 2023. The part paid from the 2022 profit was CZK 54.0 billion (a year-on-year increase of CZK 5.6 billion), while the part paid from profits earned in previous periods was CZK 31.6 billion (a year-on-year increase of CZK 8.0 billion).

49 The risk-weighted capital requirement, expressed as the ratio of capital to total risk exposures, consists of the minimum level of regulatory capital in Pillar 1 (8%), requirements based on the supervisory review of risks in Pillar 2 (an average of 2.8% for the sector as of the end of 2023) and capital buffers (an average of 5.7% for the sector). It is designed to make the banking sector sufficiently resilient to shocks.

which takes structural systemic risks partially into account, the capital ratio would fall from 22.5% to 14%. At the sector level, the CCyB would thus be fully exhausted and part of the other capital buffers would need to be used.

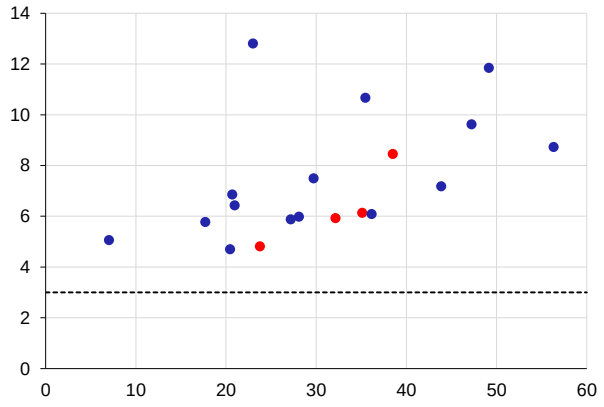
The risk weights of the main loan portfolios increased

The average risk weights of banks that use internal models to set those weights (the IRB approach) fell by 1.3 pp year on year to 26.9% at the aggregate level of the entire portfolio at the end of 2023 (see Chart III.10).[50] Other things being equal, a decrease in risk weights reduces the risk-weighted capital requirement and increases the capital ratio. The year-on-year decrease was driven by changes in the risk weights on exposures to financial institutions (a decrease of 2.2 pp to 14.2%) and unsecured exposures to households (a decrease of 0.4 pp to 41.3%).[51] By contrast, corporate exposures saw a modest increase in risk weights, confirming the growth recorded the previous year (of 0.4 pp to 58.4%). There was also a rise in risk weights for the largest portfolio – credit exposures to households secured by residential property, which recorded their first year-on-year increase since reporting began in 2014 (of 0.3 pp to 17.6%). The halt in the downward trend in risk weights for the main portfolios seen in previous years and, conversely, the modest increase in those weights may be linked largely with the changes in macro-financial conditions that have occurred since 2022. These include tightened financial conditions, the reaching of the bottom of the financial cycle and, to some extent, growing uncertainty about the materialisation of credit risk in the near future. Given the possible temporary nature of these factors and the potential risk of a renewed downward trend in risk weights, the CNB will monitor them going forward.

Chart III.11

Leverage ratio at bank level

(%; x-axis: aggregate risk weight; y-axis: leverage ratio)

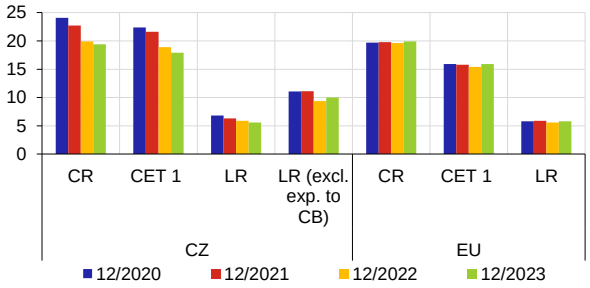


Note: Large banks are indicated in red. The dashed line shows the regulatory minimum for the leverage ratio.

Chart III.12

Capitalisation in the Czech Republic and the EU

(%)



Source: EBA

Note: CR = capital ratio, CET 1 = Common Equity Tier 1 capital ratio, LR = leverage ratio. The values in the chart are based on EBA data. In view of the different source, they may not be identical to the values given in other sections of the FSR. For the domestic banking sector, the leverage ratio adjusted for the relatively significant exposures to the CNB is also given (26%).

Banks' capital even exceeded the leverage ratio requirement

Relatively high capitalisation was also indicated by the leverage ratio, which had an aggregate value of 6.6% at the end of 2023. It was well above the 3% regulatory minimum for most banks (see Chart III.11), despite a year-on-year decline of 0.5 pp caused by faster year-on-year growth of banks' exposures than of their capital. In the domestic banking sector, the value of the leverage ratio is significantly affected by high exposures to the CNB.[52] Adjusted for these exposures, the leverage ratio would have been high at 10% at the year-end. Capitalisation was close to the EU average in both risk-weighted and non-risk-weighted terms (see Chart III.12).

Bank resolvability is enhanced by the MREL recapitalisation amount

The MREL stood at CZK 600 billion at the start of 2024,[53] with the loss absorption amount – consisting of own funds – at CZK 321 billion and the recapitalisation amount at CZK 279 billion. The recapitalisation amount is crucial for the effective resolution of banks that perform critical functions, which manage almost 90% of the total assets in the domestic banking sector. At the end of 2023, banks were using both eligible liabilities (CZK 236 billion) and own funds (CZK 43 billion, or 1.5% of the capital ratio) to meet the recapitalisation amount (see Chart III.13), with smaller banks mainly using own funds.

50 Exposures whose risk weights are set using the IRB approach amounted to CZK 6.3 trillion at the end of 2023. This corresponded to 71% of the exposures of the domestic banking sector.

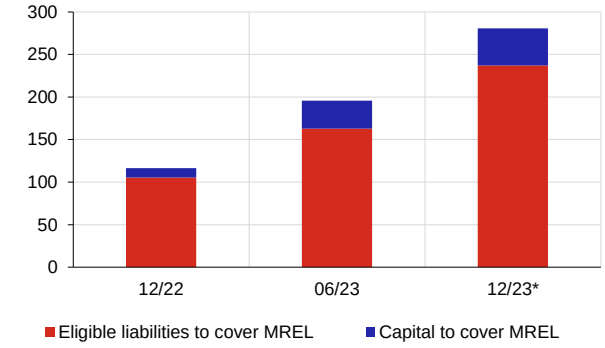
51 The risk weights on unsecured exposures to households were affected by a relatively large decrease in 2023 Q4 (see Chart III.10). It was due to the reclassification of part of exposures for the capital requirement calculation from exposures secured by residential property to other exposures to households.

52 It stood at CZK 2.6 trillion (about 26% of the banking sector's total assets) at the end of 2023.

53 The coming into effect of the MREL requirement was spread over time, with the requirement reaching its full value on 1 January 2024.

The capital surplus usable for paying dividends, absorbing losses or lending thus fell to CZK 141 billion (4.7% of risk-weighted exposures; see Chart III.9).

Chart III.13
MREL recapitalisation amount and compliance structure
(CZK billions)



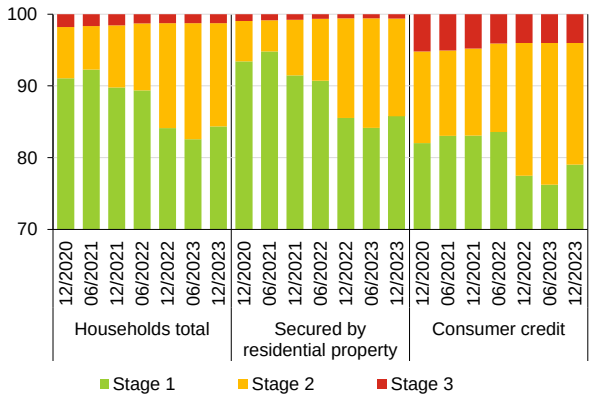
Note: Column 12/23* takes into account the final MREL amount applicable as of 1 January 2024.

III.2.3 Credit risk

The share of loans[54] with increased credit risk fell in 2023…

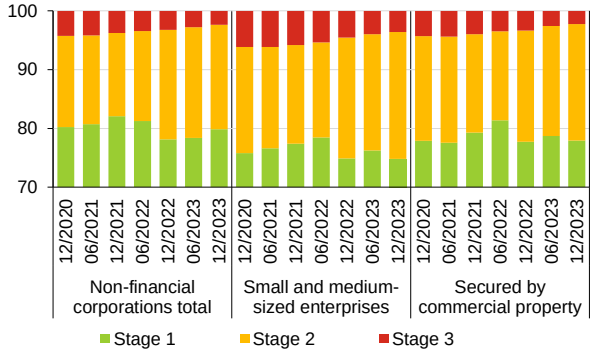
Client loans rose by CZK 253 billion year on year in 2023 (see section II.2 and section III.2.1). This was reflected in most credit quality stages (see Table III.1 CB and Table III.2 CB). However, Stage 2 loans (loans with increased credit risk compared to when the loan was provided) grew more slowly than the portfolio as a whole. Following a slight increase in mid-2023, the share of Stage 2 loans therefore dropped to 14.9% at the year-end (a year-on-year decline of 0.43 pp; see Chart III.14 and Chart III.15). The upward trend seen in previous years thus halted. a total of CZK 259 billion – CZK 146 billion in the household segment and CZK 112 billion in the non-financial corporations segment – was moved from Stage 1 to Stage 2 in 2023. However, an increased rate of migration of loans from Stage 2 back to Stage 1 was observed in year-on-year terms (see Chart III.16). The growth in Stage 2 loans was affected mainly by a reduction in the level of uncertainty perceived by banks compared to the situation at the end of 2022 and in the first half of 2023 (see FSR – Spring 2023, section III.2). This was related to more favourable macroeconomic outlooks (see section II.1).

Chart III.14
Structure of loans by portfolio in the household segment
(%)



Note: Loans secured by residential property and consumer credit account for 91% of loans to households.

Chart III.15
Structure of loans by portfolio in the non-financial corporations segment
(%)



Note: Loans to SMEs and loans secured by commercial property account for 90% of loans to non-financial corporations.

54 In terms of accounting terminology, the term "loan" in this section includes financial assets designated at amortised cost in the loans and other receivables sub-category. Unless indicated otherwise, the value of loans is recorded in gross book value.

…as did the share of credit-impaired loans

Stage 3 loans to households (credit-impaired assets) increased in line with the growth in the overall loan portfolio in 2023. Loans to non-financial corporations saw a quite large year-on-year fall (of CZK 10 billion to CZK 37 billion) due to lower-than-expected materialisation of credit risks and successful resolution of formerly classified loans. The share of Stage 3 loans in the total portfolio therefore declined at the aggregate level. This partly reflects the economy staying at the bottom of the financial cycle and risks gradually disappearing from the banking sector's balance sheet (see section V.3).

Chart III.16

Annual migrations of loans between stages 1 and 2

(CZK billions)

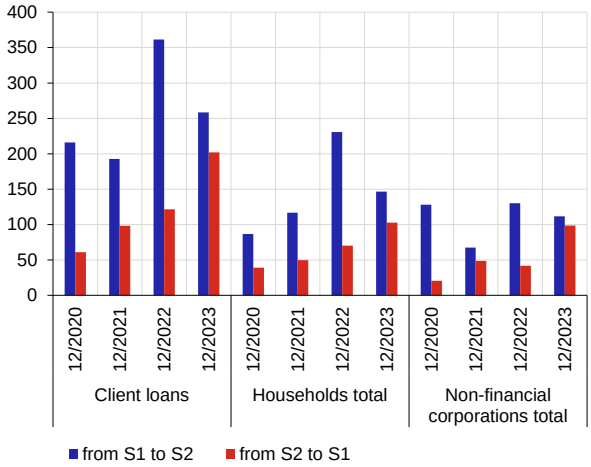
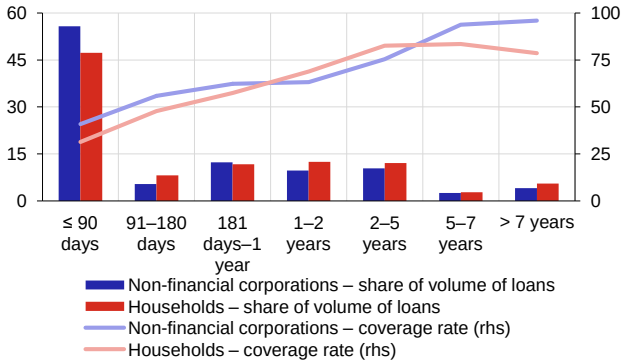


Chart III.17

Structure of loans and coverage rates in Stage 3

(%; as of 31 December 2023; x-axis: maturity)



Note: The share of loans is the share of the given segment's loans with the given past-due period in the segment's total Stage 3 loans. The coverage rate is the ratio of provisions to the given segment's loans with the given maturity.

Other credit risk indicators do not suggest a rise in credit risk

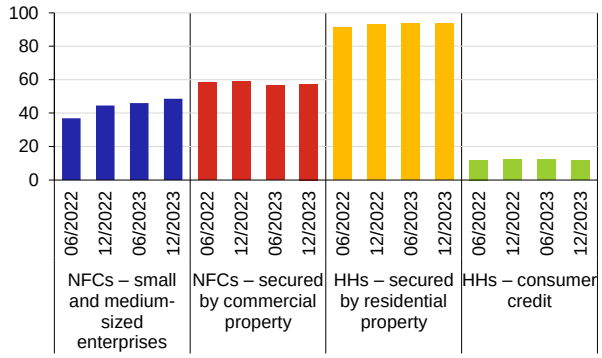
A change in the share of Stage 3 client loans 90 days past due could indicate changes in the dynamics of credit losses.[55] This share was 55.8% for non-financial corporations and 47.3% for households at the end of 2023 (see Chart III.17) and was therefore little changed in year-on-year terms. The aggregate collateralisation of loans was also broadly flat year on year (see Chart III.18). However, the share of Stage 2 loans 30–90 days past due increased slightly across the monitored segments at the end of 2023 (see Chart III.19). This is partly a natural consequence of the decline in the share of Stage 2 loans based on portfolio rules. The default rates of households and non-financial corporations saw modest growth in the same period, but the growth slowed again in the case of households in the first few months of 2024 (see section II.2). However, the share of loans 30–90 days past due in total Stage 2 loans remained low across the segments monitored (0.8–2.2%). The share of past-due loans has generally been low for some time, especially in the case of loans secured by residential property. It rose during the pandemic, but the increase was only moderate due to the implementation of a range of support measures, including moratoria (see Box 3).

These effects were reflected in a decrease in provisioning

Provisions in the household segment were stagnant, in line with the factors influencing loan quality structure in a subdued phase of the financial cycle. This resulted in a slight decline in the coverage rate across credit quality stages (see Chart III.20 and Table III.1 CB). Total provisions decreased by CZK 4.1 billion (10%) year on year in the case of loans to non-financial corporations (see Table III.2 CB), mainly because of a fall in provisions for Stage 3 loans (of CZK 5.3 billion, or 20%). Provisions for Stage 2 loans rose by CZK 1.6 billion (17%) year on year. The Stage 2 coverage rate in the non-financial corporations segment went up slightly year on year (by 0.4 pp) to 4% and its decline of previous years evidently halted (see Chart III.21). According to the CNB's assessment, some geopolitical, macroeconomic and financial uncertainties generally persist, despite having decreased partially (see section II). From a financial stability perspective, any further drop in provisions or continued reclassification of loans back to lower stages to an extent exceeding the effect of the decreasing risks associated with high inflation may indicate over-optimism of banks in their forward-looking credit risk assessments. In this regard, the CNB continues to evaluate in detail the risk management practices of banks at the macroprudential level and is also prepared to adjust its macroprudential instruments to ensure that the banking sector remains resilient. The countercyclical capital buffer (CCyB) is particularly relevant in this respect (see section V.3). The prevailing downward trend in provisions may indicate a need for increased caution when deciding on the CCyB rate, even in a subdued phase of the financial cycle.

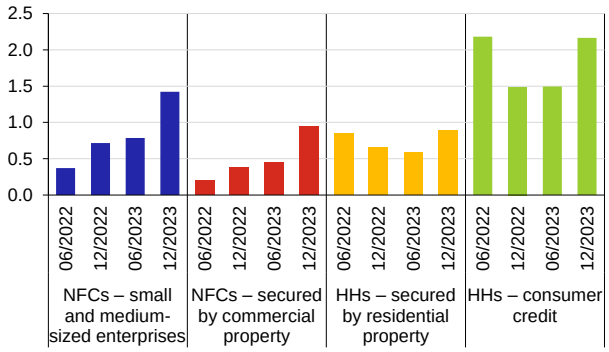
55 Under IFRS 9, one of the mandatory criteria for classifying a loan as non-performing (Stage 3) is its past-due period (more than 90 days past due). However, based on individual assessments, banks can also classify loans that are not more than 90 days past due as non-performing.

Chart III.18
Aggregate collateralisation of loans by segment
(%)



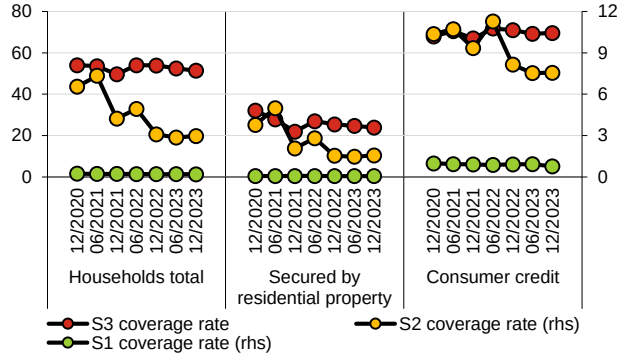
Note: Performing loans only. Loans secured by residential property and consumer credit account for 91% of loans to households (HHs). Loans to SMEs and loans secured by commercial property account for 90% of loans to non-financial corporations (NFCs).

Chart III.19
Shares of Stage 2 loans 30–90 days past due
(% of total Stage 2 loans in the given segments)



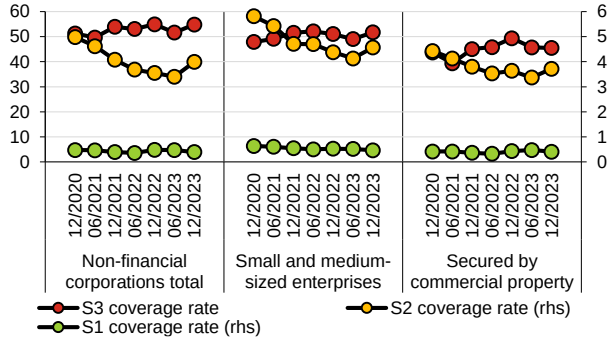
Note: Loans secured by residential property and consumer credit account for 91% of loans to households (HHs). Loans to SMEs and loans secured by commercial property account for 90% of loans to non-financial corporations (NFCs).

Chart III.20
Coverage of loans by portfolio in the household segment
(%)



Note: Loans secured by residential property and consumer credit account for 91% of loans to households.

Chart III.21
Coverage of loans by portfolio in the non-financial corporations segment
(%)



Note: Loans to SMEs and loans secured by commercial property account for 90% of loans to non-financial corporations.

BOX 3: A look back at the credit risk of the mortgage loan portfolio under moratorium during the pandemic

In April 2020, the Czech Parliament passed a loan moratorium act in response to the pandemic and the related economic consequences of the measures introduced to limit the spread of the disease. The law enabled borrowers to postpone the repayment of loans arranged before 26 March 2020.[56] It was designed to prevent firms, sole traders and households from defaulting on their loans due to a temporary fall in income caused by the pandemic at a time of heightened uncertainty about the economy and the financial condition of non-financial corporations and households.

This box describes the experience with consumer loans secured by residential property (mortgage loans), which are the banking sector's most significant credit exposure. The CNB has a large database on mortgage loans, including those under moratorium.[57] This makes it possible to analyse the potential behaviour of the mortgage portfolio under stress. The information can be used for macro stress test modelling (see section IV.4) and for assessing the riskiness of this portfolio (see section V.4). Households put CZK 181 billion of mortgage loans under a statutory or bank moratorium. This was roughly 12% of the mortgage portfolio at the time.[58]

Moratoria were widely used in the EU during the pandemic.[59] The regulations in this area were also relaxed. The EBA issued guidelines stating that loans under moratorium did not have to be automatically reclassified as exposures with increased credit risk (Stage 2).[60] Such reclassification was therefore solely at the bank's discretion. Domestic banks behaved with prudence and reclassified loans under moratorium as Stage 2 loans to quite a large extent (see Chart 1). The share of Stage 2 mortgage loans in the total portfolio fluctuated between 4% and 7% until 2022, whereas the share for loans put under moratorium for a time was 21–24%. The share of mortgage loans classified as Stage 3 loans (non-performing) in the total portfolio was under 1%, whereas that for loans under moratorium was approximately 2.5% (CZK 2.6 billion during the period under review).

Table 1 presents the average loan characteristics of three types of mortgage loans (excluding refinanced loans) provided in the period of 2015–2020: loans not under moratorium, loans under moratorium and loans under moratorium that were more than 30 days past due after the moratorium ended. On average, households with loans not under moratorium (left column) recorded slightly lower risk characteristics than those with loans under moratorium (middle column) and those with loans past due after the moratorium ended (right column). In these groups of households, the average mortgage indicators differed mainly in terms of LTV (64.9% vs. 68.7% vs. 70.9%), DTI (5.1 vs. 5.9 vs. 5.8) and DSTI (32.2% vs. 37.1% vs. 37.8%), maturity (24.7 vs. 26.8 vs. 26.7 years) and additional debt (CZK 0.7 million vs. CZK 1.1 million vs. CZK 1.0 million). Although loans under moratorium had higher values, they did not on average exceed the levels that the CNB has long identified as significantly risky (an LTV of 80%, a DSTI of 40% and a DTI of eight times net income; see section V.4). This would tend to indicate preventive use of this tool at a time of heightened uncertainty.

However, the share of loans with significantly risky LTV and DSTI levels was higher for households that used moratoria and for those that had subsequent repayment difficulties. Charts 2 and 3 show that mortgage loans provided in 2015–2020 with higher LTV and DSTI levels had a higher probability of being past due two years after the moratorium ended. The probability of reclassification as past due started to rise at the indicator levels that the CNB identifies as significantly risky. Of the CZK 934 billion of mortgage loans analysed, loans amounting to CZK 4.7 billion saw repayment difficulties after the moratorium. For those with LTV above 80% the figure was CZK 1.8 billion (0.2% of the portfolio analysed) and for those with DSTI[61] above 40% it was CZK 0.8 billion (0.25% of the portfolio analysed).

The characteristics also showed that households without moratoria were more often employees and university graduates (see Table 1). This to some extent confirms that self-employed persons primarily in the services sector faced greater negative impacts associated with the measures introduced to limit the spread of the disease (lockdowns in particular).[62]

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56 For details see, for example, Press release of the Ministry of Finance of the Czech Republic (in Czech only).

57 During the pandemic, the CNB introduced extraordinary reporting in order to monitor the moratoria on all client loans. Moreover, it has been receiving information on the characteristics of individual mortgage loans and any late repayments thereof since 2015. By combining these data, specific features of the mortgage loans under moratorium can be identified.

58 Data were reported until 31 March 2022 under extraordinary reporting. The value of the loans includes moratorium applications approved before 1 October 2020 and relief and similar measures approved by banks after 1 October 2020.

59 A total of 19 EU countries used moratoria during the pandemic.

60 For details see the EBA's *Statement on the application of the prudential framework regarding Default, Forbearance and IFRS9 in light of COVID19 measures* of 25 March 2020.

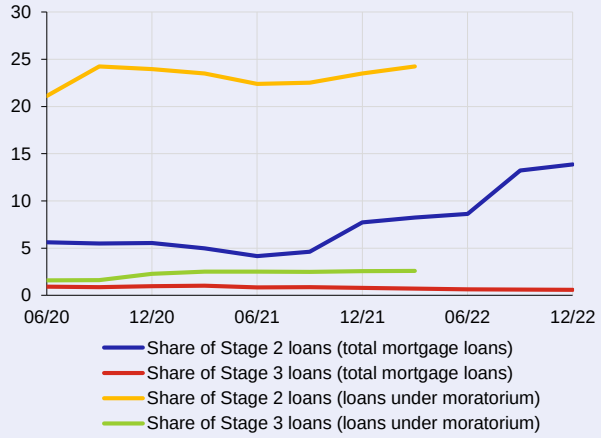
61 DSTI data from regular surveys are only available for 2018 onwards.

62 A more detailed analysis and methodology for the above estimates will be included in a CNB working paper scheduled to be published during the second half of 2024.

Chart 1 (Box 3)

Shares of mortgage loans with increased credit risk

(%)



Note: The category of mortgage loans under moratorium represents the sum of all loans put under moratorium for a time during the pandemic.

Table 1 (Box 3)

Characteristics of categories of new mortgage loans

(average values in CZK unless otherwise indicated)

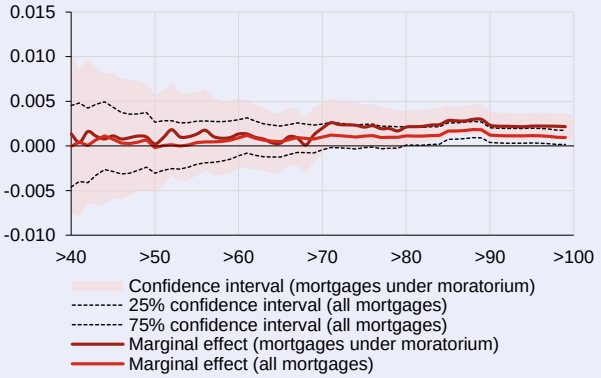
	Loan not under moratorium	Loan under moratorium	Past-due loan under moratorium
Loan size	1,940,064	2,336,154	2,378,939
Value of collateral	3,176,512	3,650,875	3,601,957
Property price	3,005,504	3,248,731	2,974,324
Maturity (years)	24.7	26.8	26.7
Share of loans past due (%)	1.8	6.1	100.0
Interest rate (%)	2.33	2.43	2.52
LTV (%)	64.9	68.7	70.9
DTI	5.1	5.9	5.8
DSTI (%)	32.2	37.1	37.8
LTI	4.2	4.5	4.6
LSTI (%)	23.7	25.0	26.1
Annual income	548,829	578,600	560,631
Total debt	721,298	1,080,340	1,030,706
of which other mortgage loan	675,457	986,971	799,334
Age (years)	36.8	35.7	35.6
Share of employees (%)	81.7	79.2	75.1
Share of university graduates (%)	40.2	34.0	10.4
Number of loans	441,525	33,064	2,047
Share of loans with LTV > 80 (%)	25.4	31.5	35.0
Share of loans with DTI > 8 (%)	3.3	5.5	4.6
Share of loans with DSTI > 40 (%)	7.4	12.9	23.4

Note: The data comprise newly provided loans in the period of 2015–2002. However, DTI and DSTI data have only been available since 2018. The *Past-due loan under moratorium* column represents a loan under moratorium that was more than 30 days past due in the period of April 2020 to December 2022.

Chart 2 (Box 3)

Change in the probability of a loan becoming past due after the end of the moratorium by LTV level

(marginal effect; x-axis: LTV)

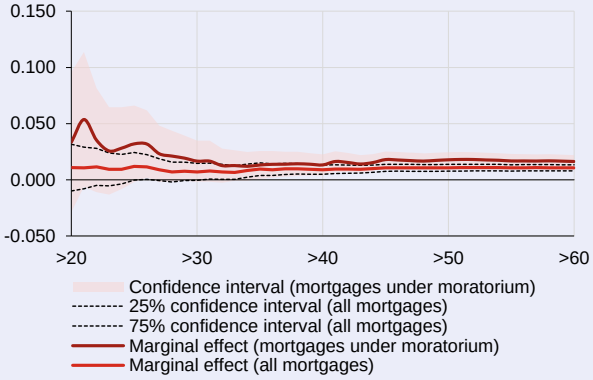


Note: The y-axis shows the change in the probability of a loan becoming past due after the end of the moratorium due to a one unit increase in LTV. The estimates represent the marginal effects obtained from a series of probit models progressively estimated on a sample of mortgages with LTV ≤ 40 up to ≤ 100 (x-axis).

Chart 3 (Box 3)

Change in the probability of a loan becoming past due after the end of the moratorium by DSTI level

(marginal effect; x-axis: DSTI)



Note: The y-axis shows the change in the probability of a loan becoming past due after the end of the moratorium due to a one unit increase in DSTI. The estimates represent the marginal effects obtained from a series of probit models progressively estimated on a sample of mortgages with DSTI ≤ 20 up to ≤ 60 (x-axis).

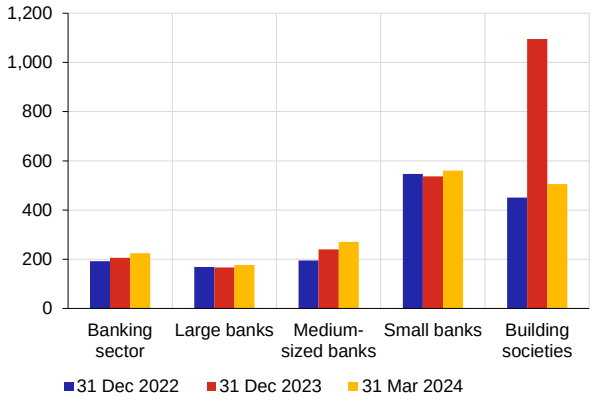
III.2.4 Liquidity

The liquidity position of the banking sector remained strong from the perspective of the LCR[63] and the NSFR[64]

The aggregate LCR[65] was 206% at the end of 2023, a year-on-year increase of 14 pp (see Chart III.22). This increase was mainly due to a rise in the value of high-quality asset portfolios (see Chart III.23) due to claims on the CNB (up CZK 182 billion to CZK 1.5 trillion) and central governments (up CZK 32 billion to CZK 1 trillion).[66] The LCR was constantly above the limit in each month of 2023, averaging 192%. All domestic banks were compliant with the regulatory minimum of 100% throughout this period. Building societies recorded a significant rise in the LCR, which increased substantially in December 2023 (from CZK 3 billion to CZK 2 billion) due to a reduction in net outflows.[67] Net outflows rose in early 2024 and building societies' LCR returned to the normal range. The NSFR, which had an aggregate value of 171% at the end of 2023 (a year-on-year increase of 6 pp), confirmed that the funding of domestic banks was stable (see Chart III.24).

Chart III.22
Evolution of the LCR

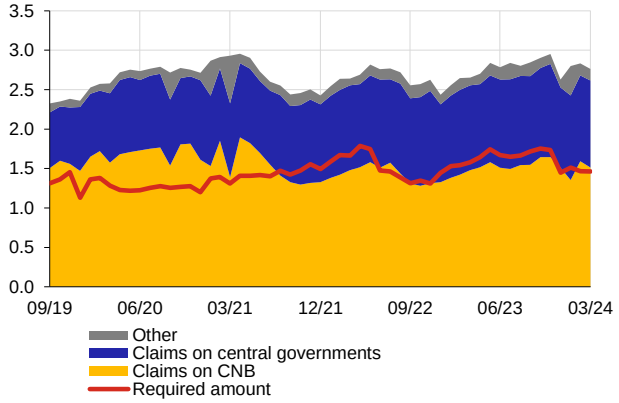
(%)



Note: The results take liquidity subgroups into account.

Chart III.23
Structure of the liquidity buffer portfolio

(CZK trillions)



Note: The required amount is the liquidity buffer with which the banking sector would achieve a 100% LCR in the given period.

Banks strengthened their indicators of euro liquidity[68]

The aggregate LCR in euros rose by 2 pp year on year to 72% at the end of 2023. Amid some volatility, it went up further in the first months of 2024, reaching 125% at the end of March. This was mostly due to medium-sized banks strengthening their euro liquidity buffers. The NSFR also rose by 3 pp year on year to 84% at the end of 2023 (see Chart III.2 CB). This rise was also due to growth in medium-sized banks, where available euro funding increased by more than 50% in the absence of significant changes in required stable funding. At the end of 2023, the share of total potential net euro outflows was relatively significant at around one-fifth of total potential net liquidity outflows in the banking sector regardless of currency (see Chart III.3 CB). The favourable trend in euro liquidity indicators indicates a decrease in the potential systemic risks associated with the share of foreign currency loans to non-financial corporations.

63 The LCR is the ratio of the liquidity buffer to the net liquidity outflow of banks over a 30-day stress horizon as defined by European Commission Regulation 2015/61.

64 The NSFR is the ratio of available stable funding to required stable funding as defined by Basel III. Each asset on the bank balance sheet requires a certain amount of stable funding (required stable funding) and part of each liability on the bank balance sheet is considered to be stable (available stable funding). An NSFR requirement above 100% indicates that the bank should have more available stable funding than required stable funding.

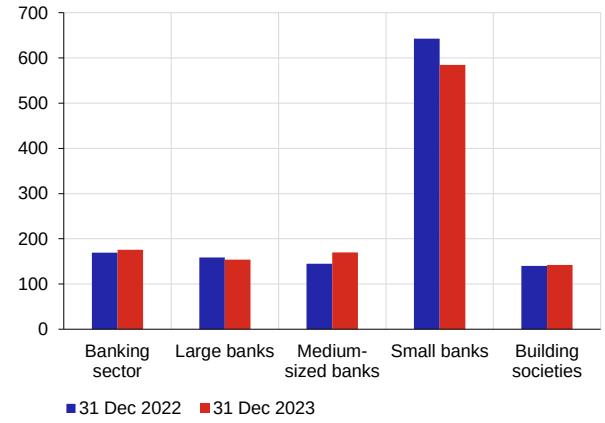
65 The methodology for calculating the liquidity position of the banking sector has been revised in this FSR, with the aggregate ratio for the sector now monitored instead of the mean of the ratios across banks. This change may cause the data to differ from previous FSRs.

66 Liquidity buffer assets, but also net outflows, fell in value in December 2023 due to temporary end-of-year operations. These are significantly reflected in a transfer of general government deposits from the banking sector to the CNB and a corresponding decline in banks' claims on the CNB. However, the shift in December 2023 was smaller than that in 2022. This caused a year-on-year increase in banks' claims on the CNB (for details see section III.2.1).

67 Two building societies are members of liquidity subgroups, so liquidity ratios are not recorded separately for them. This group of building societies therefore includes the remaining three building societies, which account for 61% of this segment (as measured by assets).

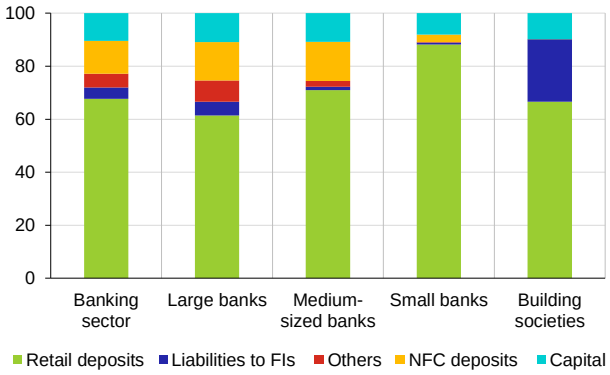
68 An LCR and an NSFR of at least 100% in each currency is not a regulatory requirement. However, Article 8 of Regulation (EU) No 61/2015 requires credit institutions to ensure that the currency denomination of their liquid assets is consistent with the distribution by currency of their net liquidity outflows. CNB microprudential supervision requires credit institutions to ensure that the currency denomination of their liquid assets matches their net liquidity outflows in order to prevent excessive currency mismatch from jeopardising their ability to use their liquidity buffers during a crisis to cover liquidity outflows in a specific currency.

Chart III.24
Evolution of the NSFR
(%)



Note: The results take liquidity subgroups into account.

Chart III.25
Items of available funding under the NSFR methodology
(%; as of 31 December 2023)



Note: FIs = financial institutions, NFCs = non-financial corporations. The results take liquidity subgroups into account.

The main reasons for banks' resilience to potential liquidity stress remain the same

One of the main reasons for domestic banks' resilience to liquidity shocks is their consistently large amounts of high-quality liquid assets (see Chart III.23). Their main sources of funding are retail deposits,[69] which rank among the most stable, and deposits of non-financial corporations (see Chart III.25). The potential for a major liquidity shock in the form of retail deposit outflows is relatively low, partly due to the high share of insured deposits in total retail deposits (80%; see Chart III.26). Systemic stability from the perspective of banks' liquidity risk is confirmed by the ratio of total client deposits to total client loans (151%). The coverage of loans by primary funds is expected to remain stable at the three-year horizon both according to banks' plans and in the *Baseline Scenario* (see Chart III.27).

Chart III.26
Retail deposits covered by the deposit insurance scheme
(CZK trillions)

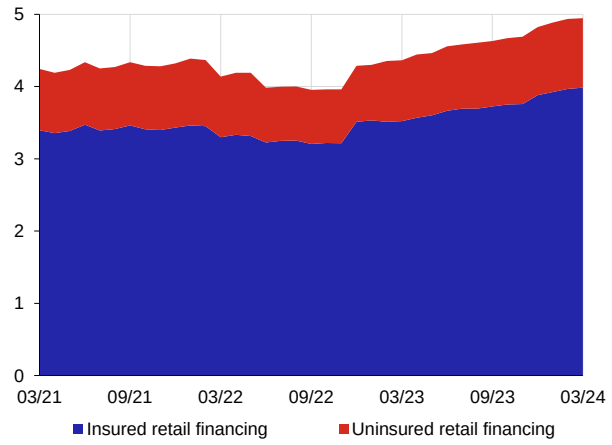
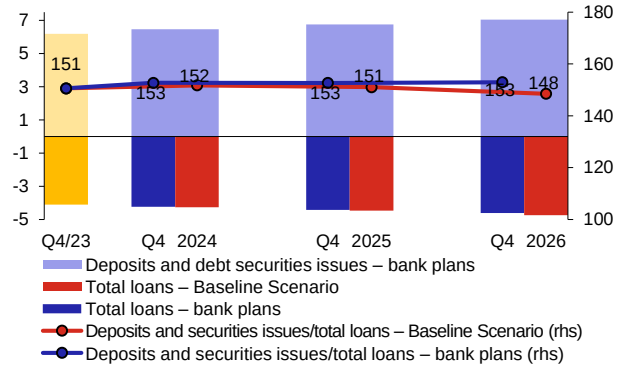


Chart III.27
Funding plans of domestic banking institutions
(CZK trillions; right-hand scale: %)



Note: Includes loans and deposits to the private sector defined as households, non-financial corporations and financial institutions. Also includes debt securities with maturities equal to or more than three years. The yellow columns denote the position as of 2023 Q4; positive values are deposits and securities issues and negative values are loans.

69 Retail deposits are deposits of natural persons and SMEs under Article 411(2) of Regulation (EU) No 575/2013.

III.3 NON-BANK FINANCIAL CORPORATIONS

Investment funds continue to grow apace…

Investment funds are strengthening their position as the largest and fastest-growing segment of the non-bank financial sector in terms of total assets (with growth of CZK 294 billion to CZK 1,307 billion; see Chart III.1 and Chart III.28). The strong medium-term growth may signal a change in the behaviour of the public, which is seeking more profitable alternatives to the traditional conservative depositing of savings in banks (see Chart III.29). However, the movements in asset value varied considerably across funds depending on their investment strategies and the amount of funds received and paid out, with bond funds recording the largest increase (see Chart III.8 CB). Given the gradual economic recovery and expected buoyant growth in nominal income, the rapid upward trend in this sector can be expected to continue (MPR – Spring 2024).

…as do participation pension funds

The moderate growth in the value of the assets managed by pension funds (of CZK 18 billion to CZK 618 billion) was due mainly to positive performance and an inflow of new funds into participation funds. However, they were largely offset by exits of participants from transformed funds[70] (see Chart III.9 CB), which may be linked partly with changes in state support and the option of investing in more profitable alternatives.[71] The subdued growth compared with investment funds may also signal some saturation of the current pension market in conjunction with lower returns (albeit lower volatility) compared with other investment opportunities (see Chart III.10 CB).

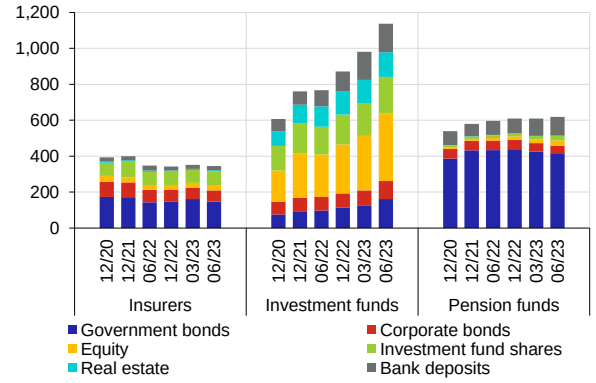
The sectors of insurance companies and non-bank financial corporations engaged in lending have long been flat

The insurance sector[72] (including branches) recorded a slight increase in assets (of CZK 22 billion to CZK 498 billion) in 2023, again due mainly to asset revaluation, but partly also to rising premiums written in non-life insurance. Loans provided by non-bank financial corporations engaged in lending rose by CZK 37 billion to CZK 376 billion in 2023, with the bulk of that amount going to non-financial corporations.

Chart III.28

Main components of domestic non-bank institutional investors' investment assets

(CZK billions)

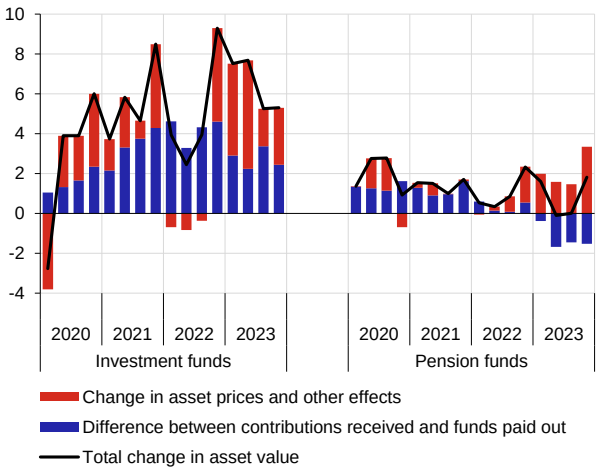


Note: The difference between the sectors' investment assets and total assets (see Chart III.1) is significant for insurance companies and investment funds. Non-investment assets include, for example, insurance claims and reinsurance recoverables in the case of insurers and loans and receivables in the case of investment funds. Moreover, in the case of insurers, the chart excludes branches of foreign insurance companies, the Export Guarantee and Insurance Corporation and the Czech Insurers' Bureau.

Chart III.29

Decomposition of the change in the value of investment and pension funds' assets

(q-o-q growth in %; factor contributions in pp)



Note: For pension funds, change in asset prices and other effects does not include assets associated with the use of synthetic hedging. Other effects include the effect of derivatives transactions and effects related to changes in leverage.

70 Assets in transformed funds decreased in value by CZK 28.7 billion in 2023, while those in participation funds increased by CZK 46.9 billion.

71 An analysis conducted by the CNB in 2019 (see Box 3.2 in *Risks to financial stability and their indicators – December 2019*) expected the number of participants in transformed funds to drop below one million around 2035. Given the current legislative changes, the number of participants can be expected to decrease below one million as early as around 2030.

72 The insurance sector includes insurance companies and one reinsurance company Vig Re, but excludes data for EGAP and the CIB.

Investment funds do not currently pose serious risks to financial stability…

Risks to financial stability may arise from potential maturity mismatch between the liquidity of assets and potentially due liabilities. Such risks emerge mainly at times of falling asset prices and rising market uncertainty, when the number of participants prone to leaving funds increases. In the event of elevated outflows, investment funds use their liquidity buffers and, if those prove insufficient, funds raised by selling off less liquid assets to pay redeeming clients. In conditions of impaired market liquidity, this increases the downward pressure on the prices of the assets held by funds and the pressure for materialisation of client losses, and ultimately increases the spillover of risks into the whole financial system.[73] In the case of Czech investment funds, however, the impact on the domestic financial system would be limited, as they invest mostly in foreign assets, in which Czech funds do not have a significant market share. This does not mean that participants cannot incur major losses that might have a macroeconomic impact on future consumption. However, this scenario is not very realistic in the short run due to the gradual decline in inflation and the expected decrease in interest rates on the main world markets. In the medium term, though, we still see narrow risk premia on financial (bond and equity) markets, so a disorderly price correction on financial markets could significantly affect households' wealth (see section II.1.1). Domestic funds could have some effect on the Czech government bond market. However, they currently hold less than 5% of these bonds. Although this share is rising gradually, the growth has been very slow so far, lagging well behind the overall growth in assets managed.

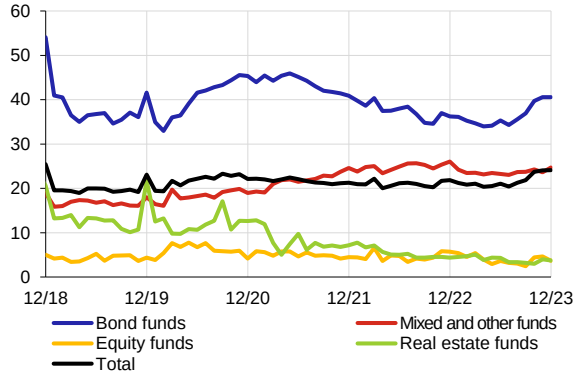
…but the conditions for the build-up of risks are regularly evaluated and tested

The CNB evaluates maturity mismatch risk on an ongoing basis and also assesses it using a macro-stress test with a three-year horizon in both a *Baseline Scenario* and a highly *Adverse Scenario* (see section IV.2.3). The results demonstrated a relatively insignificant contribution of investment funds to domestic systemic risk via potential fire sales. The CNB also conducts a quarterly assessment[74] of alternative investment funds, which comprise special collective investment funds and funds for qualified investors.[75] The results of this assessment currently indicate that there are no excessive risks to domestic financial stability, due to prudent use of leverage, which is below 200% in most cases and well below the EU average in relative terms.[76] If the CNB were to identify any excessive risks to financial stability, it could apply macroprudential instruments designed to reduce them. These instruments would restrict the use of leverage by the investment funds identified. They are currently activated in Ireland and Luxembourg.[77]

Chart III.30

Share of liquid assets on the balance sheets of collective investment funds

(%)

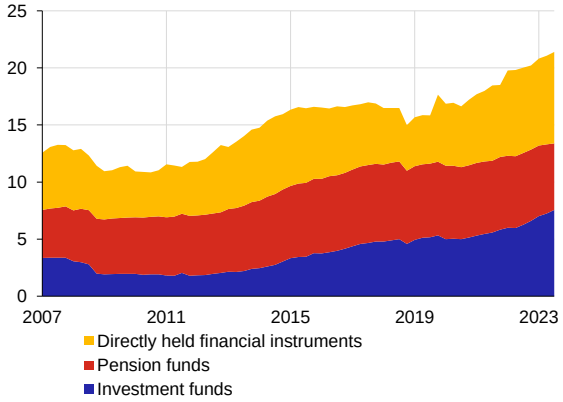


Note: Liquid assets comprise cash, debt securities issued by general government, and bank deposits and other claims payable on demand. The collective investment funds sector excludes funds for qualified investors.

Chart III.31

Selected exposures of households to financial markets

(% of households' total financial assets)



Note: Other financial assets of households mainly comprise currency and deposits.

73 For details see Szabo, M. (2022): *Meeting Investor Outflows in Czech Bond and Equity Funds: Horizontal or Vertical?*, CNB WP 6/2022, and Fricke, C. and Fricke, D. (2021): *Vulnerable Asset Management? The Case of Mutual Funds*, Journal of Financial Stability 52.

74 The CNB is required by law to conduct this assessment under Article 25 of Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on alternative investment fund managers. The CNB has been conducting quarterly assessments since the second half of 2021, when the related guidelines of the European Securities and Markets Authority entered into force.

75 These are funds that do not meet the requirements of Directive 2009/65/ES (UCITS IV). Funds that meet the UCITS IV requirements are referred to as standard funds.

76 The assessment methodology is compliant with ESMA guidelines, which are detailed here: Guidelines on Article 25 of Directive 2011/61/EU. Risky funds are identified on the basis of, among other criteria, the size of leverage, where unusually high leverage both in absolute terms and in comparison with similar funds in the Czech Republic and across the EU is considered. The CNB monitors the contribution of these funds to risks associated with fire sales, lending by funds and the interconnectedness of funds and other domestic financial corporations.

77 The Irish central bank introduced a limit of 250% on the leverage ratio for real estate funds in 2022.

The sector's resilience is aided by a stable share of liquid assets

The liquidity position of collective investment funds[78] did not change significantly in 2023 and remains relatively robust. The high share of liquid assets is due to investment in government bonds and, in the case of some funds, also to a high share of deposits at banks.[79] Bond funds have long accounted for the largest share of liquid assets (see Chart III.30). Funds investing in equity securities hold a relatively small proportion of liquid assets (foreign equity securities are the largest component of the investment fund portfolio from the aggregate perspective; see Chart III.28 and Chart III.11 CB). However, these securities are mostly included in major global stock indices. Czech investment funds have only a negligible share of these markets and could sell off relatively large amounts of assets from their portfolios if necessary without significantly affecting market prices. Nevertheless, these funds are exposed to the risk of fire sales abroad in the event of a global shock, which could adversely affect the value of the assets they manage.

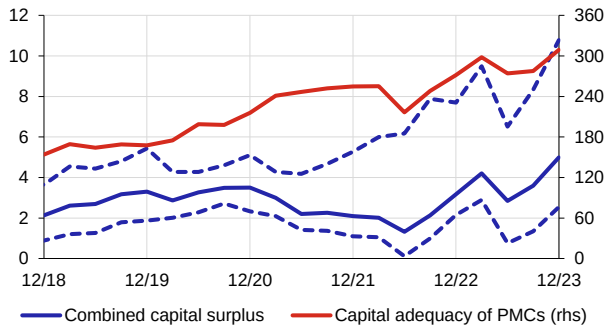
The growth in investment funds' total assets is making it more important for investors to be able to manage the related risks

The share of households' financial assets held in pension and investment funds or directly in financial investment instruments in total financial assets has increased from 12% in 2007 to a current 21% (see Chart III.31). Households' financial sensitivity to developments on global and domestic financial markets is thus increasing. If prices were to decline significantly, their wealth might be affected more negatively than in the past. Adverse global and/or domestic macroeconomic developments will thus affect them not only through growth in unemployment and a decline in income, but also via the direct effect of a fall in wealth, which may act as an additional amplifying channel for the transmission of macroeconomic shocks (to household consumption, for example).

Chart III.32

Combined capital surplus and capital adequacy of the pension fund sector

(%)

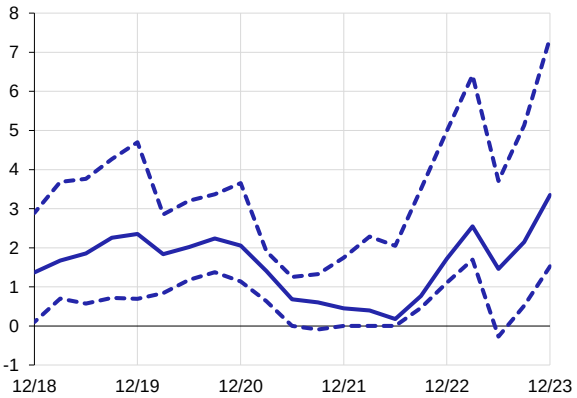


Note: Dashed lines denote the minimum and maximum values of the combined capital surplus across TFs. The combined capital surplus is the ratio of the sum of (1) the capital surplus of pension management companies and (2) the difference between the assets and liabilities of TFs to the assets of TFs.

Chart III.33

Surplus of assets over liabilities of transformed funds

(% of total assets of TFs)



Note: Dashed lines denote the minimum and maximum values across TFs.

Pension management companies (PMCs) met the capital requirements, due in part to a drop in interest rates

The decline in the Czech yield curve and generally favourable financial market situation in the second half of 2023 positively affected the performance of pension funds and led to an increase in PMCs' capitalisation (see Chart III.32). In the case of transformed funds (around 72% of pension funds' total assets), it resulted in growth in the surplus of assets over liabilities (see Chart III.33). However, this was partially offset by transfers of capital from funds back to PMCs and subsequent dividend payments (or decreases in equity capital) in 2023. At the same time, capital adequacy was affected by the fact that around 58% of the portfolio (made up mostly of Czech government bonds) was held at amortised cost in 2023 (see Chart III.12 CB). This stabilises the impacts of changes in interest rates on the book value of assets and indirectly on PMCs' capital over time, as it increases the negative effect on an asset's book value when interest rates rise and conversely reduces the positive effect when they fall. In general, higher interest rates tend to be favourable for pension funds in the long run, as they allow higher yields to be locked in, amid the minimal risk associated with holding government bonds.

78 The collective investment funds sector excludes funds for qualified investors. The share of liquid assets is not shown for this type of fund because this segment is highly heterogeneous and changes in the aggregate indicator are difficult to interpret.

79 These funds have a similar strategy to money market funds. It is thus based on repo transactions with banks or bank deposits.

Portfolio concentration in domestic government bonds remains a long-term risk for the PMC sector…
Given the high concentration of Czech government bonds in their balance sheets, transformed funds are relatively sensitive to volatility in the prices of such bonds, as 21% of the portfolio is still marked to market. Higher volatility could temporarily jeopardise PMCs' ability to meet the statutory requirements. This risk is associated mainly with a potential material deterioration in the Czech sovereign credit risk rating and an increase in the risk premium on government bonds requiring a top-up of capital. According to the results of the public finance stress test (see section IV.5), the likelihood of this occurring in the coming years is quite low. Nonetheless, the risks associated with domestic public finance sustainability may increase in the longer term (see section II.2.1).

…but the sector remains resilient to this risk in the current conditions
The public finance-related risks to the PMC sector are subject to stress testing (see section IV.2.2). According to the stress test results, the economic developments assumed in the *Baseline* and *Adverse Scenario* would not lead to a need to top up the capital of transformed funds.

The risks now include a potential outflow of participants from transformed funds due to legislative changes…
Legislative changes adopted in 2023 may have a significant impact on the pension fund sector. These changes, which include the abolition of the state contribution for clients aged over 65 years and the creation of the long-term investment product (LIP),[80] may make pension funds (especially transformed ones) much less attractive and accelerate the decline in their participants.[81] The number of participants in transformed funds dropped by 333,000 to 2.42 million in 2023.[82] Owing to the postponed effect of some changes to the state contribution, the upward trend in the outflow of participants can be expected to continue during 2024. This may give rise to additional liquidity needs.

…which requires prudent management of their liquidity
According to CNB analyses, the current liquidity of transformed funds at the sector level is sufficient to cover any outflow of participants. The additional costs associated with fire sales of bonds held at amortised cost due to increased liquidity needs caused by rising exits of clients would be approximately CZK 0.8 billion at the sector level. PMCs have been gearing up for a potential outflow of clients, and their liquidity resilience gradually increased in the course of 2023.

The insurance sector remains highly solvent and profitable
The aggregate solvency ratio remained above 200% (222% as of December 2023), well above the regulatory minimum of 100% (see Chart III.34). More than 90% of eligible own funds consisted of the highest-quality common equity Tier 1 capital. The life and non-life insurance segments remain profitable, with aggregate profitability far above the long-term average (see Chart III.13 CB). The positive result of the technical account for life insurance in particular was also due significantly to asset revaluation. Premiums written in non-life insurance also rose across all insurance classes in 2023 (by CZK 13.4 billion in gross terms), due partly to some policies being adjusted for inflation (see Chart III.14 CB and Chart III.15 CB). This reflects similar trends in claim settlement costs and premiums, with growth in costs exceeding growth in premiums in 2023.[83] Premiums written in life insurance remained stable as a result of growth in risk and investment life insurance products at the expense of the maturing of the traditional life insurance portfolio.

The size and structure of insurance companies' investment portfolio remains stable
The value of the investment portfolio of the domestic insurance sector rose slightly in 2023 (by 8% compared to the end of 2022), due mainly to an increase in the value of domestic government bonds caused by a decrease in the koruna yield curve. Domestic government bonds have long been the most important asset in the insurance sector's investment portfolio (about 30% of total assets; see Chart III.28). Foreign government bonds are the second largest item. A significant proportion is also held through investment fund units.[84]

80 Savers can include various products, from bank deposits through to investments in mutual funds or other securities, in the LIP. The LIP can be offered by banks, management companies and investment firms. State support for the LIP is provided via deductions from the income tax base. The deductible amount is capped at CZK 48,000 a year. However, LIP holders are not entitled to state contributions.

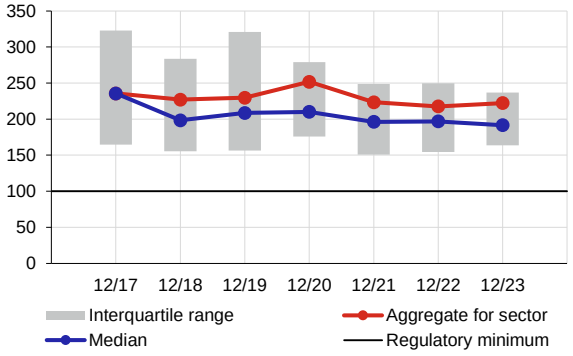
81 On the other hand, alternative participation funds with freer investment strategies have been introduced and may conversely attract a proportion of the new participants.

82 By contrast, the number of participants in participation funds increased by 168,000 to 1.81 million.

83 This holds true both in gross terms and net of reinsurance.

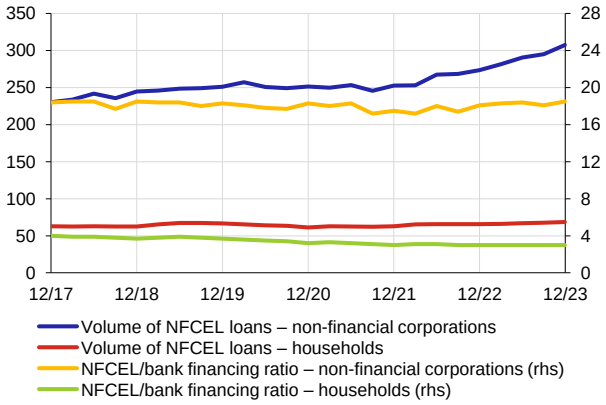
84 This is mainly true of the investment life insurance portfolio.

Chart III.34
Ratio of insurance companies' eligible own funds to the solvency capital requirement
(%)



Note: The values exclude the Export Guarantee and Insurance Corporation and the Czech Insurers' Bureau.

Chart III.35
Financing by non-bank financial corporations engaged in lending
(CZK billions; right-hand scale: %)



The main risk is still a disorderly price correction on financial markets…

The financial market situation, especially as regards credit spreads, is still the main risk to the insurance sector, and especially to life insurance companies (life insurance premiums account for around 22% of total gross premiums collected). However, the financial and macroeconomic developments in 2023 caused these risks to diminish significantly, and domestic and foreign yield curves continued to decline or stabilise in early 2024. Despite the high volatility of interest rates over the past three years, credit spreads are close to the average observed over the last two decades (see section II.1).

…and the ability to reflect higher costs in insurance prices

In non-life insurance, there is still a medium-term risk stemming from a potentially impaired ability to reflect cost increases in insurance prices[85] and from the extent and prices of reinsurance.[86] This may foster a narrowing of product ranges and a decrease in the availability of insurance cover for some client segments and economic sectors. The final result could be a drop in the insurance sector's profitability and a weakening of its capital position. The CNB uses, among other things, macro-stress tests of the insurance sector and supervisory stress tests of insurance companies to assess the risks related to the insurance sector. The results of this year's macro-stress test confirmed that the sector is resilient to potential adverse shocks at the aggregate level (see section IV.2.1). The insurance sector thus remains resilient and is not currently a source of risks to the stability of the financial system.

The sector of non-bank financial corporations engaged in lending grew slightly…

Total loans provided by non-bank financial corporations engaged in lending (NFCELs) rose by CZK 37 billion to CZK 376 billion in 2023 (see Chart III.35). The increase was due mainly to growth in loans provided to non-financial corporations, which went up by CZK 34 billion to CZK 308 billion. NFCELs are primarily an alternative source of financing for non-financial corporations (with a market share of 18%), mostly in the form of leasing (about 75% of the loans to non-financial corporations provided by this segment). Subdued growth in loans to households largely mirrored the evolution of consumer credit in the banking sector, with loans rising by CZK 3 billion to CZK 68.6 billion in 2023. However, the market share of NFCELs in loans to households was only 3%.

…and the riskiness of its assets differed according to debtor sector

The riskiness of NFCELs' loans to non-financial corporations has long been very low. In 2023, the 12M default rate remained flat at around 1.1% (see Chart III.16 CB; for comparison: bank loans to NFCs – 0.9%; see Chart II.41). For households,[87] it was about 11%, which is above the long-term average. Given its current size and ownership structure (see section III.4) and the low riskiness of secured leasing loans, which account for the bulk of its claims, the NFCEL segment is not currently a source of systemic risks.

85 Following a marked decrease during the COVID pandemic, loss history in the motor third party liability insurance (MTPL) portfolio is gradually returning to its historical average. The share of MTPL in total gross premiums written is roughly 16%.

86 This has been partially incorporated into reinsurance programmes for 2023 and 2024. Reinsurance prices were affected by Russia's aggression against Ukraine and by climate change. Environmental risks can include both transition and physical risks.

87 The default rate on loans provided to households by NFCELs is calculated as the average of the NRCI and SOLUS data.

III.4 INTERCONNECTEDNESS OF THE FINANCIAL SYSTEM

The level of interconnectedness in the domestic financial system remains stable in both the balance sheet…

The interconnectedness of the financial system currently does not indicate risks to financial stability. The level of interconnectedness of the sectors of the domestic financial system has not changed significantly in recent years. Domestic banks have long played a key role in the network of direct links (see Chart III.17 CB). Banks also continued to be an important source of funding for some firms in their domestic financial groups. This is particularly evident for NFCELs (mostly leasing companies). In the area of indirect interconnectedness, common exposures to the portfolio of Czech government bonds were the most important. A sell-off of these bonds by any of their major holders could lead to a rise in stress on the Czech government bond market and to propagation of additional risks to the balance sheets of other financial institutions. However, the current decline in the yield curve and narrowed CDS spread do not indicate a high likelihood of this risk materialising. The risks due to indirect interconnectedness via the Czech government bond market could nevertheless increase if the perceived domestic sovereign risk deteriorates (see section II.2.1).

…and off-balance sheet areas

Non-balance sheet interconnectedness, which is monitored mainly using the nominal value of derivatives transactions (see Chart III.18 CB), remains mostly stable. The banking sector's international exposures are particularly important, but about one-half of these are intra-group exposures. The interconnectedness between domestic banks and non-financial corporations and between non-financial corporations and non-residents has risen since 2022. The increase mainly reflects exchange rate hedging operations by non-financial corporations and to a lesser extent also interest rate hedging operations due to higher exchange rate volatility.

Banks remain in a net creditor position in their ownership groups…

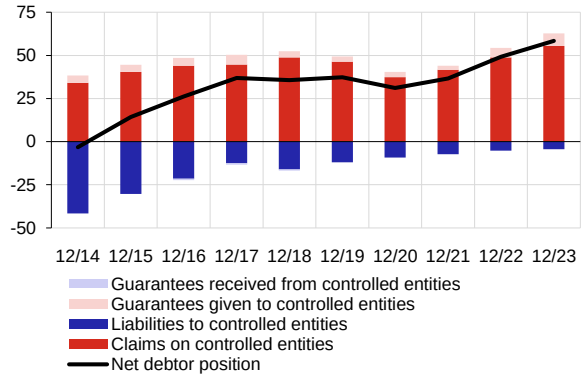
The interconnectedness in domestic bank groups has not changed significantly since 2017 and the net creditor position of the largest domestic banks ranges from 30% to 40% of total regulatory capital (see Chart III.36). Net claims on controlled entities rose by CZK 9.3 billion year on year to CZK 58.4 billion. This was due to an increase of CZK 6.7 billion in claims on controlled entities and a decrease of CZK 0.9 billion in liabilities to CZK 4.4 billion. On the asset side of banks' balance sheets, own NFCELs have long been the largest debtor within bank groups. As in previous years, liquidity received from building societies accounts for the largest part of the liabilities side of banks' balance sheets.

…and their debtor position vis-à-vis their parent banks increased slightly

The net debtor position of the five largest domestic banks vis-à-vis their foreign parent banks increased slightly year on year by 11.5 pp to −129% of their regulatory capital at the end of 2023 (see Chart III.37). In absolute terms, it increased by approximately CZK 66 billion to CZK −568 billion. The main factor behind the increase in the debtor position was a rise in domestic banks' liabilities. The net debtor position of Czech banks vis-à-vis foreign entities thus remains highly negative. However, this situation is due largely to the exchange rate commitment of 2013–2017, when the negative debtor position was offset on the other hand by an increase in the banking sector's excess liquidity with the CNB (see Chart III.37, yellow line). Generally, the debtor position vis-à-vis parent banks has followed a similar path as the general debtor position vis-à-vis non-residents. This is due, among other things, to the fact that some banks obtain euro financing within their groups (approximately 20% of euro financing), whereas others obtain it on the market outside their parent groups.

Chart III.36
Interconnectedness in domestic bank groups

(% of regulatory capital of domestic parent banks)

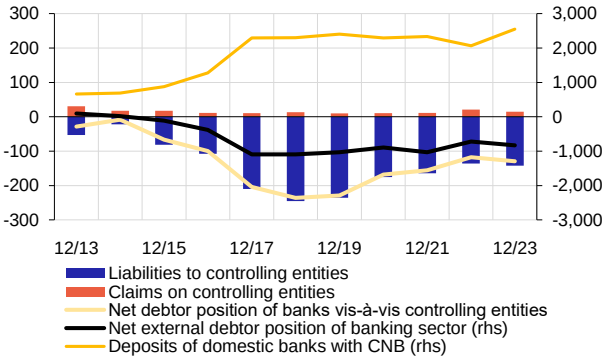


Source: Obligatory information to be disclosed pursuant to Decree No. 123/2007 and Decree No. 163/2014

Note: The chart depicts the aggregate credit interconnectedness of the largest domestic banks, i.e. Česká spořitelna, ČSOB, Komerční banka, Raiffeisenbank and UniCredit Bank.

Chart III.37
Interconnectedness vis-à-vis non-residents

(% of regulatory capital of domestic banks; right-hand scale: CZK billions)



Source: Obligatory information to be disclosed pursuant to Decree No. 123/2007 and Decree No. 163/2014, banks' annual reports, CNB

Note: The chart depicts the aggregate credit interconnectedness of the five largest domestic banks vis-à-vis their parent companies. The net debt position of the banking sector represents the overall net position of all banks vis-à-vis all non-residents excluding shares and other equity.

IV. STRESS TESTS

IV.1 STRESS TESTS OF BANKING INSTITUTIONS

IV.1.1 Solvency macro stress test of banks

The solvency macro stress test (SMST[88]) has the usual three-year horizon (2024–2026), is based on the end-2023 data and assesses the impacts of two economic scenarios. The *Baseline Scenario*[89] captures expected developments based on the CNB's official macroeconomic forecast published in MPR – Spring 2024. The *Adverse Scenario* describes a hypothetical situation in which there is a sharp and deep economic decline originating in the economies of the effective euro area headed by Germany. Projections of key variables in the two scenarios are shown in Charts IV.1A–B, Table IV.1 and Charts IV.1A-D CB.[90] If the assumptions of the *Adverse Scenario* were to materialise, the CCyB would be entirely exhausted and a need to use part of the CCoB would arise at the sector level. At the individual level, some banks would also breach the O-SII buffer. The threat of a breach of the CCoB and the O-SII buffer could lead to a reduction in lending,[91] with an additional adverse impact on the real economy, and signals a greater need for capital buffers that can be released in the event of an economic shock.

A potential deepening of the above sharp economic cooling due to the materialisation of transition and physical climate risks and cyber risks was not considered in the current round of stress testing of banks. If combined with the materialisation of the risks modelled in the *Adverse Scenario*, these risks could exacerbate the effects on the banking sector. This signals a need to calibrate the levels of structural capital buffers prudently (see section V.2). The materiality of the impacts of cyber risks alone on the banking and non-financial corporations sectors is examined in a sensitivity analysis.

Chart IV.1A
Alternative scenarios: real GDP
(CZK billions; quarterly data)

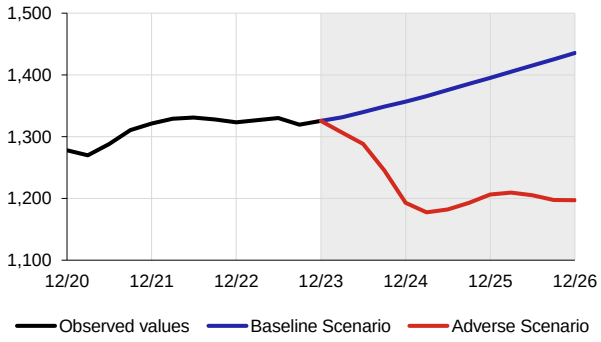
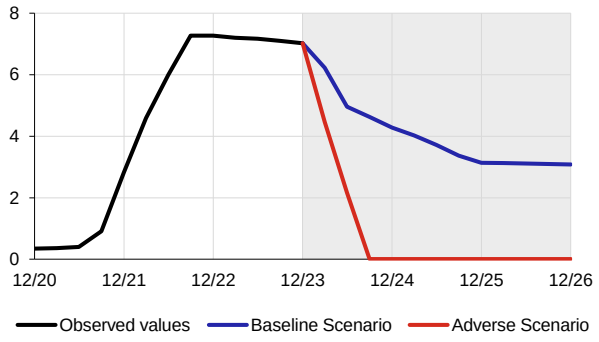


Chart IV.1B
Alternative scenarios: 3M PRIBOR
(%)



The *Baseline Scenario* assumes a gradual renewal of economic growth…

The *Baseline Scenario* assumes growth in economic activity (of around 1.5%) in the first year, while inflation fluctuates around the 2% inflation target over the entire forecast horizon. The recovery is driven by household consumption, supported by growing real wages, improving sentiment and a decreasing saving rate because of falling interest rates. Consumer sentiment is dampened by the fiscal consolidation package. The contribution of net exports to GDP growth declines in the first year owing to a downturn in external demand, stemming mainly from Germany's economic difficulties. Growth in economic activity accelerates towards 3% in the following two years. This is aided above all by a strengthening recovery in household consumption growth, supported by higher real wage growth and a further decline in the saving rate. To a lesser extent, the upswing is also driven by private and government investment activity and a recovery in external demand. The tightness in the labour market gradually eases, while unemployment increases to just above 3%. Nominal wages rise at a still swift, albeit slowing pace. Medium and long-term government bond yields range between 3% and 4% during the test and the exchange rate appreciates moderately over the entire test period to below CZK 24.50 to the euro.

88 For the methodology see *Solvency macro stress test of the domestic banking sector*.

89 The time series of the variables for the third year of the *Baseline Scenario* and all years of the *Adverse Scenario* were created solely for stress testing purposes. For this reason, neither the *Baseline Scenario* beyond the forecast horizon, nor the *Adverse Scenario* is the CNB's official forecast.

90 Projections of other variables, such as property price growth, credit growth and the default rate, can be found in section II.

91 *Review of the EU Macroprudential Framework for the Banking Sector March 2022*, section 3.1

…accompanied by moderate growth in credit risks in non-financial corporations

In the *Baseline Scenario*, lending is initially muted due to high interest rates and negative economic sentiment but then grows in the case of both loans to non-financial corporations and loans to households for house purchase. The default rate among non-financial corporations rises slightly due to higher indebtedness and persisting elevated interest expenses, while that among households is flat for mortgage loans and drops slightly for consumer credit (see Table IV.1). Loss given default follows a similar pattern, increasing very slightly for non-financial corporations while staying flat for households.

Table IV.1

Key variables in the alternative scenarios and their impact on the banking sector

	Actual value	*Baseline Scenario*			*Adverse Scenario*		
	2023	2024	2025	2026	2024	2025	2026
Macroeconomic variables (y-o-y, averages for given periods in %)							
Real GDP growth	-0.2	1.4	2.7	2.9	-4.8	-5.3	1.1
Inflation rate	10.8	2.3	2.0	1.9	2.6	-0.4	-2.2
Unemployment rate	2.6	2.9	3.1	3.2	6.1	7.7	10.4
Nominal wage growth	8.0	7.7	6.4	5.5	4.4	2.4	1.2
Real GDP growth in EMU	0.2	0.4	1.1	1.2	-2.5	-2.7	1.0
Growth in loans (y-o-y, averages for given periods in %)							
Non-financial corporations	4.9	9.5	8.7	10.4	13.9	10.6	3.7
Loans for house purchase	3.4	3.8	6.5	7.4	3.4	3.2	1.9
Consumer credit	7.6	7.4	7.7	8.2	6.3	0.6	-2.5
Default rate (PD)							
Non-financial corporations	0.9	1.7	2.0	2.1	5.6	7.4	7.5
Loans for house purchase	0.6	0.8	0.7	0.7	1.3	2.0	2.3
Consumer credit	3.2	3.1	2.8	2.7	4.8	5.9	6.2
Loss given default (LGD) (averages for given periods in %)							
Non-financial corporations	31	33	33	32	35	40	50
Loans for house purchase	14	14	14	15	14	18	25
Consumer credit	44	43	43	44	46	56	68
Asset markets (averages for given periods in %)							
3M PRIBOR	7.1	5.0	3.6	3.1	1.7	0.0	0.0
5Y IRS CZK	4.4	3.3	3.1	3.2	1.1	0.8	1.3
5Y Czech GB yield	4.6	3.5	3.1	3.1	1.7	1.5	2.3
3M EURIBOR	3.4	3.5	2.9	2.5	3.1	2.4	2.2
5Y IRS EUR	3.1	2.8	2.6	2.4	2.5	1.8	2.1
Residential property (y-o-y)	-1.6	2.9	5.0	4.5	1.1	-3.6	-12.0
Equities (y-o-y)	20.7	15.2	0.6	3.6	8.5	-10.5	16.2

	Actual value	*Baseline Scenario*			*Adverse Scenario*		
	2023	2024	2025	2026	2024	2025	2026
Items in P/L statement and OCI (CZK billions)							
Profit to cover losses*	110.2	104.7	141.8	167.9	76.5	121.9	152.8
Credit losses*	-3.6	-14.4	-24.4	-24.3	-92.9	-106.6	-75.2
in stages 1 and 2		4.6	-2.5	-0.3	-59.4	-25.3	29.3
in stage 3		-19.0	-21.8	-24.0	-33.5	-81.2	-104.5
Profit from market risks (P/L)	14.2	0.9	0.8	-0.3	4.0	-1.3	-1.8
Pre-tax profit	116.0	91.2	118.2	143.3	-12.4	14.1	75.9
Profit from market risks (OCI)	13.7	4.3	4.1	3.3	-5.0	-0.5	-4.6
Interbank contagion		0.0	0.0	0.0	-0.7	-0.1	0.2
Balance-sheet items (CZK trillions; end of period)							
Assets	9.12	9.56	10.03	10.58	9.58	9.89	10.18
Client loans (net)	4.42	4.71	5.08	5.53	4.74	4.87	4.90
Debt securities holdings	1.93	2.01	2.07	2.16	2.05	2.24	2.54
Regulatory capital	0.67	0.61	0.64	0.69	0.54	0.53	0.57
TREA	2.98	3.14	3.35	3.62	3.44	3.76	4.04
TEM	9.63	10.00	10.43	10.98	10.15	10.56	10.92
Regulatory indicators (% as of end of period)							
Overall CAR (% of TREA)	22.5	19.3	19.0	18.9	15.8	14.2	14.0
CET 1 CAR (% of TREA)	20.5	17.3	17.2	17.2	14.0	12.5	12.5
Leverage ratio (% of TEM)	6.6	5.7	5.8	5.9	5.0	4.7	4.8
MREL* (% of TREA)	30.2	29.2	28.7	28.2	24.8	22.8	22.3
MREL* (% of TEM)	9.3	9.2	9.2	9.3	8.4	8.1	8.3
Other							
Dividends for given year*	181.0	49.4	61.1	68.5	11.8	14.6	22.1
Loss rate* (%)	-0.1	-0.3	-0.5	-0.4	-2.0	-2.1	-1.5
RoA* (%)	1.0	0.8	0.9	1.1	-0.2	0.1	0.6

Source: CNB, BRCI

Note: * Profit to cover losses represents pre-tax profit adjusted for credit losses and losses from market risk. Credit losses (with a minus sign) represent impairment losses due to credit risk. If loss allowances are released, the figure is shown with a plus sign. The MREL is the sum of own funds and eligible liabilities. The loss rate is calculated as credit losses divided by gross average client loans. The dividend for 2023 and the following years is the maximum possible amount to be paid in dividends after the capital requirements and the minimum requirements for own funds and eligible liabilities (MREL) are met. RoA is calculated as after-tax profit divided by average assets at the end of the period.

In the *Adverse Scenario*, the economy would fall into a deep recession…

The hypothetical adverse global geopolitical developments would be reflected in a strong negative demand shock, which would lead to a significant decline in economic activity abroad. GDP in the EU would fall by more than 2.5% a year in the first two years of the scenario. The decline would originate primarily in Germany. Given the external nature of the shock, the Czech economy would contract by 5% in the first two years due to the extent of its links with Germany and its other structural characteristics. The negative impacts of the developments abroad, coupled with a fall in household and business confidence, would lead to growth in unemployment over the entire scenario horizon to above 10%, while wage growth would slow markedly. The ECB and the CNB would ease monetary policy in response to the economic developments, the domestic monetary policy rate would drop to technical zero and inflation in the Czech economy would turn into deflation. After initial declines, medium and long-term government bond yields would reverse to around 3–4% in the third year of the scenario. Fiscal policy would be countercyclical throughout the scenario, but supportive expenditure measures would be scaled down due to rising government debt. The adverse economic developments would lead to growth in credit risks, a drop in lending (especially to households) and a decline in prices of residential and commercial property. The economy

would stabilise only in the third year on the back of growth in external demand and investment. The exchange rate would depreciate sharply to CZK 31.0 to the euro during the first year and stay there until the end of the scenario.

…which would lead to the materialisation of credit risks

The adverse economic developments would be reflected in worsening credit risk parameters among both non-financial corporations and households. The economic downturn, in combination with interest expenses and falling profitability in non-financial corporations, would foster a sharp rise in the default rate in the first year and a further gradual increase in the following years. Households would show a more moderate but still sharp increase in the default rate in the first year of the scenario due to rising unemployment. The growth in the following years would be gradual. Loss given default would rise briskly over the entire test period among both non-financial corporations and households due to the adverse economic developments coupled with falling property prices. Credit growth would slow. Nonetheless, non-financial corporations would initially record a nominal increase in their outstanding loans, reflecting revaluation at a weaker exchange rate of the koruna against the euro. However, this effect would later be outweighed by falling investment activity (see section II.2.2). Growth in loans to households for house purchase would also slow and growth in consumer credit would turn negative.

The stress test takes into account current fiscal policy, including the impacts of the windfall tax

Both scenarios take into account the government's current fiscal consolidation efforts. Moreover, the *Adverse Scenario* considers a partial relaxation of fiscal policy in response to the economic downturn in the first two years of the scenario. The share of government bonds in banks' balance sheets continues to grow in both the *Baseline* and *Adverse Scenario*. Increased interest income from government bond holdings positively affects their profits. However, the growth in concentration could also increase the risks associated with the link between banks and the state (see section IV.5). The impacts of the windfall tax are also taken into account in both scenarios.

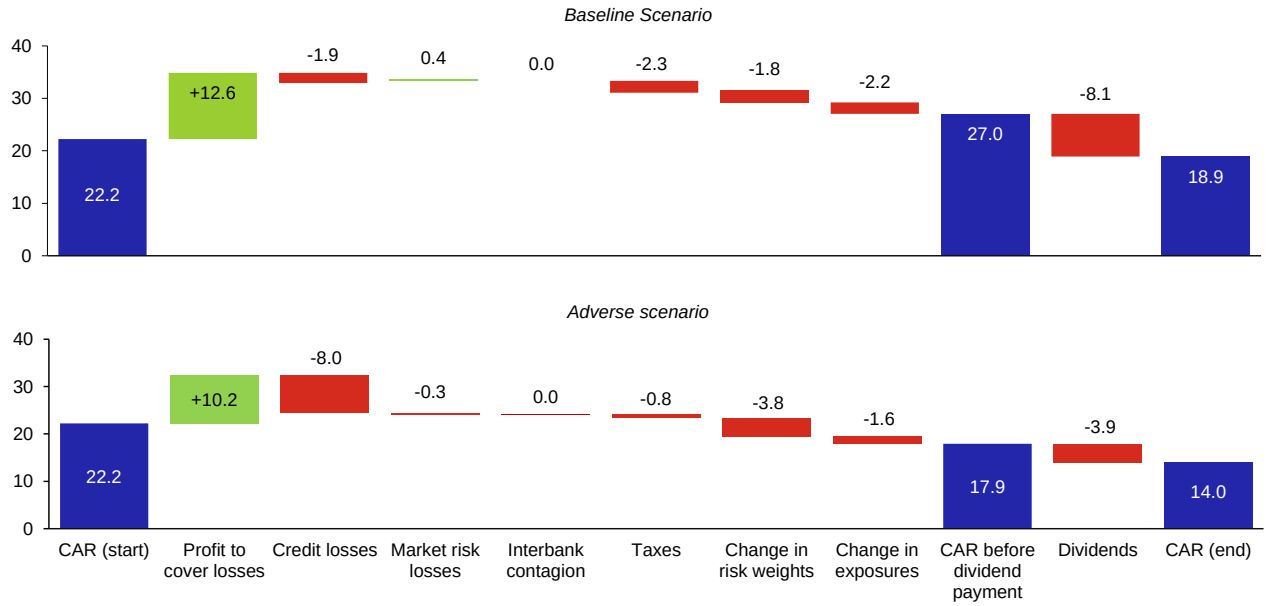
Profit to cover losses increases in the *Baseline Scenario*…

Pre-tax profit increases from CZK 91.2 billion in the first year to CZK 143.3 billion in the third year (see Table IV.1). This is because growth in profit to cover losses – especially in the net interest income component – exceeds the increase in credit losses. Profit to cover losses goes up to CZK 167.9 billion in the third year, due mainly to growth in the government bond portfolio (of CZK 250 billion at the scenario horizon) and loans provided, which increase banks' interest income. The rise in profit to cover losses is limited in part by increased deposit expenses, which decrease only slowly due to a gradual decline in rates. The increase in credit losses from their current low levels to close to CZK 25 billion in the second and third years of the scenario has a negative but gradually weakening impact on pre-tax profit. Banks' profitability, as measured by return on assets (RoA), rises.

Chart IV.2

Decomposition of the change in the banking sector's overall capital ratio in the alternative scenarios

(pp)



Note: CAR = overall capital ratio. Items increasing the capital ratio are shown in green and items reducing it in red.

…and is the main contributor to growth in the capital ratio…

The decomposition of the change in the overall capital ratio (see Chart IV.2) shows that profit to cover losses (+12.6 pp) contributes 11.1 pp to the increase in the capital ratio after taking into account credit losses (-1.9 pp), market risk losses (0.4 pp) and taxes (-2.3 pp). An increase in the total risk exposure amount (TREA), which reflects increasing risk weights (-1.8 pp) and a rise in exposures (-2.2 pp), has a negative effect (-4.0 pp) on the resulting capital ratio. The latter thus increases from 22.2% to 27.0% before dividends are taken into account.

…which remains well above the regulatory requirements even after dividends are taken into account

Dividend payments in the modelling framework[92] (CZK 360 billion after taking into account dividends for 2023 as well) reduce the resulting capital ratio from 27.0% to 18.9%. Despite that, the latter would stay above the overall capital requirement (OCR) by a sufficient margin. No systemically important bank[93] would breach the O-SII buffer requirement in the *Baseline Scenario* (see Chart IV.4) and no other bank would breach the SREP capital requirement (TSCR). The banking sector as a whole and all the individual banks also remain above the binding 3% leverage ratio requirement by a sufficient margin. The minimum requirements for own funds and eligible liabilities (MREL) would also be met. The windfall tax will not affect the sector's resilience, as none of the banks would meet the conditions for paying it.

The sector would record an overall loss in the first year of the *Adverse Scenario*

In the first two years of the scenario, the deep downturn in economic activity would cause pre-tax profit to drop to negative and slightly positive figures in the first and second years respectively (see Table IV.1). The drop would be due to significant materialisation of credit risks and a simultaneous weakening of profit to cover losses linked with a decrease in interest rates. Credit losses would be the highest in the first two years (CZK 92.9 billion and CZK 106.6 billion respectively) and would consist mainly of credit losses in non-financial corporations. Profit to cover losses would be the lowest in the first year (CZK 76.5 billion). In the subsequent years, a sizeable drop in deposit expenses stemming from a decline in monetary policy rates would foster an improvement. At the same time, the decline in rates would adversely affect the overall income on newly purchased government securities, which would be similar to that in the *Baseline Scenario* despite an increase in holdings (the portfolio would grow by CZK 600 billion in the *Adverse Scenario* but only by CZK 250 billion in the *Baseline Scenario*). The worse macroeconomic situation would also reduce the value of marked-to-market assets, but the impact of this reduction on profit would be fairly low. An economic recovery in the third year would result in pre-tax profit (CZK 75.9 billion) returning to the pre-crisis level. Profitability as measured by RoA would return from slightly negative figures in the first year to 0.6% in the third year due to growth in after-tax profit.

The CCyB would be unable to fully absorb the consequences of the structural shocks assumed in the stress scenario…

The decomposition of the change in the overall capital ratio (see Chart IV.2) shows that profit to cover losses (+10.2 pp) would be able to cover the increased credit losses (-8.0 pp), the slight market risk losses (-0.3 pp), the negligible interbank contagion losses (-0.0 pp) and taxes (-0.8 pp) and would contribute 1.1 pp to the increase in the capital ratio. However, given the materialisation of credit risk and the increase in the volume of loans, capitalisation would decline (by 5.4 pp) due to growth in the total risk exposure amount (TREA), which reflects the impact of the increase in risk weights (-3.8 pp) and growth in exposures (-1.6 pp). After taking the growth in the TREA into account, the overall capital ratio before dividends would drop to 17.9%. None of the banks affected would pay the windfall tax in the *Adverse Scenario*. Owing to dividend payments (CZK 229.5 billion after taking into account dividends for 2023 as well), the resulting overall capital ratio would decline to 14.0% (see Chart IV.3). In this situation, the CNB would respond by fully releasing the CCyB, enabling it to be used to absorb losses. However, the banking sector as a whole would also have to use 0.4 pp of the CCoB and would therefore get into a situation of restrictions on distributions.[94]

…which, at the individual level, would also lead to a partial breach of the O-SII buffer requirement and a need for capital injections

Three systemically important banks would also use the O-SII buffer, and two of them would not meet the SREP capital requirement (TSCR) either. Conversion of eligible liabilities of CZK 19.3 billion would be applied to replenish the capital to the TSCR, while full restoration of the O-SII buffer would require a capital injection totalling CZK 20.8 billion in all three banks. Three other banks would breach the TSCR. This would require a capital injection of CZK 4.2 billion in total. In one bank, capital could be partially topped up through a conversion of eligible liabilities of CZK 0.02 billion. The leverage ratio of the banking sector in the *Adverse Scenario* would fall to 4.7% during the test but would still be above the 3% level by a sufficient margin. However, one systemically important bank and two systemically unimportant banks would be individually non-compliant and would require capital injections of CZK 16.4 billion to satisfy the regulatory minimum. In

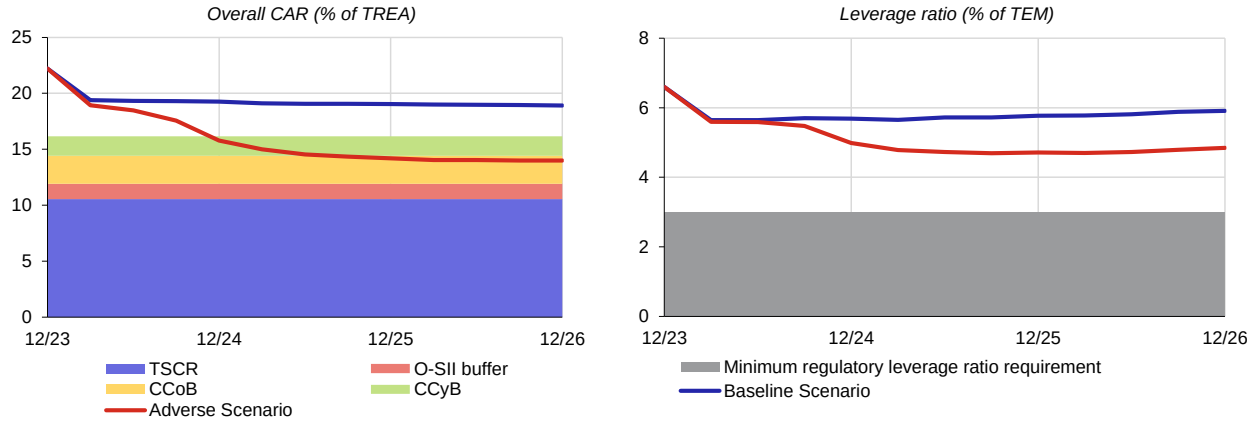
92 For details on the methodology see *Solvency macro stress test of the domestic banking sector*.

93 Six institutions with an O-SII buffer level set for 2024 are considered systemically important.

94 CRD V, Section III *Capital conservation measures*, Articles 141, 141a and 141b.

terms of compliance with the minimum requirement for own funds and eligible liabilities (MREL), the significant growth in the TREA in the *Adverse Scenario* would generate a need to replenish the MREL with both own funds and eligible liabilities totalling 4.5% of the TREA (see Chart IV.5).

Chart IV.3
Compliance with selected regulatory requirements by the banking sector in the alternative scenarios



The materialisation of cyber risk would further reduce the resilience of the sector as a whole

On top of the *Adverse Scenario*, a sensitivity analysis was conducted of the potential effects of cyber risk. The analysis assumes cyber risks that would have serious impacts on the operation and infrastructure of banks and major corporations in the last year of the scenario. In the current conditions, the maximum direct impact of the materialisation of cyber risks in the banking sector is estimated at roughly CZK 20 billion and the probability of these risks materialising is around 1%.[95] The sensitivity analysis assumes that the adverse effects on the banking sector would amount to CZK 15 billion and that credit losses in non-financial corporations would increase by CZK 5 billion as a result of a cyber attack on them (a 0.25 pp rise in the default rate in the last year compared to the *Adverse Scenario*). Serious cyber incidents in the banking sector would cause an increase in losses arising from operational risks. This, together with additional credit losses, would lead the overall capital ratio to fall by a further 0.5 pp to 13.5% in the last year of the *Adverse Scenario*.

Chart IV.4
Need and method for replenishing own funds at different capital requirement levels
(CZK billions; right-hand scale: number of banks)

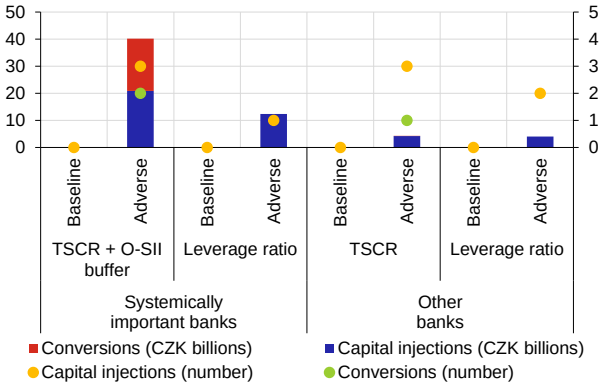
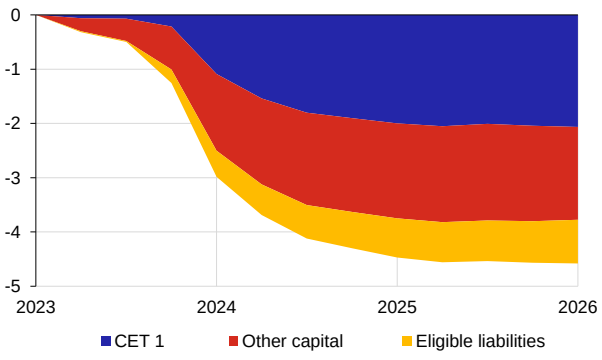


Chart IV.5
MREL shortfall and its structure in the *Adverse Scenario*
(% of TREA)



95 *Financial Stability Report – Spring 2022*, Box 3.

IV.1.2 Bank liquidity stress test

The CNB stress tested the banking sector's resilience to liquidity risk

The liquidity stress test under the CNB's methodology[96] is idiosyncratic[97] and static. The aim of the scenario (see Table IV.1 CB) is to check whether the bank is too reliant on unstable sources of funding and has a sufficient buffer of liquid assets. The liquidity shocks simulate disruption to financial markets (the interbank and financial collateral markets). They are accompanied by an increased outflow of unstable deposit components, which may lead to a potential liquidity shortfall.[98] The test is based on data as of December 2023 and involves a total of 17 entities[99] after taking liquidity subgroups into account.[100]

The test confirmed domestic banks' robust liquidity position

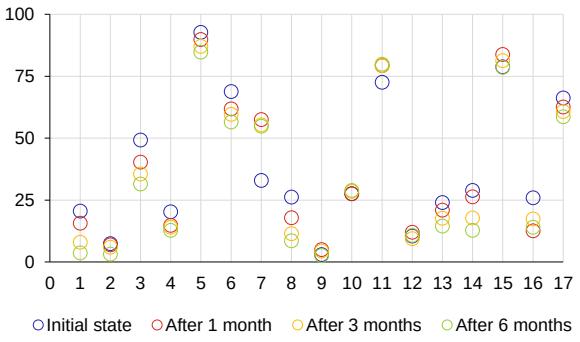
The domestic banking sector has long been characterised as highly liquid (see section III.2.4). This is confirmed by this year's stress test results. If the stress scenario were to materialise, all the banks tested would show a positive liquidity gap over the entire six-month horizon (see Chart IV.6). The robust liquidity position is due mainly to a high volume of stable household deposits (more than 50% of total deposits), around 98% of which are covered by insurance,[101] and liquid assets[102] totalling CZK 2.5 trillion. The latter are made up of claims on the CNB (repo operations; around 58%) and government securities (35%).[103] Household deposits (52% of total outflows) continue to be the main component of expected outflows.

Indicators of systemic liquidity also confirm resilience to liquidity risk

Selected ratios which track the main sources of risk are also used to assess the banking sector's systemic liquidity (see Table IV.2). They mainly measure the domestic banking sector's reliance on short-term or less stable sources of funding and excessive interconnectedness in sources of funding. Domestic banks continue to be characterised by a very low ratio of encumbered assets to total assets (including collateral received) and low rehypothecation for the purposes of obtaining liquidity. Repo operations with the central bank are usually the source of encumbrance. This, along with a low share of short-term interbank funding and a robust loan-to-deposit ratio, signals limited risk stemming from interconnectedness and reliance on unstable sources of funding.

Chart IV.6
Results of the idiosyncratic test of the liquidity of individual liquidity subgroups

(liquidity gap in % of total assets; x-axis: liquidity subgroup)



Note: The initial state represents the share of highly liquid assets in total assets as of 31 December 2023.

Table IV.2
Selected indicators of systemic liquidity

(%; as of 31 December 2023)

	Large banks	Medium-sized banks	Small banks	Building societies
Ratio of encumbered assets to total assets, including collateral received	20	15	0	0
Ratio of transactions with CNB to sources of encumbered assets	100	100	100	100
Ratio of encumbered collateral received to total assets, including collateral received	18	12	2	0
Ratio of liquid assets eligible for acceptance by CNB to total assets	39	48	51	2
Ratio of LCR outflows to liquid assets eligible for acceptance by CNB	49	34	21	32
Ratio of wholesale funding sources to total assets	17	10	3	25
Loan-to-deposit ratio	69	49	46	124

Note: Averages weighted by the bank's balance sheet size.

96 For the methodology see *Bank liquidity stress test*.

97 Given the nature of the test, only the liquidity position at individual bank (liquidity group) level is monitored. The test thus does not assume a simultaneous outflow of liquidity from all the entities tested. The test results therefore cannot be simply aggregated and used to assess systemic liquidity risk.

98 It is assumed that banks do not respond to a liquidity shortfall with additional measures over the test period.

99 On an individual basis, the test would involve 19 entities. State-owned banks are excluded from the test.

100 See Article 8 of the Capital Requirements Regulation (CRR).

101 Financial Market Guarantee System – *In Czechia, the majority of citizens are cautious with their savings, ensuring they remain within the deposit insurance coverage limit*.

102 The majority of liquid assets are Level 1 assets under Commission Delegated Regulation (EU) 61/2015.

103 They are marked to market for the purposes of the test and the calculation of liquidity indicators.

IV.2 MACRO STRESS TESTS OF NON-BANK FINANCIAL INSTITUTIONS

IV.2.1 Stress test of the insurance sector

The resilience of the insurance sector is assessed using the solvency capital ratio…
The test covers 20 domestic insurance companies, which in 2023 together accounted for 85% of the Czech life insurance market and 94% of the Czech non-life insurance market as measured by their share in net premiums written.[104] It uses a number of assumptions, which are described in the test methodology.[105] In addition to the solvency capital ratio,[106] it monitors net cash flows related to the investment assets held by insurance companies and their insurance products. The test considers the evolution of relevant market variables under the *Baseline* and *Adverse Scenario* (see section IV.1.1).

…which is affected by risk-free interest rates…
The key indicator for insurance companies is the movement of risk-free interest rates, which affects the value of insurance companies' liabilities through changes in discount rates[107] (see Table IV.1). In the *Baseline Scenario*, they remain relatively stable, while in the *Adverse Scenario* the drop in monetary policy rates would lead to a gradual decline in rates to very low levels (see Chart IV.1B).

…prices of financial assets…
In the *Baseline Scenario*, Czech government bonds record only a moderate rise in prices, i.e. a fall in yields, starting in the second half of 2024 (see Chart IV.1C CB), while corporate bond spreads remain broadly flat, and share and property prices rise slightly. In the *Adverse Scenario,* the domestic and foreign yield curves would fall sharply in line with the decline in monetary policy rates. In the case of bonds with long residual maturities, however, this decline would be largely offset by an increase in risk premia on government bonds. The *Adverse Scenario* also considers a sizeable drop in share prices on global stock markets (by around 35% at most), growth in risk premia on corporate bonds (those on speculative grade bonds by more than 500 bp) and a fall in property prices of around 20% at the scenario horizon (see section IV.1.1).

…and premiums and claim settlement costs
Besides the above market variables, change in premiums and claim settlement costs in non-life insurance is an important factor. The *Baseline Scenario* assumes that the amount of premiums and claim settlement costs reflects GDP (see Chart IV.1). As an additional stress, the *Adverse Scenario* assumes that claim settlement costs follow inflation. Conversely, premiums follow the decline in GDP to take into account the impact of the decrease in demand for insurance products resulting from the economic downturn.[108] The *Adverse Scenario* also assumes moderate growth in the lapse rate of life insurance policies proportionate to the decline in real GDP. The average additional annual lapse rate in life insurance in excess of the lapses expected by insurance companies would be 3%. Therefore, the impact of the scenarios considered on individual insurance companies differs depending on their business models, the composition of their investment portfolios and the sensitivity of their assets and liabilities to change in interest rates.

In the *Baseline Scenario*, the insurance sector remains resilient at the aggregate level…
The aggregate solvency capital ratio rises from its initial level of 223% to 246% (see Chart IV.7). Continued aggregate profitability in non-life insurance allows the payment of dividends (see Chart IV.8) and the absorption of the increase in the value of insurance liabilities arising from index-linked or unit-linked life insurance where the investment risk is borne by the policy holder (see Chart IV.8, *Transfer to ULI policies*). The test results indicate that the vast majority of the insurance companies tested will be well above the regulatory minimum of 100%.

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104 Branches of foreign insurance companies were not included in the test.

105 The most important are as follows:

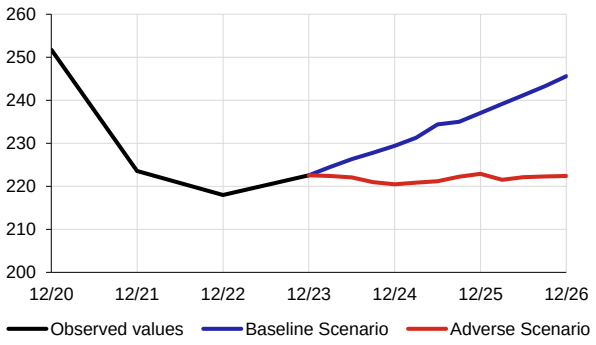
(i) The test does not consider any change in the solvency capital requirement relative to the level at the start of the test and uses the solvency capital requirement for insurance companies that have to comply with a minimum capital requirement.
(ii) The test calculates insurance technical provisions in a simplified way by discounting the originally expected future cash flows. This calculation method ignores the absorption capacity of technical provisions to respond to changes in yield curves, for example by reducing the originally expected payments of shares in investment income to clients.
(iii) The test takes into account the fact that, in the case of unit-linked life insurance products, the impact of market risks on the value of investment assets is adequately reflected in the change in liabilities arising from these products.
(iv) The test takes into account insurance companies' option to apply volatility adjustment.
(v) The impact of additional life insurance policy lapses was evaluated solely from the perspective of insurance companies' liquidity position; the effect of this shock on their capital position was not considered.

106 The test assessed the sector's aggregate resilience on the basis of Solvency II data as of 31 December 2023.

107 The movement of risk-free interest rates is also affected by the possibility of applying volatility adjustment in some insurance companies.

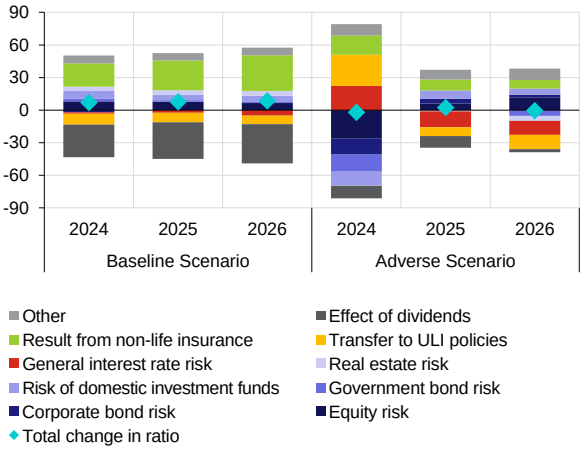
108 The coefficients of correlation between change in insurance variables and change in GDP and inflation are set at 0.7–1.5 depending on the individual non-life insurance segments and are taken from Hodula, M., Janků, J., Časta, M., Kučera, A. (2021): *On the Macrofinancial Determinants of Life and Non-life Insurance Premiums*. Geneva Papers on Risk and Insurance – Issues and Practice, November 2021.

Chart IV.7
Solvency capital ratio
(%)



Note: Insurance companies are required to maintain the solvency capital ratio above 100%.

Chart IV.8
Decomposition of year-on-year changes in the solvency capital ratio
(pp)



Source: CNB

Note: Other comprises taxes, yields and dividends on investment, and fixed costs. ULI = index-linked and unit-linked life insurance. In addition to the effect of change in risk-free interest rates, general interest rate risk reflects the possible application of volatility adjustment.

…the *Adverse Scenario* also indicates no significant risks

The scenario implies a sharp increase in nervousness on financial markets and a rise in the premiums demanded for risk undertaken. However, the aggregate solvency capital ratio would remain high enough above the regulatory minimum even in this case. It would fall to 220% in the first year and fluctuate close to this level in the following years (see Chart IV.7). Market risks – especially a fall in the value of equity holdings (a contribution of 26 pp) and a rise in the credit spread on government bonds (a contribution of 15 pp) and corporate bonds (a contribution of 15 pp) – would contribute materially to the drop in the first year of the test (see Chart IV.8). Conversely, profitability in non-life insurance (a contribution of 17 pp), a decrease in risk-free rates (a contribution of 22 pp)[109] and in particular the transfer of losses of life insurance products arising from index-linked or unit-linked life insurance where the investment risk is borne by the policy holder (28 pp) would have a favourable effect. The test result is generally strongly supported throughout the test by the fact that most insurance companies would pay less (if any) dividends. At the individual insurance company level, no company would fail to meet the capital requirement even under the *Adverse Scenario*. The sector as a whole thus remains sufficiently resilient and is not a significant source of risks to the stability of the financial sector.

The liquidity position of insurance companies would remain stable even in the *Adverse Scenario*

In the *Baseline Scenario*, insurance companies fully cover their cash outflows (claim settlements, dividend payments and tax payments) with their cash inflows in the form of premiums received, maturing bond coupons and principal and other cash income on investment assets. In the *Adverse Scenario*, the total liquidity shortfall would be around CZK 4.7 billion (see Chart IV.2 CB), due mainly to a fall in net income on non-life insurance products. This amount would not represent a significant liquidity risk, as insurance companies could obtain additional liquidity through, among other things, sales of liquid assets or repo operations. The test results thus show that insurance companies' contribution to the risk of contagion through the indirect interconnectedness of the domestic financial sector in the form of fire sales of Czech government bonds (see section III.4) is not currently significant.

109 However, this indicator includes revaluation of technical provisions, including the use of volatility adjustment.

IV.2.2 Stress test of pension management companies

The stress test of pension management companies assesses the sector's resilience at the one-year horizon
The stress test of pension management companies (PMCs) focuses on assessing the risks to transformed funds (TFs) managed by PMCs, using data as of the end of 2023.[110] The *Baseline Scenario* characterises a continued slight decline in interest rates and relatively stable shares and credit spreads (see Table IV.1). The *Adverse Scenario* used to analyse the hypothetical situation assumes a sharp fall in interest rates, a significant increase in the credit spreads on government and corporate bonds, a fall in the stock market of almost 35% (see Chart IV.1D CB) and a drop in property prices of 15% (see Table IV.1). The stress test of PMCs confirmed the resilience of TFs to all the risks tested in both scenarios. The risks in the TF segment are thus currently due mainly to legislative changes adopted in 2023 (see section III.3).

The assets of transformed funds, consisting mainly of government bonds, fell
The total assets of transformed funds fell by 6.4%, from CZK 477.4 billion to CZK 448.7 billion. This is due to the closure of transformed funds to new participants, the abolition of the state contribution for participants aged over 65 years, the migration of participants from transformed funds to participation funds offering more attractive returns and, last but not least, the exit of participants from TFs or the pension system generally. Transformed funds invest mainly in government and corporate bonds, which make up 78% and 6% of assets respectively.[111] Bank deposits account for another large share of the assets. They increased to 15% (up 4 pp on last year) because of an expected outflow of participants' funds due to legislative changes.

Transformed funds are still most exposed to the risk of movements in interest rates…
As usual, interest rate risk in particular is monitored for TFs (see Table IV.3). Government bonds measured at fair value account for 21.3% of assets and 5.2% of corporate bonds. The current koruna yield curve is relatively high (5.3% at one-year maturity), while the potential for interest rates to decrease is significant.

…whose expected decline increases the value of assets in both scenarios…
In the *Baseline Scenario*, the koruna swap curve drops by 1.7 pp at one-year maturity and 0.3 pp at five-year maturity. The decline in the euro curve is more modest: in the *Baseline Scenario* it falls by 0.8 pp at one-year maturity and subsequently decreases slightly along its entire length. Taking into account hedging against interest rate risk, the changes in yield curves would lead to a 0.3% rise in TFs' assets. In the *Adverse Scenario*, which assumes easy monetary policy and thus a marked drop in rates, TFs would post profits in the form of a rise in total assets of 3.8%, or CZK 16.9 billion. The assumed security price developments have a positive effect on TFs' balance sheet and increase the excess of assets over liabilities.

…offset by an increase in the credit spread
The positive effect of the drop in risk-free rates is weakened by an increase in risk premia, which reflect the bond's maturity and the issuer's credit rating. An increase in the credit spread on government and corporate bonds implies losses in both the *Baseline* and *Adverse Scenario*. In neither case, however, does it exceed the profits arising from the general decrease in interest rates. An increase in risk mark-ups on debt securities results in assets falling in value by CZK 0.2 billion in the case of both government bonds and corporate bonds in the *Baseline Scenario* (see Chart IV.9). In the *Adverse Scenario*, assets would decline by CZK 9.4 billion and CZK 3.1 billion respectively.

Other risks have no material impact
The credit risk of portfolios measured at amortised cost remains low. The developments assumed in the *Baseline Scenario* would have no impact on this part of TFs' portfolio, while the *Adverse Scenario* would lead to a drop in asset value of only CZK 1 billion, or 0.2%. The impact of equity risk on TFs is limited, reflecting a further reduction in their holdings of shares and units in 2023. Real estate risk also remains negligible for TFs given the very low share of property in their assets. The potential materialisation of exchange rate risk does not have any major impact on the activities of TFs either, as foreign currency exposures accounted for just 4.8% of their assets at the end of 2023. High-quality derivative hedging also further reduces the material impact of exchange rate risk.

The risks tested do not lead to transformed funds incurring significant losses…
The decline in interest rates considered in both scenarios tested is favourable to TFs and generally outweighs the impact of the other risks potentially associated with these developments. For this reason, TFs' assets increase in value from an initial CZK 448.7 billion to CZK 455.7 billion in the *Baseline Scenario* and CZK 458.3 billion in the *Adverse Scenario*. PMCs guarantee non-negative returns for the clients of their TFs by law. If a TF's assets decline below its liabilities, the relevant PMC must top up the TF's assets. Given their assumptions, there is no situation in either the *Baseline Scenario* or the

110 *Macro-stress tests of the Pension Management Companies*.
111 A large part of these bonds (57.7% of the value of assets) are recognised at amortised cost. This means that these bonds need not be marked to market and are thus not exposed to risks associated with changes in interest rates.

Adverse Scenario where a PMC would be obliged to top up capital (see Table IV.3). At the end of the test, the excess of assets over liabilities was CZK 5.8 billion in the *Baseline Scenario* and CZK 8.2 billion in the *Adverse Scenario*.

…and pension management companies remain well capitalised

PMC's capitalisation was CZK 10.9 billion at the start of the test and reached CZK 11.6 billion after taking into account the profits and losses arising from the stress tests in both scenarios. It thus remained sufficient and even strengthened slightly further. The positive trend in terms of growth in the excess of assets over liabilities in TFs could lead to PMCs transferring the excess capital from TFs back to PMCs.

Table IV.3

Results of the stress tests of PMCs

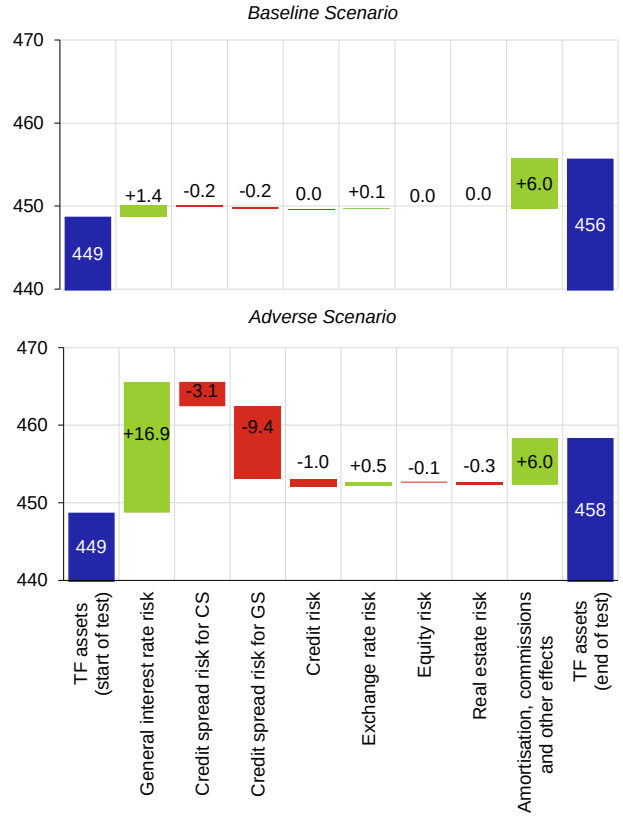
Start of test:	CZK billions			
Excess of assets over liabilities in TFs	15.0			
PMC equity	10.9			
PMC capital requirement	3.5			
	Baseline Scenario		***Adverse Scenario***	
	CZK bn	% of TF assets	CZK bn	% of TF assets
TF assets at start of test	**448.7**		**448.7**	
Total change in TF assets due to risk materialisation	1.0	0.2	3.6	0.8
general interest rate risk	1.4	0.3	16.9	3.8
credit spread risk for CS	-0.2	0.0	-3.1	-0.7
credit spread risk for GS	-0.2	0.0	-9.4	-2.1
credit risk	0.0	0.0	-1.0	-0.2
exchange rate risk	0.1	0.0	0.5	0.1
equity risk	0.0	0.0	-0.1	0.0
real estate risk	0.0	0.0	-0.3	-0.1
Change in assets due to amortisation, commissions and other effects*	6.0	1.3	6.0	1.3
TF assets at end of test	**455.7**	**101.6**	**458.2**	**102.1**
TF liabilities at start of test	**433.7**		**433.7**	
Change in liabilities due to profit distribution	16.2		16.4	
TF liabilities at end of test	**449.9**		**450**	
End of test:	CZK bn		CZK bn	
Excess of assets over liabilities in TFs	5.8		8.2	
TF asset top-up need	**0.0**		**0.0**	
Number of TFs needing top-ups	**0**		**0**	
PMC equity (after commissions from TFs and TF top-ups)	11.6		11.6	
PMC capital requirement	3.5		3.6	
Capital injection into PMCs	0.0		0.0	
Number of PMCs needing capital injections	**0**		**0**	

Note: TF = transformed fund, PMC = pension management company, CS = corporate securities, GS = government securities. * Other effects are bond coupons received, dividend income and income from deposits.

Chart IV.9

Change in the value of assets of transformed funds due to the risks tested in the *Baseline and Adverse Scenarios*

(CZK billions)



Note: CS = corporate securities, GS = government securities. Other effects are bond coupons received, dividend income and income from deposits. Change in the value of foreign currency liabilities (cross-currency repos) is accounted for when considering exchange rate risk.

IV.2.3 Stress test of collective investment funds and PMC participation funds

The CNB tests the contribution of fund investment to the systemic risk of stress on the Czech government bond market

The test assumes that in the event of asset repricing on the financial markets, exits of investors will increase. By paying redeeming investors, funds gradually exhaust their liquidity buffers[112] and start to sell off other assets where necessary. The increased sell-offs may have an impact on prices of Czech government bonds, which may create an additional source of contagion in the domestic financial system.[113]

The test covers the bulk of collective investment funds and participation funds

The test involves repricing of individual funds' assets under the *Baseline* and *Adverse Scenarios* (see section IV.1.1), followed by further rounds of stress multiplication caused by investor exits. The test is based on funds' balance and off-balance sheets as of 31 December 2023. It covers 187 open-ended collective investment funds, which were managing assets totalling CZK 661 billion, i.e. 92% of the assets of the collective investment funds sector, at the end of 2023. It also covered 35 PMC participation funds, with assets totalling CZK 165.2 billion, i.e. 97% of the participation funds sector.[114]

Table IV.4

Results of the stress test of collective investment funds and PMC participation funds

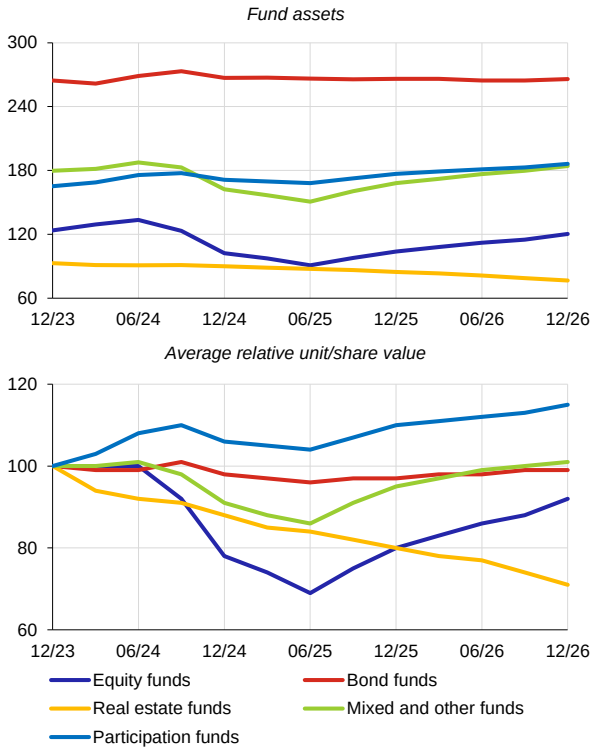
Actual value		*Baseline Scenario*			*Adverse Scenario*		
	2023	2024	2025	2026	2024	2025	2026
Assets of funds covered by test (CZK billions)							
Collective investment funds	660.9	678.3	691.1	709.7	621.7	623.0	647.3
Equity funds	123.7	127.8	127.7	126.1	102.4	103.9	120.5
Bond funds	264.5	269.2	273.0	280.1	266.9	266.1	265.8
Real estate funds	93.0	94.9	97.5	100.6	90.0	84.8	76.7
Mixed and other funds	179.8	186.4	192.9	202.9	162.4	168.2	184.3
PMC participation funds	165.2	172.6	178.8	187.2	171.4	176.8	186.2
Unit value (% of initial value)							
Collective investment funds	100	98.3	101.5	106.0	88.6	90.6	95.3
Equity funds	100	103.0	105.5	107.4	77.8	79.5	91.8
Bond funds	100	102.9	107.2	112.0	97.8	97.2	99.5
Real estate funds	100	101.8	106.4	111.6	87.8	79.8	71.2
Mixed and other funds	100	103.1	106.1	110.6	90.6	95.2	101.1
PMC participation funds	100	105.6	109.8	115.9	106.2	109.6	115.2
Liquidity need (CZK billions)							
Collective investment funds		6.0	5.4	4.0	43.4	16.0	5.3
Equity funds		1.6	0.6	0.9	9.6	3.1	0.0
Bond funds		1.4	4.3	2.7	12.4	4.9	4.2
Real estate funds		0.4	0.0	0.0	3.5	1.3	0.8
Mixed and other funds		2.5	0.5	0.3	17.8	6.7	0.2
PMC participation funds		0.1	0.0	0.0	0.8	0.4	0.1
Impact on Czech government bond (GB) market (CZK billions)							
Czech GBs sold		0.2	0.0	0.0	6.4	2.3	0.0
Decrease in bond price (%)		0.0	0.0	0.0	0.9	0.3	0.0

Note: The liquidity need consists of the value of redeeming investors' units and margin requirements on derivative transactions. The waterfall method is used for portfolio sales.

Chart IV.10

Aggregate paths of funds' assets and units/shares in the *Adverse Scenario*

(upper panel: CZK billions; lower panel: index 12/2023 = 100)



112 Liquid assets comprise the deposits of individual funds on bank accounts with maturities of up to one year, deposits in money market funds and credit lines. Funds' liabilities consist mainly of the deposits of individual investors/participants. The test assumes that funds address their liquidity needs first by using cash and deposits and only then by selling less liquid assets (the waterfall method).

113 The test assumptions and calculation method are presented in a methodology. Assets are repriced in each quarter based on the scenario, and the repricing is used to derive the liquidity stress caused by the exit of investors and participants. A 10% decline in the value of a fund's assets will lead to the exit of investors holding 4% of assets in the case of equity funds, 8% in the case of mixed and other funds, and 12% in the case of bond funds. In the case of real estate funds, the fact that these funds have one year to redeem investors' units is considered. Similarly, in the case of participation funds, the loss of state contributions and the back-payment of tax in the event of early withdrawal are taken into consideration. The test takes into account yields on bond holdings and related cash flows, and currency hedging, including the impacts of any changes in margin requirements for derivatives on funds' liquidity position. On the other hand, the test abstracts from yields and cash flows on assets other than bonds, arrivals of new investors and purchases of new assets by funds (the static balance sheet assumption).

114 The remainder of the PMC sector comprises transformed funds, which the CNB tests separately due to differences in their business model and the nature of the associated risks (see section IV.2.2).

The value of the assets managed by funds grows in the *Baseline Scenario*

In the *Baseline Scenario*, the aggregate test result is affected most strongly by the assumed increase in equity and property prices accompanied by a drop in monetary policy rates in the Czech Republic and abroad, and a related decline in yield curves. The total assets of collective investment funds increase by 7.4% to CZK 709.7 billion at the stress test horizon. The types of funds according to investment asset class show mixed trends depending on portfolio composition and the assumptions considered for the asset type in the *Baseline Scenario* (see Table IV.1). In line with the decline in yield curves and growth in the value of bonds (and moderate growth in other asset classes), participation funds record a larger rise in asset value over the horizon of the *Baseline Scenario* (13.3%; see Table IV.4).

In the *Adverse Scenario*, the value of funds' assets is affected mainly by growth in risk premia

The *Adverse Scenario* implies a sharp increase in nervousness on financial markets and in the premiums demanded for risk undertaken. In the case of bond instruments, however, the growth in risk-free premia is largely offset by a decrease in monetary policy rates (see Chart IV.2 and Chart IV.1C CB). A drop in the prices of financial instruments would imply a decline in the value of assets in collective investment funds of CZK 39.2 billion (or 6%) to CZK 621.7 billion in the first year of the scenario (see Table IV.4 and Chart IV.10). In the following years, the financial market stress would then ease a little and the fall in asset prices observed in the first year would reverse partly. The total value of collective investment funds' assets would thus be down CZK 13.6 billion (or 3.7%) compared to the end of 2023 at the scenario horizon. The overall liquidity need would be CZK 43.4 billion in the first year of the test and CZK 64.8 billion over the entire scenario period. The impact of the *Adverse Scenario* on PMC participation funds would be weaker relative to collective investment funds due the dominant share of government bonds in their balance sheets, in contrast to other funds investing in riskier assets. Participation funds' overall additional liquidity need would be CZK 1.3 billion.

Funds do not currently have the potential to contribute significantly to systemic risk on the Czech government bond market

Collective investment funds and PMC participation funds held Czech government bonds totalling CZK 133 billion (4.6% of the total government debt) and CZK 61 billion (2.2% of the total government debt) respectively in their balance sheets at the end of 2023. In the *Baseline Scenario*, there would only be a minor sell-off of government bonds (CZK 0.2 billion) thanks to the relatively favourable trend in the value of collective investment funds' assets. Even under the *Adverse Scenario*, funds would not be forced to sell off substantial amounts of Czech government bonds, owing to their high liquid asset holdings relative to their Czech government bond holdings. The sell-offs would total CZK 8.7 billion. According to the test, this would lead to a drop in government bond prices of 1.2% amid lower market liquidity. The impact of fire sales would therefore not be significant even in the *Adverse Scenario* (see Table IV.4).

IV.3 STRESS TEST OF NON-FINANCIAL CORPORATIONS

The stress test focuses on the credit risk of non-financial corporations, which the CNB measures using the 12-month default rate.[115] The default rate is monitored over a three-year horizon using the *Baseline* and *Adverse Scenarios* and the resulting estimate is used – among other things – as one of the main inputs to the bank stress test (see section IV.1.1).

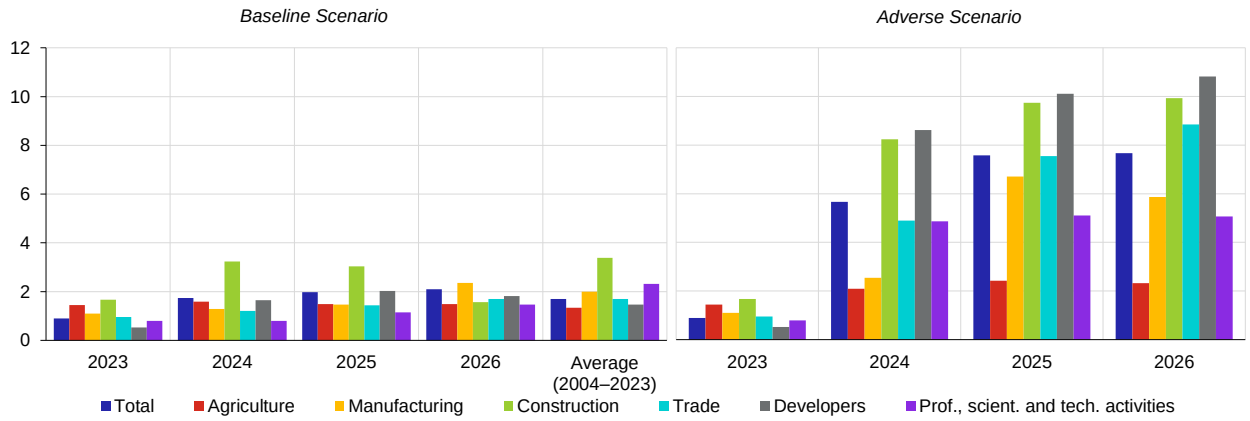
In the *Baseline Scenario*, the economic recovery is accompanied by growth in debt…
The growth in economic activity in nominal terms is positively reflected in the financial results of non-financial corporations throughout the *Baseline Scenario*. A recovery in household consumption, business investment and external demand, which keeps net exports at high levels (see section IV.1), leads to a rise in productivity and profit rates across sectors. However, high credit growth related to the rising business investment (see Chart II.34) increases debt and interest expenses, especially in already more indebted sectors.[116] This causes a slight rise in the aggregate 12-month default rate on bank loans to non-financial corporations (see Chart IV.11).

…which slightly increases the 12-month default rate across sectors
The default rate goes up from 0.89% in 2023 to 1.73% in 2024 and keeps rising steadily to 2.1% in 2026. The default rate on loans to individual industries initially rises more sharply in construction (but stays below the long-term average) and real estate activities (property development) due to higher debt amid still relatively high interest rates (see Chart IV.1B). This effect gradually fades and the default rate drops in 2026, due also to rising property prices (see Table IV.1) and productivity in the construction sector. The opposite is observed in manufacturing, where productivity growth gradually slows.

In the *Adverse Scenario*, debt would rise rapidly and property prices would fall…
The *Adverse Scenario* would lead to a gradual fall in nominal economic activity and rapid growth in debt in response to the repricing of euro-denominated loans at a weak exchange rate of the koruna (see Chart II.34). This would be accompanied by a significant decrease in property prices (see Table IV.1). It would cause the aggregate 12-month default rate to rise sharply to 5.7% in 2024 before increasing further to 7.6% in 2025 and 7.7% in 2026 (see Chart IV.11).

…which would lead to an increase in the default rate, especially in property development, construction and trade
The growth in debt and higher debt servicing costs would foster rise in the default rate in property development and construction, particularly in 2024. These factors would diminish in 2025 and 2026 as interest rates declined, and a fall in property prices would take over as the main driver of further growth in the default rate. The close economic links between the two sectors would exacerbate the degree of stress, as growth in the default rate among property developers would increase that among construction companies and vice versa. In wholesale and retail trade, the default rate would be negatively affected by falling household consumption over the entire horizon of the *Adverse Scenario*. In the first year, manufacturing firms would initially benefit from still positive net exports. The latter, however, would turn negative in early 2025 due to falling exports and turn positive again only at the scenario horizon.

Chart IV.11
12M default rate in selected industries in the *Baseline Scenario* and the *Adverse Scenario*
(%)



Note: Starting with this FSR, default rates are constructed in a backward-looking manner for ease of interpretation. This means that the 12M default rate reflects defaults in the past twelve months in relation to the stock of loans as of the start of this period.

115 The non-financial corporation stress testing methodology is described on the CNB website (see *Stress testing: non-financial corporations sector*).

116 The most indebted sectors are simultaneously sectors relevant to the financial stability of the Czech economy. They typically include, for example, property development, manufacturing, wholesale and retail trade and professional, scientific and technical activities.

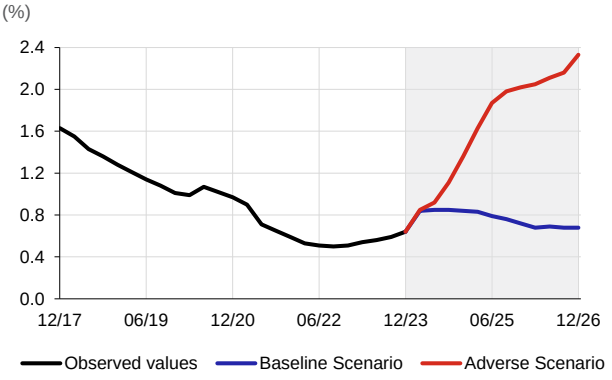
IV.4 HOUSEHOLD STRESS TEST

The stress test focuses on the credit risk of households with mortgage loans, which the CNB measures using the 12-month default rate.[117] The default rate is monitored over a three-year horizon using the *Baseline* and *Adverse Scenarios* and the resulting estimate is used – among other things – as one of the main inputs to the bank stress test (see section IV.1.1).

The default rate increases slightly in the *Baseline Scenario*

After rising modestly, the 12-month default rate stabilises and then falls back in 2025 (see Chart IV.12). Over the entire scenario horizon, households refix their mortgage loans at higher average rates than in their original loan contracts (see Chart IV.13). These mortgages could total as much as CZK 160 billion in 2024. However, the difference between the original and new rates decreases over time, due in part to the decline in interest rates assumed in the scenario, and is only just above 1 pp in 2026, when a record wave of refixing is expected. The higher interest rates on refixing also contribute to an increase in the DSTI ratio compared to its hypothetical level just before refixing.[118] The growth in the DSTI ratio is especially significant in 2024, when it exceeds 7 pp on average (see Chart IV.13). The difference narrows slightly to 5–6 pp in the following years.

Chart IV.12
12M default rate on mortgage loans



Note: Starting with this FSR, default rates are constructed in a backward-looking manner for ease of interpretation. This means that the 12M default rate reflects defaults in the past twelve months in relation to the stock of loans as of the start of this period.

Chart IV.13
Estimated change in mortgage rates and DSTI ratio on refixing

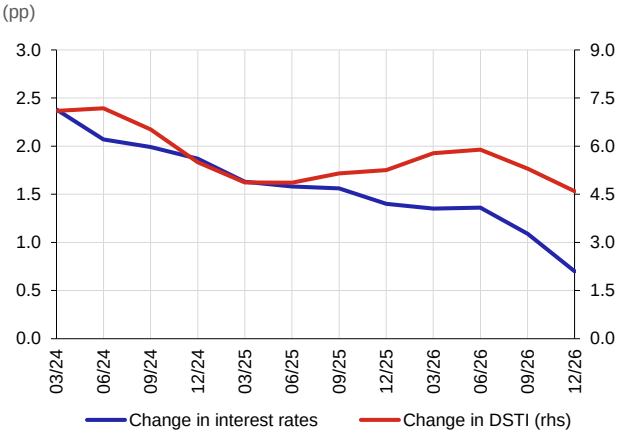
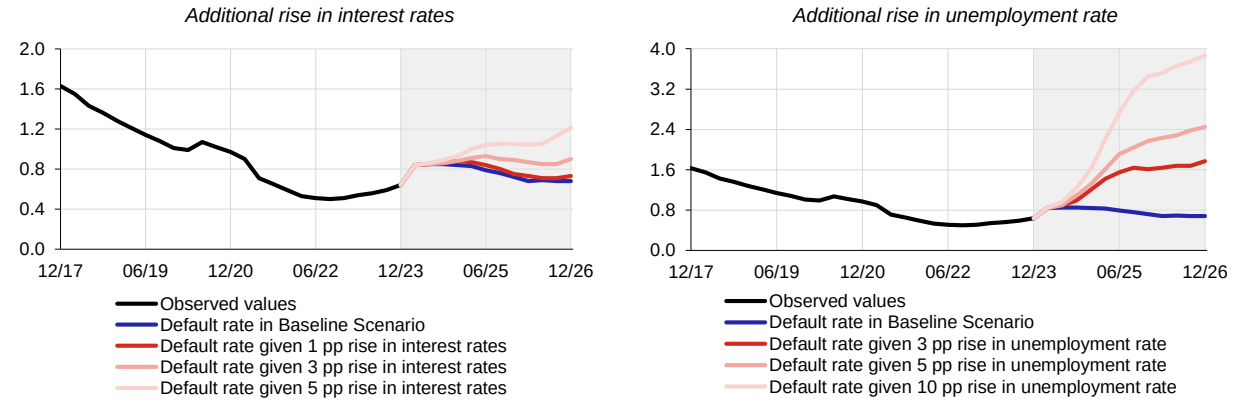


Chart IV.14
12M default rate on mortgage loans to households given an additional rise in the unemployment rate and interest rates going beyond the *Baseline Scenario*



117 The household stress testing methodology is described on the CNB website (see *Stress testing: household sector*).

118 Even after refixing, however, the DSTI ratio would decrease on average compared to when the loan was provided. The average DSTI ratio of mortgage loans refixed over the horizon of the *Baseline Scenario* was 34.3% when the loan was taken out. It fell to 25.7% just before refixing due to growth in nominal wages and increased to 31.3% after refixing owing to higher interest rates.

A sensitivity analysis showed that the default rate is determined mainly by unemployment rate…
If the unemployment rate rose and the other factors in the *Baseline Scenario* remained unchanged, the 12-month default rate would increase to almost 4% in the event of the strongest shock. It is evident that it would respond to a rise in the unemployment rate with a lag and would continue to rise beyond the test horizon (see Chart IV.14). The unemployment rate thus fundamentally affects the solvency of Czech households. By contrast, the tested increase in interest rates going beyond the *Baseline Scenario* would raise the default rate only slightly (see Chart IV.14). An increase in interest rates of 5 pp, which would imply mortgage rates of around 9.5%, would cause the default rate to go up to 1.2%. This reflects households' relatively low average DSTI ratio.[119]

…as did the results under the *Adverse Scenario*
In the *Adverse Scenario*, the 12-month default rate would surge, reaching almost 2% in mid-2025. Its growth rate would increase again in 2026 (see Chart IV.12). The growth would be driven mainly by the unemployment rate, which would soar to 12% in the *Adverse Scenario*. However, this would be counteracted by positive real and nominal wage growth, negative inflation and hence lower essential living costs, and by relatively low mortgage rates, which would stay below 4%.

119 The average DSTI ratio for the stock of mortgage loans at the horizon of the *Baseline Scenario* is estimated at 29%.

IV.5 PUBLIC FINANCE STRESS TEST

The CNB regularly evaluates the risks of concentration of sovereign exposures

Since 2015, based on its internal methodology,[120] the CNB has been annually evaluating the risks of concentration of exposures to sovereign issuers in the balance sheets of credit institutions based in the Czech Republic (hereinafter "banks"). In its *Financial Stability Reports*, it informs the market about banks' systemically important sovereign exposures[121] and about any additional capital requirements if the thresholds[122] of the sovereign risk indicator (ISR) are exceeded in the *Adverse Scenario*.

Banks' exposures to Czech general government were assessed as systemically important…

Sovereign exposures rose by CZK 249 billion year on year to CZK 1,399 billion at the end of 2023, accounting for 204% of the banking sector's capital. The assets of banks with important sovereign exposures made up 78.9% of the banking sector's total assets (compared to 72% in 2022). The CNB thus assessed banks' exposures to Czech general government as systemically important. Banks' exposures to general governments of other countries, the EU and the EIB were found to be systemically unimportant, as they accounted for just a few per cent of the banking sector's capital.

…the CNB will not require banks to create additional capital to cover excessive concentration risk

The ISR was estimated at 0.1% in 2024, 1,25% in 2025 and 0.88% in 2026 (see Chart IV.15) in the *Adverse Scenario* (see section IV.1). It is thus below the thresholds of 5% and 8%, so the CNB will not require banks based in the Czech Republic to create additional capital to cover concentration risk over the next three years.

In the *Adverse Scenario*, seven of the 17 variables determining the ISR would exceed their critical limits…

The difference in GDP growth would exceed the critical limit set for the calculation of the ISR in the first year of the scenario (see Table IV.5). The current account-to-GDP ratio would also be above the critical limit. It would exceed the thresholds in the second and third years of the *Adverse Scenario*. The structural balance-to-GDP ratio would exceed its critical limit in the second and third years as well. In addition, high general government balances would lead to a rapid rise in public debt and the general government debt-to-GDP ratio would exceed the critical limit of 62%. The difference between the real 10-year government bond yield and real GDP growth would also foster a rise in the ISR in some periods of the scenario, due mainly to a deep decline in real GDP, a rise in the 10-year government bond yield owing to an increase in the risk premium, and persisting low initial rule of law.

…any increase in the number of variables exceeding their critical limits would cause the ISR to exceed the 8% threshold…

If real GDP were to decline more than implied by the *Adverse Scenario*, the difference in real GDP growth would be above its critical limit and would simultaneously lead to an increase in the difference between the real 10-year government bond yield and real GDP growth. The ISR would rise to 2.35% in the third year. If combined with factors which are assumed not to change over the stress test scenario but which have exceeded their critical limits in the past or are currently very close to them and may exceed them in the near future, the ISR could increase further to almost 11% (see Chart IV.16).

…which would indicate a need for additional capital

If the ISR were to exceed the 8% threshold, the CNB would require the banks affected to create additional capital to cover the risk of concentration of exposures to Czech general government. The critical factor would be the share of non-residents in debt holdings, which could increase above 25.9% (see section II.2.1). The share of non-residents in debt holdings was above this level between 2007 and 2021. It could start to rise again due, for example, to banks' internal limits on sovereign exposures being exceeded or to the interest rate differential between the yields on Czech and other European government bonds rising significantly. The second critical factor is the political stability score, which in 2022 dropped to its lowest level since 2004 and approached its critical limit. The score could decrease further over the scenario horizon.

120 *Internal CNB methodology for the review and evaluation of sovereign exposure concentration risk*.

121 The methodology defines an important sovereign exposure as an exposure to a sovereign issuer with a minimum ratio of 100% to the bank's eligible capital. An exposure is considered systemically important if the assets of banks with important sovereign exposures exceed 5% of the total assets of all the banks operating in the Czech Republic, including branches of foreign banks.

122 The CNB monitors two ISR thresholds: a soft threshold of 5%, at which the CNB will require additional capital to cover excessive sovereign exposure concentration risk where an additional expert analysis proves this to be necessary, and a hard threshold of 8%, at which the CNB will require additional capital unconditionally.

Table IV.5
Czech public finance stress test

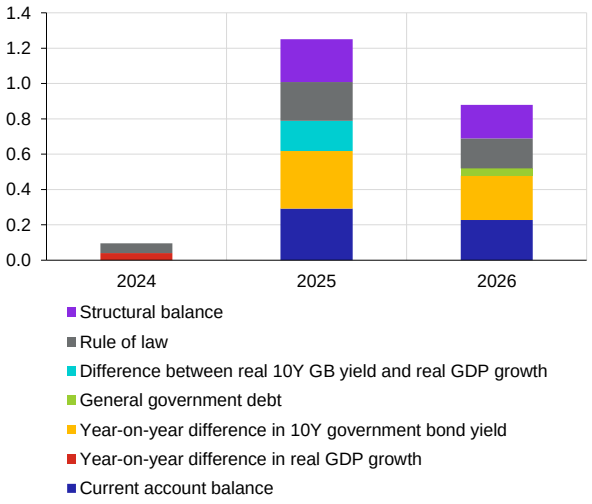
	Actual value	*Adverse Scenario*			Critical limit	
	2023	2024	2025	2026		
Macroeconomic variables						
Year-on-year difference in real GDP growth (pp)	-2.8	-4.3	-0.7	6.5	<	-1.0
Current account balance (% of GDP)	0.4	-1.0	-7.8	-6.7	<	-1.4
Gross national savings (% of GDP)*	30.3	30.3	30.3	30.3	<	19.3
External debt (% of GDP)*	62.9	62.9	62.9	62.9	>	113.5
Difference between real 10Y GB yield and real GDP growth (pp)	-3.3	4.3	9.3	5.0	>	6.4
Fiscal variables						
General government debt (% of GDP)	44.2	46.7	54.4	62.0	>	61.4
Structural balance (% of GDP)	-3.5	-1.9	-3.1	-5.8	<	-3.1
Year-on-year difference in 10Y government bond yield (pp)	-1.4	-1.9	0.7	1.2	>	0.5
Debt maturing within one year (% of GDP)	3.1	4.4	5.3	6.2	>	15.1
Share of debt maturing within one year (%)	7.0	9.4	9.7	10.0	>	33.2
Share of foreign currency debt (%)	5.8	4.7	4.0	3.3	>	29.0
Share of non-residents in debt holdings (%)*	22.6	22.6	22.6	22.6	>	25.9
Institutional variables (assumed not to change over the scenario)						
Government effectiveness (WGI score)*	1.1	1.1	1.1	1.1	<	0.1
Political stability (WGI score)*	0.8	0.8	0.8	0.8	<	0.8
Rule of law (WGI score)*	1.1	1.1	1.1	1.1	<	1.2
Banking crisis	No	No	No	No	=	Yes
Past sovereign defaults	No	No	No	No	=	Yes
Sovereign risk indicator (ISR, %)	-	**0.10**	**1.25**	**0.88**		

Source: CNB, CZSO, ECB, World Bank

Note: The symbol > (< or =) denotes that a higher (lower or equal) value means a breach of the critical limit and indication of increased risk. The figures are rounded. Indications of a breach of the critical limit are based on unrounded figures. Where the limit is breached, the relevant variables are further indicated in red. * Variable not modelled; last known value assumed in projection. The *Adverse Scenario* was prepared before the general government debt and deficit notification for 2023. For this reason the actual debt and deficit values correspond to the initial values in the *Adverse Scenario* and not to those notified by the CZSO.

Chart IV.15
Decomposition of the sovereign risk indicator in the *Adverse Scenario*

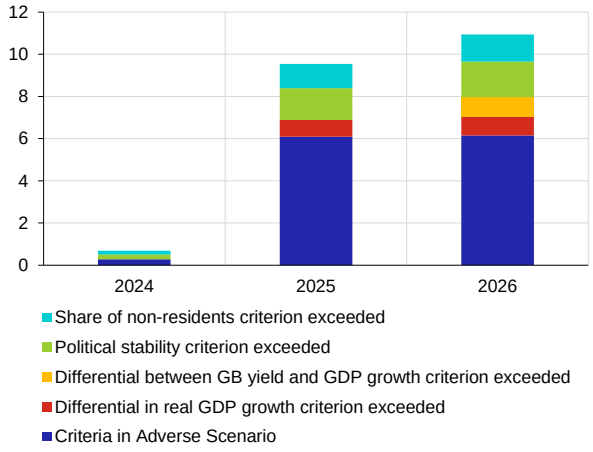
(%)



Source: CNB, World Bank

Chart IV.16
ISR sensitivity analysis

(%)



Source: CNB, World Bank

Note: As the calculation of the ISR is based on a non-linear function, the shares and values of the initial variables indicated in the *Adverse Scenario* increase as the variables exceeding the criteria increase.

V. MACROPRUDENTIAL POLICY

Pursuant to Article 2 of the Act on the CNB, the CNB maintains financial stability and sees to the sound operation of the financial system in the Czech Republic. In conformity with its Strategy and an ESRB recommendation, it focuses on the fulfilment of intermediate objectives reflecting the existence of different sources of systemic risk and their own transmission mechanisms. To achieve these objectives, it conducts macroprudential policy. To this end, it uses a set of macroprudential instruments focused mainly on the banking sector. In its work, the CNB always carefully takes into account the specific conditions in the Czech Republic.

V.1 THE CNB'S MACROPRUDENTIAL POLICY INSTRUMENTS

The CNB currently uses capital buffers and credit ratios…

The CNB sets three capital buffers. In doing so, it reflects the extent and expected evolution of the structural risks (see section V.2) and cyclical risks (see section V.3) faced by the domestic banking sector. As of June 2024, the total capital buffer (the "combined capital buffer", or CBR) amounted to 4.25–6.75% (see Table V.1). To mitigate systemic risks arising from the housing credit market, the CNB sets upper limits on the LTV, DTI and DSTI ratios. As of June 2024, upper limits are set for the LTV ratio (see section V.4).[123]

…and regularly assesses the need to use other macroprudential policy tools

The CNB annually assesses whether the risk weights for exposures secured by property represent a potential source of systemic risk. In doing so, it also evaluates the relative losses from exposures secured by property (see section III.2) and property market trends (see section II.1 and section IV.1.1, Table IV.1). If associated systemic risks are identified, the CNB can respond by applying the regulatory instruments available to affect risk weights.[124] Based on an assessment (see section III.2, section IV.1, section V.2.2 and section V.3), the CNB did not find the use of these instruments justified.[125]

Table V.1
Summary of macroprudential instruments in the Czech Republic

Instruments	Rate	Changes to settings
Capital conservation buffer (CCoB)	2.50%	unchanged (not set by CNB)
Countercyclical capital buffer (CCyB)	1.75%	1.25% (from 1 July 2024)
Buffer for other systemically important institutions (O-SIIs)	0.50–2.50%	unchanged (assessment in September every year)
Systemic risk buffer (SyRB)	not set	0.50% (from 1 January 2025)
Upper LTV limit	80% (90%)*	no change
Upper DTI limit	not set**	no change
Upper DSTI limit	not set**	no change

* There is also an upper limit on the LTV ratio of 100% above which no mortgage loans should be provided; loans may be provided in excess of the 80/90% limits under a volume exemption of 5%. ** There are recommended upper limits on the DSTI and DTI ratios of, respectively, 40% and 8 times net income, above which only very prudently assessed mortgage loans may be provided.

When configuring the capital instruments, the CNB takes into account their interaction…

The CNB configures the capital instruments so that they reflect the nature of the systemic risks, complement each other and thus increase each other's effectiveness. The countercyclical capital buffer (CCyB) is aimed at enhancing the banking sector's resilience to cyclical systemic risks across loan portfolios. The CNB's approach to setting it is closely linked to the results of quantitative methods (see section V.3). The systemic risk buffer (SyRB) is intended to strengthen resilience to risks of a longer-term structural nature, which are usually more difficult to quantify and require a high degree of expert judgement (see section V.2). In addition, the buffer for other systemically important institutions (O-SIIs) ensures the resilience and business continuity of systemically important institutions irrespective of economic and financial conditions. Risks that are difficult not only to measure, but also to identify, are covered by the capital conservation buffer (CCoB).[126]

123 To mitigate housing market risks, the CNB also uses *Recommendation of the CNB on the management of risks associated with the provision of consumer loans secured by residential property* to set upper limits and other rules.

124 Articles 124, 164 and 458 of Regulation (EU) No 575/2013 of the European Parliament and of the Council (CRR II).

125 In its report on the review of the EU macroprudential policy framework, the ESRB states that for risk weights on residential and commercial real estate, a new single harmonised macroprudential article on risk weights – one that would be less procedurally difficult to activate – should be created in the legislation. The CNB took the same view in its position.

126 In general, these include new potential sources of stress to the financial sector with which there is no previous experience in the history of financial cycles.

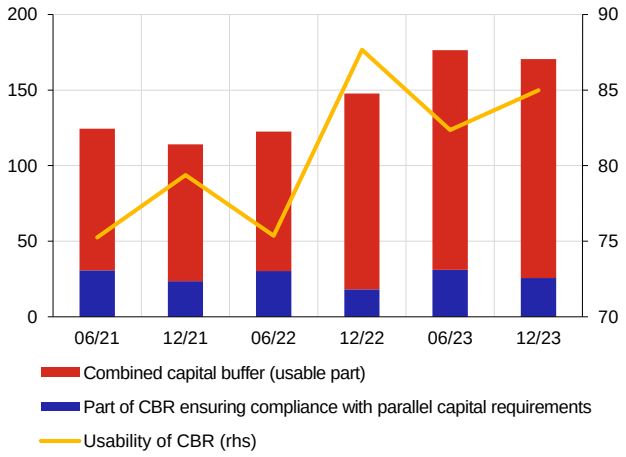
…and the degree of overlap between the capital buffers and the minimum capital requirements

Under the current legislation, banks may use the combined capital buffer to meet the leverage ratio requirement and, in certain circumstances, to meet the MREL (the "parallel capital requirements"). This gives rise to overlaps between these requirements and the buffers. However, banks may only use the part of the capital buffer that is not bound by the parallel capital requirements to absorb potential losses or to provide capital cover for new lending. Binding the buffers limits their usability. As of the end of 2023,[127] the overlaps[128] concerned ten banks and amounted to CZK 26 billion (15% of the combined buffer requirement; see Chart V.1). Therefore, they had not yet reached the level where they would systematically limit the effectiveness of macroeconomic policy capital instruments on the aggregate level. The CNB monitors the overlaps and, where necessary, responds with microprudential or macroprudential supervisory actions or resolution measures to ensure that the effectiveness of the capital buffers is not too systemically weakened.

Chart V.1

Usability of the combined capital buffer

(CZK billions; right-hand scale: % of CBR)



Note: The value as of the end of 2023 also takes into account the final MREL applicable as of 1 January 2024.

127 The value as of the end of 2023 also takes into account the final MREL applicable as of 1 January 2024.

128 For details on the overlap between capital buffers and the leverage ratio requirement see Pfeifer, L. (2020): *Usability of Capital Buffers under a Binding Leverage Ratio Requirement*. Thematic Article on Financial Stability 6/2020, CNB, and for details on the overlaps between the capital buffers and the MREL, see Pfeifer, L. and Holub, L. (2022) *The Relationship between the MREL and Macroprudential Capital Buffers*. Thematic Article on Financial Stability 2/2022, CNB.

V.2 CAPITAL BUFFERS AIMED AT STRUCTURAL SYSTEMIC RISKS

The CNB monitors structural systemic risks…

The CNB monitors structural risks and assesses them once a year. These risks generally evolve over a time scale exceeding the length of the usual financial cycle and are based on persisting features of the economy and the financial system. Structural risks, and in particular a combination of various types thereof, develop or manifest themselves independently of the position of the economy in the cycle. They have the potential to cause or exacerbate economic shocks, intensify the materialisation of cyclical risks, disrupt the ability of financial institutions to provide loans and other financial services, and trigger or exacerbate adverse economic developments. The materialisation of these risks would lead to higher credit losses than in the CNB's model-based estimates and projections, losses that may even exceed those considered in the calibration of the CCyB (see section V.3).

Table V.2
Overview and assessment of risks considered relevant for setting the SyRB

Openness of the economy and banks' balance sheets (i.e. vulnerability to foreign macrofinancial shocks) Greater openness or foreign linkages mean stronger global shock spillovers. Strong concentration on one region abroad also means additional shock spillovers from that region. Foreign balance-sheet linkages may be another channel of weakening of banks' positions.				
Key risk factor	**Reference to FSR**	**Currently relevant in CZ**	**Appropriate for SyRB**	**Existence of another instrument***
Importance of foreign trade in economy	section V.2	YES	YES (general)	NO
Concentration of foreign trade and bank loans by export/import sector	section V.2	YES	YES (general or sectoral)	NO
Foreign exposures in banks' balance sheets (assets, liabilities), including foreign ownership of banks	section V.2, section III.4	partly	YES (general)	microprudential supervision, Article 458 CRR
Structural characteristics of real sectors (aside from foreign linkages) Domestic real agents' degree of prudence, propensity to engage in risky behaviour and indebtedness, among other things, affect the riskiness of banks' balance sheets and the sensitivity of the banking sector to adverse developments.				
Key risk factor	**Reference to FSR**	**Currently relevant in CZ**	**Appropriate for SyRB**	**Existence of another instrument***
Structural characteristics in household sector	section V.2, section II.2, section IV.4	partly	YES (general or sectoral)	borrower-based measures
Structural characteristics in corporate sector	section V.2, section II.2, section IV.3	YES	YES (general or sectoral)	Pillar II
Structural characteristics in public sector	section V.2, section II.2, section IV.5	partly	NO	Pillar II
Bank concentration in residential and commercial property	section V.2, section II, section V.4	YES	YES (sectoral)	borrower-based measures, Pillar II
Internal characteristics of the banking sector and its position in the financial system The banking sector may exhibit risk characteristics associated, for example, with model risk or interconnectedness inside the banking sector and in relation to other sectors of the financial system. These characteristics may have the potential to exacerbate banks' losses in the event of adverse developments.				
Key risk factor	**Reference to FSR**	**Currently relevant in CZ**	**Appropriate for SyRB**	**Existence of another instrument***
Model risk	section III.2, Box 4 in FSR – Autumn 2022	partly	YES (sectoral)	BBMs, Pillar II, Articles 458 and 164 CRR

Note: * When evaluating whether another instrument exists, the CNB considers neither the settings of the other capital buffers (the CCyB, the CCoB and the O-SII buffer), nor whether the said instruments are active at the time. The relationship between the SyRB and the other capital buffers is determined by both the nature and the identifiability and quantifiability of the risks monitored (see section V.1). The CNB must consider this relationship when assessing the current relevance of each risk in the Czech Republic (see the column *Currently relevant in CZ*). For the same reason, the relationship to the MREL is not given either.

…while regularly assessing them for the purposes of setting the SyRB[129]

The CNB may apply the SyRB to mitigate systemic risks of a structural nature, either for the whole banking sector and all exposure types (the general SyRB; see section V.2.1) or for a defined subset of sectoral exposures (the sSyRB; see section V.2.2).[130] Systemic structural risks can be identified using various indicators and then analysed. However, it is

129 Until the end of September 2021, the SyRB was used to mitigate risks related to the systemic importance of banks. Since the transposition of the CRD V directive took effect on 1 October 2021, the CNB has been using the O-SII buffer for these purposes.

130 General/sectoral SyRBs have been set in several European countries. Many of them have also set a non-zero CCyB rate (see Chart V.1 CB).

rather difficult to quantify their potential impact on the capital position of individual institutions or the financial sector as a whole.[131] Risks of a structural nature usually lie in the tail of the loss distribution, and either there is no experience with their materialisation, or they may materialise in the future with much greater intensity than they have in the past. For this purpose, the CNB stress tests the banking sector using different types of adverse scenarios[132] (see section IV.1).

When assessing the need to set the SyRB, the CNB considers several structural risks

By the CNB's assessment, in the Czech economy, the SyRB is potentially suitable for covering risks in four categories:[133] (1) the openness of the Czech economy and banks' balance sheets (i.e. vulnerability to foreign macrofinancial shocks), (2) the structural characteristics of domestic real sectors (aside from foreign linkages), (3) the importance of the banking sector in the economy and (4) the internal characteristics of the banking sector and its position in the domestic financial system. Besides these categories, the CNB considers climate change, or rather the financial stability implications of climate change and the transition to a climate-neutral economy, to be relevant to the SyRB. This risk is cross-sectional and is therefore included across the above categories. The CNB takes a similar approach to cyber risks and risks arising from technological change (such as the advance of artificial intelligence[134]). Some structural risks may also arise at sector level, mainly category 2 risks linked with the characteristics of households and non-financial corporations, and model risk.[135] Risks relevant to the Czech Republic are monitored in detail (see Table V.2), but other structural risks not currently deemed relevant are also constantly tracked.

V.2.1 General systemic risk buffer

The sensitivity of the Czech economy to developments abroad is a key source of systemic structural risks…

High openness is a characteristic feature of the Czech economy and financial system. Imports and exports have a relatively large share in domestic economic output in international terms. This generally implies a greater sensitivity of domestic agents to foreign economic performance (for example, a negative demand shock) and to a wider range of changes and shocks (for example, negative supply shocks) to which the Czech economy and, directly or indirectly, the domestic banking sector could be exposed. The domestic economy can be regarded as highly open (see Charts V.2 and V.3). The high sensitivity of the economy to global economic developments is reflected to a large extent in historically greater volatility of GDP growth compared to other countries.[136] This sensitivity may manifest itself not only in the usual cyclical fluctuations of the Czech economy, but potentially also in a change in its structure. In recent years, its structure has been influenced mainly by the processes of decarbonisation and deglobalisation[137] against a background of geopolitical tensions[138] and relatively tight financial conditions (see section II.1).

…and its vulnerability to cross-border shocks is intensified by regional concentration in international trade

The degree of international trade diversification is another major risk factor. Sales of domestic exporters (and suppliers of domestic importers) are regionally very concentrated, reducing the overall ability of the Czech economy to compensate for shocks to demand in one region (or to import prices and other import conditions) by switching to other territories. The import and export concentration of the Czech economy is also well above the European average, and has been relatively constantly so over time (see Chart V.4).[139] The main counterparts for Czech exporters are Germany, Slovakia and Poland, with China joining the list in the case of importers.[140] The low degree of diversification is exacerbated by the nature of Czech exports, where intermediate products intended for specific customers account for a large proportion of the total.[141] Also crucial in systemic risk context is the relatively high share of bank loans extended to non-financial corporations with a high proportion of export revenue and to firms involved in export-linked supply chains (see Chart V.5).

131 See, for example, ESRB (2015): *The ESRB Handbook on Operationalising Macroprudential Policy in the Banking Sector*, chapter 4, section 4.2.

132 Macro stress tests of the banking sector.

133 The above risk categories are based on the CNB's expert judgement and differ slightly from those of other countries and supranational authorities, on which they are nevertheless based. For example, according to *The ESRB Handbook on Operationalising Macroprudential Policy in the Banking Sector*, the SyRB can be used to address systemic risks related to financial linkages within the financial sector, to common exposures across institutions, to the structure of the banking sector, and to financial linkages with the real economy and risks arising from its structure (see chapter 4, section 3.3).

134 Leitner, G., Singh, J., Kraaij, A. and Zsámboki, B. (2024): *The Rise of Artificial Intelligence: Benefits and Risks for Financial Stability*.

135 A situation in which the internal models of banks do not prudently take into account systemic risk.

136 The standard deviation of the annual real GDP growth rate of the Czech Republic for 2003–2023 was 3.2 pp, i.e. higher than that for Germany (2.4 pp), the EU as a whole (2.6 pp), the USA (1.8 pp), high-income countries in general (2.1 pp) and the global economy overall (2.0 pp).

137 See, for example, *Deglobalisation: Risk or Reality?*

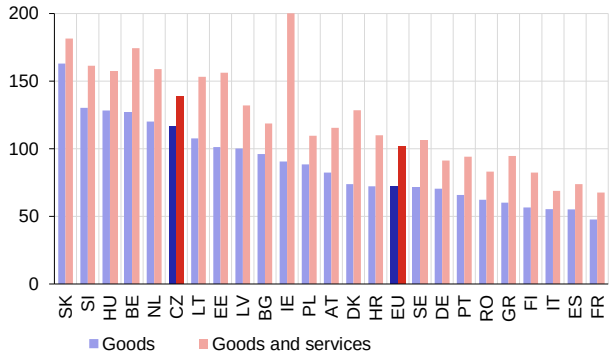
138 Dieckelmann, D., Kaufmann, C., Larkou, C., McQuade, P., Negri, C., Pancaro, C. and Rössler, D. (2024): *Turbulent Times: Geopolitical Risk and its Impact on Euro Area Financial Stability*.

139 The Herfindahl-Hirschman Index (HHI) is used to measure concentration. It is defined as the sum of the squares of the shares (in %) and takes values between 0 (zero concentration) and 10,000 (maximum concentration).

140 The share of exports to Germany in total Czech exports has ranged between 30% and 33% over the past 15 years and has tended to increase in recent years (31.9% in 2019, 32.5% in 2021, 33.7% in 2023).

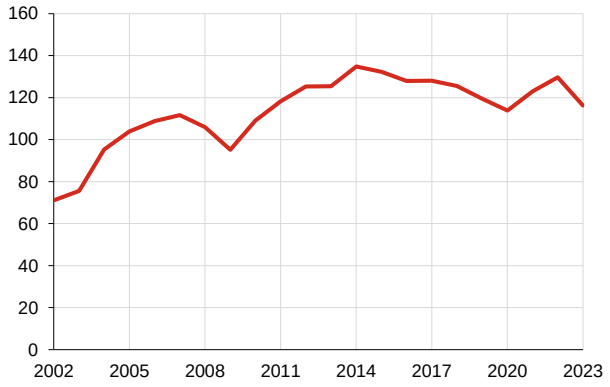
141 See, for example, *The dependence of Czech exports on Germany*.

Chart V.2
Openness indicator for selected EU economies in 2023
(sum of imports and exports in % of GDP)



Source: Eurostat
Note: The value of goods and services for IE is 235% of GDP.

Chart V.3
Openness indicator for the Czech economy
(sum of imports and exports of goods in % of GDP)

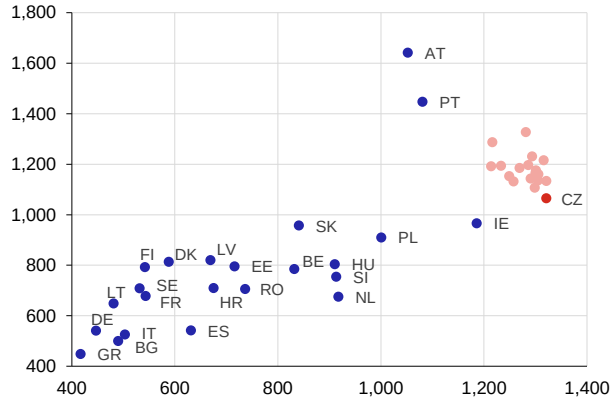


Source: Eurostat

Sensitivity to developments abroad may also be mediated by the direct cross-border links of domestic banks

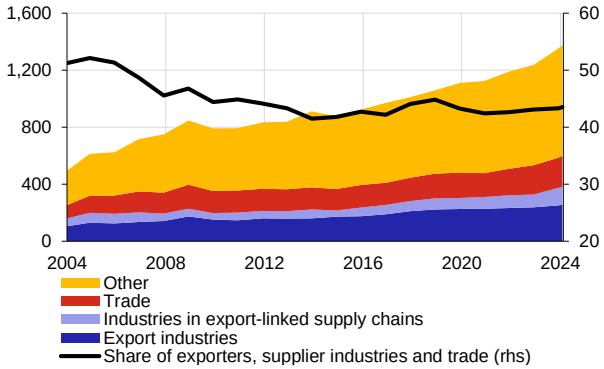
Another risk factor monitored is the importance of non-residents in domestic banks' balance sheets and any sudden and unexpected changes in their behaviour related to changes in the economic situation abroad. On the asset side, this mostly concerns exposures to foreign credit institutions and client loans, while on the liability side it involves liabilities to credit institutions and, to a lesser extent, client deposits and bonds issued.[142] Another important indicator is the foreign ownership of domestic banks (almost 90% of the Czech banking sector's balance-sheet assets are foreign-owned). The fair value of derivatives with non-resident counterparts is also relevant on both sides of the balance sheet. Exposures to non-residents are rising over time, though more slowly than total exposures (see Chart V.2 CB). Liabilities to non-residents rose sharply in 2016 and 2017 but have been broadly flat in absolute terms since then and are falling relative to the balance-sheet total.

Chart V.4
Index of concentration of selected EU countries' exports and imports to partner countries in 2023
(HHI in points; x-axis: exports; y-axis: imports)



Source: Eurostat
Note: The light red points denote the values for the Czech Republic in the period of 2006–2022.

Chart V.5
Bank loans to non-financial corporations by links to exports and trade
(CZK billions; right-hand scale: %; year-end values, end-February for 2024)



Note: "Export industries" are industries in which exports represent at least a third of the total resources used. "Supplier industries" are industries in which the share of output used subsequently for intermediate consumption in export industries represents at least a fifth of the resources used.

Economic concentration may foster a downward spiral in the economic situation of firms and households

Manufacturing and wholesale and retail trade play a key role in the non-financial corporations sector in terms of both generating output and gross value added and creating jobs (see Chart V.6 and Chart V.3 CB). These activities are not only sensitive to developments abroad, but are also key recipients of bank loans (see Chart V.6, right panel). However, the stress on the domestic banking sector may not be due primarily to the potential loss on exporters' bank loans, but rather

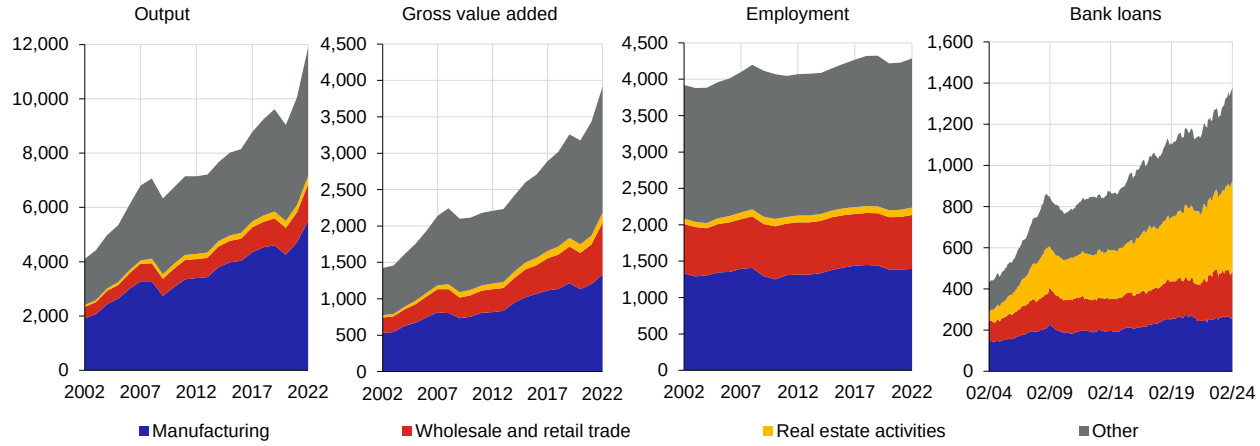
142 Exposures to foreign credit institutions are a relatively natural consequence of domestic banks' involvement in cross-border payments and can be affected by banks' position in relation to their foreign ownership groups (for details see section III.4). Loans to non-financial corporations account for around 75% and loans to clients in Slovakia for around 50% of loans and receivables in respect of non-resident clients.

to high economic concentration (in the sense of the share in output, value added and employment; see Chart V.7). Given a negative economic shock to foreign trade, this may foster a downward spiral of worsening corporate balance sheets and profitability, rising unemployment and falling aggregate domestic demand. This spiral is a key structural risk. Its materialisation would have an effect on the ability of firms and households across the economy to repay their bank loans.

Chart V.6

Output, value added, employment and bank loans in the non-financial corporations sector by economic activity

(CZK billions; employment in thousands of persons)



Source: Eurostat, CNB

Note: In the case of employment, all sectors (not just non-financial corporations) are included owing to data availability, but sections K (financial and insurance activities), O (public administration), P (education), Q (human health and social work) and T (activities of households) are simultaneously excluded for comparability, as activity in these sections is generated predominantly by sectors other than non-financial corporations.

The high proportion of foreign currency funding is making non-financial corporations more sensitive to developments abroad

The importance of the foreign currency funding of domestic non-financial corporations has long been increasing (see Chart II.28 CB and section V.2.2).[143] The related exchange rate risk and the potential increase in the cost of hedging against it may be an additional source of risk during an external shock impacting primarily on sectors linked to foreign trade. Any increase in debt service in foreign currency may place an additional burden on corporations in the event of a weakening of the koruna. This burden should not be systemically important per se (see Box 5 in *Financial Stability Report – Autumn 2022*), but it could exacerbate the effects of other adverse conditions acting in parallel during an external shock.

The energy intensity of domestic industry is another relevant factor

Given its structure, the Czech economy is comparatively vulnerable to transition climate risks, especially in the form of rising prices of emission allowances and a stricter regulatory framework. In general, Czech industry is strongly energy-intensive[144] and the use of fossil fuels in the energy sector is above the European average (see Chart V.4 CB). Potentially elevated costs of firms related to the transition to a climate-neutral economy and to increased frequency of natural disasters (see section II.2, Box 1 in *Financial Stability Report – Autumn 2023*) may weaken the profitability of the corporate sector in the medium term and, in the event of adverse developments, may also represent an additional source of stress, even though these costs may not themselves trigger a systemic crisis.[145]

Cyber risks are also on the rise in the Czech Republic

Cyber risk to financial stability is gaining in importance due to the persisting geopolitical risks and the increasing sophistication of cyber attacks. It is very difficult to precisely quantify the impacts of cyber risk, and for this and other reasons, cyber risk has not yet been addressed with other macroprudential instruments. Using a sensitivity analysis, the CNB estimated the potential direct impact of cyber risk in the domestic banking sector at around CZK 20 billion and the probability of this risk materialising at around 1% (see Box 3 in *Financial Stability Report – Spring 2022* and section IV.1).

143 For details see Zamrazilová, E., and Holas, J.: *Struktura financování firem a transmise měnové politiky ČNB* (*The Structure of Corporate Financing and the Transmission of CNB Monetary Policy*, in Czech only), Bankovnictví, 12 October 2023.

144 See, for example, Box 4 in *Financial Stability Report 2020/2021*, *OECD Economic Surveys: Czech Republic 2023* and Kotlář, M., Motl M. and Komárková, Z. (2023): *The Impacts of Selected Long-term Climate Scenarios on the Czech Economy*.

145 The SyRB is recommended as the most appropriate macroprudential instrument to cover these types of risk. See, for example, ECB and ESRB (2022): *The Macroprudential Challenge of Climate Change*.

In addition to other operational instruments, the use of capital buffers[146] has been proposed to strengthen resilience to cyber risk. Given the generally structural nature of cyber risk, the SyRB appears to be the appropriate tool.[147]

When assessing structural risks, the CNB considers the probability of them materialising

The probability of the structural risks identified above materialising has gradually increased since the outbreak of the Covid pandemic, followed by the energy crisis and the relatively long period of high inflation. The CNB does not expect it to fall significantly against the current background of increased geopolitical tensions, persisting restrictive global financial conditions, and the ongoing process of deglobalisation and global decarbonisation. There are concerns about the future performance of the economy of our strongest trading partner, Germany (see section II.1). Given the persisting geopolitical tensions, it is impossible to ignore the increased probability of cyber attacks and their adverse consequences for the real economy and the financial sector. The technological change associated with the advent of AI and its potential impact on employment and the competitiveness of the economy is also an uncertainty over the medium term.

The CNB regularly assesses any overlaps between the SyRB and the other prudential instruments

In its annual assessment, the CNB found that the structural risks identified above are not mitigated by other existing microprudential or macroprudential instruments. The CNB's decision on the SyRB rate takes into account the P2R,[148] including the underlying calculations and methodological procedures, and thus assesses the risk of overlap with this instrument. The assessment concluded that the potential overlaps in this case related to structural risks at the sector level (see section V.2.2).[149] There are no overlaps in the case of macroprudential instruments, either. The CCyB (see section V.3) mitigates systemic risk of a cyclical nature, the O-SII mitigates risks associated solely with the systemic importance of institutions for the financial system and the real economy, and the upper limit on the LTV ratio (see section V.4) only limits the inflow of systemic risks arising from new mortgage loans into banks' balance sheets. Conversely, the general SyRB aims to mitigate the systemic risks associated with the characteristic features of the financial system and the real economy on the portfolio of the banking sector as a whole, regardless of the position of the economy in the financial cycle.

The Bank Board decided to set the general SyRB rate at 0.5% of total exposures located in the Czech Republic

Based on an assessment of the above risks and analyses of the potential overlaps of instruments, the CNB Bank Board decided to set a general SyRB rate. Its decision took into account the potential additional losses that would arise in particular from the consequences of the high openness of the Czech economy and its concentration in foreign trade and the key domestic sectors. In the event of adverse developments in the global economy and among the Czech Republic's main trading partners, those consequences would include a deeper decline in the performance of the Czech economy than implied by the CNB's usual estimates and projections, with the losses even exceeding those considered in the calibration of the CCyB. This decline could be exacerbated by the concentration of domestic production and employment in a few sectors. The impact of the stress directly on these sectors could cause a downward spiral of rising unemployment, declining corporate profitability and falling domestic demand, thereby exacerbating the original economic stress. The rising unemployment and declining profitability would ultimately affect domestic financial stability by reducing the ability of firms and households across the economy to repay their bank loans. The Bank Board agreed that these risks and the probability of them materialising is high and will not decrease significantly in the medium term due to the persisting geopolitical tensions and the ongoing structural changes in the global economy. Given the nature of the structural risk and the high level of uncertainty regarding its impacts on the Czech economy, it decided to set the general SyRB rate at 0.5% of total exposures located in the Czech Republic with the aim of increasing the resilience of the domestic banking sector in a forward-looking manner. This approach is in line with the practice in some EU Member States.[150]

In addition to expert judgement, their decision was based on the results of the stress test…

In its decision, the Bank Board also took stress test results into account (see section IV.1.1). The *Adverse Scenario* of the test involved a significantly adverse shock of a largely structural nature caused by a sudden and strong cooling of the economy originating in the economies of the effective euro area headed by Germany. The substantial credit losses would be due mainly to non-financial corporations. The resulting fall in the overall capital ratio to 14% would signal a need to fully release the CCyB and use 0.4 pp of the CCoB at the aggregate level (see Chart IV.3). Three systemically important banks

146 ESRB (2023): *Advancing Macroprudential Tools for Cyber Resilience*. The CNB does not use the countercyclical capital buffer to cover cyber risk.

147 ESRB (2024): *Advancing Macroprudential Tools for Cyber Resilience – Operational Policy Tools*.

148 The additional Pillar 2 Requirement (P2R) is a microprudential requirement. It is based on an assessment of the observed risks of a specific institution. By contrast, the macroprudential approach focuses on the emergence of risks across institutions which are potentially of systemic importance. Despite their different views of risks, microprudential and macroprudential policy instruments may overlap.

149 The P2R considers the risks arising from low diversification of bank portfolios in the non-financial corporations segment and foreign currency risk in property financing. By contrast, the SyRB concentrates in these areas on the potential exacerbation of credit losses during an external shock due to the materialisation of network and exchange rate risk, with a particular focus on the economic (not loan) concentration of the non-financial corporations sector.

150 See, for example, ESRB: *Systemic Risk Buffer*.

would also need to use the O-SII buffer, while two of them would not even meet the SREP capital requirement. The negative shocks tested did not include the additional impacts of the materialisation of climate and cyber risks, which would cause the capital ratio to decline further.[151] This was also indicated by a sensitivity analysis of the potential effects of cyber risk, which found a need for the additional use of 0.5 pp of the capital buffers, as the overall capital ratio fell to 13.5%.

…and also took into account the amplified impact of the *Adverse Scenario* on credit supply in the event of procyclical behaviour by banks

The *Adverse Scenario* did not work with the impact of significant uncertainty on the credit supply. As a result of uncertainty, some banks might not be willing to use some of their capital buffers where necessary to maintain their capital ratios.[152] Instead, they might prefer to reduce their risk-weighted exposures by restricting the supply of loans to the real economy. An additional reduction in lending in the downward phase of the business cycle, especially as regards exposures with higher risk weights, would have an additional negative impact on macroeconomic conditions in excess of the scenario, exacerbating and prolonging the economic crisis. The negative feedback effect on the economy would be more likely and more severe in a credit crunch involving large banks with a significant share in lending to the economy.

Institutions will be required to maintain the SyRB rate with effect from 1 January 2025

The Bank Board set a requirement for institutions to maintain an SyRB rate of 0.5% with effect from 1 January 2025. The Czech National Bank will annually review the need to maintain the SyRB rate at the set level. If there are changes in the reasons for setting a general SyRB rate or a change in the relevance of the risks covered by it, the CNB will change the rate or fully release this buffer. The CNB will start to consider releasing the SyRB when there is a marked decline in the level of systemic structural risks or in the probability of them materialising. The CNB will meanwhile assess the impacts of these risks on the banking sector's capital in the context of expected future developments.

V.2.2 The sectoral systemic risk buffer

For the purposes of setting the sectoral SyRB, subsets of exposures can be defined by employing three dimensions and three sub-dimensions.[153] For a given subset, the dimensions are the counterparty, the type of exposure and any collateral, and the sub-dimensions are the debtor's economic activity and risk profile and the location of the collateral. The subset of sectoral exposures to which the sSyRB can be applied should show a systemic level of risks. This is assessed using three criteria: the size of the exposures concerned, their riskiness, and their interconnectedness with other types of exposures.

The CNB considers the risk of loan concentration at the sectoral level as elevated

Manufacturing, wholesale and retail trade and especially firms engaged in real estate activities are key recipients of bank loans in the non-financial corporations sector (see Chart V.6, right-hand panel). The CNB has identified some signs of vulnerability of these sectors to the current economic and financial conditions, and especially to a worsening thereof (see section II.2 and section IV.3), and will therefore continue to monitor the situation in them closely. The concentration of loans to households for house purchase is also elevated. Standing at CZK 1.76 trillion at the end of March 2024, these loans made up 48% of loans to the private non-financial sector, accounting for the largest share of real estate loans in the Czech Republic (see Chart V.7). However, the related risk stemming from lower diversification of the loan portfolio is already covered by the Pillar 2 Requirement (P2R).

The CNB also prudently monitors the credit risk of foreign currency loans to non-financial corporations…

In the case of foreign currency loans, traditional credit risk may be connected with the borrower's exchange rate risk.[154] The share of euro loans in the total stock of domestic banks' loans to non-financial corporations was 51.5% in February 2024 (see Chart II.28 CB). According to the CNB's assessment, the riskiness of foreign currency loans to non-financial corporations is not significant at the aggregate level as regards idiosyncratic credit risk, due also to sufficient collateral (see

151 Kotlář, M., Motl, M. and Komárková, Z. (2023): *The Impacts of Selected Long-term Climate Scenarios on the Czech Economy*, Thematic Article on Financial Stability 1/2023.

152 Banks' willingness or ability to use capital buffers may be undermined by several factors, including distribution restrictions (restrictions on dividend, coupon and bonus payments, MDA), overlapping capital requirements (see section V.1), market pressure (higher funding costs, rating downgrades), stigma, and concern about increased supervisory scrutiny. Behn, M., Rancoita, E. and d'Acri, C. R.: *Macroprudential Capital Buffers – Objectives and Usability*, ECB; Couaillier, C., Lo Duca, M., Reghezza, A. and d'Acri, C. R. (2022): *Caution: Do Not Cross! Capital Buffers and Lending in Covid-19 Times*, Working Paper Series ECB, No. 2644; ESRB (2022): *Review of the EU Macroprudential Framework for the Banking Sector*; Bedayo, M. and Galán, J. E. (2024): *The Impact of the Countercyclical Capital Buffer on Credit: Evidence from its Accumulation and Release Before and During Covid-19*, Documentos de Trabajo, No. 2411, Banco de España.

153 EBA (2020): *Guidelines on the Appropriate Subsets of Sectoral Exposures*.

154 The risks associated with foreign currency lending, and with the foreign currency debt of non-financial corporations in general, act through several channels. As regards the general SyRB (see section V.2.1), the relevant channel is the economic one, where companies' foreign currency exposures can make them more sensitive to adverse developments abroad, helping to multiply the impact of a shock on domestic economic activity. As regards the sSyRB, the relevant channel is the credit one, i.e. the effect of foreign currency loans on non-financial corporations' default risk, which is also related to the degree of exchange rate risk hedging.

section III.2, FSR – Autumn 2022: Box 3 and Box 5). Moreover, the additional P2R capital requirement covers the foreign currency risk of loans to non-financial corporations engaged in real estate financing. The cyclical component of the credit risk associated with foreign currency lending is also considered in the CCyB rate-setting process.

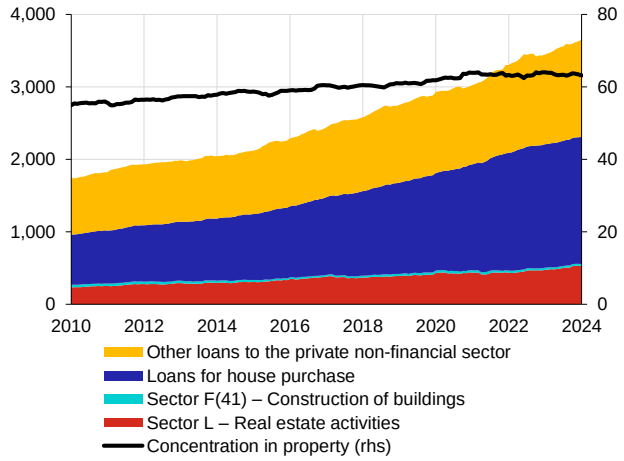
…and model risk in the area of housing loans

Risk weights play a key role in determining the capital requirement, including capital buffers (see section III.2). Their levels should thus take into account not just idiosyncratic risks, but also the systemic risk component. The gradual decrease in the risk weights of IRB banks in 2015–2022 was linked with a long-running fall in the default frequency of individual credit portfolios. The biggest decline was observed for the risk weights on the housing loan portfolio, which dropped from 27.7% at the end of 2014 to 17.6% at the end of 2023 (see Chart III.10 and Chart V.12).[155] The CNB mitigates some of the potential risks of new housing loans by setting upper limits on credit ratios (see section V.4). However, the risks weights on other client loans have also been decreasing. The risk associated with a potential gradual cyclical increase in risk weights across loan portfolios is therefore considered when setting the countercyclical capital buffer (see section V.3).

Chart V.7

Concentration of bank loans in the property segment

(CZK billions; right-hand scale: share in volume of loans to private non-financial sector in %)



The sectoral risks identified are covered by other tools

The CNB considers the above structural risks at the sectoral level to be relevant. As it is already mitigating them sufficiently using the existing microprudential and macroprudential policy tools, it does not currently deem it necessary to set a non-zero sectoral SyRB. The CNB will assess structural risks at the sectoral level every year. If it deems it appropriate to strengthen the resilience of the domestic banking sector to these risks beyond the effect of the tools it has already activated, it is ready to set a sectoral SyRB rate.

155 The risk weights of housing loans dropped so low in some countries that macroprudential authorities responded by setting an sSyRB rate.

V.3 THE COUNTERCYCLICAL CAPITAL BUFFER[156]

The CNB has cut the CCyB rate to 1.25%…

The CNB Bank Board decided at its meeting on 6 June 2024 to reduce the CCyB rate by 0.50 pp to 1.25% with effect from 1 July 2024 (see Chart V.8). The Bank Board agreed that the financial cycle had reached a trough in 2023 and the subsequent recovery in the last quarter of 2023 and the first months of 2024 was only gradual. Lending remained below the usual levels and the debt of households and non-financial corporations was continuing to fall. At the same time, there was no significant materialisation of credit losses. The previous rate reductions had been in line with the gradual disappearance of cyclical systemic risks accumulated in banks' balance sheets. According to the Bank Board's assessment, this process had already weakened. If the CNB's spring forecast materialises, the recovery in the financial cycle over the next few quarters will be gradual and should not lead to an immediate increase in cyclical risks (see Chart V.9). These risks will be sufficiently covered by a CCyB rate of 1.25%, which is slightly below the level indicated by quantitative methods (see Chart V.10).

…and the rate is expected to be broadly flat in the periods ahead

The CNB expects the CCyB rate to be flat over the next few quarters, as the outlook for newly accepted cyclical risks is gradually rising and the disappearance of cyclical risks from banks' balance sheets has weakened. Should the economic situation worsen markedly and significant unexpected credit losses form in the domestic banking sector, the CNB is ready to lower the countercyclical capital buffer rate significantly or release the buffer fully in order to foster smooth lending to the real economy.

Chart V.8
Pending and applicable CCyB rate in the Czech Republic
(% of total risk exposure)

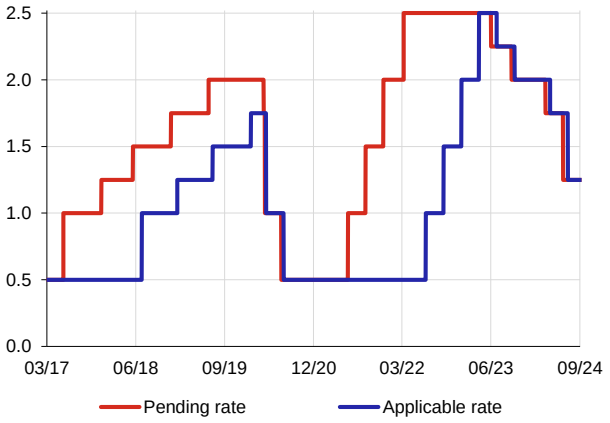
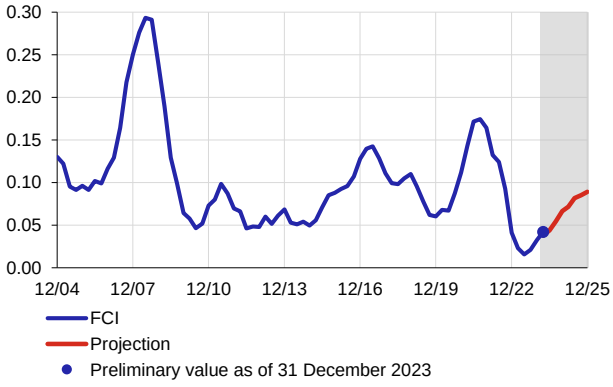


Chart V.9
Financial cycle indicator
(0 minimum, 1 maximum)



Source: CNB, CZSO
Note: The projection is based on the CNB's spring forecast (MPR – Spring 2024).

The recovery of the financial cycle is likely to continue at a gradual pace…

The aggregate financial cycle indicator (FCI) rebounded during the second half of 2023 and, according to a preliminary estimate, continued to rise gradually in 2024 Q1 (see Chart V.9). The gradual recovery is reflected mainly in growth in newly negotiated loans to households (see Chart V.5 CB). If the projection consistent with the CNB's spring forecast materialises, the FCI will continue to recover towards its historical average at a gradual pace in the years ahead. In line with this, an indicative conversion of the most recent known FCI value (0.03) into the CCyB rate implies no need to set a non-zero CCyB rate to cover the newly accepted risks (see Chart IV.10 and Table V.1 CB).

…depending on the pace of the pick-up in newly negotiated loans…

The volume of pure new loans to households negotiated in 2024 Q1 (CZK 78.6 billion; see section II.2.2, Chart II.33) was slightly higher than in the previous quarters (the average quarterly volume in 2023 was CZK 65.7 billion). However, the pick-up in newly negotiated loans to households in real terms, i.e. in relation to nominal income, remains insignificant (see Chart V.11).[157] The recovery in pure newly negotiated loans to non-financial corporations also remained generally cautious in early 2024. Their quarterly volume in 2024 Q1 (CZK 117 billion) was lower compared to the average quarterly volume

156 Information on the purpose of the buffer, the methodology for setting the buffer rate and historical information can be found at the CNB website.

157 In the case of loans to households, total new loans stood at 13.4% of gross disposable income in 2023. This is 12 pp lower than the 2021 figure. In the case of loans to non-financial corporations, new loans drawn in 2023 amounted to 44.9% of gross operating surplus (17 pp below the 2022 high).

in 2023 (CZK 124 billion) and in 2021–2022 (CZK 198 billion). The share of euro loans in both new and outstanding loans stabilised close to 50% in 2023 (see section II.2.2, Chart II.33 and Chart II.28 CB).

…and outstanding loans

The year-on-year growth in outstanding loans to non-financial corporations increased in December 2023[158] and remained elevated in the first months of 2024 (see Chart II.34). The year-on-year growth of loans to households for house purchase remained at the below-average level recorded in 2023. In line with this, the total debt ratio continued to decline in the household sector (see Chart II.35) and was virtually flat in the non-financial corporations sector (see Chart II.36). Consistent with the CNB's spring forecast is a gradual rise in the year-on-year growth of outstanding loans to households and a temporary slowdown in the year-on-year growth of outstanding loans to non-financial corporations (see section II.2, Chart II.34).

Chart V.10

CCyB rate covering financial cycle effects monitored

(% of total risk exposure)

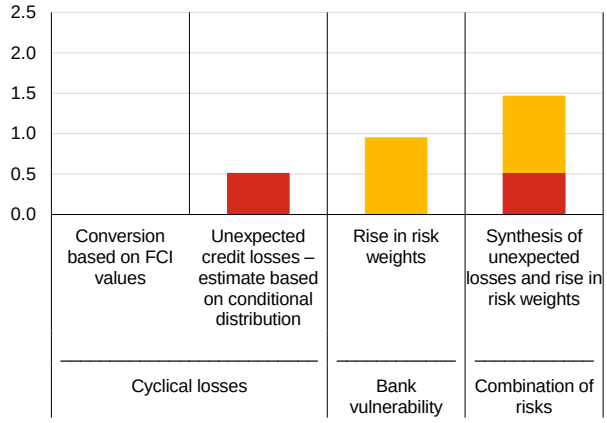
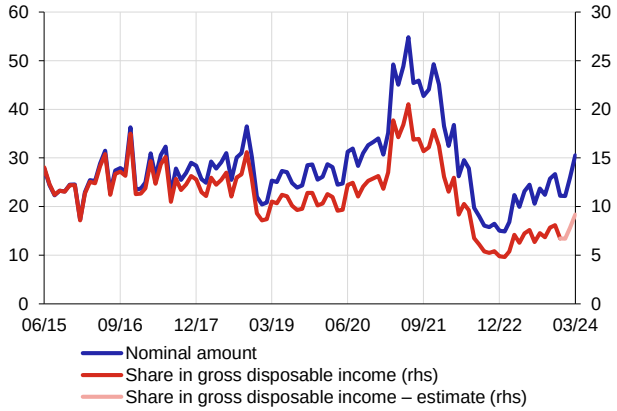


Chart V.11

Pure new loans to households, including increases

(monthly in CZK billions; right-hand scale: %)



Note: GDI for the share in January–March 2024 is taken from the CNB's spring forecast.

A certain amount of cyclical credit risks remain in the banking sector's balance sheet…

The amount of cyclical credit risks in the banking sector's balance sheet, stemming primarily from the previous strongly expansionary phase of the financial cycle in the second half of 2023, continued to decrease moderately. The strong profitability of non-financial corporations (see Chart II.31 and Box 2) and the still low observed unemployment rate fostered the disappearance of risks from balance sheets (see Chart II.32). However, the process of disappearance weakened significantly in late 2023 and early 2024, while a certain amount of risks remained in the banking sector's balance sheet. This was indicated by, for example, observed increases in default rates at the end of 2023 and in the first months of 2024, especially in some segments of the non-financial corporations sector (see section II.2.2).

…which corresponds to a CCyB rate of around 0.5%

The unexpected credit losses according to an estimate based on the conditional distribution amounted to CZK 15.4 billion, roughly equal to the result of the previous assessment. The unexpected losses would be covered by a CCyB rate of 0.51%. The estimate is consistent with the identified sources of vulnerability of the banking sector, which are related to moderate expected growth in newly negotiated loans (see Chart II.33), non-increasing provisioning in the household segment (see section III.2.3) and a potential increase in default rates (see section II.2.2).

The estimated effect of growth in risk weights decreased quarter on quarter

Risk weights on the credit portfolios of banks using the IRB approach ("risk weights" hereafter in section V.3) are an indicator of the banking sector's vulnerability over the financial cycle. As of the end of 2023, the risk weights of all the main credit portfolios were around 6–13 pp[159] below the levels observed at the start of the strongly expansionary phase of the financial cycle, which, according to the CNB's analyses, the Czech economy entered at the end of 2015 (see Chart V.12 and section III.2.2, Chart III.10).[160] In addition to covering the manifestations of the financial cycle in the real economy

158 There was an increase in the drawdown of several large investment loans by large domestic companies in December 2023 (see section II.2.2).

159 The drop in risk weights in the segment of households – other loans was due to the reclassification of part of certain entities' portfolios. Taking into account this reclassification, risk weights in the segment of households – other loans and the segment of households – loans secured by property would be broadly flat.

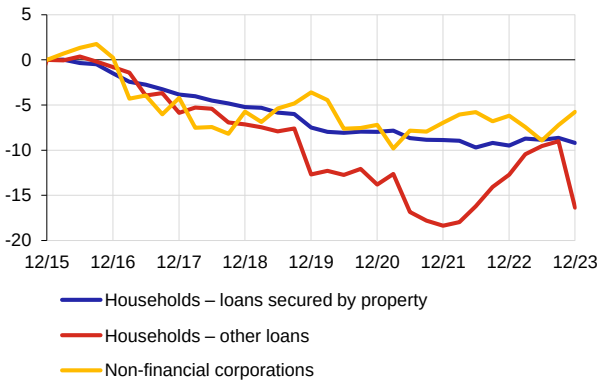
160 A rise in observed risk weights does not necessarily mean a decrease in risks and banks' vulnerability and hence may not imply a reduction of the CCyB rate. The key factor is the extent to which the increase in risk weights is due to risk materialisation and a related cyclical deterioration in risk parameters (in which case it may be appropriate to relax the CCyB, as part of the CCyB is maintained for this purpose) or to a change in the structure of bank portfolios towards riskier asset types (in which case the risk persists or grows further, as does the need to maintain the CCyB at least at its current level).

(credit losses), the CCyB rate should cover the growth in the absolute capital requirement due to the effects of the financial cycle on risk weights. The CNB derives the CCyB rate to cover this risk using a model-based estimate of growth in risk weights due to a cyclical deterioration in the probability of default and loss given default. According to the estimate, growth in risk weights would lead to an increase in the capital requirement of CZK 28.6 billion in absolute terms (see Chart V.13). This would be covered by a CCyB rate of 1% (see Chart V.6).

Chart V.12

Change in risk weights compared with the start of the strongly expansionary phase of the financial cycle

(pp)

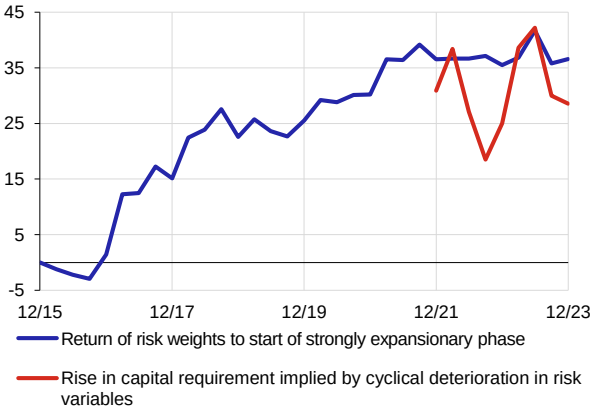


Note: According to the CNB's analyses, the strongly expansionary phase of the financial cycle started in 2015 Q4.

Chart V.13

Effect of a change in risk weights on the capital requirement

(CZK billions)



Note: According to the CNB's analyses, the strongly expansionary phase of the financial cycle started in 2015 Q4. The growth implied by a cyclical deterioration in risk variables reflects their evolution over a two-year horizon. The chart shows the capital requirement for the loan portfolios of banks using the IRB approach and includes non-SME retail exposures and corporate exposures.

The CCyB rate remains generally unchanged across the European Union

Most European countries have left their current CCyB rates at the current levels of 0.5–1.5% (see Chart V.7 CB). The countries that have recently announced increases in the CCyB rate did so to respond to the domestic financial cycle (Croatia), to converge to the positive neutral CCyB rate (Ireland, the Netherlands, Cyprus, Slovenia and Latvia) or to create a capital buffer to cover a wider range of cyclical risks (Belgium, Hungary). In this regard, the individual European countries have adopted heterogeneous approaches to setting the national CCyB rate (as is also evident in their different perceptions of the neutral rate; see Box 2 in FSR – Autumn 2023). The Czech Republic is so far the only EU country to have lowered the CCyB rate since 2020. This is due to the CNB's more prudent approach, which involves increasing the rate in good time in the upward phase of the financial cycle. This allowed it to lower the rate in response to a partial disappearance of cyclical risks in the downward phase of the financial cycle. The CNB's different response was also partly due to the asynchronicity of the financial cycles in the Czech Republic and other European countries.

Deviations of the credit-to-GDP ratio from its trend do not provide a suitable guide to setting the CCyB for the Czech Republic

In accordance with an ESRB recommendation,[161] the CNB should take into account the credit-to-GDP ratio and its deviation from the long-term trend when determining the position in the financial cycle and deciding on the CCyB rate. At the end of 2023, the ratio was 80.1% and the relevant deviation -10.2 pp. The additional gap (the expansionary credit gap), which uses an alternative approach to determining the long-term trend and partially eliminates the problems associated with the recommended methodology, was 0 pp in 2023 Q4 (see Chart V.6 CB), implying a zero CCyB rate. However, this indicator must also be viewed as only a very simplified way of assessing the position in the financial cycle, with very limited direct usefulness as regards deciding on the CCyB rate. The CNB has long maintained that the approach based on the deviation of the credit-to-GDP ratio from its trend is not a suitable tool for assessing cyclical risks in the Czech economy and is subject to a range of shortcomings which reduce its reliability.[162] This opinion was reflected in the ESRB's concept note on the review of the macroprudential framework,[163] which recommends a broader set of indicators and methods for decisions on the CCyB rate.

161 Recommendation (ESRB/2014/1) on guidance for setting countercyclical buffer rates.

162 *The CNB's Approach to Setting the Countercyclical Capital Buffer* (Appendix 1).

163 *Review of the EU Macroprudential Framework for the Banking Sector, A Concept Note, March 2022*.

V.4 CREDIT INSTRUMENTS AND RISKS ASSOCIATED WITH MARKETS IN LOANS SECURED BY PROPERTY

V.4.1 Mortgage loans[164] and credit ratios

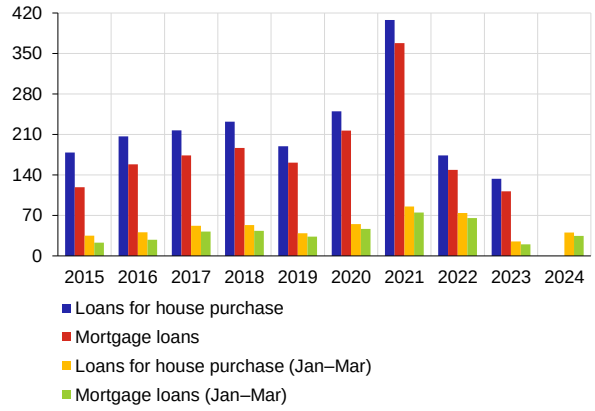
The CNB regularly monitors the situation on the mortgage loan market and assesses the degree of systemic risk

In accordance with the law, the CNB reviews whether a substantial change has occurred in the factors giving rise to systemic risks related to mortgage lending at least once every six months. Since April 2022, the upper limit on the LTV ratio has been set at 80% (90% for applicants under 36 years for purchases of owner-occupied housing), with a 5% volume exemption. At the same time, it has been recommended that the LTV ratio of no mortgage loan should exceed 100%.[165] The upper limits on the DSTI and DTI ratios were deactivated in July 2023 and January 2024 respectively.[166] The CNB's recommendation that every mortgage loan with a DTI of more than 8 times net annual income and a DSTI of over 40% should be assessed very prudently remained in place.[167] The CNB monitors the characteristics of loans which exceed each of these limits and performs detailed analyses and assessments of their contributions to systemic risk.

Lending activity increased at the start of 2024 but remained below the long-term average

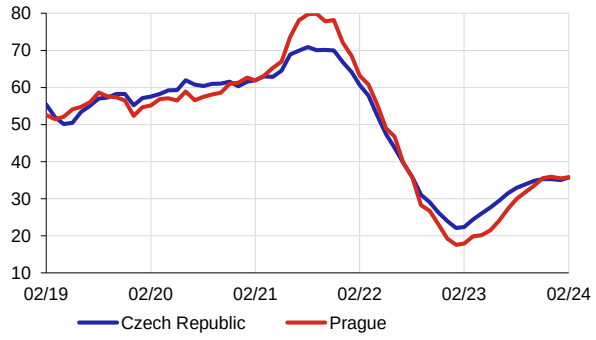
Mortgage loans totalling CZK 35 billion were provided in 2024 Q1, up CZK 15 billion on the same period a year earlier (see Chart V.14). However, lending activity was still low relative to the average for 2015–2020, especially in real terms.[168] This is confirmed by the number of new mortgages provided, which fluctuated around 4,000 a month and was lower than in 2016–2022 (see Chart V.8 CB). Demand for mortgage loans continued to be affected by historically high interest rates, which also caused debt servicing costs at the time of property purchase to markedly exceed expenditure on renting the same property (see Chart II.21). If renting households considering taking out a mortgage loan wanted to keep their monthly housing-related expenditure unchanged, they would have to obtain a loan with an LTV of 56% (see Chart V.9 CB). They would thus finance almost half of the purchase price of the property using their own resources. For this and other reasons, the share of apartment and house transfers financed using mortgage loans in total transactions was still low (less than 36%; see Chart V.15). The share of mortgage loans provided for property construction also remained low (see Chart V.10 CB). Households preferred to purchase completed property rather than invest in house construction.

Chart V.14
Pure new bank loans for house purchase
(CZK billions)



Note: All series include increases in existing loans. Mortgage loans fall within the category of loans for house purchase.

Chart V.15
Share of apartment and family house transfers financed using mortgage loans
(% of total number; half-yearly moving averages)



Source: CNB, COSMC

Note: Calculated as the ratio of the number of pure new mortgage loans for purchasing property to the number of transactions registered by COSMC.

164 In this part of the text, a mortgage loan is defined as a consumer loan secured by residential property.

165 Recommendation A in Official Information of the CNB of 7 March 2024 and in the archive of official information.

166 See Provision of a general nature of 1 June 2023 and Provision of a general nature of 29 November 2023.

167 Recommendation B in Official Information of the CNB of 7 March 2024.

168 The averages for the first three months of 2015–2020 were CZK 46.1 billion for housing loans and CZK 36.1 billion for mortgage loans. Total lending in 2024 Q1 was thus at 88% and 97% respectively of the 2015–2020 average in nominal terms and 54% and 60% in real terms (adjusted for the average year-on-year increase in loan size).

The average mortgage loan amount and monthly instalment have risen and interest rates have dropped slightly…
The start of the monetary policy rate reduction process (see Chart II.2) led to a moderate drop in mortgage rates in early 2024, which, however, stayed at around 5.5% on average (see Table V.3). The average fixed-rate period has shortened.[169] The highest number of transactions were concluded with a fixed-rate period of three years, followed by five years (see Chart V.11 CB). The average monthly instalment rose to CZK 20,300 in January and February 2024, primarily as a result of larger loan sizes.

…with mortgage loans being used to finance property purchases mostly by higher-income households
The composition of new borrowers was consistent with the high financial burden of mortgage repayments. Loans were most often applied for by two persons and the average monthly income in loan applications was almost CZK 87,000 (the average net income of an economically active household in the Czech Republic is estimated at CZK 60,000; see Chart II.25 CB). Even when adjusted for all debt instalments, the indebted households still have a sufficient financial reserve left on average to cover other essential expenditure (almost CZK 55,000). There was also increased interest in mortgage loans from applicants under 36 years at the start of 2024. Their share exceeded 51% of the total volume of new loans provided in January and February 2024, approaching the levels observed before 2022.

Table V.3
Average values of the characteristics of new mortgage loans and loan applicants

	2018	2019	2020	2021	2022	2023	2024 Jan–Feb
Loan size (CZK millions)	2.2	2.3	2.7	3.3	3.2	3.1	3.4
Interest rate (%)	2.6	2.7	2.3	2.3	4.7	5.8	5.5
Instalment (CZK thousands)	11.7	11.3	11.2	15.5	17.5	19.2	20.3
Maturity (years)	26	26	26	26	26	26	26
Fixed interest rate period (years)	5.9	6.5	6.7	6.1	6.0	4.2	3.3
Collateral value (CZK millions)	3.7	4.0	4.5	5.5	6.2	5.7	5.9
Number of properties securing mortgage loan			1.2	1.1	1.1	1.1	1.1
LTV (%)	67.5	66.6	66.3	64.6	61.7	63.2	65.8
DTI (annual incomes)	5.4	5.1	5.5	5.9	5.3	4.7	4.9
DSTI (%)	34.2	32.1	32.1	34.2	36.7	36.8	37.7
Net monthly income (CZK thousands)	50.8	54.4	71.5	64.4	77.7	84.2	86.7
Net monthly income adjusted for instalments (CZK thousands)	34.4	37.2	49.0	43.0	50.0	53.9	54.7
Number of loan applicants	1.47	1.49	1.5	1.5	1.51	1.59	1.57
Share of borrowers under 36 years (in %)	52.6	51.9	53.1	51.1	48.7	48.9	51.4

Note: The values in the table indicate the simple average for the given period. The exception is the share of borrowers under 36 years, which shows the ratio of the volume of loans provided to the principal loan applicant under 36 years to the total volume of loans provided in the given period. The DTI and DSTI ratios for 2018 are calculated from data for the second half of 2018, and the number of properties for 2020 is calculated from data for the second half of 2020.

The share of loans with DSTIs of over 40% has stabilised at around 55%…
As expected, the proportion of loans in the categories of DSTIs above the previous limits of 45% and 50% increased after the upper DSTI limit was deactivated in July 2023 (see Chart V.16). This shift mainly involved applicants with an average monthly income of CZK 87,000 and CZK 96,000 respectively.[170] Loans in the 40–50% DSTI band amounted to almost CZK 8.5 billion and loans in the 50–60% DSTI band to CZK 4 billion in January and February 2024 (see Chart V.13 CB). Loans with DSTIs of more than 60% were seldom provided in these months, amounting to just CZK 0.4 billion (1.7% of the total). Applicants with DSTIs of over 60% had an average income of CZK 150,000.[171] In general, the share of loans with DSTIs of over 40% recorded moderate growth and gradually stabilised at 55% of total loans provided (almost CZK 13 billion in January and February 2024).

…the share of loans with DTIs of over 8 rose slightly
The deactivation of the upper limit on the DSTI ratio was also reflected in the distribution of loans by DTI ratio, leading to a rise in the share of loans with DTIs of over 8 times net annual income to 7.1% (CZK 2.4 billion; see Chart V.17). This share decreased slightly to 6.2% (CZK 2.5 billion) in Q4, but the data for January and February indicate renewed growth

169 New rules for maximum early mortgage repayment costs will start to apply in September 2024. These may have already affected banks' client interest rates and possibly also households' decisions on the timing of taking out a mortgage loan in 2024.

170 The average DTI was 6.7 times net annual income for mortgage loans in the over 45% category and 7.1 times net annual income for mortgage loans in the over 50% category.

171 The average DTI was 8 times net annual income for mortgage loans in the over 60% category.

to almost 8% (CZK 1.9 billion). Due to the link of the DTI to the DSTI, the volume of loans with DTIs of over 9 times net annual income remained low (CZK 0.4 billion in January and February 2024).[172] However, 33 new mortgage loans with DTIs of over 8 times net annual income and DSTIs of over 60% were provided in January and February 2024. Although these loans – totalling CZK 249 million – did not contribute to growth in the risk to financial stability, the CNB regards loans with the combination of these characteristics as highly risky and closely monitors their volume.

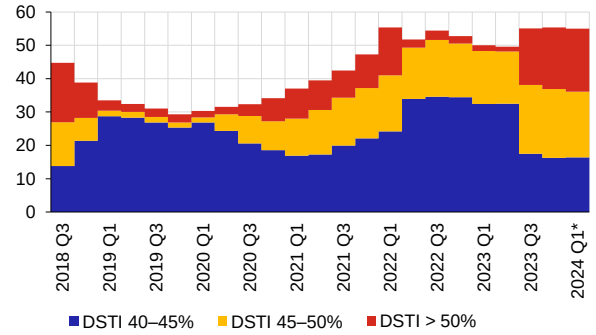
With a few exceptions, no loans with LTVs of over 90% were provided, while the share of loans with LTVs of 80–90% increased

The average and median LTVs of new mortgage loans were 65.8% and 70% respectively at the start of 2024 (see Table V.3 and Table V.2 CB). The share of loans with LTVs of more than 80% increased to almost 18% (see Chart V.18). This was due mainly to an increased volume of loans with LTVs of 90%,[173] which amounted to CZK 2.9 billion (12.3% of the total volume).[174] Mortgage lenders were relatively prudent as regards loans with LTVs of over 90%, providing CZK 22.5 million of such loans in January and February 2024. The 5% volume exemption was used mainly for loans provided to applicants aged 36 or over, who were thus allowed to exceed the statutory 80% LTV limit (see Chart V.19). These applicants earned CZK 89,000 on average. In accordance with the CNB's recommendation, no loans with LTVs of over 100% were provided.

Chart V.16

Pure new mortgage loans with DSTIs of over 40%

(share of loans in volume provided in given quarter in %)

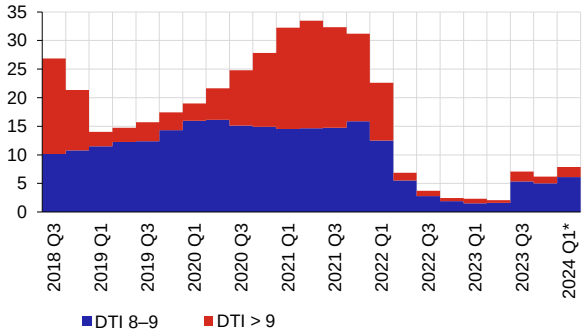


Note: The data may also contain undrawn loans. The figures for 2024 Q1 contain data for January and February only. The chart provides information on current changes in risks taken on from the DSTI perspective, not on formal (non-)compliance with the binding upper limits on the DSTI ratio.

Chart V.17

Pure new mortgage loans with DTIs of over 8

(share of loans in volume provided in given quarter in %)

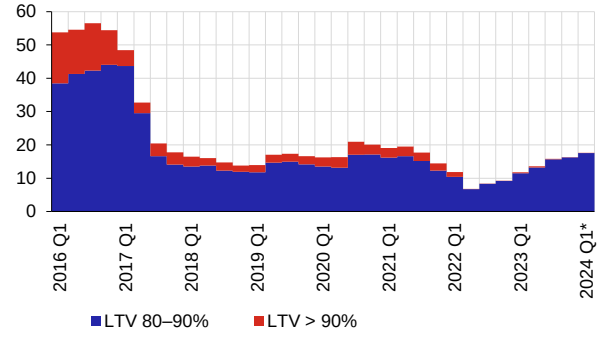


Note: The data may also contain undrawn loans. The figures for 2024 Q1 contain data for January and February only. The chart provides information on current changes in risks taken on from the DTI perspective, not on formal (non-)compliance with the binding upper limits on the DTI ratio.

Chart V.18

Pure new mortgage loans with LTVs of over 80%

(share of loans in volume provided in given quarter in %)

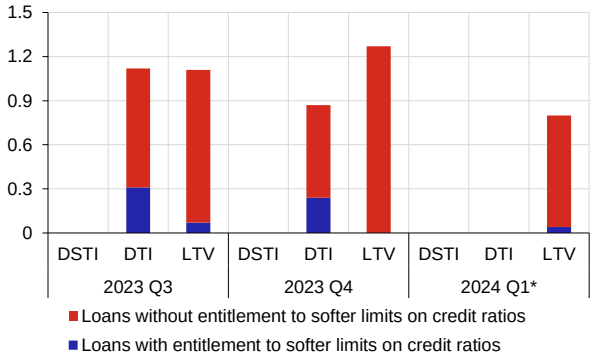


Note: The data may also contain undrawn loans. The figures for 2024 Q1 contain data for January and February only. The chart provides information on current changes in risks taken on from the LTV perspective, not on formal (non-)compliance with the binding upper limits on the LTV ratio.

Chart V.19

Share of mortgage loans falling under the volume exemption

(%)



Note: The figures for 2024 Q1 contain data for January and February only. The DSTI and DTI limits were deactivated on 1 July 2023 and 1 January 2024 respectively.

172 A DTI of 9 times net annual income is equivalent to the upper DSTI limit of 60% at an interest rate of 5.3% with a 30-year repayment term. Mortgage loans with DSTIs of over 60% were seldom provided.

173 The average and median mortgage loans with LTVs of over 90% amounted to CZK 3.6 million and CZK 3 million respectively.

174 The share of loans with LTVs of 90% equalled 5.5% in 2022 Q1 and 8% in 2023 Q1.

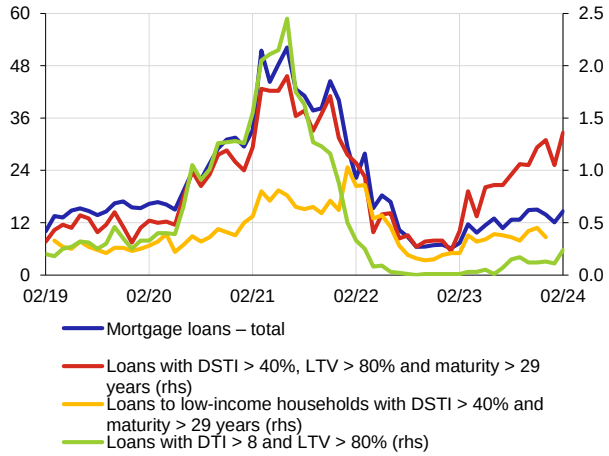
The volume of loans regarded as already highly risky increased as the volume of loans provided grew

The CNB has long recommended that mortgage lenders be very prudent in providing loans with LTVs of over 80%, DSTIs of over 40% and DTIs of over 8 times net annual income, and closely monitors the characteristics and volume of loans exceeding these limits. It regards loans with the combination of an LTV of over 80%, a DSTI of over 40% and/or a DTI of over 8, and a maturity of around 30 years, as highly risky. These loans combine higher risks of default and default losses. The volume of loans with a maturity of over 29 years, a DSTI of over 40% and an LTV of over 80% increased faster in 2023 than the total volume of loans provided and their share exceeded 9% for the first time since 2018. In absolute terms, however, these loans were still at levels that do not represent potential for the build-up of systemic risks stemming from new mortgage loans (CZK 1.4 billion of the loans provided in January and February 2024; see Chart V.20). The perceived risk as indicated by the DSTI ratio also differs depending on households' income. A higher DSTI is generally riskier for low-income households than for high-income ones. For this reason, the CNB also monitors the volume of mortgage loans with DSTIs of over 40% provided to low-income households. It has been fluctuating slightly below CZK 0.5 billion a month since 2023 Q1. It is relatively low compared with the previous years, but it appears to be rising slightly as well.

Chart V.20

Mortgage loans with highly risky characteristics

(CZK billions)



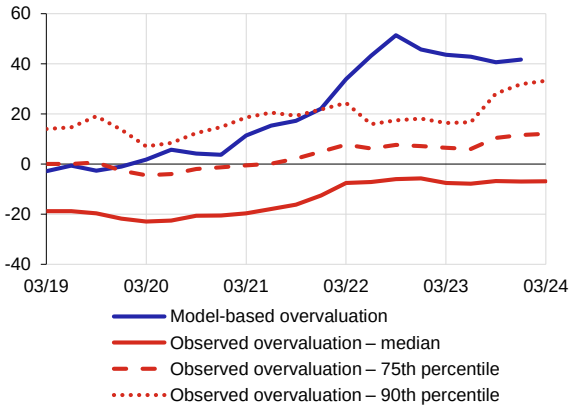
Source: CNB, CZSO

Note: A low-income household is defined as a household with a net income below the 20th percentile of the income distribution of economically active households in the Czech Republic, which was almost CZK 37,000 a month at the end of 2023.

Chart V.21

Observed and model-based property price overvaluation for a safe DSTI of 40%

(%)



Note: The figures for 2024 Q1 contain data for January and February only. The model-based overvaluation shows the affordability of housing for a Czech household with median income (CZK 54,000 as of December 2023) and limited own funds (a maximum of around CZK 1.2 million) buying an average apartment (around CZK 6 million as of December 2023). The observed overvaluation shows the risks associated with mortgage loans already provided to households in the given period.

The systemic risks associated with mortgage lending remained low…

An analysis of the risks associated with mortgage loans provided between September 2023 and February 2024 indicated no major relaxation of credit standards on the market. Assuming a "safe" loan to be defined as one with a DSTI of 40%,[175] the median observed property price overvaluation was[176] negative (see Chart V.21). However, some loan characteristics of new loans were riskier on average than in the first half of 2023. This is also reflected in an increase in the 75th and 90th percentiles of the observed overvaluation, which was close to the model-based overvaluation[177] of 42%. Nevertheless, the volume of these loans regarded as already highly risky was relatively low and as such did not contribute to growth in systemic risk stemming from the housing loan market (CZK 6 billion and CZK 2.8 billion of loans provided in January and February 2024 respectively). If the DSTI for a "safe" loan was changed to 35% (see Chart V.16 CB), which is assumed to

175 A 40% DSTI was set as relatively safe in relation to the declared average and median incomes of mortgage applicants in the six-month period from September 2023 to February 2024 (see Table V.3 and Table V.2 CB).

176 The observed overvaluation shows the risks associated with mortgage loans already provided to households. This overvaluation compares the transaction price of a property financed by a mortgage loan in a given period with the value that can be considered safe for the household in question. A positive observed overvaluation thus indicates that the household has taken on a loan that is higher than can be considered safe in view of the set limits on credit ratios. Observed overvaluation is described in more detail in the cnBlog article: *Nadhodnocení cen nemovitostí jako jedno z rizik hypotečního trhu* (*House Price Overvaluation as a Mortgage Market Risk*; in Czech only).

177 The model-based overvaluation generally shows the affordability of housing for a Czech household with median income and limited own funds buying an average apartment. A positive model-based overvaluation indicates that the price of the average apartment is higher than the loan size that can be safely repaid, here with the DSTI ratio at 40%, plus the available own funds of the household (an LTV of 80% is considered). Risks to financial stability would arise if households reacted to limited availability of housing by taking on excessive debt.

be the initial[178] value in the indicator of model-based overvaluation, more than half of mortgage loans would show positive observed overvaluation.[179] A model-based overvaluation of 60% would be recorded by loans in the 90th percentile of the observed overvaluation. These loans amounted to CZK 2.1 billion in January and February 2024.

…as confirmed by the main indicators monitored

The relatively low systemic risk was confirmed by risk perception indicators, which remained low and developed in line with the autumn 2023 expectations (see Chart V.22). Most of the indicators rebounded in the second half of 2023 and are expected to rise gradually. Growth in the stock of consumer credit is accelerating, the volume of loans for house purchase provided is rising, property prices are beginning to go up and the decline in household debt is coming to a halt (see Chart V.25 a–d).

Price imbalances on the residential property market persist, but the risk of residential property prices correcting has decreased

There is still a relatively significant excess of apartment prices and loan size over income and rent (see Chart V.25 e–g). Although a downward trend – and hence a decrease in the gap between the measured values of the indicators – is apparent, the structural imbalance on the property market is preventing them from returning to their long-run averages over the forecast horizon. A related factor is the estimated probability of apartment prices falling by more than 10% over the next two years, which dropped further to 0.4%, making a major price correction less likely (see Chart V.23).

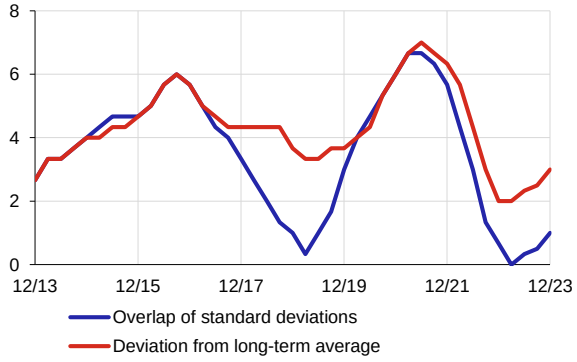
Simulations did not signal a need for tighter credit ratios

A simple simulation performed using the household stress test structure[180] indicated that an LTV of 80% appears effective under a prudent approach (see Chart V.24).[181] Other combinations of credit ratios turned out to be less effective at the five-year horizon. This is consistent with the state of banks' current mortgage portfolio. The NPL ratio was still close to an all-time low and well below its long-term average in 2024 Q1 (see Chart V.17 CB). The same was true of the aggregate default rate (see section II.2) and loss given default (see section III.2). These indicators thus indicate relatively high quality of the mortgage portfolio. Given the slow pass-through[182] of potentially risky loans to the banking sector's mortgage portfolio, the CNB does not expect any marked deterioration in these indicators under the *Baseline Scenario* in the near future.

Chart V.22

Composite risk perception indicators by overlap of standard deviations and deviation from the average

(min. 0; max. 8)

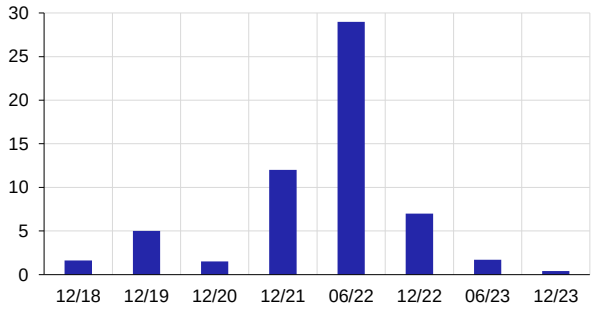


Note: The indicators are smoothed by the 9-month moving average.

Chart V.23

Probability of average apartment prices falling by more than 10% over the next two years

(%)



178 This is the ratio of the observed market price of the average apartment (CZK 6.3 million at the end of 2023) to the fundamental value, i.e. the value of an affordable apartment from the perspective of a Czech household with normal income (CZK 54,000 at the end of 2023) and low own funds (a maximum of around CZK 1.2 million at an LTV ratio of 80%).

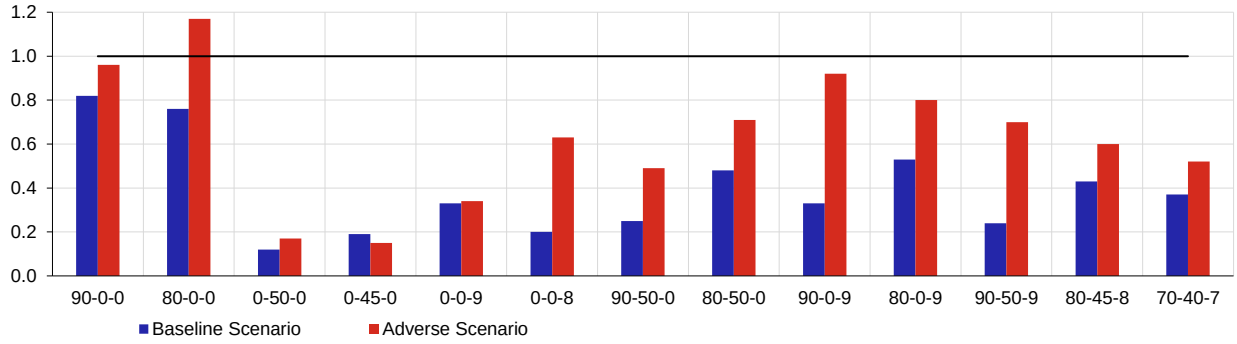
179 Assuming a "safe" loan to be defined as one with a DSTI of 35%, the LTV ratio of households with positive observed overvaluation was 4 pp higher on average than that of all households with a mortgage loan (69.8% versus 65.8%). Their DTI was lower by 0.2 annual incomes (4.7 versus 4.9) and their DSTI by 1.6 pp (36.1% versus 37.7%). These households' income was CZK 8,200 lower on average (CZK 78,500 versus CZK 86,700) and their loan slightly smaller (CZK 3.3 million versus CZK 3.4 million).

180 The simulation does not take all the potential costs and benefits of regulation into account, partly because of its relatively short time scale. Longer-term regulation also affects the structure of markets, which is not considered in the simulation.

181 However, the costs and benefits of this alternative are low. If the adverse scenario used for this simulation materialised, the cost of regulation for banks in the form of loss of profit on mortgage lending given an upper LTV limit of 80% would be CZK 4.4 billion, while the benefits in the form of reduced losses would be CZK 5.2 billion.

182 New mortgage loans are expected to account for 20% of the mortgage portfolio at the two-year horizon.

Chart V.24
Unit benefits of regulation by LTV, DTI and DSTI
(benefits per unit of costs)



Note: The benefits take the form of reduced potential losses from credit defaults and the costs reflect mortgage lenders' loss of profit from unrealised transactions due to regulation.

The Bank Board decided to leave the upper limit on the LTV ratio unchanged…
At its meeting on 6 June 2024, the Bank Board decided to leave the upper limit on the LTV ratio at 80% (90% for applicants under 36 years financing owner-occupied housing), with a 5% volume exemption.[183] The main reason is to limit potential growth in highly risky mortgage loans during a recovery on the mortgage and property markets. The CNB has long communicated that mortgage loans with an LTV of over 80% should be assessed very prudently and that it considers them highly risky. This is in line with international practice (see Box 4).

…and does not expect systemic risks associated with the mortgage market to increase over the forecast horizon
If the spring forecast materialises, the Bank Board does not expect any significant rise in cyclical or structural risks arising from the housing credit market. This is one reason why it kept the upper DTI and DSTI limits deactivated. The Bank Board stands ready to react flexibly and to change or re-activate the upper limits on credit ratios where necessary in the future if the results of analyses conducted during the regular review indicate a change in systemic risk associated with mortgage lending with risky characteristics.

The Bank Board also decided to expand the applicability of the Recommendation to all consumer credit for housing
The Bank Board also decided to expand the scope of application of the Recommendation to all consumer credit for housing as defined by Act No. 257/2016 Coll., the Consumer Credit Act, instead of the previous application to consumer credit secured by residential property. The aim of this decision is to mitigate the potential risks arising from the provision of other consumer credit for housing, reduce the risk of regulatory arbitrage (in the sense of circumvention of the upper limits on the credit ratios using housing loans not secured by residential property) and in general create a level playing field for all housing loan providers.[184] The prudential rules related to the DSTI and DTI ratios and the recommendations on loan terms and non-standard repayment schedules will thus now also apply to consumer credit for housing other than consumer credit secured by residential property. Under an amendment to the Recommendation, it will also be possible to provide consumer credit for housing not secured by residential property with a maturity of more than eight years to consumers who already have a consumer loan for housing. The Bank Board, among other things, decided to retain the recommendation for housing loan providers that the upper limit on the LTV ratio of no secured mortgage loan should exceed 100% and applications for housing loans with DSTIs of over 40% and DTIs of more than 8 times net annual income should be assessed with an increased level of prudence.

183 The Bank Board left in effect the *Provision of a general nature of 25 November 2021 setting upper limits on credit ratios*, as amended by the Provisions of a general nature of 1 June and 29 November 2023. See *Provision of a general nature of 25 November 2021*, *Provision of a general nature of 1 June 2023* and *Provision of a general nature of 29 November 2023*.

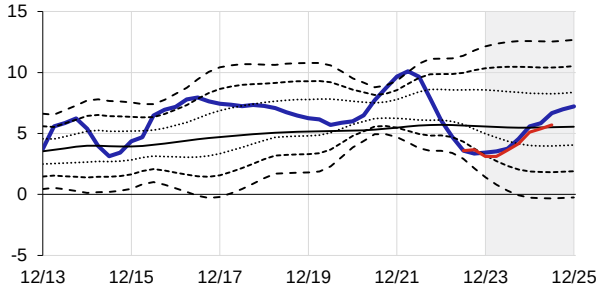
184 The conditions were harmonised for banks and non-banks and for building societies.

Chart V.25

Indicators of systemic risk associated with mortgage lending

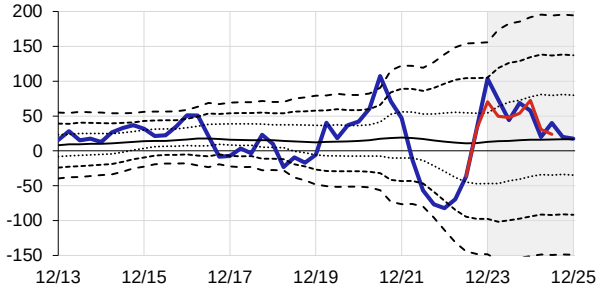
(%; ratio of apartment prices/loan size to gross annual income; ratio of apartment prices/rent in multiples of annual rent)

a) Year-on-year change in consumer credit



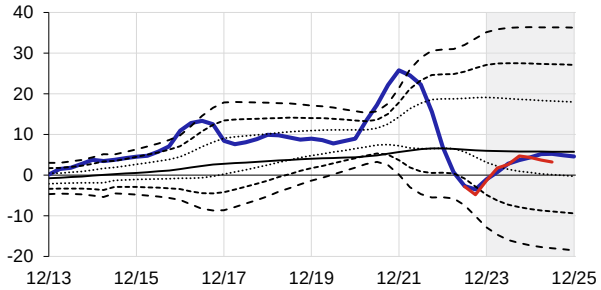
The chart is based on total outstanding consumer credit to households.

b) Year-on-year change in new mortgage loans



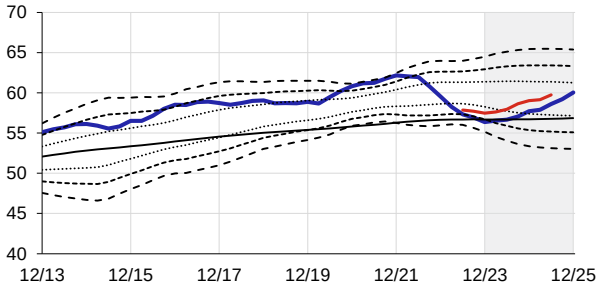
The chart shows pure new mortgage loans for house purchase, including increases.

c) Year-on-year change in residential property prices



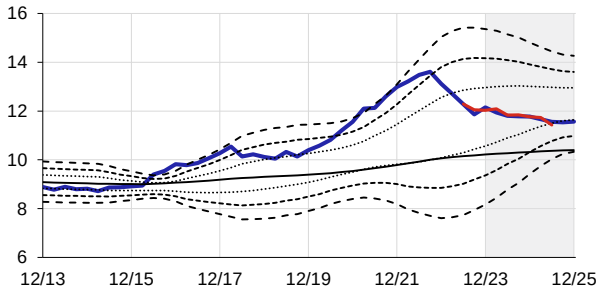
The chart depicts the housing price index, including land.

d) Consumer credit-to-gross disposable income ratio



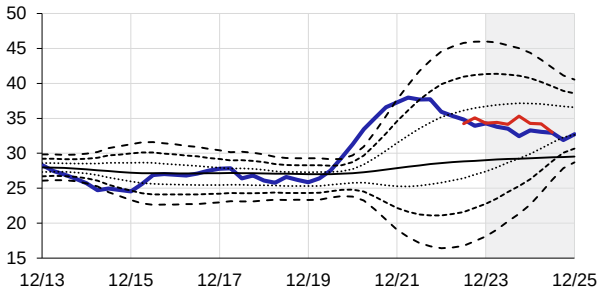
The chart depicts the total amount of loans to households relative to the gross disposable income of households.

e) Apartment price-to-income ratio



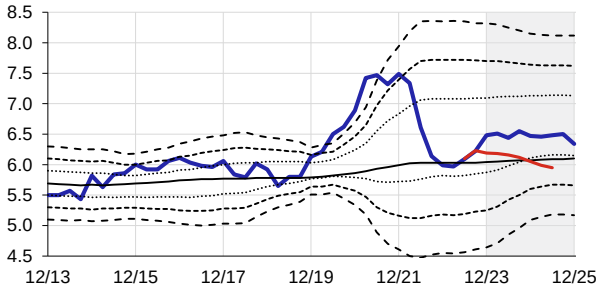
The chart shows the transaction price of a 68 m^2 apartment relative to average gross annual income.

f) Apartment price-to-rent ratio



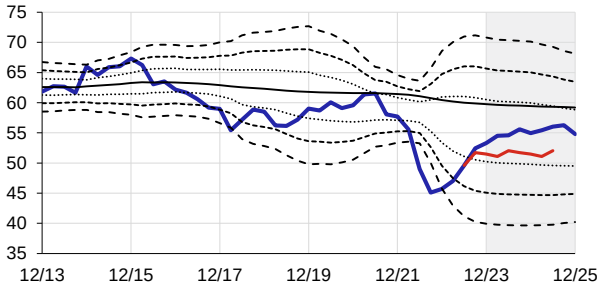
The chart shows the apartment transaction price per m^2 relative to annual rent per m^2.

g) Mortgage loan size-to-income ratio



The chart shows the average mortgage loan size relative to average gross annual income.

h) Mortgage loan size-to-apartment price ratio



The chart shows the average mortgage loan size relative to the transaction price of a 68 m^2 apartment.

Note: The dashed black lines show spreads of one, two and three standard deviations from the average over the last 20 quarters. The black solid line shows the long-term average calculated using the time series starting in 2010. The grey area shows the projected values consistent with the spring forecast (MPR – Spring 2024). The red line shows the autumn 2023 projection (MPR – Autumn 2023).

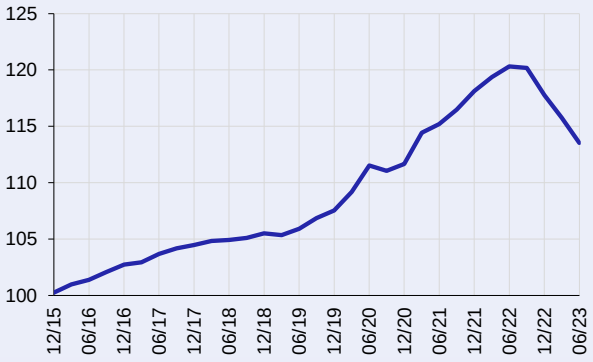
BOX 4: Overview of upper LTV limits in European countries

Recent years have seen a substantial rise in property prices, which has made owner-occupied housing less affordable for households. According to the price-to-income ratio, affordability declined especially in 2019–2022 (see Chart 1), with mixed trends across countries (see Chart 2). The growth in property prices was driven both by demand factors (see Chart V.18 CB) and by supply factors (see Chart V.19 CB). In these years, some countries' macroprudential authorities also introduced LTV instruments or changed their existing measures. The changes involved either the LTV limit itself or the introduction of, or changes to, exemptions targeting certain groups of the population, such as first-time buyers and young applicants, or specific loan purposes, such as purchases of buy-to-let property or second and subsequent property.

Chart 1 (Box 4)

Property prices relative to household income

(average of indices of 27 countries, 2015 = 100)



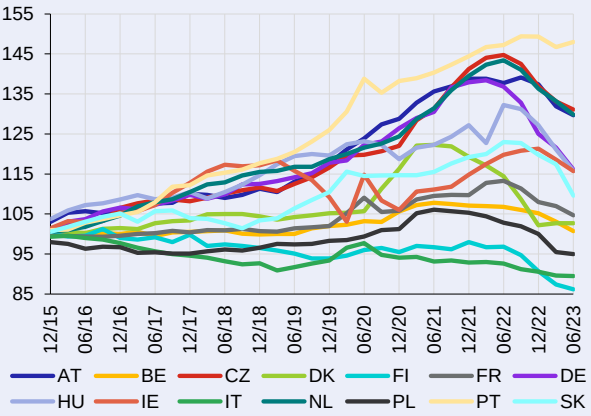
Source: OECD

Note: The average covers the EU countries (except Cyprus and Malta) plus Norway and Iceland.

Chart 2 (Box 4)

Property prices relative to household income in individual countries

(index, 2015 = 100)



Source: OECD

The approach to setting LTV differs significantly across European countries. Most countries apply a general LTV limit ranging between 70% and 100%. Some countries have not changed their limits since introducing them and thus have not responded to property and credit market developments, while others have reacted and have adjusted their LTV limits and exemptions on an ongoing basis. This broad range reflects different approaches to the acceptable level of risk and differences in market and institutional conditions. Each country's approach is based on its own, specifically adapted set of instruments (DSTI, DTI etc. in addition to LTV) and policies.

While, for example, only variable-rate loans are provided in some countries (e.g. **FI**, **LT**, **EE**, **LV**), in others almost all loans are fixed-rate (e.g. **CZ**, **HU**, **SK**). Other specific features of individual markets include the provision of interest-only loans (e.g. **DK**, **NL**, **SE**)[185] and a high share of foreign currency housing loans (e.g. **RO**, **PL**, historically **HU**). Institutional and political factors may also play a role, as government institutions are responsible for setting the LTV limit in some countries (e.g. **DK**, **NL**, **NO**, **SE**). Table 1, which summarises the settings of this indicator in European countries, also shows the important role of volume exemptions, which allow lenders to exceed the set LTV limit (sometimes even for buy-to-let property). In this way, regulators try to balance risk mitigation and support for access to house financing. The comparisons of the strictness of the LTV settings across countries are thus mostly based on LTVs for new loans. In **Belgium**, for example, about 25% of new loans to first-time house buyers were provided with LTVs above the limit (90%) in 2022, due to exemptions. For buy-to-let loans (a limit of 80%), the figure was 10% of new loans. By contrast, in **Ireland**, which also applies a basic limit of 90%, virtually no loan exceeded the limit in the first half of 2023.[186]

185 See the *Follow-up Report on Vulnerabilities in the Residential Real Estate Sectors of the EEA Countries, February 2024*.

186 Data for Belgium taken from *Financial Stability Report 2023*, pp. 15–16, and data for Ireland from *Financial Stability Review 2023: II*, p. 55. Belgium only has a recommended limit.

Table 1 (Box 4)
Overview of upper LTV limits in European countries

Country	LTV	Active (last change) since	Exemption
SE	85	10/2010	–
NL	100	1/2012	Until 2018, LTV was reduced by 1 pp a year, from 106% to 100%. LTV of 106% if 6% is financed using energy-saving measures.
CY	70	12/2013	LTV of 80% if the loan is for financing a primary permanent residence.
PL	80	1/2014	Until 2017, LTV was reduced by 5 pp a year, from 95% to 80%. LTV of 90% if the part exceeding 80% is insured or secured with funds on a bank account, government securities, NBP securities or funds in the third pension pillar.
EE	85	3/2015	Volume exemption of 15%. LTV of 90% if the loan is guaranteed by the state.
DK	95	11/2015	–
MT	75	7/2019	Volume exemption of 20%. LTV of 90% with a 10% volume exemption for first-time buyers or for financing of a primary residence. Loans with collateral of less than EUR 175,000 are not subject to limits.
GR	80	1/2025	Volume exemption of 10%. LTV of 90% for first-time buyers.
PT	90	7/2018	LTV of 80% for loans for purposes other than own housing and permanent residence. LTV of 100% for loans for purchasing property held by credit institutions and for leasing contracts.
SK	80	7/2018	Volume exemption of 20% for LTVs of up to 90%.
BE	90	1/2020	LTV of 80% for buy-to-let purposes with a volume exemption of 10% over 80% but 0% over 90%. Volume exemption of 35% for first-time buyers using the property for housing (otherwise 20%), but only 5% for LTVs of over 100%. Maximum of 5% of loans with LTVs of over 90% and DSTIs of over 50% or DTIs of over 9.
LU	80	1/2021	LTV of up to 100% for first-time buyers and 90% for persons who are not first-time buyers but are buying a primary residence (with a volume exemption of 15% for LTVs of up to 100%).
LT	85	1/2022	LTV for second and subsequent mortgage loans to natural persons of 70%, but a limit of 85% (i.e. unchanged) if the outstanding amount of each previous mortgage loan is lower than 50% of the value of the housing purchased using that loan.
CZ	80	4/2022	LTV of 90% for applicants under 36 years for financing owner-occupied housing. Volume exemption of 5%.
RO	85	4/2022	80% for foreign currency loans to secured borrowers, 75% for loans in EUR to unsecured borrowers and 60% for other foreign currency loans to unsecured borrowers. The maximum LTV for consumer credit is 75%. LTV limits for loans under a government programme of 95%. LTV of 10 pp for loans for property purchase for purposes other than owner-occupied housing.
IS	80	6/2022	LTV of 85% for first-time buyers.
SI	70	7/2022	LTV of 80% if the following conditions are met: (1) The property must be used as collateral. (2) The loan must be used for the purchase, reconstruction or construction of a property. (3) The borrower must have their permanent residence at the address of the property. The LTV limit is not applied to housing loans with a full state guarantee.
AT	90	8/2022	Volume exemption of 20% or EUR 1 million (whichever is the higher).
IE	90	1/2023	LTV of 70% for buy-to-let property. Volume exemption of 15%; 10% for buy-to-let property.
NO	85	1/2023	Volume exemption of 10%; 8% in Oslo.
FI	90	12/2023	LTC[187] of 95% for first-time buyers. The property value is usually about 75% of the collateral; the rest is guarantees.
HU	80	1/2024	LTV of 90% for clients under 41 years who currently do not own and have never owned at least 50% of an apartment (except for inheritances etc.). LTV of 80% for others, 85% for leasing. 50% for loans financed in EUR, 55% for leasing. 35% and 40% respectively for loans financed in other currencies.
LV	90	1/2024	LTV of 95% for state-guaranteed loans. LTV of 70% with a 10% volume exemption for buy-to-let loans or other types generating income from the property.
BG, DE, ES, FR, HR, IT	–	–	None of these countries has activated an LTV limit so far.

Source: ESRB, national macroprudential authorities

Different approaches are also evident in countries' justifications for introducing limits. With some simplification, a division into three groups of countries is possible:

The first group – **SE, NL, CY, PL, EE, DK, MT, GR** – comprises countries that introduced LTV limits with the general macroprudential motive of boosting resilience and did not give any specific reasons for doing so, and that have also not yet adjusted their limits in response to changes in the economic environment. For example, when **Estonia** introduced this indicator, it did so to increase the resilience of borrowers and banks to losses due to unexpected developments and to reduce the probability of excessive lending causing a property boom. The demand of Estonian households was subdued and banks' credit standards were generally commensurate with the macroeconomic environment at the time. The situation is similar in **Greece**, where the measure does not take effect until early 2025. According to the justification, demand for housing loans is currently muted (instalments of existing loans exceed newly provided loans) and the limits applied by commercial banks are close to the newly introduced regulatory limits.

The second group – **PT, SK, BE, LU, LT, CZ, RO, IS, SI, AT, IE, NO, FI, HU, LV** – consists of countries that introduced LTV limits in reaction to specific developments in the property and credit markets and may have modified them further. For example, **Hungary** originally introduced an LTV limit to prevent excessive household borrowing and a return to the provision of riskier foreign currency loans (as did **Romania**). At the start of 2024, it increased the LTV limit for first-time buyers to make housing more affordable for this group. **Ireland** increased the LTV limit for second and third residential properties (and introduced volume exemptions) in reaction to problems on the supply side of the housing market that were fostering permanently higher housing prices relative to income and resulting in a higher economic cost of the instrument than when it was introduced. By contrast, other countries have tightened the limits on loans for second and subsequent properties or buy-to-let properties in recent years. **Slovenia** did so on account of property price overvaluation, **Lithuania** in reaction to higher lending activity and rising property prices, **Latvia** because of potential greater vulnerability of these borrowers, and **Romania** as a countercyclical response to a rising volume of these loans, a higher NPL ratio and greater sensitivity to a decline in property prices. **Iceland** initially lowered the LTV limit by 5 pp for loans other than loans to first-time buyers and then also reduced the limit for first-time buyers by the same amount a year later because of continued growth in property prices and divergence of prices from fundamentals. **Finland** has made the most frequent changes. In 2018, it tightened LTC[187] for loans other than loans to first-time buyers by 5 pp. During the pandemic, it returned the limit to the original level to support the housing market and the real economy. A year later, it reacted to a swift recovery on the Finnish housing and mortgage markets coupled with record-high and rising household debt by lowering the limit again by 5 pp. It then increased it again at the end of 2023 due to a downturn on the housing and housing loan markets, a realised and expected decrease in household debt and the introduction of other macroprudential instruments (DSTI, maturity). **Luxembourg** re-introduced the limit to reduce growth in mortgage loans and household debt and ensure the application of prudent credit standards on the market in a situation of rising household debt and housing prices amid a tendency of banks to ease credit conditions. **Belgium** and **Austria** had similar reasons for introducing LTV limits.[188]

The third group includes countries that have not yet activated an LTV limit – **BG, DE, ES, FR, HR, IT**. This may be due to a long-running muted cycle on the property and credit markets (**Spain**, **Italy**; see Chart V.18 CB and Chart V.19 CB), but also to the specific features of these markets together with different approaches of regulators to the management of macroprudential risks. This is true of **France**, for example, where the share of loans with higher LTVs is one of the highest in Europe (15% of new loans with an LTV of over 100% in the first half of 2023).[189] As the French credit model is based on assessing the borrower's income and on a high proportion of loans guaranteed by financial institutions[187], monitoring DSTI is more relevant than monitoring LTV according to the ESRB[185].[190]

187 Instead of LTV, Finland uses the LTC (loan-to-collateral) ratio, where the denominator is usually increased by various third-party guarantees. Similar use of guarantees is also common in France. Such guarantees transfer credit risk from the lender to other entities, such as the government or other financial institutions.

188 Among other things, the ESRB issued a recommendation that these countries (BE, LU, AT) should introduce borrower-based measures in reaction to these risks.

189 *Assessment of Risks to the French Financial System – December 2023*, p. 70.

190 Differences in the approaches of regulators and in the specific features of the property and credit markets are also clearly visible in non-European countries – see the BIS document *Macroprudential Policies to Mitigate Housing Market Risks*.

V.4.2 Risks associated with the provision of loans secured by commercial property

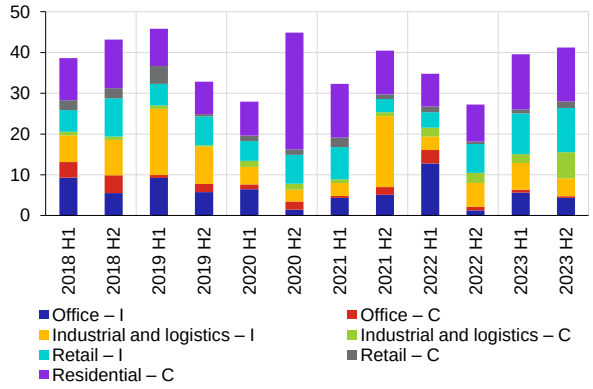
The provision of loans secured by commercial property is still fairly subdued

New loans amounted to around CZK 40 billion in the second half of 2023 (see Chart V.26).[191] The volume of loans was close to the long-term average in nominal terms but indicates relatively subdued lending activity when the increase in the general price level and construction-related costs in recent years is taken into account. Lending activity has been affected by very low (transaction) activity on the commercial property market (see section II.1). Lending for retail space and residential construction dominates in terms of purpose. By contrast, lending for office projects remains greatly limited. This may be due to the low returns relative to the risk undertaken (see Chart II.17 CB), with uncertainty regarding future demand prevailing in this segment due to structural changes related to the preference for remote working after the Covid pandemic.

Chart V.26

Amount of new loans secured by commercial property

(CZK billions)

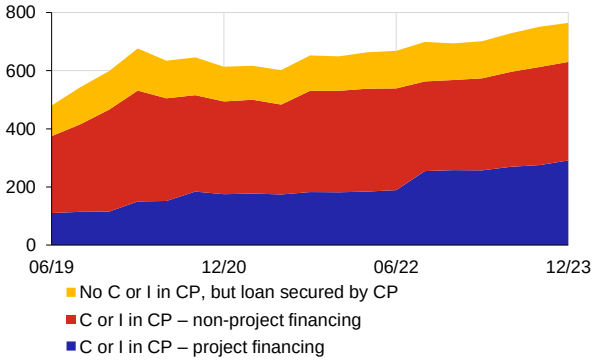


Note: I: investment in existing property, C: construction. Results based on data for selected banks.

Chart V.27

Outstanding loans secured by commercial property provided by banks to non-financial corporations

(CZK billions)



Note: I: investment in existing property, C: construction. CP: commercial property.

The risks associated with commercial property markets are increasingly concentrated in domestic real estate funds…

The commercial property market has undergone a change in its investor base in recent years, with the share of previously predominant foreign investors falling gradually in favour of Czech investors, especially investment funds.[192] A deterioration in the domestic commercial property market situation could therefore have some effect on Czech investment funds and, in turn, household wealth (see also section III.3). In general, however, the investment fund sector is currently not a direct source of systemic risk for the domestic financial sector given the still systemically relatively low level of its assets, its relatively high profitability and its limited use of external financing. However, in the event of highly adverse financial conditions, fire sales on the commercial property market could become a significant factor exacerbating domestic shocks and increasing their duration.

…but domestic banks also remain exposed to risks…

The share of exposures secured by commercial property in the total client loans of the domestic banking sector is relatively low.[193] However, exposures secured by commercial property on banks' balance sheets account for around half of all loans provided to non-financial corporations (see Chart V.27). About 82% of these loans were for investment or construction of commercial property at the end of 2023.[194] In times of uncertainty and turns in the financial cycle, when prime yields are increasing and prices are falling (see section II.1), these exposures can bear increased risk due to the falling or stagnating value of collateral.

…and their the credit risks remain elevated

During the pandemic, domestic banks transferred part of the loans secured by commercial property from Stage 1 to the riskier Stage 2, and most have not been moved back yet. The share of Stage 2 loans rose slightly in the second half of

191 The results are based on a semi-annual survey of loans secured by commercial property, conducted usually among seven banks covering around 70% of the market.

192 Primarily real estate collective investment funds and funds for qualified investors specialising in property construction and management. In the first case, the assets of these funds totalled about CZK 100 billion at the end of 2023. In this case, however, part of the assets are invested outside the Czech Republic. Domestic entities became predominant on the market around 2016.

193 The total share of exposures secured by commercial property in the total outstanding amount of client loans of the domestic banking sector is around 14%. The share of loans for project financing (specialised lending) secured by commercial property in the total outstanding amount of loans is 5%.

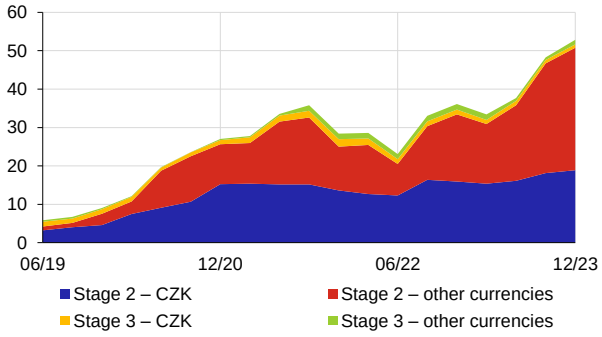
194 This is merely an estimate; precise categorisation is difficult based on the available data.

2023 (see Chart V.28), but so far it does not differ much from the levels observed for other loans to non-financial corporations. In addition, the credit risk for foreign currency loans (most often euro loans) is slightly lower than for koruna exposures. The share of non-performing (Stage 3) loans has been following a downward trend for a few quarters now, indicating a decrease in the most serious type of credit risk. Together with some stabilisation of commercial property prices[195] (see section II.1), this may imply a turnaround in the risks on this market in the Czech Republic.

Chart V.28

Loans to non-financial corporations for investment or construction of commercial property by impairment stage and currency

(CZK billions)

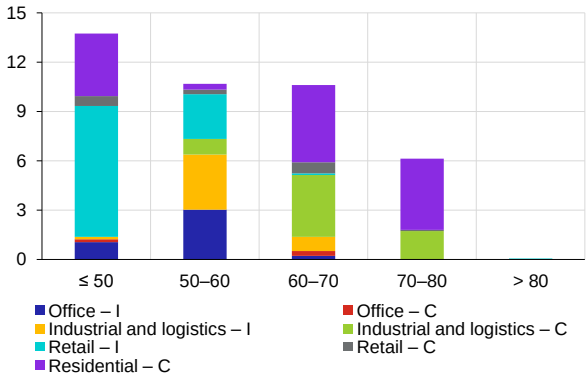


Note: Stages 2 and 3 are the second and third stages of loan impairment according to IFRS9. They only include loans for project financing (specialised lending).

Chart V.29

LTV distribution of new loans secured by commercial property in 2023 H2

(CZK billions; x-axis: LTV in %)



Note: I: investment in existing property, C: construction. Results based on data for selected banks. Interval closed from the right.

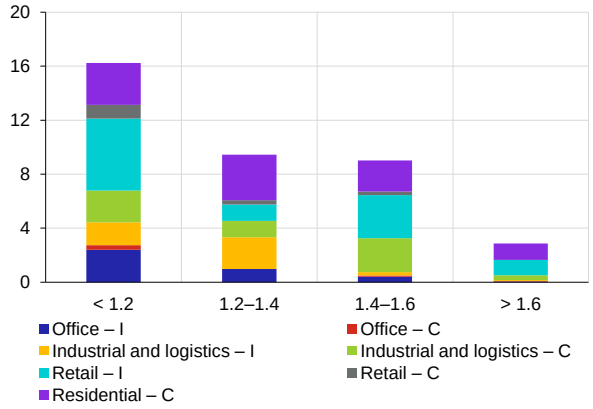
The provision of loans with riskier characteristics may indicate greater taking on of new risks

Given the persisting uncertainty about future economic developments, banks continued to apply a prudent approach to lending overall from the point of view of the LTV ratio in the second half of 2023. They provided almost no loans with LTVs of over 80%, and lending in other riskier categories (LTVs of 70–80%) also remained subdued. The safest loans – with LTVs of below 50% – were thus the most frequent in terms of collateral (see Chart V.20 CB and Chart V.29). This may be partly related to the provision of new loans with a fairly risky DSCR of less than 1.2 (see Chart V.30), for which higher collateral may therefore be required. On the other hand, a substantial rise in loans in the riskier categories of both LTV and DSCR was recorded in the second half of 2023 (see Chart V.31). This may indicate a decrease in banks' prudence, especially if these tendencies continue in the future. However, this still involves only around 10% of total new loans.

Chart V.30

DSCR distribution of new loans in 2023 H2

(CZK billions; x-axis: DSCR in %)

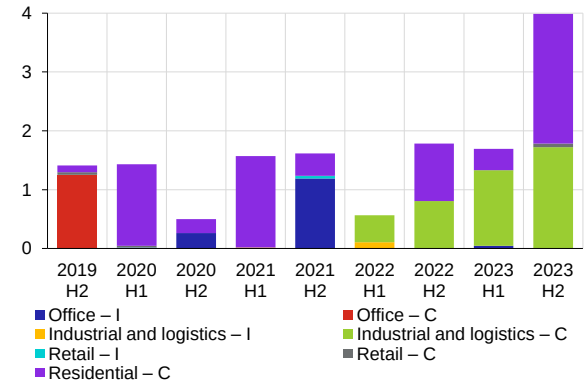


Note: I: investment in existing property, C: construction. Results based on data for selected banks. Interval closed from the right.

Chart V.31

Amount of new loans secured by commercial property with an LTV of more than 70% and a DSCR of less than 1.2

(CZK billions)



Note: I: investment in existing property, C: construction. Results based on data for selected banks. Interval closed from the right.

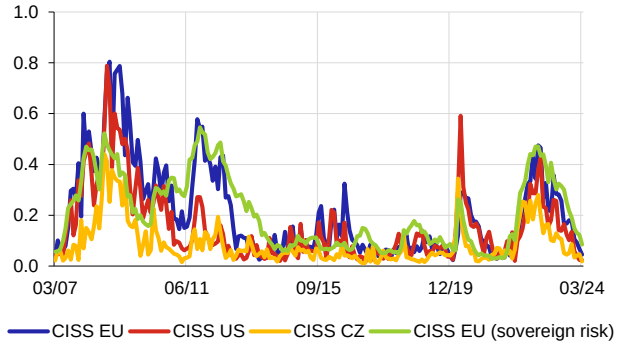
195 The sensitivity of the banking sector to commercial property prices is shown by the stress test (see section IV.1). According to the test, this sector should not incur significant losses even in the event of a renewed decline in commercial property prices. At the same time, it covers these potential losses with enough capital.

VI. CHARTBOOK

SECTION II

Chart II.1 CB
Composite indicator of systemic stress in financial markets (CISS)

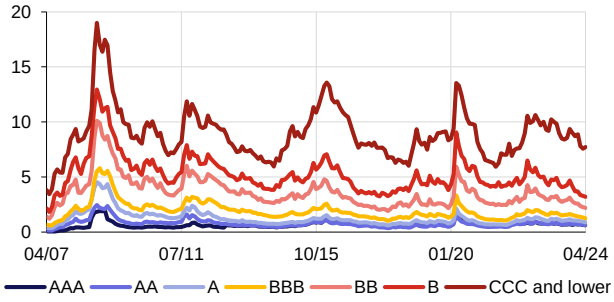
(index in points between 0 and 1)



Source: ECB, CNB, Refinitiv

Chart II.2 CB
Risk premia on corporate bonds by rating grade

(pp)

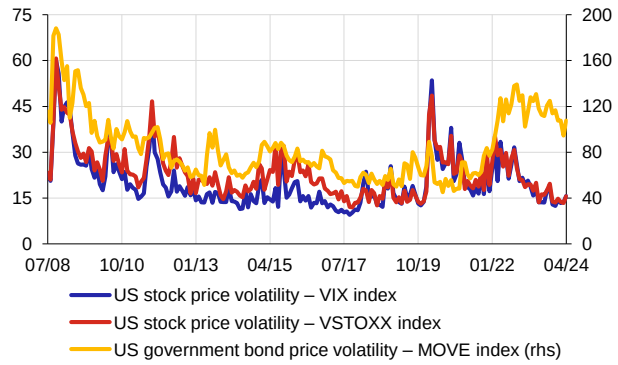


Source: Bank of America Merrill Lynch

Note: Risk premia are expressed as the spread of corporate bond yields over government bond yields.

Chart II.3 CB
Market uncertainty indicators

(points)



Source: Refinitiv

Chart II.4 CB
Risk premia for the S&P 500 and Euro Stoxx 50

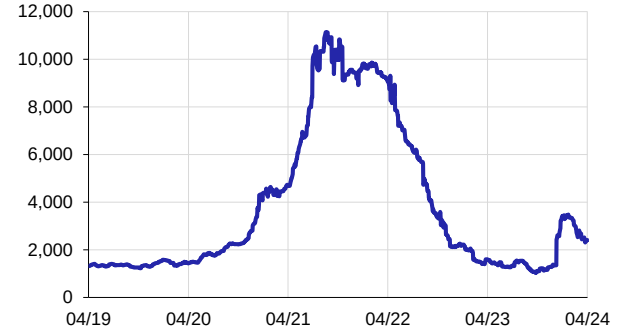
(pp)

Source: Refinitiv

Note: The risk premium is calculated using the dividend discount model. Estimates of future dividends are based on dividend futures. Discount factors are calculated using the US swap curve. For details see Časta, M. (2022): *Deriving Equity Risk Premium using Dividend Futures*, North American Journal of Economics and Finance 60.

Chart II.5 CB
Container transport prices

(USD)

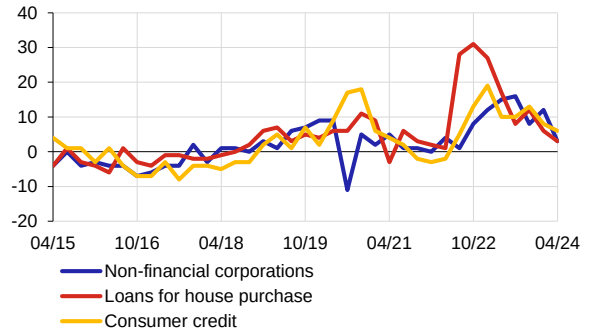


Source: Freightos, Refinitiv Datastream

Note: The chart depicts the Freightos Baltic Index: Global Container Freight Index.

Chart II.6 CB
Rejected loan applications in the euro area

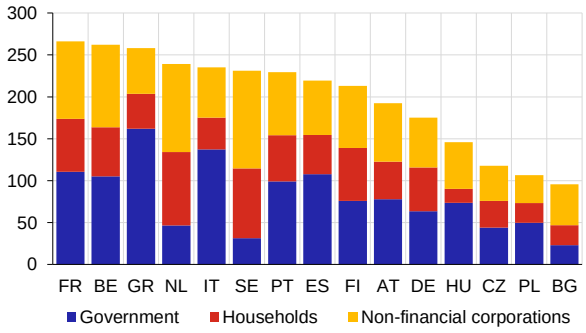
(net market share in pp; changes from previous quarter)



Source: ECB Bank Lending Survey

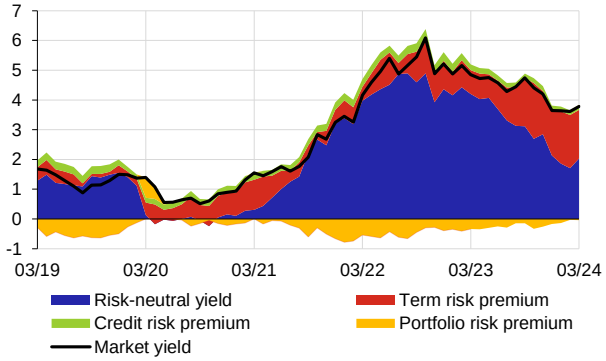
Note: Positive values mean that the share of rejected loan applications in the euro area rose over the last three months, while negative values mean that it fell. The answers are weighted by the importance of individual banks.

Chart II.7 CB
Debt ratios of economic agents in selected EU countries
(% of GDP as of 31 December 2023)



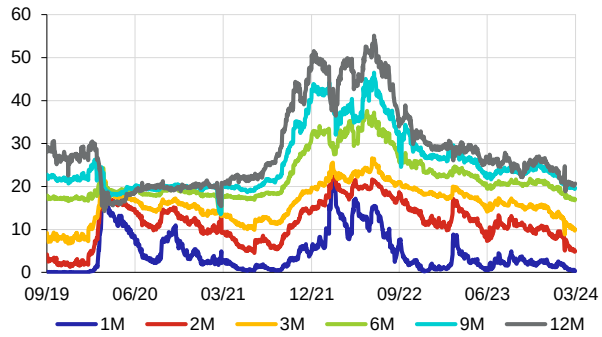
Source: ECB

Chart II.8 CB
Decomposition of the five-year Czech government bond yield
(%)



Source: Refinitiv, CNB

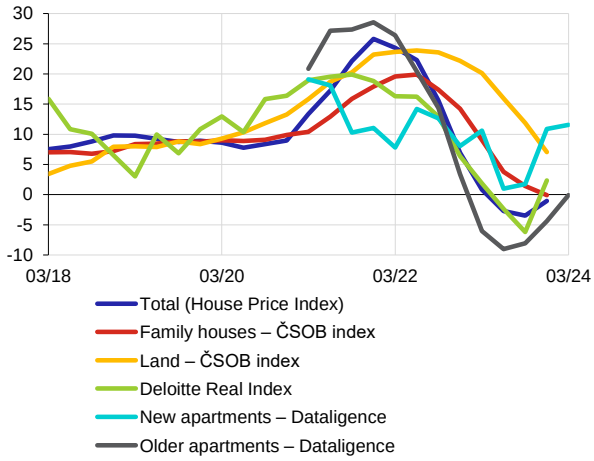
Chart II.9 CB
Option-implied risk-neutral probabilities of exchange rate depreciation of more than 10%
(%; latest observations as of 29 March 2024)



Source: Refinitiv Datastream

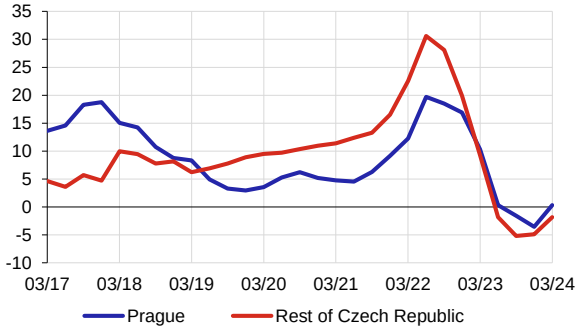
Note: Risk-neutral probabilities obtained using the Vanna–Volga method. Mx denotes the probability associated with the various option maturities.

Chart II.10 CB
Transaction prices by type of property
(year-on-year growth in %)



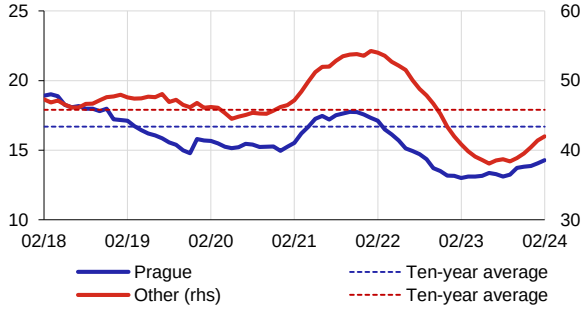
Source: CZSO, Deloitte, Dataligence, ČSOB index

Chart II.11 CB
Apartment asking prices by region
(year-on-year growth in %)



Source: CZSO

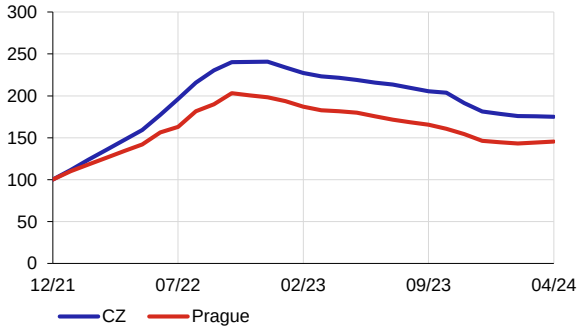
Chart II.12 CB
Housing transfers
(thousands of transactions, annual moving totals)



Source: COSMC, Dataligence

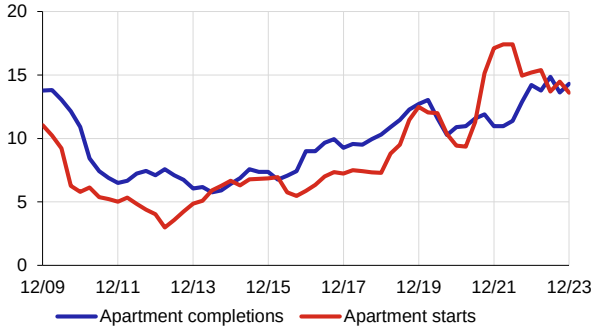
Note: Only transfers using a purchase contract are included. Non-market transactions – e.g. privatisations and transfers within the family – are excluded.

Chart II.13 CB
Number of advertisements offering apartments
(index: 31 December 2021 = 100)



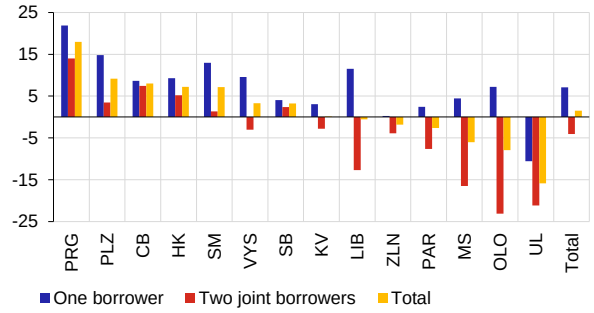
Source: Sreality.cz

Chart II.14 CB
Size of housing construction
(annual moving totals in thousands of apartments)



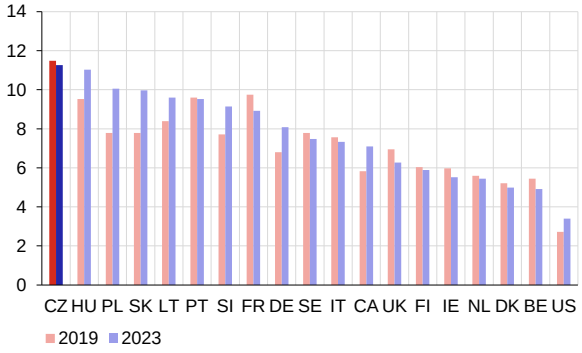
Source: CZSO
Note: Number of apartments in apartment blocks.

Chart II.15 CB
Observed overvaluation of apartment prices in regions
(%)



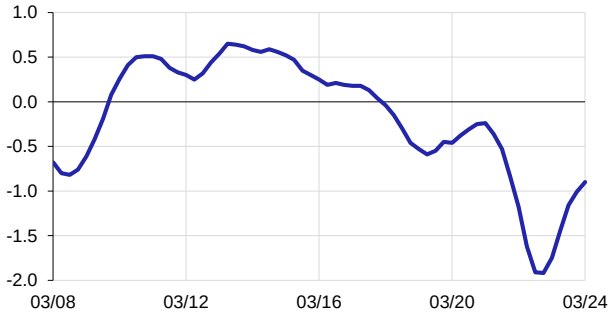
Note: Median overvaluation of residential property purchased using pure new loans for house purchase provided in January or February 2024.

Chart II.16 CB
Price-to-income ratio for apartments in selected countries
(annual net average wages per capita)



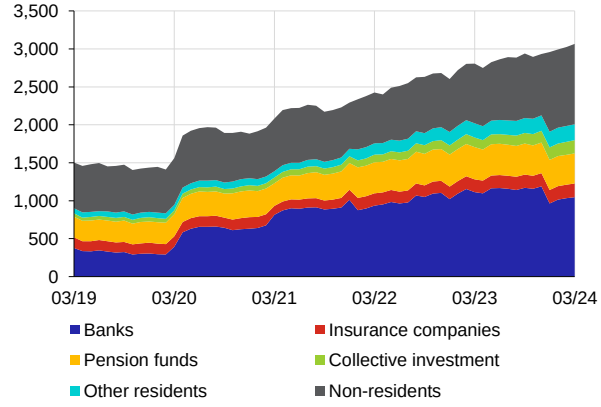
Source: Numbeo.com, CNB
Note: The chart refers to apartments of 68 m^2.

Chart II.17 CB
Risk premium for yields on commercial property
(pp)



Note: The risk premium is calculated as the difference between the observed yield and the model-implied value.

Chart II.18 CB
Holdings of koruna-denominated Czech government securities
(CZK billions)



Source: Ministry of Finance of the Czech Republic

Chart II.19 CB
New koruna-denominated Czech government bond issue volumes by maturity basket
(CZK billions)

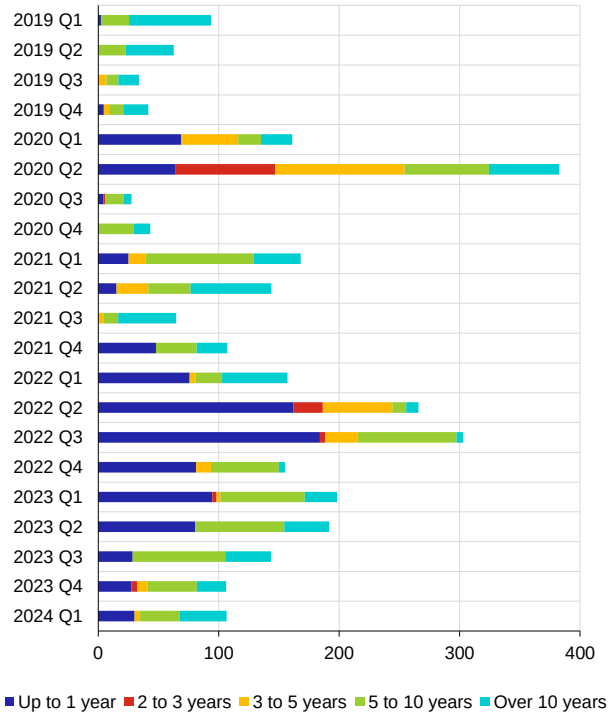
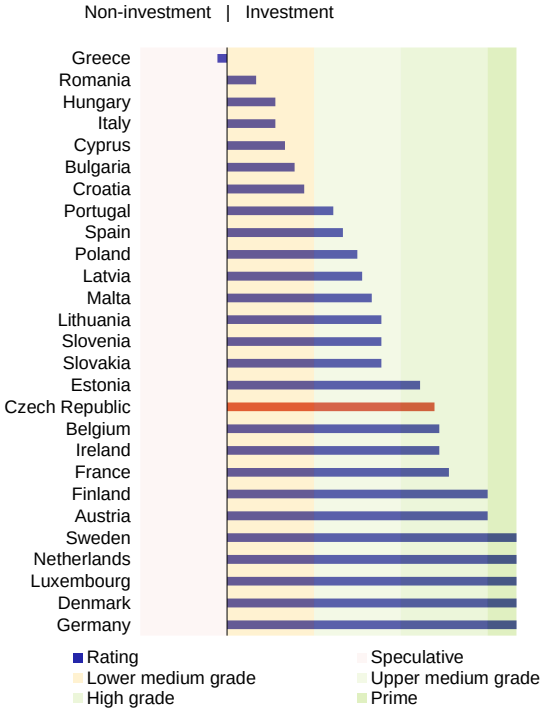
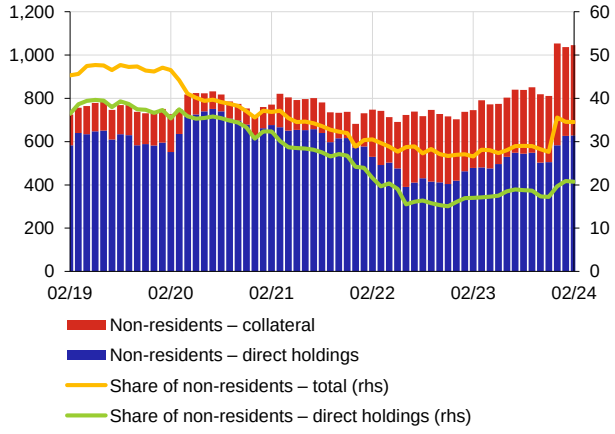


Chart II.20 CB
Comparison of average ratings of long-term liabilities of EU countries



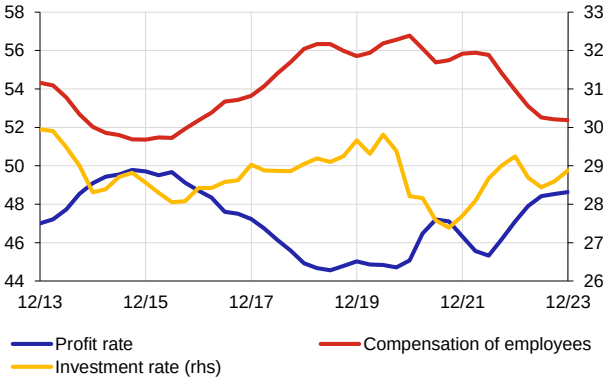
Source: Moody's, S&P, Fitch
Note: Average ratings as of 31 March 2024.

Chart II.21 CB
Holdings of Czech government bonds by non-residents
(CZK billions, right-hand scale in %)



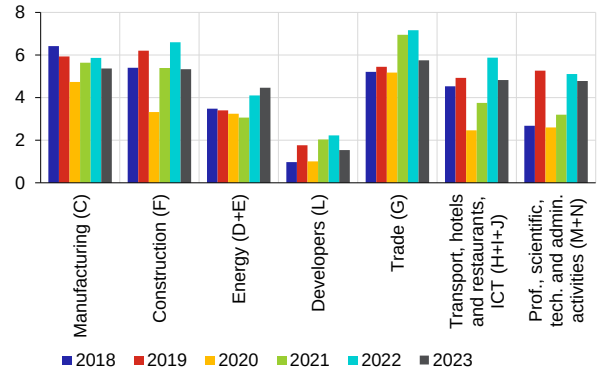
Source: Ministry of Finance of the Czech Republic, CNB
Note: CNB estimate based on Ministry of Finance data and custody data.

Chart II.22 CB
Compensation of employees, profit rate and investment rate in the non-financial corporations sector
(% of gross value added)



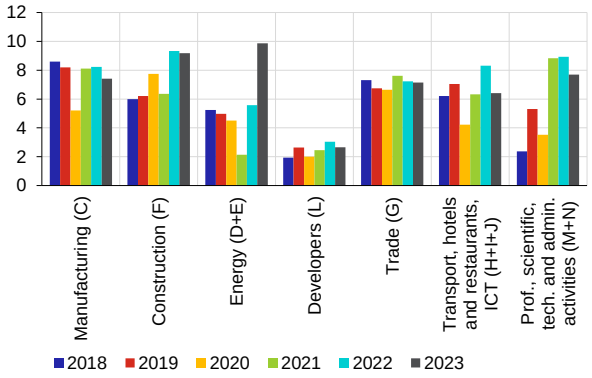
Source: CZSO
Note: Profit is defined as the annual moving total of gross operating surplus and investment as the annual moving total of gross fixed capital formation.

Chart II.23 CB
Median pre-tax return on assets in selected industries
(%)



Source: CZSO
Note: The results are based on a sample of non-financial corporations.

Chart II.24 CB
Average pre-tax return on assets in selected industries
(%)



Source: CZSO
Note: The results are based on a sample of non-financial corporations.

Chart II.25 CB
Net wages
(CZK thousands)

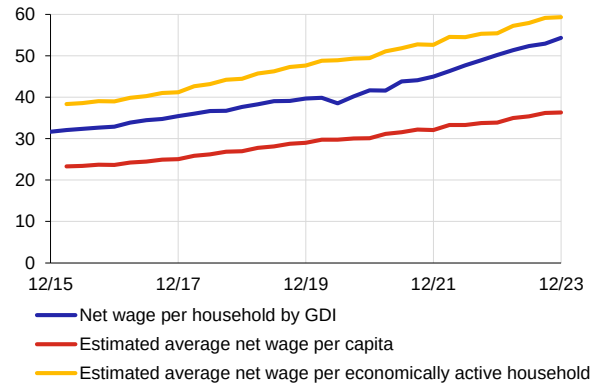
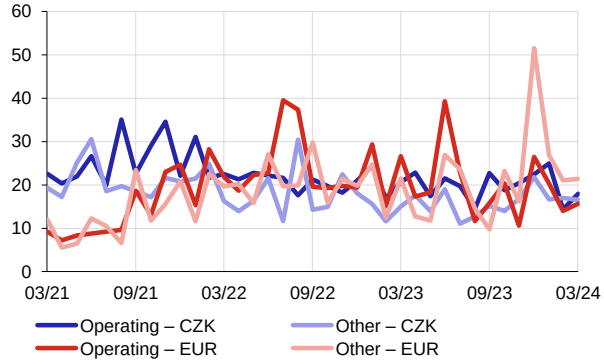
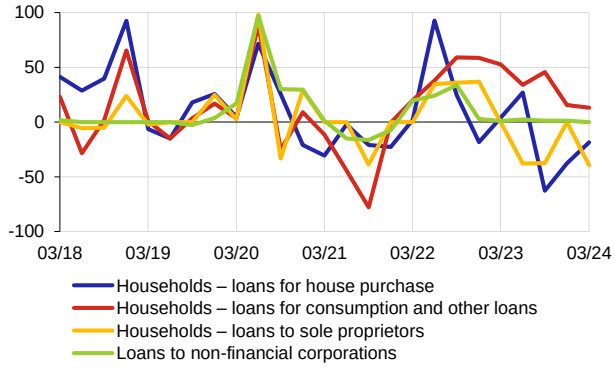


Chart II.26 CB
Drawdown of loans to non-financial corporations
(monthly volume in CZK billions)



Note: The chart shows the estimate of total month-on-month growth in the volume of loans drawn for loans that (1) were not drawn in the previous month or (2) saw an increase in the amount drawn. The drawdown of loans drawn and repaid within one month is excluded. Foreign currency loans are adjusted for exchange rate effects.

Chart II.27 CB
Credit standards in the Czech Republic
(net percentages)



Source: Bank Lending Survey, CNB
Note: The data represent the difference between the market share of banks that reported a tightening of lending standards and banks that reported an easing of lending standards in the past three months. More information on the indicator methodology can be found on the CNB website.

Chart II.28 CB
Stocks of loans to non-financial corporations by currency
(CZK billions; right-hand scale: %)

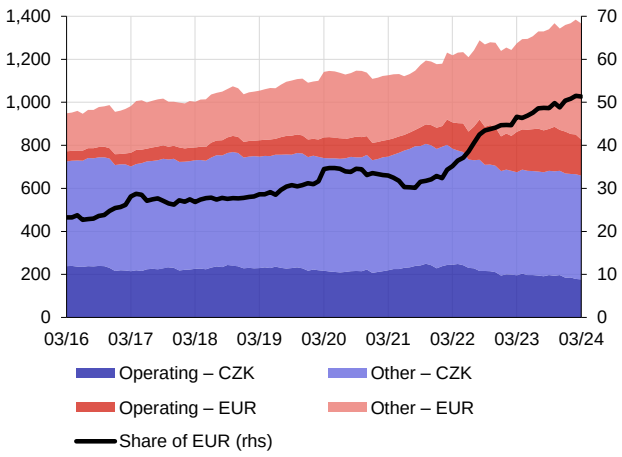
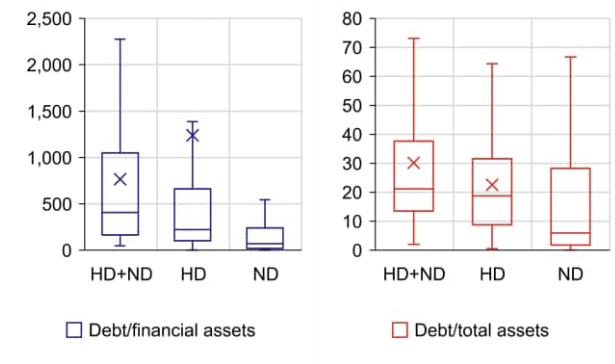


Chart II.29 CB
Households' debt-to-assets ratio

(%)

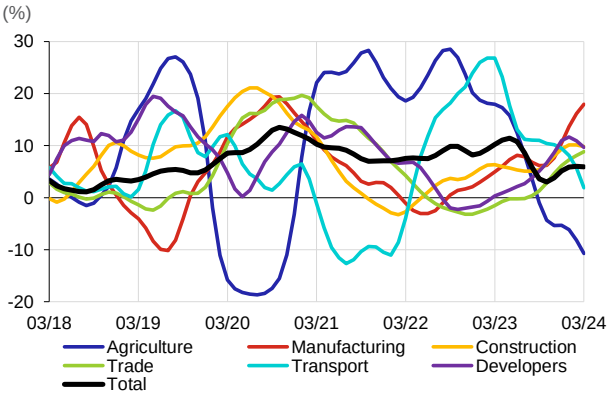


Source: CZSO, CNB

Note: MD + NMD = households with mortgage and non-mortgage debt, MD = households with mortgage debt, NMD = households with non-mortgage debt. The crosses in the charts indicate the means and the horizontal lines inside the boxes the medians. The box edges represent the first and third quartiles. The values are based on the 2022 HFCS survey.

Chart II.30 CB
Year-on-year change in stocks of bank deposits of non-financial corporations

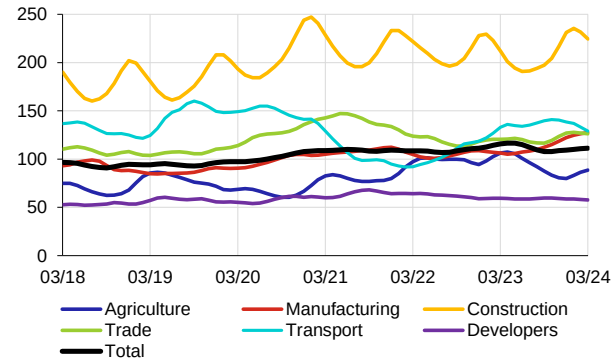
(%)



Note: Smoothed by the HP filter (lambda = 2).

Chart II.31 CB
Ratio of bank deposits to loans of non-financial corporations

(%)



Note: Smoothed by the HP filter (lambda = 2).

Chart II.32 CB
3M default rate in selected NFC sub-sectors

(%; x-axis: individual quarters of year)

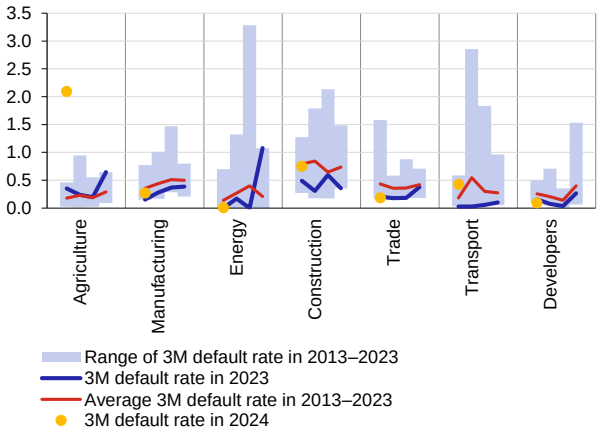
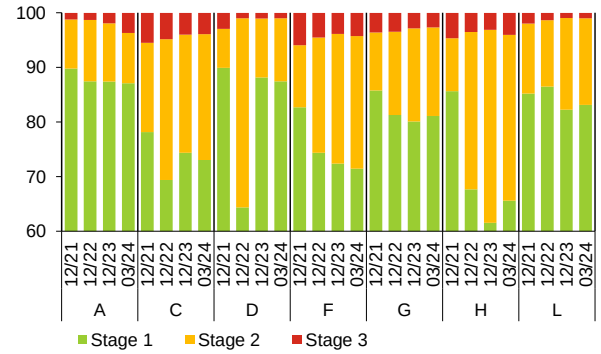


Chart II.33 CB
Structure of loans to non-financial corporations by sub-sector

(%)



Note: The letters denote NACE sectors: A – agriculture, C – manufacturing, D – energy, F – construction, G – wholesale and retail trade, H – transporting and storage, L – real estate activities.

SECTION III

Table III.1 CB

Exposures, provisions and coverage rates by risk stage in the household segment

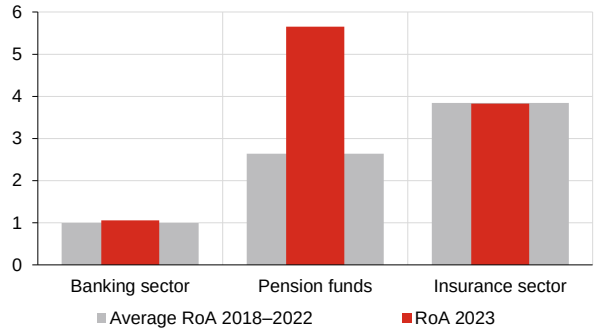
Households		Exposures		Provisions		Coverage rate	
Stage	Date	Volume (CZK billions)	Change (%)	Volume (CZK billions)	Change (%)	Ratio (%)	Change (pp)
Total	12/20	1,964		32.5		1.65	
	12/21	2,165	10.2	30.4	-6.3	1.40	-0.25
	12/22	2,266	4.7	29.4	-3.5	1.30	-0.11
	12/23	2,378	4.9	29.2	-0.4	1.23	-0.07
	01/24	2,385	0.3	29.6	1.2	1.24	0.01
S1	12/20	1,788		4.2		0.24	
	12/21	1,944	8.7	4.2	-0.6	0.22	-0.02
	12/22	1,906	-1.9	3.9	-8.4	0.20	-0.01
	12/23	2,006	5.2	3.8	-2.4	0.19	-0.01
	01/24	2,013	0.3	3.8	0.6	0.19	0.00
S2	12/20	140		9.2		6.55	
	12/21	188	33.7	8.3	-9.2	4.45	-2.10
	12/22	332	76.8	10.3	23.0	3.09	-1.35
	12/23	342	3.0	10.1	-1.2	2.97	-0.13
	01/24	341	-0.1	10.2	0.1	2.97	0.01
S3	12/20	35		19.0		54.02	
	12/21	34	-4.9	17.9	-6.3	53.25	-0.77
	12/22	28	-15.7	15.2	-14.7	53.88	0.64
	12/23	30	5.6	15.3	0.6	51.35	-2.54
	01/24	30	1.0	15.6	2.0	51.83	0.49

Table III.2 CB

Exposures, provisions and coverage rates by risk stage in the non-financial corporations segment

NFCs		Exposures		Provisions		Coverage rate	
Stage	Date	Volume (CZK billions)	Change (%)	Volume (CZK billions)	Change (%)	Ratio (%)	Change (pp)
Total	12/20	1,343		44.6		3.32	
	12/21	1,395	3.9	40.7	-8.7	2.92	-0.40
	12/22	1,457	4.4	40.8	0.2	2.80	-0.12
	12/23	1,580	8.4	36.7	-10.1	2.32	-0.48
	01/24	1,589	0.6	37.0	0.9	2.33	0.01
S1	12/20	1,079		5.1		0.47	
	12/21	1,145	6.2	4.4	-12.9	0.39	-0.08
	12/22	1139	-0.5	5.4	21.9	0.47	0.09
	12/23	1,262	10.7	5.0	-8.2	0.39	-0.08
	01/24	1,282	1.6	5.3	7.6	0.42	0.02
S2	12/20	207		10.3		4.98	
	12/21	197	-4.8	8.1	-22.0	4.08	-0.90
	12/22	271	37.1	9.6	19.4	3.55	-0.53
	12/23	281	3.8	11.2	16.7	3.99	0.44
	01/24	269	-4.2	11.0	-1.8	4.09	0.10
S3	12/20	57		29.2		51.26	
	12/21	52	-8.0	28.3	-3.2	53.93	2.67
	12/22	47	-10.4	25.8	-8.7	54.95	1.02
	12/23	37	-20.2	20.5	-20.4	54.81	-0.14
	01/24	38	0.9	20.7	0.7	54.71	-0.11

Chart III.1 CB
Profitability of individual financial sector segments
(return on assets in %)



Note: Return on assets for pension funds includes pre-tax profit and payments to pension management companies.

Chart III.2 CB
Evolution of euro LCR and NSFR
(%)

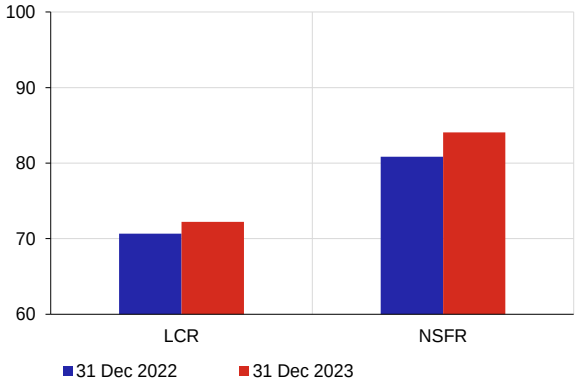


Chart III.3 CB
Ratio of net outflows in major currencies
(%)

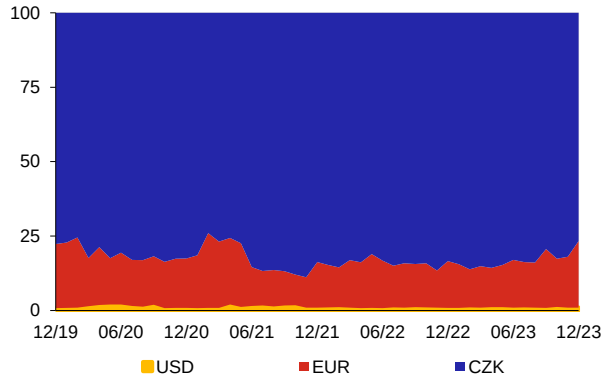
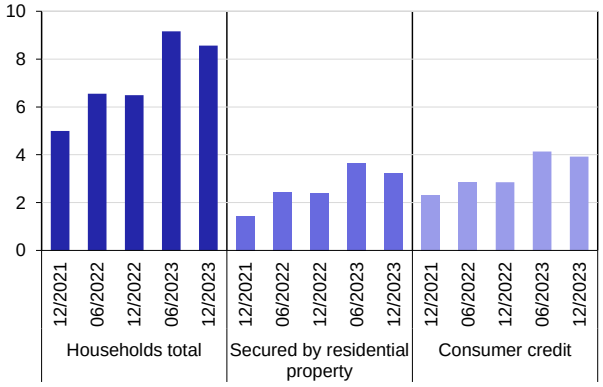
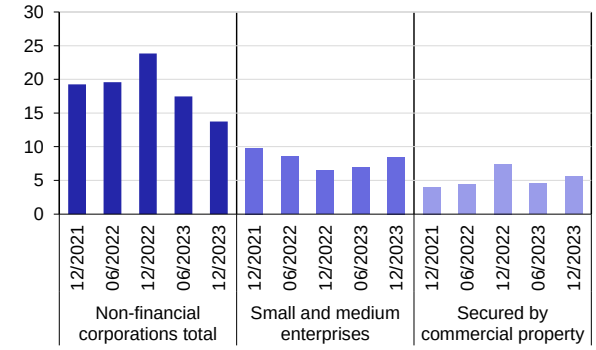


Chart III.4 CB
Semi-annual increases in Stage 3 credit exposures in the household segment
(CZK billions)



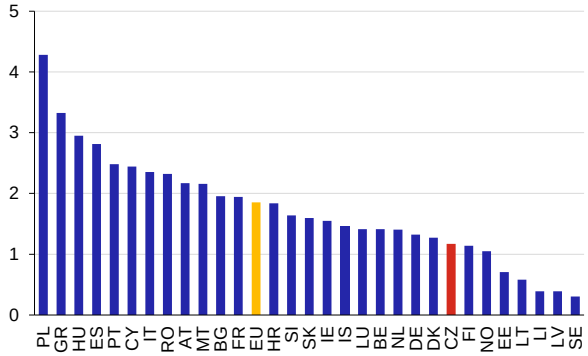
Note: Loans secured by property and consumer credit account for 91% of loans to households.

Chart III.5 CB
Semi-annual increases in Stage 3 credit exposures in the non-financial corporations segment
(CZK billions)



Note: Loans to SMEs and loans secured by commercial property account for 90% of loans to non-financial corporations.

Chart III.6 CB
Shares of non-performing client loans in selected EU countries
(%; as of 31 December 2023)

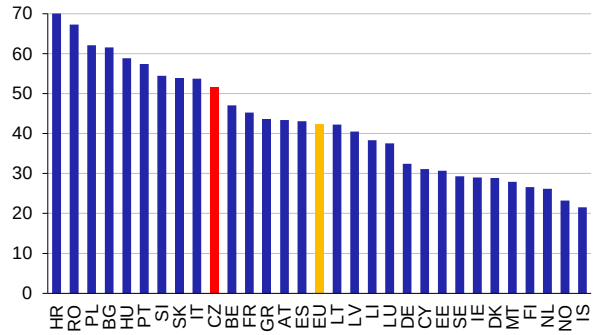


Source: EBA

Note: The figures in the international comparison may differ from the CNB's figures due to a different data source.

Chart III.7 CB
Coverage rates of non-performing client loans by provisions in selected EU countries

(%; as of 31 December 2023)



Source: EBA

Note: The figures in the international comparison may differ from the CNB's figures due to a different data source.

Chart III.8 CB
Decomposition of the change in the value of investment funds' assets by investment policy in 2023

(CZK billions; x-axis: individual months of 2023)

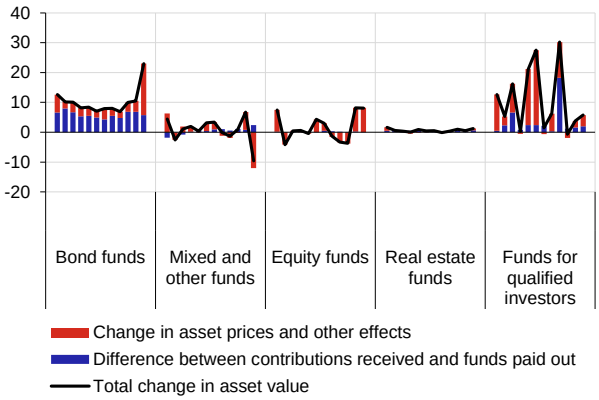


Chart III.9 CB
Decomposition of the change in the value of pension funds' assets

(CZK billions)

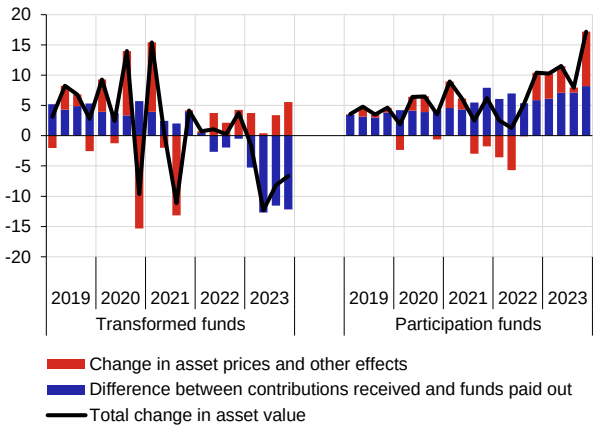
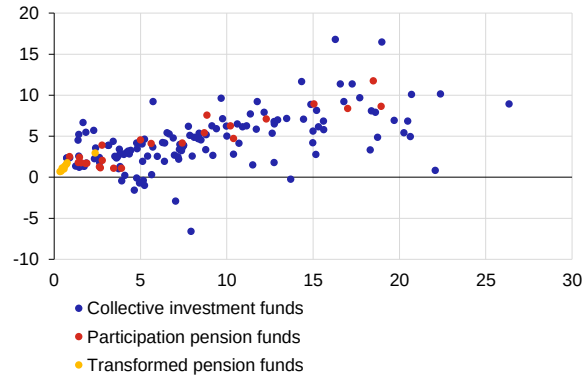


Chart III.10 CB
Comparison of return and risk profiles of individual fund types' portfolios

(x-axis: standard deviation; y-axis: return)

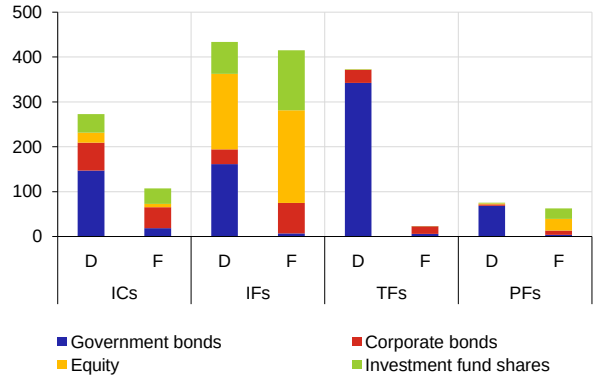


Source: CNB, APMC CR

Note: Annualised figures. Calculated using a five-year interval.

Chart III.11 CB
Selected investment assets of domestic non-bank institutional investors by issuer country

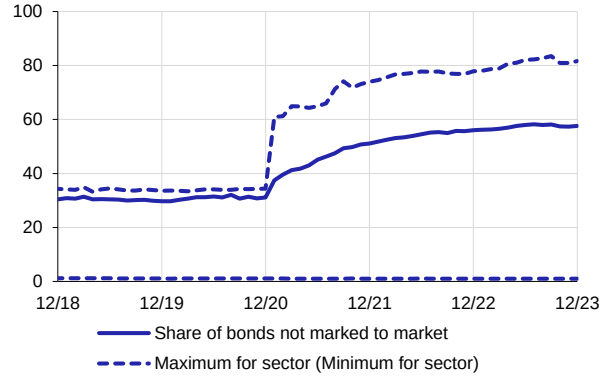
(CZK billions; as of end of year)



Note: ICs = insurance companies, IFs = investment funds, TFs = transformed funds, PFs = participation funds. D = domestic assets, F = foreign assets.

Chart III.12 CB
Share of bonds not marked to market held by transformed funds

(% of total value of bonds held by transformed funds)



Note: Bonds not marked to market mean bonds at amortised cost or, before 2021, bonds classified as held to maturity.

Chart III.13 CB
Insurance sector profitability
(%)

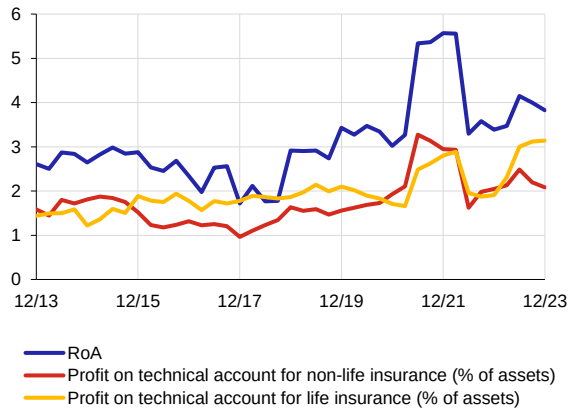
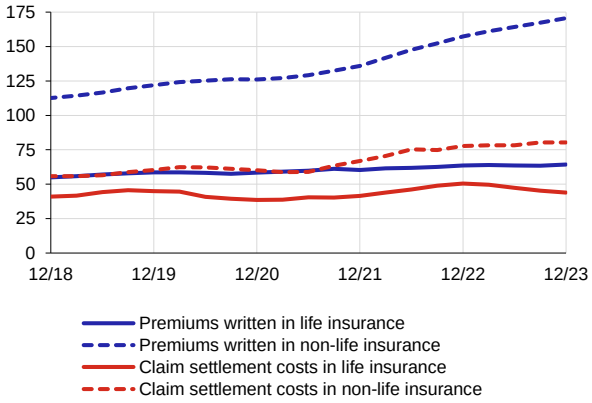


Chart III.14 CB
Developments in the insurance sector
(four-quarter sum; CZK billions)



Note: The values are in gross terms, i.e. unadjusted for reinsurers' share.

Chart III.15 CB
Premiums and claim settlement costs in non-life insurance
(CZK billions)

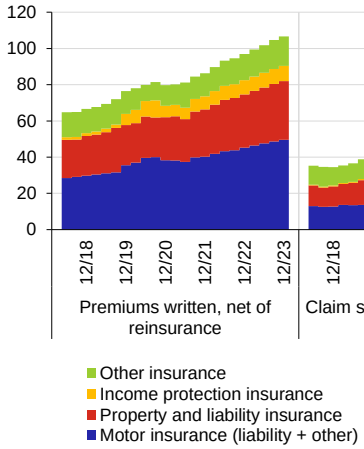
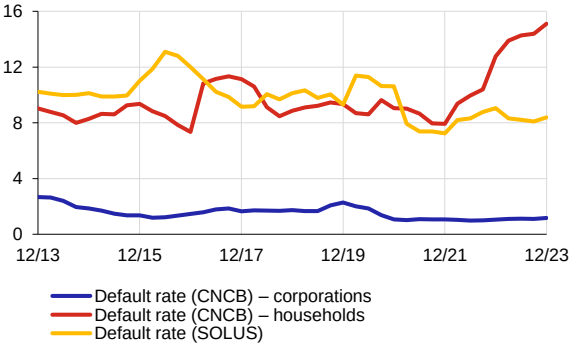
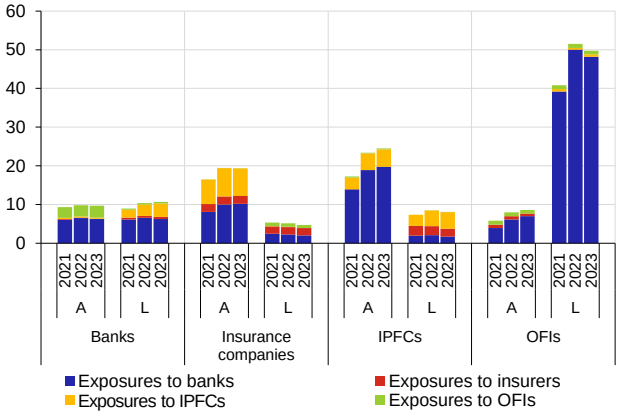


Chart III.16 CB
12M default rate on loans provided by non-bank institutions
(%)



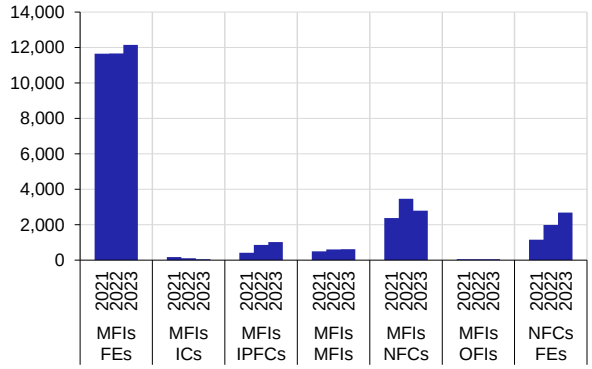
Source: NRCI, SOLUS, CNB
Note: The default rate on loans calculated from SOLUS data mostly comprises loans to households.

Chart III.17 CB
Share of exposures to domestic financial counterparties
(% of financial assets and liabilities of segments; as of end of year)



Note: A = assets, L = liabilities. IPFCs = investment and pension funds and companies. Other financial intermediaries (OFIs) primarily comprise NFCELs and non-bank investment firms.

Chart III.18 CB
Interconnectedness via derivatives transactions
(in CZK billions; as of end of year)



Note: MFIs = banks, ICs = insurance companies, IPFCs = investment and pension funds and companies, FEs = foreign entities. Other financial intermediaries (OFIs) primarily comprise NFCELs and non-bank investment firms. The chart shows the nominal value of derivatives transactions between individual sectors. It is adjusted for mirror records.

SECTION IV

Chart IV.1A CB
Alternative scenarios: unemployment rate

(%)

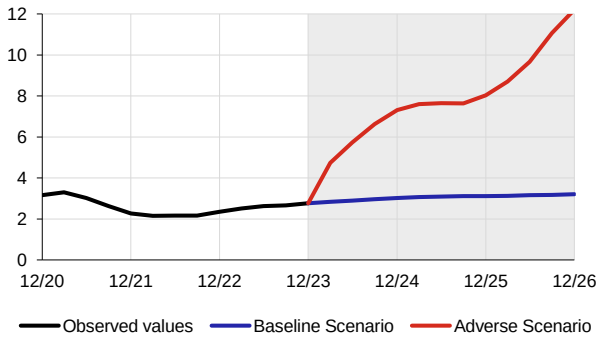


Chart IV.1B CB
Alternative scenarios: inflation

(year on year in %)

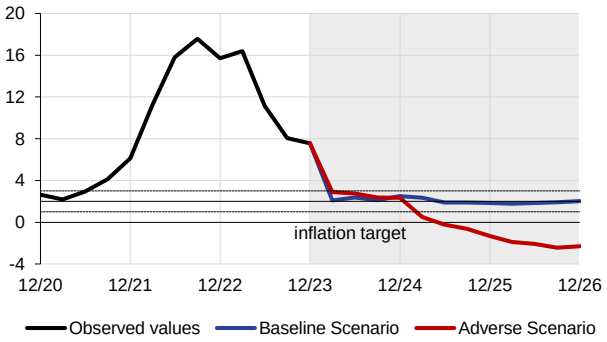
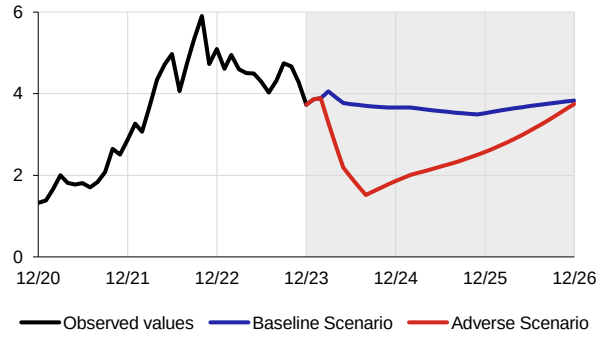


Chart IV.1C CB
Alternative scenarios: ten-year Czech government bond yield

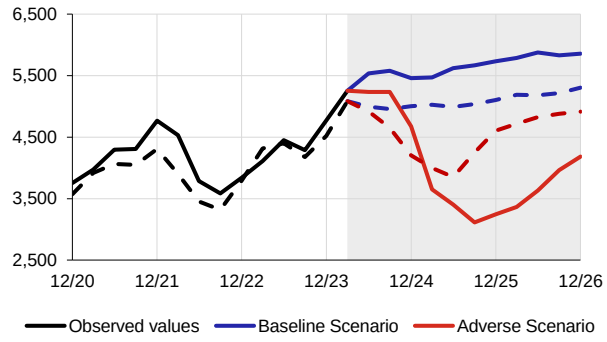
(%)



Source: CNB, Refinitiv

Chart IV.1D CB
Alternative scenarios: stock indices

(points)



Source: CNB, Refinitiv

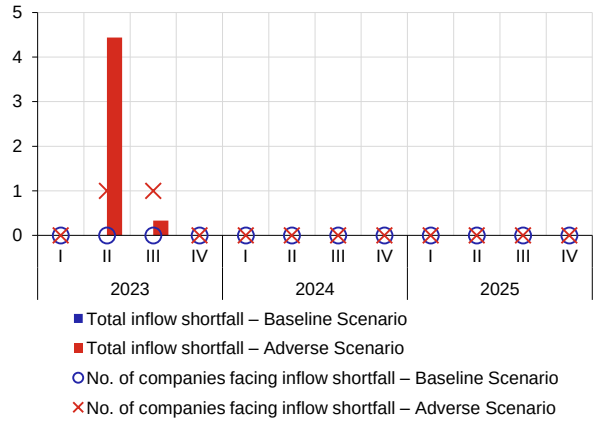
Note: The solid line denotes the S&P 500 index and the dashed line the EURO STOXX 50 index.

Table IV.1 CB
Liquidity stress test scenario

Outflow items, rate of outflow in %:	1M	2M&3M	>3M
Stable retail deposits	2%	1%	1%
Other retail deposits	3%	2%	1%
Operating deposits	10%	7%	5%
Non-operating deposits of credit institutions	100%	100%	100%
Non-operating deposits of other financial customers	25%	25%	25%
Non-operating deposits of central banks	0%	0%	0%
Non-operating deposits of non-financial corporations	10%	7%	5%
Non-operating deposits of other counterparties	15%	10%	5%
Liabilities from secured loans		100%	
Liabilities from securities issued		100%	
Maturity of derivatives		100%	
Other outflows		100%	
Increase in NFC loans		10% per 6M (1.6% per M)	
Retail credit lines	5%	5%	5%
NFC credit lines	15%	15%	15%
Inflow items, inflow haircut in %:		**for each month**	
Retail loans		100%	
Corporate loans		100%	
Loans to other non-financial counterparties other than NFCs and retail		100%	
Loans to and receivables from credit institutions and financial customers		0%	
Other inflows		100%	
Inflows from secured operations		0%	
Liquid assets, haircut on liquid assets in %:		**for each month**	
Corporate bonds		10–100% depending on quality	
Covered bonds		10–100% depending on quality	
Shares		40–100% depending on quality	
Central government		10–20% depending on quality	
Cash, T-bills, government bonds		0%	

Chart IV.2 CB
Matching of insurance companies' cash inflows and outflows

(CZK billions and number of companies)

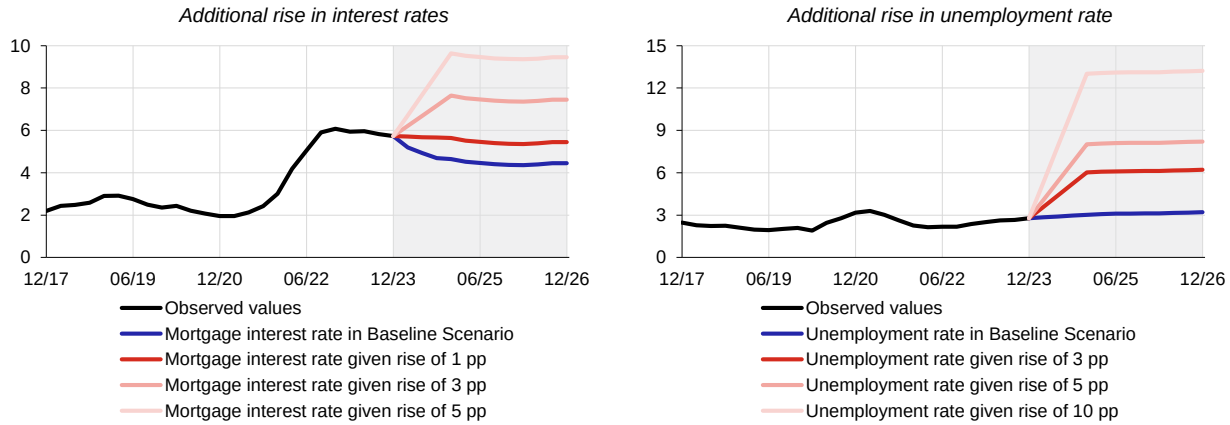


Note: The inflow shortfall is the total difference between cash inflows and cash outflows for insurance companies whose outflows exceeded inflows in the given quarter.

Chart IV.3 CB

Additional rise in the unemployment rate and mortgage interest rates going beyond the *Baseline Scenario*

(%)

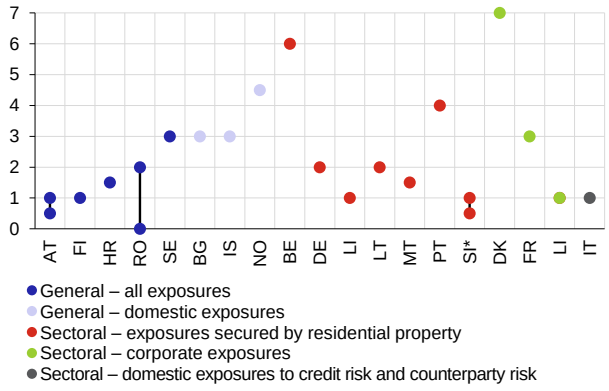


Note: The rise is adjusted to the given level in the first year of the scenario. A constant spread between the values in the Baseline Scenario and the modelled rise is maintained from the second year of the scenario onwards.

SECTION V

Chart V.1 CB
SyRB rates in European countries

(%; rates applicable or pending as of 5 April 2024)



Source: ESRB

Note: In the case of SI, a rate of 1% applies to exposures secured by residential property (to be lowered to 0.5% with effect from January 2025). A rate of 0.5% applies to all other exposures to natural persons. Countries where the SyRB is to be applied later in 2024 or in 2025 are also included.

Chart V.2 CB
Balance-sheet exposures to non-residents

(CZK billions; right-hand scale: %)

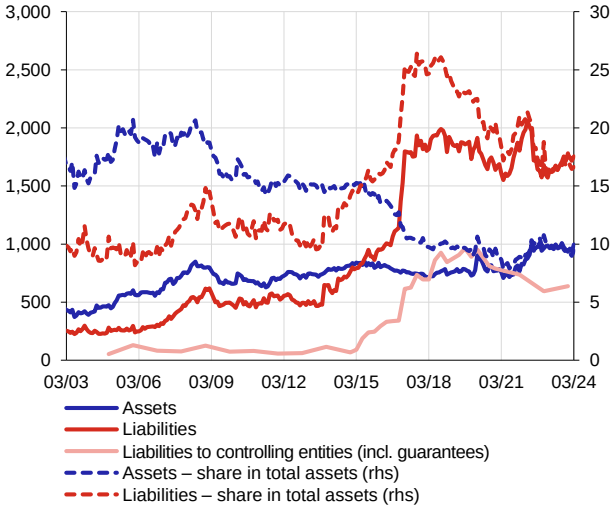
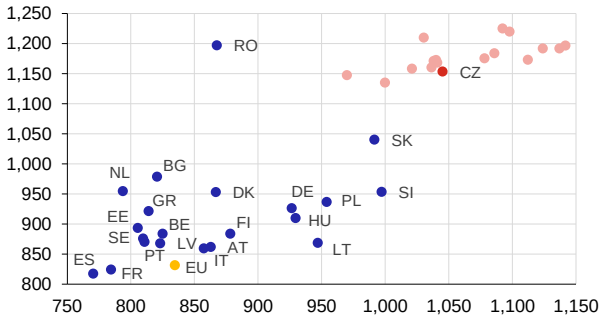


Chart V.3 CB
Concentration index for employment and economic activity in selected EU countries in 2022

(HHI in points; x-axis: gross value added; y-axis: employment)

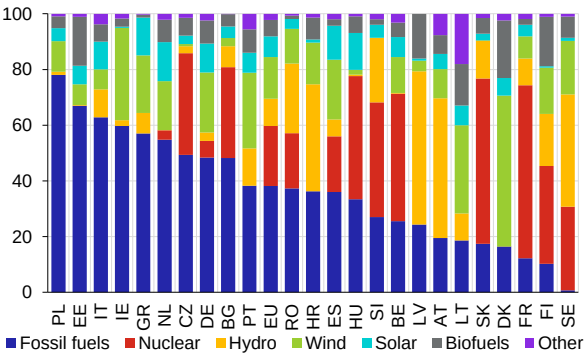


Source: Eurostat

Note: The light red points denote values for the Czech Republic in 2006–2021.

Chart V.4 CB
Electricity production by source in selected EU countries

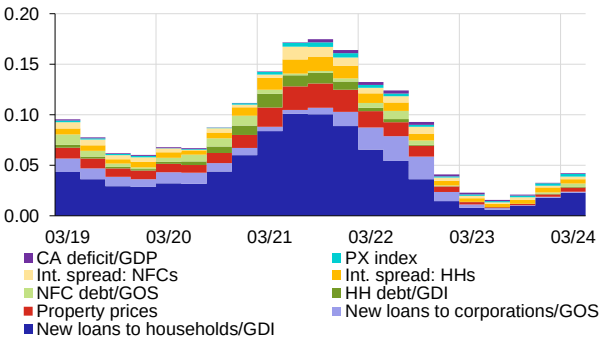
(share in gross electricity production in % in 2022)



Source: Eurostat

Chart V.5 CB
Breakdown of the financial cycle indicator

(0 minimum, 1 maximum)



Source: CNB, CZSO

Note: The interest rate spread is defined as the difference between the client rate on new loans and the relevant benchmark interbank rate (3M PRIBOR for koruna loans to corporations, 3M EURIBOR for euro loans to corporations and 5Y IRS for loans to households).

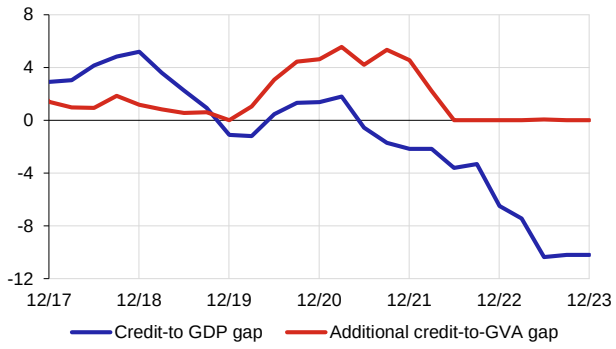
Table V.1 CB
Conversion of FCI values into the countercyclical capital buffer rate

Range of FCI values		CCyB rate
from	to	
0.00	0.09	0.00%
0.09	0.10	0.25%
0.10	0.12	0.50%
0.12	0.14	0.75%
0.14	0.16	1.00%
0.16	0.18	1.25%
0.18	0.20	1.50%
0.20	0.23	1.75%
0.23	0.26	2.00%
0.26	0.29	2.25%
0.29	1.00	2.50%

Note: The interval containing the current FCI value is indicated in red.

Chart V.6 CB
Standardised credit-to-GDP gap and additional gap

(pp)

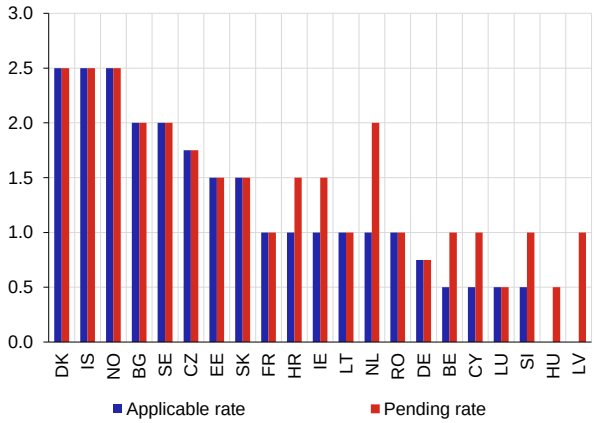


Source: CNB, CZSO

Note: The trend in the standardised gap is estimated using the HP filter (lambda = 400,000) over the entire time series. The additional gap – the expansionary credit gap – is calculated as the difference between the ratio of bank loans to the gross value added (GVA) of the private sector and the minimum level of this ratio over the past eight quarters.

Chart V.7
CCyB rates in selected European countries

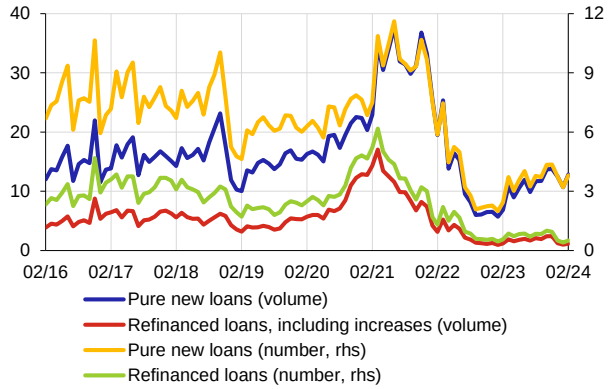
(% of total risk exposure; values as of 30 April 2024)



Source: ESRB

Chart V.8 CB
Number and volume of new and refinanced mortgage loans

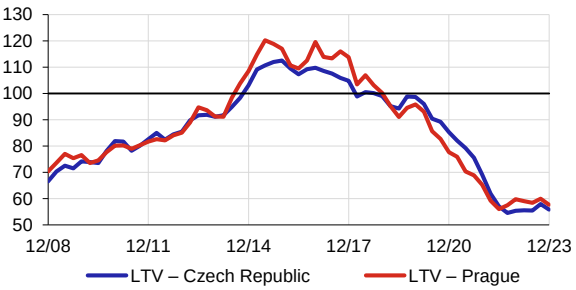
(CZK billions; right-hand scale: thousands)



Note: The data may also contain undrawn loans.

Chart V.9 CB
LTV balancing mortgage loan instalment and apartment rent

(%)



Source: CNB, IRI, Sreality, Deloitte, Dataligence

Note: The chart refers to apartments in regional capitals of 68 m^2. A market interest rate and a maturity of 30 years is assumed for the mortgage loan instalment.

Chart V.10 CB
Mortgage loans provided by purpose

(CZK billions)

Chart V.11 CB
Volume and average interest rate on new mortgage loans by fixed-rate period

(CZK billions; right-hand scale: %)

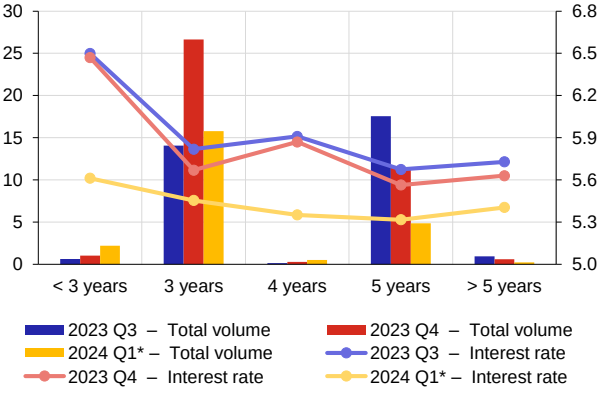
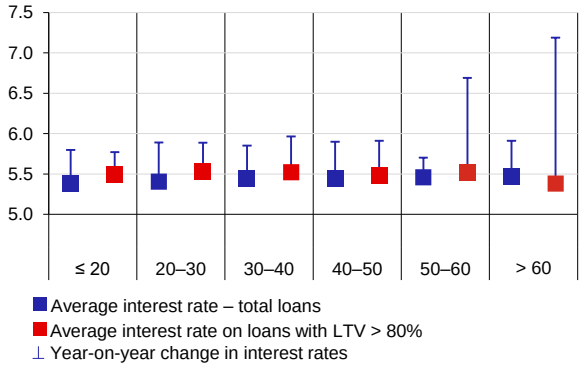


Chart V.12 CB
Average interest rates on mortgage loans by loan characteristics

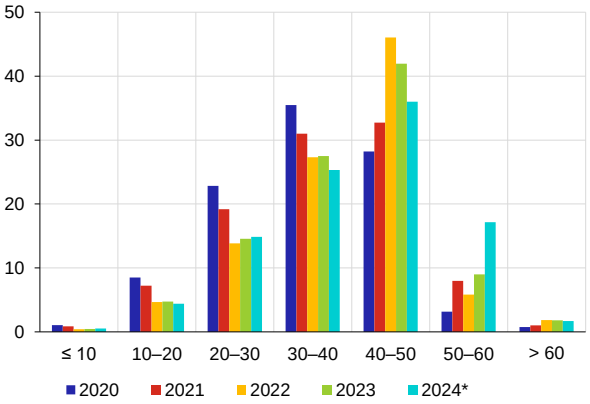
(average interest rate in %; x-axis: DSTI in %)



Note: Loans only include pure new mortgage loans. The data may also contain undrawn loans. Data for January and February 2024. Average interest rates are weighted by mortgage loan size. Interval closed from the right.

Chart V.13 CB
New mortgage loans by DSTI category

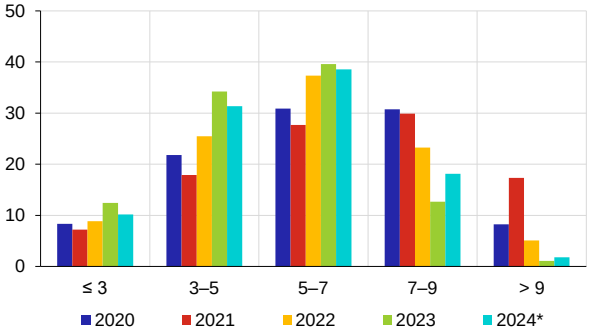
(% of total volume; x-axis: DSTI in %)



Note: Interval closed from the right. The figures for 2024 contain data from January to February only.

Chart V.14 CB
New mortgage loans by DTI category

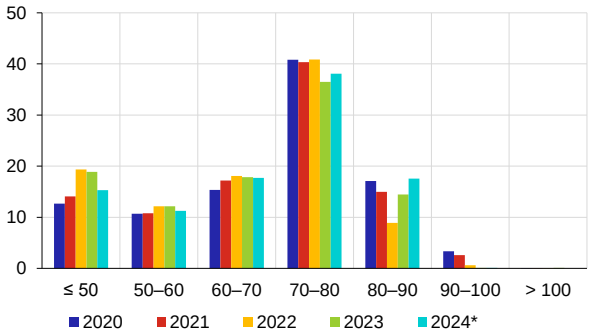
(% of total volume; x-axis: DTI in net annual incomes)



Note: Interval closed from the right. The figures for 2024 contain data from January to February only.

Chart V.15 CB
New mortgage loans by LTV category

(% of total volume; x-axis: LTV in %)



Note: Interval closed from the right. The figures for 2024 contain data from January to February only.

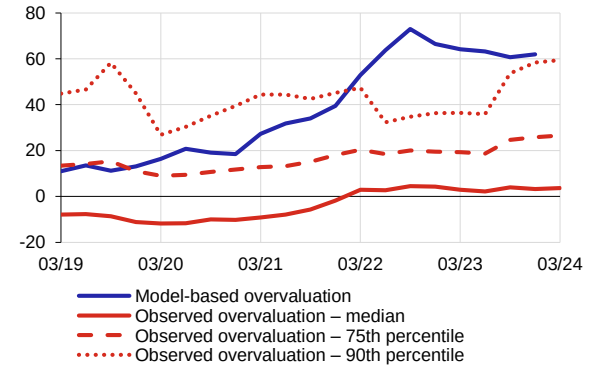
Table V.2 CB
Median values of the characteristics of new mortgage loans and loan applicants

	2018	2019	2020	2021	2022	2023	2024 January–February
Loan size (CZK millions)	1.8	1.9	2.3	2.8	2.6	2.5	2.7
Interest rate (%)	2.5	2.7	2.2	2.3	4.6	5.8	5.5
Instalment (CZK thousands)	8.3	8.8	9.7	11.6	14.4	15.6	16.6
Maturity (years)	30	30	30	30	30	30	30
Fixed interest rate period (years)	5.0	5.8	6.9	5.0	5.0	4.9	2.9
Collateral value (CZK millions)	3.1	3.3	3.8	4.7	5.1	4.7	4.8
Number of properties securing loan			1.0	1.0	1.0	1.0	1.0
LTV (%)	74.2	72.2	74.0	70.2	67.2	68.4	70.0
DTI (annual incomes)	5.2	5.0	5.4	5.9	5.3	4.7	4.9
DSTI (%)	34.2	33.0	32.8	34.8	38.6	38.0	38.6
Net monthly income (CZK thousands)	38.6	42.5	46.3	51.1	58.8	65.0	67.3
Net monthly income adjusted for instalments (CZK thousands)	25.3	28.5	31.0	32.9	36.3	40.3	41.2
Number of loan applicants	1.0	1.0	1.0	1.0	1.0	2.0	2.0

Note: The values in the table indicate the median for the given period. The DTI and DSTI ratios for 2018 are calculated from data for the second half of 2018, and the number of properties for 2020 is calculated from data for the second half of 2020.

Chart V.16 CB
Observed and model-based property price overvaluation for a safe DSTI of 35%

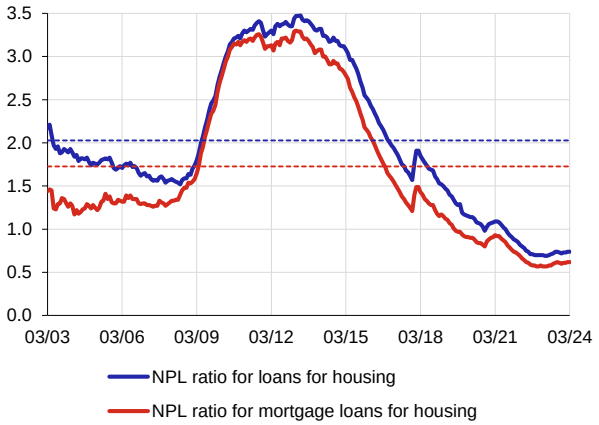
(%)



Note: The figures for 2024 Q1 contain data for January and February only. The model-based overvaluation shows the affordability of housing for a Czech household with median income (CZK 54,000 as of December 2023) and limited own funds (a maximum of around CZK 1.2 million) buying an average apartment (around CZK 6 million as of December 2023). The observed overvaluation shows the risks associated with mortgage loans already provided to households in the given period.

Chart V.17 CB
NPL ratio for loans for housing

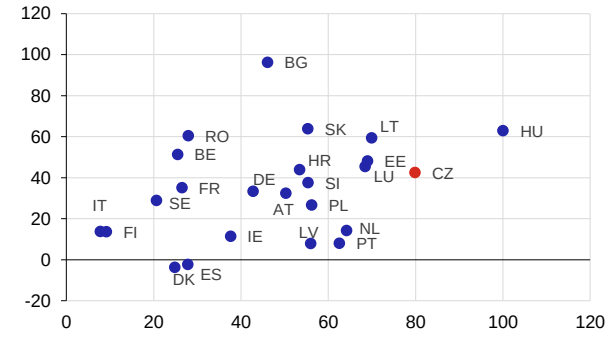
(%)



Note: The dashed lines indicate the long-term average (2002–2023) of each variable.

Chart V.18 CB
Property price growth and growth in the stock of loans to households for house purchase in 2017–2022

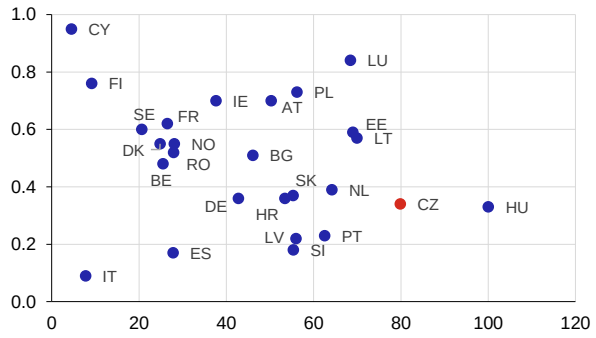
(%; x-axis: five-year price growth; y-axis: five-year growth in stock)



Source: Eurostat, ECB, non-euro area central banks

Chart V.19 CB
Property price growth and average construction in 2017–2022

(%; x-axis: five-year price growth; y-axis: average construction over five years)

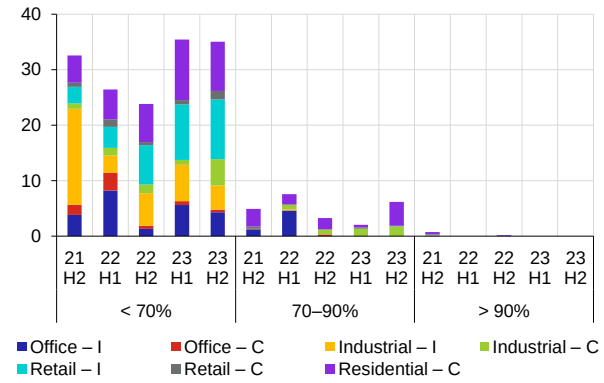


Source: Eurostat

Note: Construction is calculated as the ratio of the number of building permits for residential property to the country's population.

Chart V.20 CB
LTV distribution of new loans secured by commercial property over time

(CZK billions; x-axis: LTV in %)



Glossary

Bank Lending Survey: A survey of bank lending conditions for non-financial corporations and households in the Czech Republic, the pilot round of which took place in 2012 Q1. The survey aims to obtain qualitative information on current perceptions of the situation on both the supply and demand side of the credit market.

Basel III: A regulatory framework issued by the Basel Committee on Banking Supervision in 2010 which sets standards for capital adequacy of banks and now also for their liquidity. Overall, Basel III introduces stricter rules than the previous framework and came into existence mainly as a reaction to the financial crisis.

Breakdown of banks by total assets: In some charts and tables in the FSR, banks are assigned to groups based on the amount of their total assets. The breakdown of banks into groups is revised at the end of each calendar year. As from 2016, the breakdown of banks by total assets is as follows: large banks with a share of more than 10% of the banking sector's assets, medium-sized banks with a share of 2%–10% of the banking sector's assets and small banks with a share of less than 2% of the banking sector's assets.

Capital ratio: The ratio of regulatory capital to total risk-weighted assets. The Tier 1 capital ratio is the ratio of Tier 1 capital to total risk-weighted assets (see also Tier 1).

Capital requirement: The capital requirement is the amount of capital a bank has to hold so as to cover all the risks it undertakes.

Collective investment funds (CIFs): Mutual and investment funds whose sole business activity is collective investment, i.e. collecting funds from investors and investing them. CIFs are broken down by investor type into funds intended for the public (dominated by open-ended mutual funds) and funds for qualified investors, and by asset risk into money market, bond, equity, mixed and real estate funds and funds of funds. Sometimes the category of funds of funds is not listed separately, but is included in the other categories according to the type of funds in which they invest.

Consumer credit: A deferred payment, monetary loan, credit or other similar financial accommodation provided or intermediated to a consumer (see Article 2(1) of Act No. 257/2016 Coll., on consumer credit).

Consumer credit for housing: Consumer credit pursuant to Article 2(2) of Act No. 257/2016 Coll., on Consumer Credit.

Consumer credit secured by residential property: Consumer credit that is secured by residential property within the meaning of the directly applicable EU regulation governing prudential requirements or is secured by a right in rem to that residential property (see Article 45a(2) of Act No. 6/1993 Coll., on the Czech National Bank).

Countercyclical capital buffer: A macroprudential tool designed to increase the banking sector's resilience to cyclical risks associated with fluctuations in lending.

Debt service-to-income (DSTI): The ratio of total debt service to the net income of the loan applicant.

Debt-to-income: The ratio of debt to the net income of the loan applicant.

Default: Default is defined as a breach of the debtor's payment discipline. In regulatory terminology (Regulation (EU) No 575/2013), The debtor is in default at the moment when it is probable that he will not be able to repay his obligations in a proper and timely manner, without recourse by the creditor to settlement of the claim from the security, or when at least one repayment (the amount of which deemed by the creditor to be significant) is more than 90 days past due.

Growth rate of outstanding loans: The year-on-year change in outstanding loans as used in financial stability analyses. Not usually adjusted for reclassifications, write-offs and the exchange rate. Adjustment is only applied in the event of the creation or dissolution of institutions. The growth rate thus differs from that used by the CNB in the monetary policy context, which is fully adjusted in accordance with the ECB approach harmonised across the EU.

IFRS 9: The financial reporting standard IFRS 9 *Financial instruments*, the final version of which was introduced in July 2014 by the International Accounting Standards Board (IASB), took effect on 1 January 2018 pursuant to Commission Regulation (EU) 2016/2067, replacing the previously valid IAS 39 standard. IFRS 9 lays down requirements for the recognition, valuation, impairment and derecognition of financial assets and financial liabilities and general hedge accounting. It aims to provide financial statement users with relevant information for assessing the size, timing and uncertainty of an entity's future cash flows.

Institutional investor: Either (a) a bank executing trades in investment instruments on its own account on the capital market, a management company, an investment fund, a pension management company or an insurance company, or (b) a foreign entity authorised to carry on business in the same fields in the Czech Republic as the entities listed under (a).

Interest margin: The difference between a bank's loan rate and its deposit rate.

Interest rate spread: Also interest rate differential; the spread between the interest rate on a contract (deposit, security) and a reference interest rate.

Leverage: See Leverage ratio.

Leverage ratio: The CRD IV/CRR rules define the leverage ratio as capital to risk-weighted assets. The term leverage is also often used in financial economics. There, however, capital is the denominator in the ratio (e.g. assets/capital or debt/capital). When we say that a bank has high leverage, we generally refer to the definition consistent with the assets/capital ratio. However, such a bank has a low leverage ratio.

Liquidity coverage ratio: A requirement to cover net liquidity outflows over a 30-day time horizon with liquid assets. It is calculated as the ratio of the liquidity buffer to the net liquidity outflow.

Loan for consumption: Credit used to finance household consumption. It also includes bank overdrafts and debit balances and credit card credit.

Loan for house purchase: Consumer credit (a) secured with real property or a lien on real property; (b) the purpose of which is (1) to acquire, settle or maintain rights to real property or part of real property; (2) to build real property or part of real property; (3) to pay for a transfer of a share in a housing cooperative or to acquire a share in another legal entity in order to acquire the right to use a flat or a house, (4) to change a building in accordance with the Building Act or to connect it to public networks; (5) to cover costs related to obtaining a cash loan, credit or other similar financial service with the purpose referred to in (1)–(4), or (6) to repay credit, a cash loan or other similar financial service provided for purposes referred to in (1)–(6); or (c) provided by a building society in accordance with the act regulating building savings schemes.

Loan service-to-income: The ratio of loan-related debt service to the net income of the loan applicant.

Loan-to-income (LTI): The ratio of the amount of a loan to the net income of the loan applicant.

Loan-to-value (LTV): The ratio of the amount of a loan to the value of collateral.

Loss given default (LGD): The ratio of the loss on an exposure in the event of counterparty default to the amount owed at the time of default.

Macroprudential policy: A key component of financial stability policy. It focuses on the stability of the financial system as a whole. Its main objective is to help prevent systemic risk.

Market liquidity: The ability of market participants to carry out financial transactions in assets of a given volume without causing a pronounced change in their prices.

Minimum Requirement for Own Funds and Eligible Liabilities (MREL): A sufficient volume of eligible liabilities is necessary for a failed bank to be recapitalised using internal funds (bail-in). In the event of a crisis, the CNB writes off or converts these liabilities. A sufficient MREL together with the application of a suitable combination of resolution tools thus enables a failed institution to be resolved without the use of public money.

Mortgage loan: Consumer credit secured by residential property.

Mortgage loan refinancing: The process whereby a mortgage debtor accepts a new mortgage loan from a different lender and uses it to repay the mortgage loan with the original lender. He thus becomes a debtor of the other lender. This is usually possible only at the end of the original loan's fixation period.

Mortgage loan refixation: The process whereby at the end of the fixation period of a mortgage loan the debtor selects the length of the new fixation period and negotiates new conditions for this period with the creditor. In this case, the identity of the creditor does not change.

Net stable funding ratio (NSFR): A structural liquidity requirement monitored over a one-year time horizon. It is defined as the ratio of available stable funding to required stable funding.

Non-bank financial corporations engaged in lending: Financial leasing companies, other lending companies, including consumer credit, credit card and hire-purchase providers, and factoring and forfaiting companies.

Non-performing loans: A loan is non-performing if at least one of the following two situations occurs: a) the debtor is unlikely to pay its credit obligations in full without recourse to actions such as realising security, b) the debtor is past due more than 90 days on a credit obligation. For details, see Article 178 of Regulation (EU) No 575/2013 of the European Parliament and of the Council.

Pension funds: In the Czech environment, pension funds are transformed and participation funds which are managed by pension management companies. Participation funds are further classed into obligatory conservative funds and other funds. Obligatory conservative funds are only allowed to invest in a significantly restricted group of assets.

Pillar 1: The first part of the CRD directive, focused on the determination of minimum capital requirements for all credit institutions to cover credit, market and operational risks.

Pillar 2: The second part of the CRD directive, requiring credit institutions to assess whether the Pillar 1 capital requirement is sufficient to cover all the risks to which they are exposed. This assessment process is reviewed by the supervisory authority under the supervisory review and evaluation process (SREP). The supervisory authority then can apply a wide range of instruments, including setting an additional capital requirement, for example to cover concentration risk.

Prague InterBank Offered Rate (PRIBOR): The reference interest rate on the interbank deposit market for deposit sales. Reference banks quoting the PRIBOR must be important participants in the interbank market.

Price-to-income (PTI): A housing affordability indicator calculated as the ratio of the property price to the annual income of the household or loan applicant.

Property asking prices: Property sale asking prices in estate agencies. Asking prices should be higher than transaction prices. Property asking prices in the Czech Republic are published, for example, by the CZSO and the Institute for Regional Information (which also publishes data on market rent supply prices).

Property developers/developments: Companies/projects whose aim is to build a complex of residential and commercial property. Property developers' work includes choosing an appropriate site, setting up a project, obtaining the necessary permits, building the necessary infrastructure, constructing the buildings and selling the property. Developers also often organise purchase financing for clients and frequently lease or manage the property once it is built (especially in the case of commercial property). Given the combination of construction activity and speculative property purchases, developers' results are strongly dependent on movements in property prices.

Property price overvaluation (model-based): The model-based overvaluation generally shows the affordability of housing for a Czech household with median income and limited own funds buying an average apartment. Positive model-based overvaluation indicates that the price of the average apartment is higher than the loan size that can be safely repaid, with a defined DSTI ratio, plus the available own funds of the household (an LTV of 80% is considered). Risks to financial stability would arise if households reacted to limited availability of housing by taking on excessive debt.

Property price overvaluation (observed): The observed overvaluation shows the risks associated with mortgage loans already provided to households. This overvaluation compares the transaction price of a property financed by a mortgage loan in a given period with the value that can be considered safe for the household in question. Positive observed overvaluation thus indicates that the household has taken on a loan that is higher than can be considered safe in view of the set limits on credit ratios.

Property transaction prices: Prices of actual transactions on the property market, which should be the closest to actual market prices. The CZSO has been publishing two types of data on property transaction prices since 2011. Prices based on Ministry of Finance statistics from property transfer tax returns and published by the CZSO are the older source. These data contain time series from 1998 and are available in a relatively detailed breakdown (by region, degree of wear and tear and type of property). On the other hand, they do not include transactions which are not subject to property transfer tax (i.e. primarily transactions in new property) and the index is published with a lag of at least half a year. The second, new source of data on property transaction prices is data from CZSO surveys in estate agencies. They cover new property, but are not available in such a long time series and such a detailed breakdown.

Return on assets (RoA): The ratio of pre-tax profit and interest to total assets of a firm.

Risk premium: The risk premium an investor demands on investments in riskier financial instruments.

Sovereign risk: The risk that a government will default on its obligations, leading to national bankruptcy or restructuring of government debt.

Systemic risk: The risk of a threat to the stability of the financial system or of financial instability.

Tier 1: The highest quality and, for banks in the Czech Republic, also the most significant part of regulatory capital. The dominant components of Tier 1 are equity capital, retained earnings and mandatory reserve funds.

VIX: An index of expected 30-day volatility of US stocks (S&P 500 index), derived from market prices of options traded at the Chicago Board Options Exchange. A higher value indicates higher expected volatility of the stock index, and therefore higher market uncertainty.

Volatility adjustment: A Solvency II measure enabling insurance (reinsurance) companies to adjust risk-free interest rates in order to reflect the effect of short-term volatility of bond spreads.

Abbreviations

BCBS	Basel Committee on Banking Supervision
BEA	Bureau of economic analysis (U.S. Department of commerce)
BIS	Bank for International Settlements
bp	basis point
BRCI	Bank Register of Client Information operated by Czech Credit Banking Bureau
C	construction
CB	central bank
CBR	combined buffer requirement
CCoB	capital conservation buffer
CCyB	countercyclical capital buffer
CDS	credit default swap
CEB	Czech Export Bank
CET1	common equity Tier 1
CISS	Composite Indicator of Systemic Risk
CI	credit institution
CNB	Czech National Bank
CNCB	Czech Non-Banking Credit Bureau
COREP	The Common Reporting Framework
Coll.	collection
CRD	Capital Requirements Directive
CRE	commercial real estate
CRR	Capital Requirements Regulation
CSRD	Corporate Sustainability Reporting Directive
CZK	Czech koruna
CZSO	Czech Statistical Office
DSCR	debt service coverage ratio
DSTI	debt service-to-income
DTI	debt-to-income
EA	euro area
EBA	European Banking Authority
ECB	European Central Bank
EGAP	Export Guarantee and Insurance Company
EIB	European Investment Bank
EIOPA	European Insurance and Occupational Pensions Authority
EMs	emerging market economies
EMU	European Monetary Union
ESA	Joint Committee of European Supervisory Authorities
ESFS	European System of Financial Supervision
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
EUR	euro
EURIBOR	Euro InterBank Offered Rate (reference interest rate on the interbank market)
FCI	financial cycle indicator
FCLs	foreign currency loans
Fed	Federal Reserve System
FI	financial institution
FINREP	Financial Reporting
FSR	Financial Stability Report
G20	Group of Twenty
GB	government bond
GDI	gross disposable income
GDP	gross domestic product
GFSR	Global Financial Stability Report
GNI	gross national income
H	half-year
HBS	Household Budget Statistics
HHI	Herfindahl-Hirschman Index
I	investment
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPFCs	investment and pension funds and companies
IRB	Internal Rating Based Approach, an approach within the Basel II framework for capital adequacy of banks
IRI	Institute for Regional Information
IRS	interest rate swap
ISR	sovereign risk indicator
IT	information technology
LCR	liquidity coverage ratio
LGD	loss given default
LLP	loan loss provision
LSTI	loan service-to-income
LTI	loan-to-income
LTV	loan-to-value
M	month
MBs	mortgage bonds
MF CR	Ministry of Finance of the Czech Republic
MIT	Ministry of Industry and Trade
MM	money market

MPR	Monetary Policy Report
MREL	minimum requirement for own funds and eligible liabilities
$MREL_{TEM}$	Minimum requirement for own funds and eligible liabilities – total exposure measure
$MREL_{TREA}$	Minimum requirement for own funds and eligible liabilities – total risk exposure amount
MSCI	Morgan Stanley Capital International
NACE	General Industrial Classification of Economic Activities
NDB	National Development Bank
NFC	non-financial corporation
NFCEL	non-bank financial corporations engaged in lending
NPISH	non-profit institutions serving households
NPL	non-performing loan
NRCI	Non-bank Register of Client Information
NSFR	net stable funding ratio
OCI	other comprehensive income
OCR	overall capital requirement
OECD	Organisation for Economic Cooperation and Development
OFIs	other financial intermediaries
O-SII	Other systemically important institutions
PD	probability of default
PEPP	Pandemic emergency purchase programme
P/L	profit/loss
PMC	pension management company
pp	percentage point
PRIBOR	Prague InterBank Offered Rate (reference interest rate on the interbank market)
PTI	price-to-income
Q	quarter
QA	quick assets
RoA	return on assets
RRE	residential real estate
S&P	Standard & Poor´s
SCR	Solvency Capital Requirement
SHI	social and health insurance
SMEs	small and medium-sized enterprises
SMST	solvency macro stress test
SOLUS	Sdružení na ochranu leasingu a úvěrů spotřebitelům (Association for the Protection of Leasing and Loans to Consumers)
(s)SyRB	(sectoral) systemic risk buffer
TEM	see $MREL_{TEM}$
TF	transformed fund
TLTRO	Targeted Longer-Term Refinancing Operations
TREA	see $MREL_{TREA}$
TSCR	total supervisory review and evaluation process capital requirement
ULI	Unit Linked Insurance
VIX	Volatility index
WGI	Worldwide Governance Indicators
WP	Working Paper
Y	year

Country abbreviations

AT	Austria
BE	Belgium
BG	Bulgaria
CA	Canada
CN	China
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EA	euro area
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
CH	Switzerland
IE	Ireland
IS	Iceland
IT	Italy
JP	Japan
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom
US	United States

Abbreviations of regions

HK	Hradec Králové Region
SB	South Bohemian Region
SM	South Moravian Region
KV	Karlovy Vary Region
LIB	Liberec Region
MS	Moravian-Silesian Region
OLO	Olomouc Region
PAR	Pardubice Region
PRG	Prague
PLZ	Plzeň Region
CB	Central Bohemian Region
UL	Ústí nad Labem Region
VYS	Vysočina Region
ZL	Zlín Region

Selected indicators

FINANCIAL STABILITY INDICATORS – PART 1

		2018	2019	2020	2021	2022	2023	2024 Jan.	2024 Feb.	2024 Mar.
Macroeconomic environment										
ME.1	Real GDP growth (year on year, %)	3.2	3.0	-5.5	3.6	2.4	-0.3			
ME.2	Consumer price inflation (average annual index growth, %)	2.1	2.8	3.2	3.8	15.1	10.7	9.4	8.2	7.1
ME.3	General government balance / GDP (%)	0.9	0.3	-5.8	-5.1	-3.2	-3.7			
ME.4	General government debt / GDP (%)	32.1	30.1	37.7	43.96	44.17	42.02			
ME.5	Trade balance / GDP (%)	3.7	4.1	4.9	4.0	-0.3	1.1			
ME.6	External debt in % of banking sector external assets	113.8	108.7	103.2	114.3	118.1	103.4			
ME.7	Balance of payments current account / GDP (%)	0.4	0.3	2.0	0.4	-4.9	-2.8			
ME.8	Monetary policy 2W repo rate (end of period, %)	1.75	2.00	0.25	3.75	7.00	6.75	6.75	6.25	5.75
Non-financial corporations										
NC.1	Return on assets (%)	6.3	6.3	4.7	5.5	7.2	7.7			
NC.2	Debt (% of total liabilities)	49.3	48.4	46.6	41.9	42.1	42.9			
NC.3	Credit indebtedness (% of GDP)	53.1	48.1	49.9	47.6	46.3	44.6			
NC.4	– loans from Czech banks (% of GDP)	20.0	19.3	19.7	19.5	18.2	18.5			
NC.5	– loans from Czech non-bank financial corporations (% of GDP)	4.5	4.3	4.4	4.1	4.0	4.2			
NC.6	– other (including financing from abroad. % of GDP)	28.6	24.5	25.5	24.0	24.2	22.0			
NC.7	Interest coverage (pre-tax profit + interest paid / interest paid, %)	25.2	15.0	14.7	18.4	12.6	16.8			
NC.8	12M default rate (%)	1.2	1.0	1.9	1.1	0.9	0.9			
Households (including sole traders)										
H.1	Total debt / gross disposable income (%)	59.2	59.2	61.0	62.4	59.1	57.0			
H.2	Total debt / financial assets (%)	24.3	24.0	22.9	23.7	23.3	22.6			
H.3	Net financial assets (total financial assets − total liabilities, % of GDP)	92.2	93.7	107.0	105.4	101.9	103.4			
H.4	Debt / GDP (%)	31.7	31.5	33.8	34.7	32.7	31.8			
H.5	– loans from Czech banks to households (% of GDP)	28.7	28.5	30.9	31.9	30.2	29.2			
H.6	– loans from Czech non-bank fin. corporations to households (% of GDP)	1.0	0.9	0.9	0.8	0.7	0.7			
H.7	– loans from Czech banks to sole traders (% of GDP)	0.8	0.8	0.8	0.8	0.7	0.6			
H.8	– loans from Czech non-bank fin. corporations to sole traders (% of GDP)	0.2	0.2	0.2	0.2	0.3	0.2			
H.9	– other (including financing from abroad. % of GDP)	1.1	1.1	1.0	1.0	0.9	1.0			
H.10	Net interest expenses / gross disposable income (%)	2.2	2.1	2.1	2.0	2.0	2.2			
H.11	12M default rate (%, excluding sole traders)	1.8	1.5	1.3	1.0	0.8	1.1			
Financial markets										
FM.1	3M PRIBOR (average for period, %)	1.3	2.1	0.9	1.1	6.3	7.1	6.6	6.2	5.8
FM.2	1Y PRIBOR (average for period, %)	1.5	2.2	0.9	1.4	6.5	6.9	5.3	4.9	4.6
FM.3	10Y government bond yield (average for period, %)	2.0	1.5	1.1	1.9	4.3	4.4	3.9	3.8	3.8
FM.4	CZK / EUR exchange rate (average for period, %)	25.6	25.7	26.5	25.6	24.5	24.0	24.9	25.4	25.3
FM.5	Change in PX stock index (% year on year, end of period)	-8.5	9.8	-5.2	38.8	-15.7	17.7	9.3	3.1	12.0
Property market										
PM.1	Total change in residential property prices (transaction prices, % year on year)	9.8	8.9	9.0	25.8	6.9	-1.1			
PM.2	Change in apartment prices (asking prices according to CZSO, % year on year)	11.4	9.4	13.3	25.2	13.8	-5.6			
PM.3	Apartment price / average annual wage	10.3	10.2	11.0	12.5	13.4	12.2			
PM.4	Apartment price / annual rent (according to IRI)	26.8	26.1	28.5	35.6	37.3	34.6			
Financial sector										
FS.1	Financial sector assets / GDP (%)	170.2	165.8	176.9	178.2	168.0	174.7			
FS.2	Shares of individual segments in financial sector assets (%)									
FS.3	banks	78.7	78.5	78.6	78.1	77.8	77.0			
FS.4	credit unions	0.3	0.3	0.3	0.2	0.2	0.1			
FS.5	insurance companies	5.6	5.1	4.9	4.8	4.3	4.3			
FS.6	pension management companies and funds	5.1	5.3	5.3	5.3	5.2	4.8			
FS.7	investment funds*	5.5	6.3	6.7	7.7	8.5	10.2			
FS.8	non-bank financial corporations engaged in lending	4.6	4.5	4.1	3.9	3.8	3.8			
FS.9	investment firms	0.2	0.1	0.1	0.1	0.1	0.2			
Non-bank financial corporations										
NI.1	Share in financial sector assets (%)	21.3	21.5	21.4	21.9	22.2	23.1			
	Insurance companies									
NI.2	Premiums written / GDP (%)	2.9	2.9	3.0	2.9	3.0	2.8			
NI.3	Ratio of eligible own funds to the solvency capital requirement (in %)	243.6	202.4	251.3	230.5	224.0	226.8			
NI.4	Change in financial investment of insurance companies (%, year on year)	1.4	-6.7	0.6	4.0	-10.1	5.8			
NI.5	Return on equity of insurance companies (%)	15.8	24.1	18.4	36.6	23.1	19.3			
NI.6	Claim settlement costs / net technical provisions (life, %)	15.3	16.6	14.2	14.4	19.3	14.7			
NI.7	Claim settlement costs / net technical provisions (non-life, %)	57.8	62.7	58.4	55.1	58.7	59.5			
	Pension management companies (PMCs) and PMC funds									
NI.8	Change in assets of funds managed by PMCs (%)	5.6	8.0	6.8	6.0	4.4	3.0			
NI.9	Nominal change in value of assets of PMC funds	-1.7	0.9	-0.3	-0.6	1.0	5.2			
	Investment funds									
NI.10	Growth in net assets (= equity; year on year, %)	6.4	21.5	10.6	23.7	16.0	32.8	31.8	31.3	30.1
	Non-bank financial corporations engaged in lending									
NI.11	Growth in loans from non-bank financial corporations engaged in lending (%):									
NI.12	total	4.7	4.3	-1.9	1.0	7.4	10.8			
NI.13	households	-0.4	6.9	-8.5	2.6	4.5	4.5			
NI.14	non-financial corporations	6.3	2.6	0.1	0.6	8.2	12.5			

FINANCIAL STABILITY INDICATORS – PART 2

		2018	2019	2020	2021	2022	2023	2024 Jan.	2024 Feb.	2024 Mar.
Banking sector										
BS.1	Bank assets / GDP (%)	130.6	126.9	135.5	136.7	140.0	139.3			
BS.2	Assets structure (%, end of period)									
BS.3	loans to central bank	32.0	32.2	29.0	27.7	23.5	25.0			
BS.4	interbank loans	3.3	2.9	2.8	2.3	3.0	1.9			
BS.5	client loans	46.0	46.2	45.8	46.1	47.3	44.7			
BS.6	bond holdings	13.9	13.3	16.4	17.8	18.8	20.1			
BS.7	– government bonds	8.3	7.7	11.6	12.4	13.3	15.0			
BS.8	– Czech government bonds	7.5	7.4	10.9	11.9	12.9	13.7			
BS.9	other	4.8	5.4	6.0	6.1	7.4	8.3			
BS.10	Liabilities structure (%, end of period)									
BS.11	liabilities to central bank	0.3	0.1	0.5	0.5	0.4	0.4			
BS.12	interbank deposits	15.3	12.9	8.2	7.8	8.3	10.3			
BS.13	client deposits	62.5	64.0	66.1	66.0	67.7	62.6			
BS.14	bonds issued	10.9	11.4	12.7	13.0	9.6	7.5			
BS.15	other	11.0	11.6	12.4	12.7	14.0	19.2			
BS.16	Client loans / client deposits (%)	73.6	72.3	69.2	69.9	69.8	65.0			
BS.17	Sectoral breakdown of total loans (%)									
BS.18	non-financial corporations	32.7	32.5	30.2	30.9	30.4	31.2			
BS.19	households	46.9	47.8	47.7	50.6	52.6	49.3			
BS.20	sole traders	1.3	1.3	1.2	1.2	1.1	1.1			
BS.21	others (including non-residents)	19.1	18.4	20.9	17.2	18.3	18.5			
BS.22	Growth in loans (%, end of period, year on year):									
BS.23	total	7.2	4.4	4.2	7.0	5.8	7.0			
BS.24	non-financial corporations	5.7	3.7	0.3	5.8	4.1	9.7			
BS.25	– real estate activity (NACE L)	5.2	7.5	4.8	0.9	7.1	13.2			
BS.26	households	7.9	6.4	6.9	10.5	5.1	4.9			
BS.27	– loans for house purchase	8.5	6.7	8.0	11.1	4.8	4.2			
BS.28	– loans for consumption	6.4	7.2	0.8	6.5	7.2	7.9			
BS.29	sole traders	5.6	8.1	2.2	1.3	-2.2	2.1			
BS.30	Non-performing loans / total loans (%):									
BS.31	total	3.3	2.5	2.7	2.4	2.0	1.7			
BS.32	non-financial corporations	3.6	3.2	4.2	3.8	3.2	2.6			
BS.33	households	2.1	1.6	1.7	1.4	1.3	1.2			
BS.34	– loans for house purchase	1.5	1.2	1.1	0.9	0.7	0.7			
BS.35	– loans for consumption	5.1	4.0	5.1	4.7	3.9	3.9			
BS.36	sole traders	5.0	4.3	6.1	6.4	5.1	4.7			
BS.37	Coverage of non-performing loans by provisions (%)	58.2	57.8	52.0	53.8	54.4	52.6			
BS.38	Capital ratio (%)	19.8	21.5	24.7	23.7	22.3	22.9			
BS.39	Tier 1 capital ratio (%)	19.3	21.0	23.9	23.0	21.5	21.7			
BS.40	Leverage (assets as a multiple of Tier 1)	15.2	14.4	13.0	13.7	14.5	16.2			
BS.41	Leverage ratio (Tier 1 capital / total exposures)	6.6	7.0	7.7	7.3	7.1	6.6			
BS.42	Return on assets (%)	1.1	1.2	0.6	0.8	1.1	1.1			
BS.43	Return on Tier 1 (%)	27.5	28.4	30.7	32.7	27.8	17.1			
BS.44	Quick assets / total assets (%)	58.5	59.9	62.2	62.1	63.1	42.2			
BS.45	Quick assets / client deposits (%)	65.1	62.8	61.5	61.7	57.0	60.1			
BS.46	Net external position of banking sector (% of GDP)	-20.2	-17.8	-15.6	-16.9	-10.8	-11.3			
BS.47	Banking sector external debt / banking sector total assets (%)	24.8	23.0	20.6	20.9	18.9	16.4			

ADDITIONAL INFORMATION ON THE INDICATORS

Owing to data revisions, some historical values of the indicators may not be comparable to those published in previous publications. Also, owing to a different date of update, the values of the indicators may not be the same as those referred in the text of this FSR. Missing values were unavailable at the time of preparation of the table.

ME.6	Total external debt in % of external assets held by MFIs and the CNB.
PM.1	Property prices based on the House Price Index, source: CZSO
PM.2	Apartment prices based on data from Společnost pro cenové mapy, s.r.o., apartment size 68 m^2.
FS.7	Act No. 240/2013 Coll., on Management Companies and Pension funds, was adopted in 2013, introducing the term "investment funds". Investment funds comprise collective investment funds and funds for qualified investors.
BS.25	Real estate activities (NACE L) comprise above all the activities of lessors, agents or brokers in the area of selling or purchasing property, renting property and the provision of other services related to property.
BS.37	Loans provided by the Czech Export Bank and the National Development Bank were excluded from the calculation.
BS.44, BS.45	Assets readily available to cover liabilities. They comprise cash and claims on central banks, claims on credit institutions and other clients payable on demand and bonds issued by central banks and general government.
NI.2 to NI.7	These indicators comprise domestic insurance companies (excluding the EGAP) and branches of foreign insurance companies.
NI.2	Premiums written include total gross premiums written for 12 months by domestic insurance companies including branches of foreign insurance companies (excluding EGAP).
NI.9	Change in the assets of pension funds adjusted for contributions and benefits.

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