


LATVIJAS BANKA
EIROSISTĒMA

FINANCIAL STABILITY REPORT 2023



Financial Stability Report 2023

Financial stability: the condition in which the financial system is capable of withstanding shocks, thereby mitigating the likelihood of disruptions in the supply of financial services in the financial intermediation process.

Systemic risk: the risk of disruptions in the financial system with the potential to have significant negative impact on the functioning of the financial system as a whole and the real economy.

The goal of the Financial Stability Report is to raise public awareness of the development of the Latvian financial system and draw attention to systemic risks.

The Financial Stability Report analyses and evaluates the performance of the Latvian financial system and risks on the basis of data available up to the end of March 2023 or at the moment of compiling the current report.

The calculation of the ROE, the total capital ratio, Tier 1 capital ratio, CET1 ratio, liquidity and credit risk stress test results excludes data on branches of foreign credit institutions registered in the Republic of Latvia.

Charts and tables have been compiled on the basis of the following data sources: Chart 1.1 – IMF, Chart 1.2 – Refinitiv, ECB, Chart 1.3 – EBA, Chart 1.4 – CSB, Eurostat, Chart 1.5 – European Commission, Chart 1.6 – Castellum.AI, Charts 1.7–1.11 – Latvijas Banka and its estimates, Charts 1.12.–1.14 – CSB, Chart 1.15 – Latvian Open Data Portal, Chart 1.16 – State Unified Computerised Land Register, Charts 1.17–1.19 – CSB, Charts 1.20 and 1.21 – advertisement portals (ss.com, city24.lv, inch.lv), estimates by Latvijas Banka, Chart 1.22 – SLS, advertisement portals (ss.com, city24.lv, inch.lv), estimates by Latvijas Banka, Chart 1.23 – CSB, advertisement portals (ss.com, city24.lv, inch.lv), estimates by Latvijas Banka, Charts 1.24–1.26 – CSB, SIA ARCO REAL ESTATE, Chatham Financial, estimates by Latvijas Banka, Charts 1.27–1.28 – SIA Colliers International Advisors, Charts 1.29 and 1.30 – Latvijas Banka, Charts 2.1–2.5 – Latvijas Banka and its estimates, Chart 2.6 – ECB, Charts 2.7–2.10 – Latvijas Banka and its estimates, Charts 2.11–2.15 – Latvijas Banka, Chart 2.16 – Latvijas Banka, EBA, Charts 2.17–2.19 – Latvijas Banka and its estimates, Charts 2.20–2.23 – Latvijas Banka, Chart 2.24 – Latvijas Banka and EBA, Charts 2.25 and 2.26 – Latvijas Banka and its estimates, Tables 3.1–3.7 – Latvijas Banka and its estimates, Charts 3.1–3.5 – estimates by Latvijas Banka, Chart 3.6 – Latvijas Banka, Chart 3.7 – estimates by Latvijas Banka, Chart 3.8 – LEGMC, Chart 3.9 – estimates by Latvijas Banka, Chart 3.10 – ECB, Chart 3.11 – estimates by ECB and Latvijas Banka, Chart 3.12 – estimates by Latvijas Banka, Chart 4.1 – Latvijas Banka and its estimates, CSB, Charts 4.2 and 4.3 – Latvijas Banka, Table 4.1 – Latvijas Banka, Chart 5.1 – Latvijas Banka, CSB, Table 5.1 – Latvijas Banka and its estimates, Chart 5.2 – Latvijas Banka and its estimates, Chart 5.3 – EIOPA, Latvijas Banka, Chart 5.4 – Latvijas Banka and its estimates, Charts A1.1–A1.5 and Table A1.1 – estimates by Latvijas Banka, Chart A2.1 – Latvijas Banka and its estimates, Charts A2.2–A2.4 – household survey conducted by Latvijas Banka and estimates by Latvijas Banka, Charts A2.5 and A2.6 – CSB, estimates by Latvijas Banka, Charts A3.1 and A3.2 – credit institution survey conducted by Latvijas Banka, Table A4 – Latvijas Banka, Appendix A5 – CSB, Refinitiv, Bloomberg, Eurostat, ECB, Latvijas Banka and its estimates.

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Abbreviations

AML/CFTP – anti-money laundering and combating the financing of terrorism and proliferation	RET – real estate tax
AS – joint stock company	ROA – return on assets
CBR – combined buffer requirement	ROE – return on equity
CCoB – capital conservation buffer	SCR – solvency capital ratio
CCRI – composite cyclical risk indicator	SFPS – state-funded pensions system
CCyB – countercyclical capital buffer	SIA – limited liability company
CDS – credit default swaps	SLS – State Land Service
CET1 – Common Equity Tier 1	SRB – Single Resolution Board
CIS – Commonwealth of Independent States	SREP – supervisory review and evaluation process
CISS – composite indicator of systemic stress	SRS – State Revenue Service
CSB – Central Statistical Bureau of Latvia	SyRB – systemic risk buffer
DSTI – debt-service-to-income	TC – total capital ratio
DTI – debt-to-income	TLTRO III – targeted longer-term refinancing operations
EBA – European Banking Authority	TREA – total risk exposure amount
ECB – European Central Bank	UAE – United Arab Emirates
EEA – European Economic Area	UK – United Kingdom
EIOPA – European Insurance and Occupational Pensions Authority	US – United States of America
ESRB – European Systemic Risk Board	VaR – value at risk
EU – European Union	
EURIBOR – Euro Interbank Offered Rate	
FCMC – Financial and Capital Market Commission	
FRS – US Federal Reserve System	
GDP – gross domestic product	
IMF – International Monetary Fund	
IT – information technologies	
LCR – liquidity coverage ratio	
LEGMC – Latvian Environment, Geology and Meteorology Centre	
LGD – loss given default	
LIA – Latvian Insurers Association	
LRE – leverage ratio exposure measure	
LTI – loan-to-income	
LTV – loan-to-value	
MCC – market confidence charge	
MFI – monetary financial institution	
MREL – minimum requirement for own funds and eligible liabilities	
NFC – non-financial corporation	
NGFS – Network for Greening the Financial System	
NPLs – non-performing loans	
NSFR – net stable financing ratio	
O-SII – other systemically important institution	
P/B – price-to-book	
PD – probability of default	

Summary

Over the last year, the economy and the financial sector have experienced a number of significant challenges: a decline in the economic sentiment and a widespread and sharp increase in costs arising from Russia's invasion of Ukraine, energy crisis in Europe, challenges related to compliance with sanctions imposed on Russia and Belarus, as well as the rise in interest rates implemented by central banks at a swift pace to get the high inflation down. Stress episodes in the US and Swiss bank sectors have globally raised concerns about the bank risk management and the high vulnerability of some banks amid tighter financial conditions.

The Latvian economy experienced a short-lived and shallow recession, while the **financial resilience of the Latvian borrowers so far remains rather good overall**. The borrowers' solvency has been supported by the savings made during the pandemic and the vast state support measures. Furthermore, the total private sector indebtedness remains low, and the debt payment burden is rather small.

However, a prolonged rapid price increase and tight financial conditions may negatively affect the banks' customers and the asset quality and may hamper the recovery of economic growth. Further increase in interest rates may have a significant impact on the debt servicing capacity of businesses operating in certain sectors. For a rather small share of households, the debt burden can become excessive. **The main bank credit risk indicators have not deteriorated in general;** however, credit risk may materialise with a time lag. Therefore, it is important to continue carefully assessing credit risk, recognise problem loans in due time and make adequate provisions.

With the economic activity weakening and loan costs rising, **activity in the Latvian real estate market has decreased**. Price correction in the Latvian commercial real estate market is not very evident, as the market is shallow and the volume and number of transactions is small. Price trends in different housing market segments differ considerably. The supply of energy-inefficient housing has increased slightly causing a downward pressure on the prices thereof, while the supply of new housing has been persistently insufficient, and its price increase is speeding up.

More sustainable housing market development and the promotion of quality and affordable housing stock require addressing structural weaknesses in the construction sector; **it is important to increase the pace of building renovation, including large investments in energy efficiency, and promoting new housing construction.**

Household lending is showing signs of slowing activity, while the increase in the corporate lending has been temporarily boosted by a larger demand of businesses for short-term financing of current assets. At the same time, banks have become more cautious.

The inadequacy of the current level of financing of the economy to match the level of financing needed for sustainable economic development, due to demand and supply factors, remains a pressing and systemically important issue. It is important to address the structural factors that have contributed to a prolonged sluggish investment and lending environment.

The financial system of Latvia remains stable, and the ability of credit institutions to absorb shocks is good. The voluntary capital buffers are rather high in general, besides, the resilience of credit institutions is further strengthened by the substantial rise in their profitability, with the rising market interest rates pricing more rapidly in income from loans than in expense on deposits. The resilience of credit institutions to the market risk, including revaluation of securities held at amortised cost revaluation to the current market value, is also good overall. Given the geopolitical context, the risks of cyberattacks and other large-scale unexpected disruptions in the financial infrastructure remain high.

By continuing to develop the analysis of the impact of climate change- and other nature-related risks, as well as the related transition risks on the banking sector, **Latvijas Banka has supplemented the bank resilience testing framework with transition and physical risk stress tests for the banking sector**. Also, a model has been developed to simulate the impact of natural disasters on the Latvian economy and the insurance sector.

The macroprudential policy stance of Latvijas Banka conforms to the identified systemic risks, lending developments, macrofinancial situation, degree of credit institutions resilience and takes into account the impact of the already existing macroprudential policy instruments. In the current circumstances, microprudential measures – fostering of adequate provisioning and timely loan reclassification – are also important in order to mitigate the negative effects of the potential materialisation of credit risk. Future macroprudential policy decisions will assess possibilities for more timely strengthening of resilience using macroprudential capital buffers, as well as the need to review some aspects in the borrower-based requirements.

Turbulence in financial markets has significantly affected the sub-sectors of the non-bank savings service providers, including the 2nd and 3rd pillar pension plans. It is important to review solutions to mitigate the risk that at the time of retirement, the retiree's entire 2nd pillar pension capital might be exposed to adverse market fluctuations.

The economy and the financial sector are affected by the war in Ukraine, price growth and tightening of financial conditions; however, the resilience of credit institutions is good

Systemic risks



Persistently high price growth and tight financial conditions that can affect the banks' customers and the quality of assets and may hamper the recovery of economic growth



Protractedly weak investment environment and insufficient lending support for investments

Potential systemic vulnerabilities



Unsustainable development of the housing market, including subdued investment in the renovation of the housing stock



Dependence on developments and policies in parent banks and their home countries



Cyberattacks and other large-scale unexpected disruptions in the financial intermediation process



Climate change- and other nature-related risks, including biodiversity

Resilience of credit institutions



The resilience of credit institutions against shocks stands strong, as their capital and liquidity buffers are overall sufficient.

Recommendations



- The ongoing structural problems in investments and lending should be addressed.
- The obstacles for the development of the high quality housing stock should be reduced, and the structural shortcomings in the construction sector should be eliminated.
- If credit risk increases, problematic loans should be recognised in due time and appropriate provisions should be made.

1. Macrofinancial environment and borrowers' solvency

External macrofinancial environment

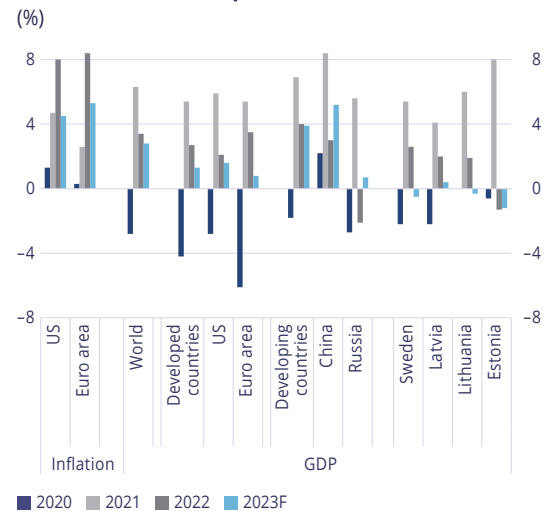
Prepared by Olga Lielkalne

High inflation continues to pose risks for the global economic growth. In response to the surge in inflation, central banks have been raising interest rates at a fast pace. The costs of raising funding and servicing liabilities for governments, companies and households are increasing. Stress in the banking sectors of several countries gives rise to concerns about the bank risk management and the high vulnerability of some banks amid tighter financial conditions; however, the impact on the euro area banks is limited. In many euro area countries, signs of a downward turn in the real estate market cycle are evident.

The global economy is slowly recovering from the pandemic and the initial shock caused by Russia's invasion of Ukraine; however, the high inflation continues to pose risks to the growth. The impact of war in Ukraine on the prices and availability of food and energy, Covid-19 "zero" policy in China, the still somewhat disrupted (although to a lesser extent) supply chains, as well as the interest rate increase implemented to dampen the high inflation were the main factors weighing on the global growth in 2022. Although energy prices have returned to their pre-war levels and the pandemic has been overcome, the economic growth forecasts for 2023 are still cautious. According to the IMF estimates, the growth of the global GDP in 2023 will be 2.8% (3.4% in 2022) (see Chart 1.1). In the advanced countries, especially in the euro area, the growth forecasts are lower, while in Germany and some countries of the Nordic and Baltic region (Sweden, Estonia, Lithuania) a slight decline of GDP is projected. At the same time, a strong labour market supports the economic resilience.

Inflation has peaked in many countries, but the price pressure remains high. **The strong commitment of central banks to fight inflation translates into an unprecedentedly high rise in interest rates and tightening of the financial conditions.** The cumulative increase in the central banks' key rate since the

Chart 1.1
Annual changes in real GDP and consumer prices and IMF forecast in April 2023



beginning of last year reached 500 basis points in the US, 375 basis points in the euro area and 350 basis points in Sweden. As part of the normalisation of monetary policy, the US FRS, the ECB, Sveriges Riksbank and other central banks have also taken decisions to end quantitative easing¹ and reduce their balance sheet. In the financial markets, the financing costs for companies, banks and governments have increased significantly (see Chart 1.2). Also, lending standards of banks have become tighter and interest rates on loans have risen.

Due to the high inflation, tighter financing conditions and tense geopolitical situation, turbulence in the global financial markets has grown. Low liquidity in some financial market segments emerges as an important risk factor. Previously, during the low interest rate period, the investors' risk appetite in financial markets was high, and risk premiums were accordingly low. With macroeconomic risks rising in the rather unusual combination of high inflation, rising interest rates and recession threats, significant risk repricing and price correction for a wide range of

¹ "Quantitative easing" is a term which describes a non-standard monetary policy instrument, i.e. large-scale central bank purchases of government, institutional and corporate securities aimed at improving financial conditions in the low interest rate environment, reduce borrowing rates in the market and provide indication on the further development of interest rates thereby stimulating lending, investments and economic activity.

financial instruments was observed in 2022. The correlation between the downward dynamics of stock and bond prices grew significantly in some periods. In the financial markets, the probability of materialisation of tail events has increased² (similar to turmoil in the UK bond market in September).

In late 2022 and early 2023, the sentiment in the financial markets improved considerably. However, in March 2023, **stress in the banking sectors of some countries raised concerns about the bank risk management and the high vulnerability of some banks amid tighter financing conditions.** The liquidity and insolvency issues of the US regional banks and the liquidity crisis looming on the Swiss bank Credit Suisse Group AG (before it was acquired by UBS Group AG) were underpinned by idiosyncratic factors, as the affected banks were characterised by specific risks and management gaps. However, turbulence in the US and Swiss banking sectors led to attention being paid to bank exposure to longer-term fixed-income securities, including the amount of securities held at amortised cost³, stability of market funding, share of uninsured deposits, as well as risk management and viability of business models.

The impact of turbulence in the US and Swiss banking sectors on the euro area banks is limited. Tension increased in the euro area bank equity and financing, as well as CDS markets, but it started to ease rather quickly. First, exposure of the euro area banks to the affected US and Swiss banks are negligible. Second, the liquidity and capital ratios of the euro area banks are good overall, the potential losses from revaluation of securities held at amortised cost to their market value are limited, and funding is seen as relatively stable, as it is dominated by guaranteed deposits. Third, the overall resilience of the euro area banking sector against shocks is good, and better profitability provides an additional positive effect in the short term. Resilience is also strengthened by the fact that, unlike in the US, Basel III supervision requirements in the euro area are

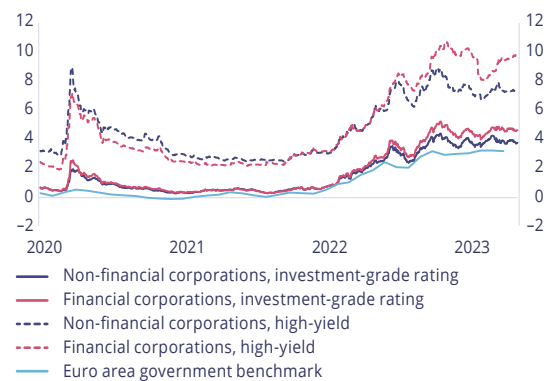
² In September 2022, the ESRB issued for the first time a general warning on vulnerabilities in the EU financial system in order to draw attention to the increased risks and the significantly heightened probability of tail-risk scenarios materialising.

³ The liquidity crisis of the US regional banks shook the financial markets significantly in March 2023. The US bank SVB acquired and held at amortised cost a large amount of long-term securities. With the interest rates increasing, the market value of these securities fell, and unrecognised losses started to accumulate. When significant outflow of deposits started (SVB was not subject to Basel III liquidity requirements), SVB was forced to sell at loss the securities held at amortised cost which otherwise would have been held up to their maturity.

Chart 1.2

Euro area 10-year government benchmark bonds and eurobonds of financial and non-financial corporations

(yield; iBoxx indices; %)



applicable to all banks. At the same time, stress in the banking sectors of other countries brought the need to complete the Banking Union in the EU and strengthen the EU's bank and non-bank regulatory and supervision framework to the forefront.

High inflation, tighter financing conditions and weakening of the growth increase the vulnerability of borrowers in the EU and the euro area. The resilience of borrowers is supported by the still strong labour market, state support measures and savings made during the pandemic. The share of NPLs in the bank loan portfolios continues to decrease, while the share of the loans which have been reclassified to Stage 2 has increased slightly. **Due to the interest rate rise and high uncertainty, signs of a downward turn in the real estate market cycle are seen in many euro area countries.** In the housing markets of the euro area countries, a drop or slight decrease in the growth rate of prices is observed. The commercial real estate market is in a downturn phase, and a significant fall in the number of transactions and prices is present in many countries. In some countries orderly adjustment of real estate prices is even desirable to a certain extent, given the excessive price and activity growth during the previous years. Developments in the real estate market do not yet translate into a decline in the EU bank loan quality; however, a more persistent deterioration of the real estate market would cause a significant drop in the collateral value and an increase in the credit risk. Turbulence in the commercial property market may increase stress in the financial system given the close links between the bank and non-bank financial sectors, as well as the large exposure of both sectors to the commercial property market and the contagion risks.

The financial sector of Latvia still depends on developments in parent banks and their strategic decisions. During the pandemic, the substantial presence of stable foreign investors in Latvia's financial sector significantly limited the increase in financial stability risks in Latvia. However, amid the weakening global economy, high inflation, rising interest rates and tight financial markets, **the vulnerability of the Nordic financial system in connection with the unbalanced development of the housing market, high household debt level, as well as the high dependency of the major banks on the market funding and large exposure to the commercial real estate has come to the forefront again.** Energy price fluctuations have created additional risks to the financial stability⁴. Taking into account the geopolitical context, there are still high risks of cyberattacks and other large-scale unexpected disruptions in the financial infrastructure in the Nordic region.

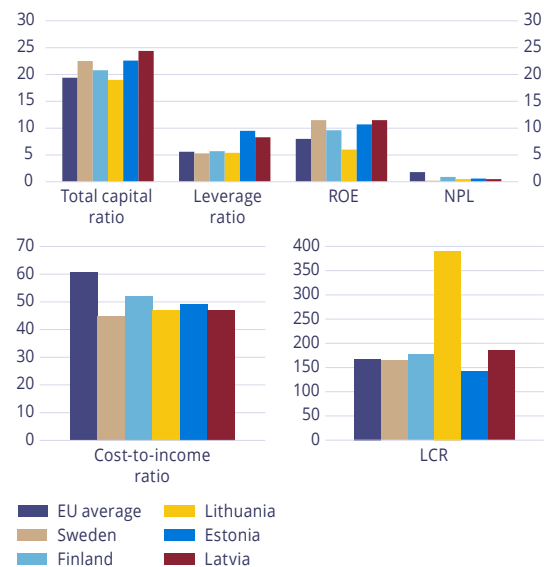
With inflation and interest rates rising, housing prices in Sweden have fallen by about 13% from the historically high level in February–March 2022 and are currently showing signs of stabilisation. **Taking into account the significant rise in housing prices following the correction observed in 2017–2018, even a rather deep fall in prices does not yet cause significant turbulence in the financial system.** However, higher loan servicing costs and smaller investments in the housing market are reflected in a weaker consumption and investments. If the adjustment continues, both the borrowers' ability to refinance their debts and – in the event of continued stress in financial markets – the financing conditions of parent banks in financial markets might be adversely affected with time.

The financial stability risks are exacerbated by the high exposure of the Swedish financial sector (banks, investments, insurance corporations, pension funds) to commercial real estate. This sector is highly concentrated and leveraged in Sweden, and in the environment of rising interest rates, the debt refinancing and insolvency risks of the commercial real estate market participants are increasing. Turbulence in the real estate markets of the Nordic region may put an additional pressure on economic growth and lending in the Nordic and Baltic regions.

⁴ In autumn 2022, high volatility and the sharply rising electricity and gas prices created liquidity stress for energy companies in some European countries, including Sweden and Finland.

Chart 1.3
Main financial indicators of Nordic, Baltic and EU banks

(at the end of 2022; EBA sample of major banks; %)



Overall, the financial indicators of the credit institutions related to Latvian credit institutions remain strong. Similarly to other European banks, the stock prices of Swedish banks have fallen since March 2023, while their valuations in the stock market are generally high (e.g. the P/B ratio stands well above 1), especially if compared to the average of the European banks. CDS and the bank bond yields have risen, and the funding costs for the Nordic banks have increased overall. Still, their high profitability has improved even more due to the rising interest income, and the capital and liquidity ratios are good (see Chart 1.3).

Domestic macrofinancial environment

Prepared by Andrejs Semjonovs, Jekaterina Petkeviča

In 2022, the economic growth was adversely affected by the decline in the economic sentiment and a broad-based and sharp rise in costs caused by Russia's invasion of Ukraine. At the same time, lifting of the restrictions related to the Covid-19 pandemic facilitated the economic activity and growth in private consumption. With the global energy and food prices falling, inflation in Latvia is gradually decelerating, but it is increasingly driven by the demand and wage dynamics. As inflation has been high for an extended period of time, the risks of further deterioration of the borrowers' solvency rise.

A short-lived and shallow recession was observed in the Latvian economy in mid-2022; however, the annual GDP grew by 2.8% overall. GDP growth was facilitated by the growth of private consumption and exports. Although the purchasing power of the population decreased, the government support to overcome the impact of the energy price rise and the savings made during the pandemic supported the consumption amid high inflation. The performance of the economic sectors was uneven.

According to Latvijas Banka's June 2023 forecasts, a slight increase in the Latvian GDP is expected in 2023 (1.2%). In the first quarter of 2023, GDP grew by 0.4% year on year (seasonally and calendar adjusted data). Nevertheless, in 2024, the economic growth may reach 3.1%, with the absorption of EU funds accelerating and the cost level normalising owing to the rearrangement of energy and material supplies.

Along with the global fall in energy and food prices inflation is also gradually decelerating in Latvia (see Chart 1.4), yet the price growth has been high for a long time exerting a significant pressure on the solvency of NFCs and households and negatively affecting the housing affordability. The rise in consumer prices is increasingly driven by the demand and wage dynamics – the core inflation, including service price inflation, is relatively high. Risks of growing impact of persistent inflation on the borrowers' solvency are on the rise. Under the baseline scenario, inflation in Latvia is expected to gradually subside over the course of 2023 and could be around 3% at the end of the year. According to Latvijas Banka's June 2023 forecasts, the average consumer price growth in 2023 and 2024 will be 8.5% and 2.4% respectively.

Chart 1.4
Annual changes in consumer prices, producer prices and construction costs (%)

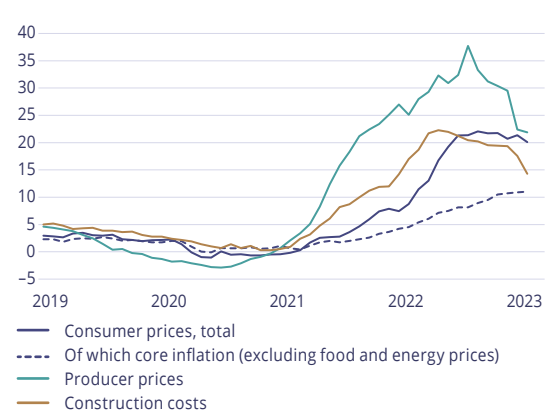
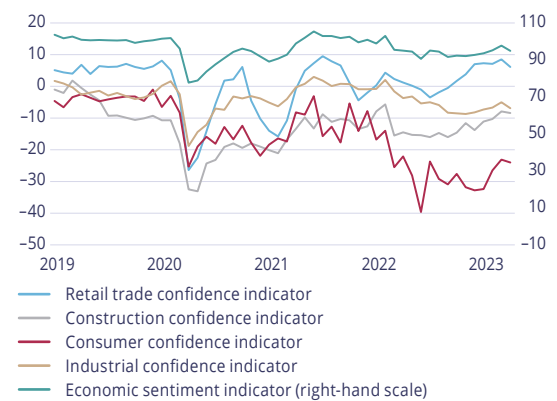


Chart 1.5
Economic sentiment indicator of Latvia's businesses and sectoral sentiment indicators (in points, net results of replies)



The overall confidence of consumers and businesses was driven by the geopolitical uncertainty after Russia's invasion of Ukraine, as well as inflation expectations and the resulting monetary policy tightening (see Chart 1.5). After the outbreak of the war in Ukraine, the consumer confidence indicator in Latvia followed a downward trend; however, since mid-2022, the confidence indicator has improved slightly along with the initiation of the government support to overcome the impact of the energy price rise. Although in the construction and manufacturing sectors the confidence indicator was volatile, it remains negative.

A resilient labour market, robust wage growth and state support measures implemented until the end of the 2022/2023 heating season stimulate household solvency and private consumption. The unemployment rate remains low – it stood at 6.4% in the first quarter of 2023 and, according to Latvijas Banka's June 2023 forecasts, will not significantly increase in 2023–2025

either⁵. A low unemployment rate continues to exert pressure on wage growth, and, given the robust wage growth, the risks of a significant decline in consumption following the reduction of the state support measures are also low.

The sluggish investments and weak lending activity remain an important systemic structural weakness which has been a long-standing obstacle to Latvia's development and competitiveness. In addition to the long-standing high risk aversion in making investments, including on the part of bank lenders, the investment activity is currently limited by the large uncertainty, high cost level, rising loan interest rates and generally tighter financing conditions, as well as slow absorption of EU funds.

In the tense geopolitical situation in 2022, instead of the expected termination of economic ties in trade with Russia a reduction in imports has occurred, with companies finding alternative markets for key raw materials, while the export value has remained close to the previous year's level. At the same time, volumes of trade with

⁵ Unemployment rate forecasts stand at 6.7%, 6.4% and 6.4% in 2023, 2024 and 2025 respectively.

the CIS countries have increased significantly, especially in the commodity groups subject to export sanctions imposed on Russia (see Box 1.1 "Management of the risks of non-compliance with the sanctions imposed on Russia and Belarus").

The government deficit in 2022 was lower than initially expected due to both tax revenues being facilitated by the high inflation and the lower-than-expected expenditure, including for the provision of energy support as well as the implementation of EU-funded projects. This year, budget expenditure will remain at a high level; however, due to a sharp rise in revenues the budget deficit will decrease slightly.

A sharp increase in government debt servicing costs is expected in the coming years due to rising interest rates. Although Latvia's government debt level is not excessive (40.8% of GDP in 2022), a sharp rise in its servicing costs alongside the budget deficit increases the need for moving in a targeted manner towards raising the competitiveness of companies, driving up investments and fiscally sustainable solutions for structural weaknesses.

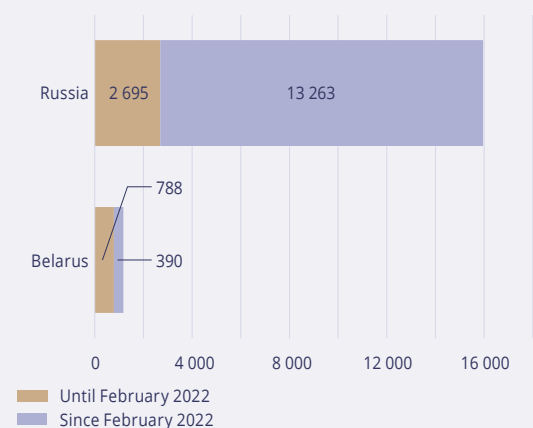
Box 1.1 Management of the risks of non-compliance with the sanctions imposed on Russia and Belarus

Prepared by Andris Ņikitins, Jānis Strazdiņš

With Russia's full-scale military invasion of Ukraine continuing, **the EU, the US, the United Kingdom and other allied countries are stepping up sanctions against the aggressor and its main ally, Belarus.** The increase in the scope of sanctions and the number of persons subject to sanctions or sanctioned subjects (see Chart 1.6) ensures a slow, yet consistent deterioration of Russia's financial and economic situation thereby helping to reach the aim of the sanctions – to achieve a change in Russia's behaviour and cessation of hostilities.

Significant burdens on Russia have been placed by sanctions imposed on 31 Russian credit institutions the total assets of which make up four fifths of all the assets of the Russian credit institution sector. The Council of the European Union has also **imposed a prohibition to provide SWIFT services to 10 Russian credit institutions** the total assets of which make up two thirds of the assets of the Russian credit institution sector.

Chart 1.6
Number of sanctioned subjects as of 19 May 2023



Achieving the objective of sanctions depends directly on the full and effective enforcement of sanctions.

It requires an appropriate legal framework, including timely and qualitative guidelines. The day-to-day enforcement of EU sanctions shows how complicated it is to identify the assets belonging to the persons subject to sanctions, which are concealed in various jurisdictions through complex legal and financial structures, as well as the differences in the case-law of EU Member States (for example, not all Member States criminalise violations of sanctions). In 2022, the European Commission initiated improvements to the legal framework of enforcement of sanctions in order to ensure an increase in the preventive effect of violating EU sanctions by identifying the breach of sanctions as a serious crime in all EU Member States, as well as proposed new strengthened rules on asset recovery and confiscation.

The adoption and implementation of the laws and regulations necessary to improve the legal framework of the EU sanction enforcement takes longer. Meanwhile, **activities by the persons subject to sanctions aimed at circumventing the sanctions are intensifying** rapidly. This is evidenced by information from Latvian authorities. The Financial Intelligence Unit receives increasingly more suspicious transaction reports on the circumvention of sanctions (13 reports were received in 2021, 281 reports in 2022, and 114 reports already in the first three months of 2023). The number of infringements of sanctions imposed against Russia and Belarus identified by the Customs Board of the SRS is also moving up (3433 cases in 2022, including 250 attempts to take banknotes of the EU Member States out of Latvia, and 2081 cases already in the first three months of 2023, including 581 attempts to take banknotes of the EU Member States out of Latvia).

The financial sector, especially credit institutions, plays an important role in the enforcement of sanctions. They ensure the implementation of financial restrictions, i.e. restrictions on the financial instruments and funds owned, possessed, held or controlled by the sanctioned subjects, as well as restrictions on the provision of financial services to the sanctioned subjects. When providing financial services to their customers, credit institutions also ensure the daily implementation of economic restrictions, such as restrictions on trade and investment. In recent years Latvia's AML/CFTP system has been significantly improved, including strengthened supervision, thoroughly scrutinised obliged entities' customer databases and improved internal control systems. Thus, the ability of Latvian credit institutions to ensure compliance with financial restrictions is to be commended. However, as the scale and complexity of economic restrictions continue to grow, as well as the number and complexity of sanction circumvention cases carried out by the sanctioned subjects or for their benefit, **credit institutions continue to devote considerable resources to manage risks related to the enforcement of sanctions.** Ensuring compliance with sanctions also poses challenges for businesses.

In previous years, credit institutions have managed to significantly refine the information they have about their customers; however, **information on customers' customers** or customers' counterparties, their beneficial owners, transportation of the sold products and their end-users, etc. **cannot always be fully verified, thereby forcing the credit institution to refuse the service to the customer or undertake the high risk** of being involved in a breach of sanctions and/or involved in the laundering of money criminally acquired through a violation of sanctions or restrictions. To mitigate the risk of being involved in the circumvention of sanctions, credit institutions require customers who work with high-sanction risk jurisdictions or in high-sanction risk industries to demonstrate their internal control systems for sanction risk management.

Data on cross-border payments of customers of Latvian credit institutions and Latvia's foreign trade statistics, in conjunction with the increase in the number of suspicious transactions reports on possible sanction violations and the growth in the number of detected sanctions violations, point towards an increased threat to Latvian credit institutions of being involved in breach of sanctions and/or in the laundering of money criminally acquired through it.

Both the decisions taken by Latvian credit institutions in 2022 to suspend payments to and from Russian and Belarusian credit institutions and enforcement of sanctions have resulted in a significant decrease in transactions

with customers of credit institutions of those countries. Imports from these countries have also decreased. **At the same time, the amount of cross-border payments by customers of Latvian credit institutions with customers of the credit institutions of some CIS countries – Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Moldova – and other countries – Georgia, the United Arab Emirates, Serbia and Turkey –, as well as the volume of trade with Armenia, Kazakhstan and Kyrgyzstan have increased sharply** (see Chart 1.7).

Although the larger **volume of trade with the above countries hardly compensates for the drop in the volume of trade with the aggressor country and its satellite**, attention should be drawn to the developments especially in those commodity groups which are subject to sanctions for exports to Russia and Belarus (see Charts 1.8 and 1.9). For example, in the second half of 2022, compared to the second half of 2021, the exports of commodities to which EU restrictions apply and which are prohibited to be exported to Russia or, in other words, are subject to sanctions, from Latvia to Russia decreased by 66.4 million euro or by 85%, while the exports of these commodities to the CIS countries located close to Russia increased by 29.8 million euro or by 264%. For example, the volume of exports of commodity groups prohibited to be exported to Russia to Armenia increased by 1303%, to Kazakhstan – by 996%, and to Kyrgyzstan – by 685%, going far beyond the rise in the volume of exports of other commodities exported from Latvia to those countries.

Meanwhile, the substantial boost in the volume of cross-border payments received from the above countries in Latvian credit institutions is mainly explained by payments to and from bank accounts opened by Russian subjects in these countries, both in response to the decision of Latvian credit institutions to stop payments to and from Russian and Belarusian credit institutions, and to the restrictions imposed on Russian banks.

With the growing threats to Latvian credit institutions to be involved in violations of sanctions and/or in the laundering of money criminally acquired through it, **the risk of reputation of the Latvian financial sector also increases**. Despite the substantial progress achieved during the last years in the field of AML/CFTP and enforcement of sanctions, which allowed Latvia to become an example of good practice internationally, any scandal related to breach of sanctions involving any participant of the Latvian financial sector, would harm the reputation of the entire sector. To reduce the risk of reputation due to insufficient supervision and

Chart 1.7
Changes in the amount of cross-border payments by customers of Latvian credit institutions and in Latvia's balance of payments positions of trade with the CIS and other countries (the second half of 2022 vs the second half of 2021)

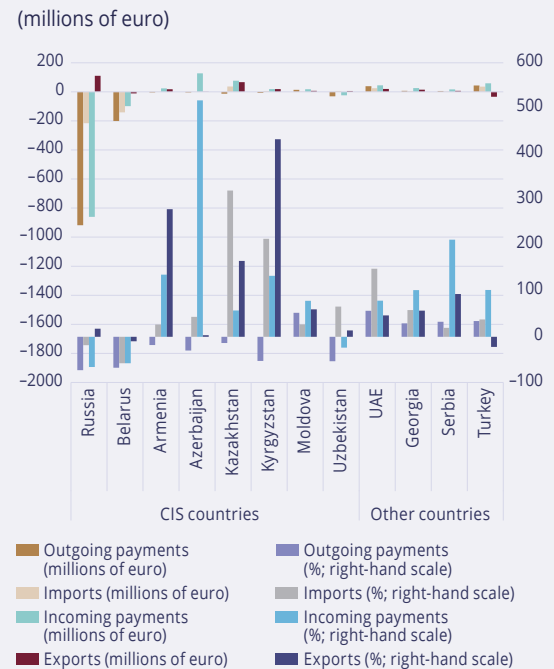
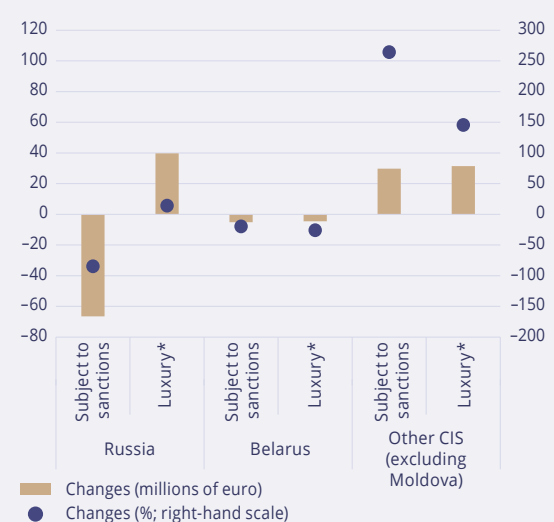


Chart 1.8
Changes in Latvia's exports of commodity groups subject to EU sanctions (the second half of 2022 vs the second half of 2021)



* The export ban on luxury products is applied if the commodity exceeds a certain unit value threshold.

control of the enforcement of sanctions **the competent authorities should continue to actively and fully inform and educate participants of foreign trade of Latvia about sanction enforcement issues**, thereby reducing their potential involvement in sanctions violations and the threat to the reputation of the financial sector, **and continue to improve the timely availability and quality of the information necessary for the enforcement of sanctions. In the meantime, businesses** that work with high-sanction risk jurisdictions or in high-sanction risk sectors **should, for the purpose of sanction risk management, maintain appropriate internal control systems, as well as look for new markets**, as in the long-term cooperation with Russia and Belarus will be significantly encumbered and involves high sanction risks.

Financial vulnerability of borrowers

Overall, the financial situation of households so far remains sound; however, due to the prolonged and sharp cost rise and swift interest rate growth, household solvency continues to deteriorate. For a small share of households, insolvency risks are increasing substantially. The financial indicators of NFCs have in general not worsened so far, and their debt servicing ability is good. Yet, the financial situation for part of NFCs is aggravated by energy price fluctuations and increase in other costs, interest rate rise and decline in the population's purchasing power.

Household solvency

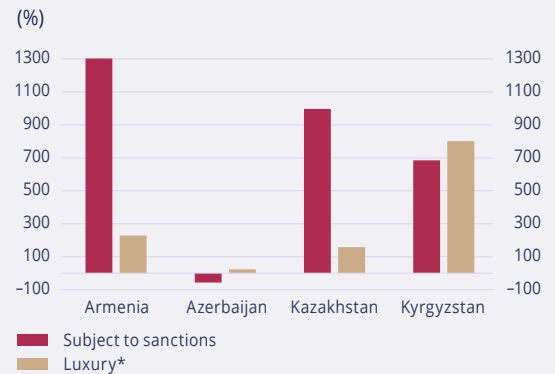
Prepared by Andrejs Semjonovs

The financial situation of households overall continues to deteriorate. Similar to 2022, also in the first half of 2023 the disposable income of households grows slower than the consumer prices. A substantial increase in the interest rates on loans also creates an additional cost burden for most of the household borrowers.

For a small share of households, insolvency risks are rising substantially. For a significant share of households, a prolonged rise in costs makes them revise their spending habits and reduces their possibilities to make savings⁶. Due to the inflation and the growing interest

⁶ According to the data of surveys conducted by Latvijas Banka and SIA LATVIJAS FAKTI, the share of households not managing to make savings due to insufficient funds grew to 38% in February 2023 (30% in September 2022).

Chart 1.9
Changes in Latvia's exports of commodity groups subject to EU sanctions to certain CIS countries (the second half of 2022 vs the second half of 2021)



* The export ban on luxury products is applied if the commodity exceeds a certain unit value threshold.

rates, the debt burden may become excessive (i.e. exceed 40% of net income) for up to 12% of the households; furthermore, the impact on less wealthy households is more adverse (see Appendix 2 "Borrowers' ability to withstand an increase in costs and interest rates").

At the same time, **for a large part of households borrowers, the solvency risks remain very low**, as shown, for example, by the ability of individual households to repay their housing loan or part of it early (see the section on lending development). Also, the household deposits with MFIs in the first quarter of 2023 remained high overall (although the deposit growth is decreasing)⁷. Overall, household savings, robust growing employment income and the significant state support measures implemented until the end of the 2022/2023 heating season substantially reduce the negative impact of the rise in prices and interest rates on solvency.

Household solvency overall is good also because the total household debt level remains low and the debt servicing burden is rather small. Latvia's household debt⁸ to GDP ratio is among the lowest in the EU (16.9% at the end of 2022). Consequently, interest payments on household loans are also small (at the end of 2022, 0.54% of GDP on loans from MFIs and 0.38% of GDP on loans from non-bank lenders).

⁷ In the first quarter of 2023, household deposits with MFIs only rose by 3.3% year on year. During the quarter, the deposits decreased by 1.2%.

⁸ Debt to MFIs, leasing companies and other non-bank financial sector (other than leasing) participants.

Household debt burden is picking up rapidly (see Chart 1.10). Due to the interest rate rise, household debt payments to banks increased by 17.4% in 2022. The calculated interest payments to non-bank lenders grew sharply by 36%. The increase in the debt burden to non-bank lenders was facilitated by both the rise in interest rates on leasing loans and a rapid growth in loans granted by other lending service providers (including payday loans) (by 21.6% in 2022).

Household debt payment discipline is good. In the fourth quarter of 2022, the gap between the calculated and recognised household loan interest payments widened slightly, but was still at a historically low level (see Chart 1.11). **As household solvency is deteriorating due to a persistently sharp price increase and interest rate rise, the payment discipline may worsen slightly.**

NFC solvency

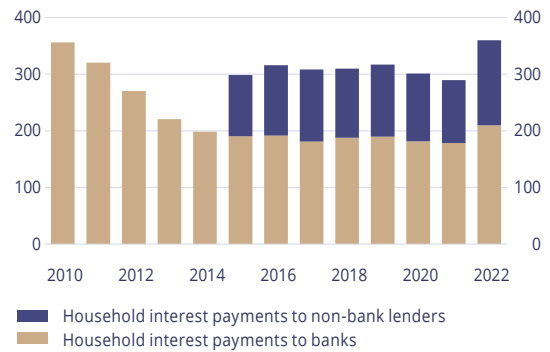
Prepared by Jekaterina Petkeviča

The financial indicators of NFCs have not worsened in general, and their loan servicing ability is good. Yet, the financial situation for part of NFCs is aggravated by energy price fluctuations and increase in other costs, interest rate rise and decline in the population's purchasing power. Insolvency risks are still high for the companies affected by the pandemic.

Turnover is increasing in all sectors, however, it can be mainly explained by the growing prices. According to the financial reports submitted to the CSBs by the major NFCs⁹, their total turnover in 2022 grew by 18.9% year on year (see Chart 1.12). However, **in real terms, the annual changes in turnover were much more moderate** – only 4.5%. Nevertheless, in the trade sector, a decline in real turnover was observed, mainly due to the drop in the population's purchasing power and change in consumer behaviour patterns. The development of the construction sector, including the turnover of the companies active in the sector, is affected by the rise in energy and construction material prices and several structural factors, such as the shortage of skilled labour, cumbersome harmonisation of construction projects and sluggish investments.

⁹ In 2022, the sample of NFCs included around 4850 NFCs. The total number of active NFCs in 2022 is not yet available, but in 2021, the sample of the largest companies covered 94% of the turnover of all NFCs and 70% of the total amount of assets.

Chart 1.10
Household interest payments
(millions of euro)



Note. Data on household interest payments to non-bank lenders are available since 2015.

Chart 1.11
Household interest payments to MFIs and the difference between the calculated and recognised interest payments
(relative to GDP; %)

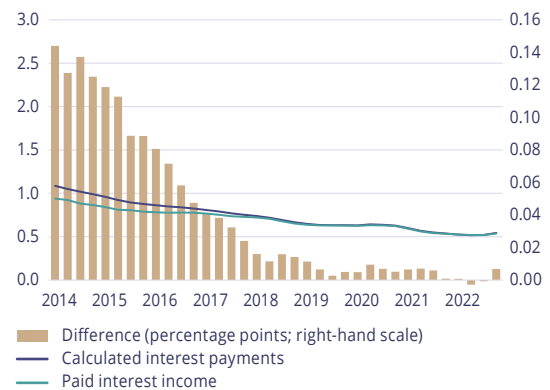
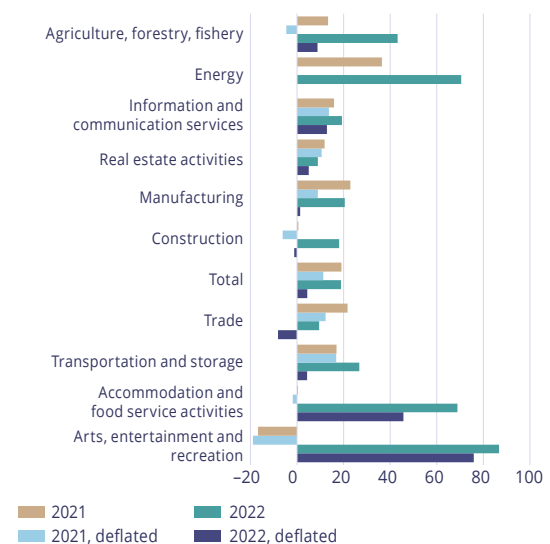


Chart 1.12
Annual changes in NFC turnover
(%)



Note. Deflated by GDP deflators.

The real turnover of manufacturing is also low, as the sector has been adversely affected by the increase in the prices of energy and raw materials, as well as the weakening of demand.

The profitability of NFCs has grown slightly, yet its development by sectors is heterogeneous (see Chart 1.13). The financial position of the NFCs in the sectors most affected by the pandemic has improved slightly owing to the lifting of the Covid-19 containment measures. The losses incurred in accommodation and food service activities decreased, while in arts, entertainment and recreation a significant rise in profitability is observed. For the transport sector, the recent years have been full of challenges, yet its performance in the last year improved.

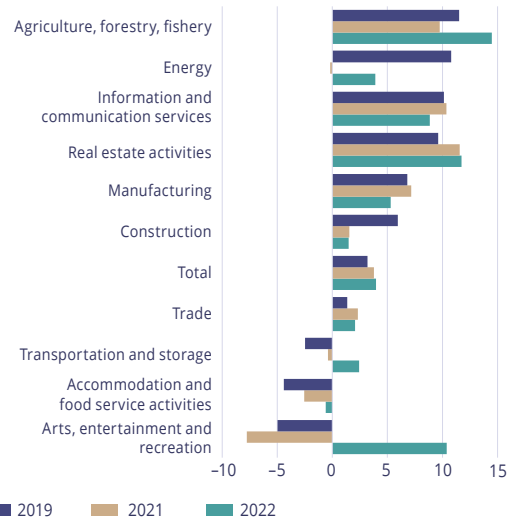
In the NFC segment, **companies with limited possibilities of passing through higher costs to the end consumer have been more vulnerable** (including heat supply companies with administratively regulated prices); **the same also applies to energy-intensive manufacturing, construction and energy companies due to large fluctuations of energy prices**. For example, profitability has deteriorated significantly in manufacturing, a drop is also observed in trade and construction. At the same time, **NFC insolvency risks have been reduced by the large-scale state support measures** implemented until the end of the 2022/2023 heating season, **as well as by the drop in the global energy prices at the end of 2022**.

The NFC debt burden continues to fall, but it can be explained by the denominator effect rather than the drop in the absolute amount of debts. In 2022, the aggregate NFC debt stood at 42.0% of GDP (including debt to credit institutions and leasing companies – 20.1% of GDP¹⁰). The NFC debt-to-equity ratio is improving. It is facilitated by strengthening of equity (see Chart 1.14). Debt burden has only increased for the construction sector suffering from financial problems already since 2021.

Despite the interest rate rise, the NFC debt servicing capacity has not deteriorated for the present, as the debt burden is generally low and profitability is good. The moving 12-month interest coverage ratio remains high – 10.6, i.e. earnings before interest and taxes exceed interest payments 10.6 times. The interest coverage ratio has decreased slightly, but is still

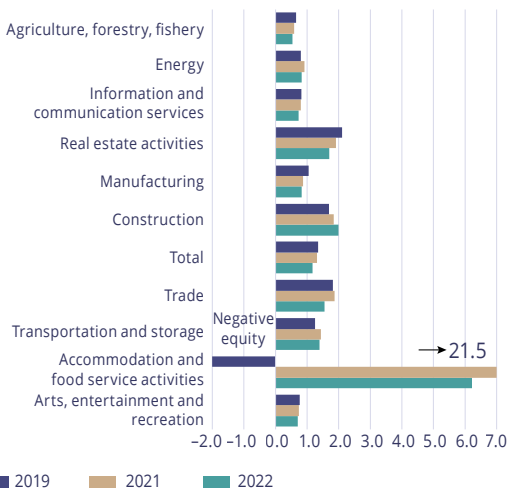
¹⁰ In 2021 – 46.6% and 21.8% of GDP respectively. The drop was driven by the increase in GDP.

Chart 1.13
NFC profitability
(%)



Note. The ratio of pre-tax profit to turnover in the respective sector and period.

Chart 1.14
NFC debt-to-equity ratio
(times)



at a good level in manufacturing, trade, information and communication services and real estate activities. Meanwhile, in accommodation and food service activities, the debt servicing capacity is low.

For the time being, a sharp rise in costs and interest rates has brought down the turnover and weakened profitability in some sectors. **If the price and interest rate pressure remains, an increasing number of companies may face financial problems.** Although in general, the NFC interest coverage and profitability would remain healthy (see Appendix 2 "Borrowers' ability to withstand rises in costs and interest rates"), **from**

a sectoral perspective, a significant impact can be expected in sectors with weaker profitability and in capital-intensive sectors.

In 2022, the number of filed insolvencies of legal persons increased by 42.0%, since the prohibition¹¹ imposed on lenders during the pandemic to submit a legal person's insolvency application was cancelled. Also, the rise in energy prices has led to insolvency of some smaller energy companies (see Chart 1.15). At the same time, **the total number of filed insolvencies is still lower than recorded before the pandemic period.**

In order to facilitate investments in the long term, increase the companies' possibilities to use loans for the facilitation of growth and management of liquidity, as well as prevent the rise in the number of filed insolvencies, **it is important to promote the financial literacy of NFCs and the restriction of the shadow economy, including to ensure transparent financial information to lenders, carry out quality analysis of opportunities, risks and liquidity, as well as improve the ability to timely identify and address solvency issues.**

Real estate market development

Housing market

Prepared by Andrejs Semjonovs

Activity in the housing market is decreasing, hampered by the deteriorating household solvency and affordability of new dwellings. The supply of energy-inefficient dwellings has increased slightly causing a downward pressure on the prices of these dwellings. At the same time, the supply of new housing has been insufficient for an extended period of time, and the price increase of new dwellings is accelerating. The rapid increase in construction costs will weaken the affordability of newly built dwellings even more.

With the solvency of households and affordability of new dwellings deteriorating, the activity in the Latvian real estate market is decreasing. In April 2023, the number of real estate purchases fell by 15.2% year on year. The drop in activity is particularly notable in Pierīga region where in February the number of purchases reached the lows seen in 2020 (see Chart 1.16) and recovered only slightly in March and April. This

¹¹ <https://likumi.lv/ta/en/en/id/315287-law-on-the-suppression-of-consequences-of-the-spread-of-covid-19-infection>

Chart 1.15
Share of insolvency and legal protection procedures initiated against legal persons in 2022 in the total number of legal persons in the country in the given sector

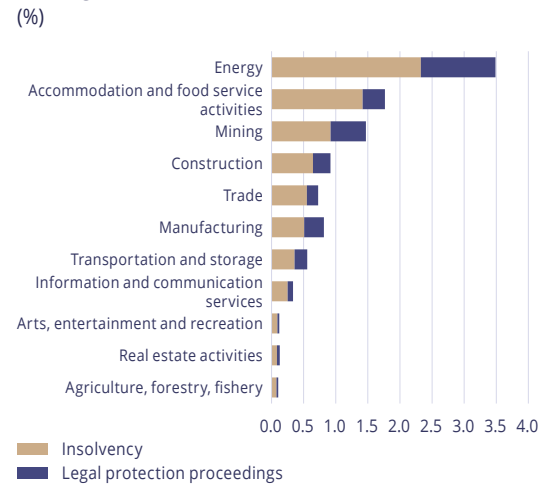
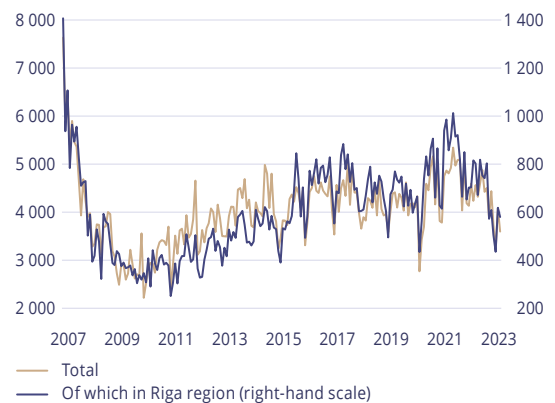


Chart 1.16
Number of purchase contracts registered in the Land Register per month*



* All types of properties, including land.

could be explained by a significant drop in the number of purchases of private homes and land for construction¹². The number of apartment purchases decreased moderately¹³.

Housing supply trends are well reflected by Latvijas Banka analysis using data of major advertisement platforms (see Box 1.2 "Web scraping tool for automated collection of real estate advertisement data"). According

¹² According to estimates by SIA LATIO, the number of purchase-sale transactions with private homes in 2022 contracted by 17% year on year. Meanwhile, the number of transactions with land for construction in the largest municipalities and cities of Pierīga region decreased from 23% (in Jūrmala) up to 62% (in Mārupe municipality). In early 2023, activity in the segments of private homes and land for construction remained relatively muted.

¹³ According to the open data by the SLS, the number of apartment purchases in three or more apartment dwellings in 2022 declined by 3.7% year on year.

to this analysis, **the supply of standard and special project apartments has increased slightly causing a downward pressure on the prices thereof.**

Fluctuations in the supply and prices of energy inefficient dwellings increasingly accentuate the need to intensify building renovation. Due to energy price rise, households with energy-inefficient housing are subject not only to substantially higher energy costs but also to a drop in the value of housing as an important asset. The pace of renovation of multi-apartment buildings has been very slow thus far¹⁴. **To intensify renovation, it is important to increase the funding available for renovation, reduce unevenness across time when the funding is available, raise the capacity of the construction sector, develop the building renovation industry and raise public awareness**¹⁵. Similar as elsewhere in Europe, state funding for renovation of the housing stock is not sufficient, and more active involvement of the private sector is also needed. After strengthening the capacity of the construction sector and increasing the funding available for renovation, additional financial incentives (apart from not applying of real estate tax discounts) for renovation should also be considered.

Construction of new housing is slow and is additionally restricted by the still rapid growth in construction costs and cautiousness of housing developers. According to CSB data, the total area of the commissioned new housing in 2022 increased by 23.0% as compared to the record-low level in 2021, but was 5.6% and 19.4% lower than in 2020 and 2019 respectively (see Chart 1.17). According to the estimates by SIA Colliers International Advisors, the number of commissioned apartments in Riga and Pieriga region in 2023 might be lower than in 2022¹⁶. Market observations show that **housing developers have become**

Chart 1.17
New commissioned apartments
(thousands of m²)

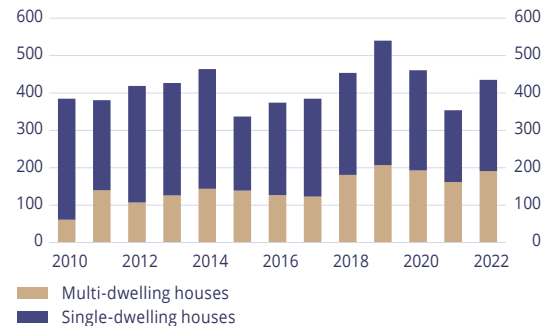


Chart 1.18
House price index
(2010 = 100)



more cautious when starting to implement new projects due to concerns regarding the high and volatile construction costs, as well as the purchasing power of households.

The pace of the increase in good-quality and affordable housing stock in Latvia has been low for a long time. **To promote housing supply, it is still necessary to address several structural deficiencies (e.g. bureaucratic obstacles to construction¹⁷, the shadow economy, lack of adequately-skilled labour in regions).**

Overall, the price growth in the housing market is slowing, yet developments in various housing market segments are very different. In the fourth quarter of 2022, the CSB house price index was 9.1% higher year on year, while the prices decreased by 0.2% quarter on quarter. Due to a weaker demand and increasing supply of standard apartments **the annual growth rate of the existing housing prices is slowing down, while the price increase of new dwellings is speeding up** (see Chart 1.18). Besides, the rapid growth

¹⁴ For example, according to the data on the implementation of the multi-apartment building renovation programme by AS Attīstības finanšu institūcija Altum and Latvijas Banka's estimates, by the end of 2022, only around 1370 buildings or 3.6% of all multi-apartment dwellings in Latvia were renovated or were in the renovation process with assistance from EU funds. Accurate data on renovations and energy-efficiency improvement measures carried out as a result of municipal or private initiatives are lacking; however, when taking these initiatives into account, the absolute majority of the existing and energy-inefficient buildings in Latvia have not been renovated.

¹⁵ For a more detailed analysis of the benefits and hindrances of building renovation, see <https://www.makroekonomika.lv/risinajumi-stindzinosi-augstiem-siltuma-tarifiem-soziem-dalivis-bet-turpmak-steidzami-jalabo>.

¹⁶ The overview of new apartments by SIA Colliers International Advisors can be found here: <https://www.colliers.com/en-lv/research/residential-market-report-2022>.

¹⁷ According to the observations made by real estate developers while operating in the Baltic countries, arranging all the necessary documentation for the building process in Riga takes much longer than in Vilnius and Tallinn.

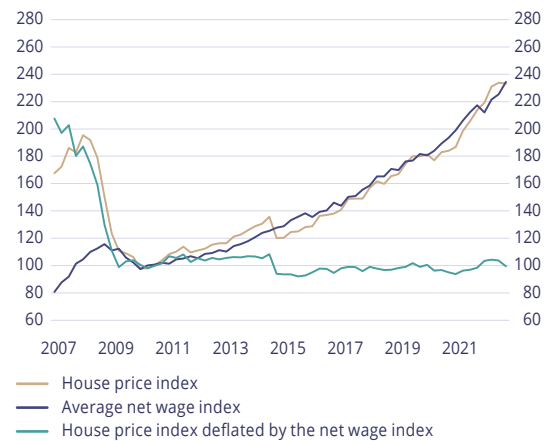
in construction costs continues to facilitate the rise in reservation prices of new dwellings. It is expected that this year, the increase in prices of new dwellings will remain high.

According to operational information of the advertisement analysis by Latvijas Banka, at the beginning of 2023, there are no significant corrections (see Box 1.2. "Web scraping tool for automated collection of real estate advertisement data").

With the average housing prices growing quicker than wages in 2022, **the affordability of housing has slightly worsened overall, but is still at a historically high level** (see Chart 1.19). However, **the affordability of new housing is declining rapidly** (see Box 1.3 "Assessment of the affordability of new dwellings and creditworthiness of borrowers").

Due to the lower affordability, the activity in the new housing segment may decrease slightly, yet the risks of significant housing price adjustments are low. Accordingly, the housing market is not causing significant risks to the financial stability. In Latvia, in contrast to several EU countries, the imbalances in the housing market did not increase significantly, lending has been cautious, and household debt is low. **Adjustment risks in the new housing segment are also limited by the persistently weak supply.** Due to the lower affordability, the trend to purchase more compact dwelling might increase.

Chart 1.19
Ratio of house prices to average net wage
(2010 = 100)



Note. The house price index deflated by the net wage index reflects a simplified housing availability indicator. The higher the indicator, the worse the availability of housing.

After the fluctuations caused by the global consequences of the warfare in Ukraine in the spring of 2022, rental supply and rental prices have stabilised in Latvia. According to the data from Cenubanka.lv, the number of housing units offered for rent and their average price did not change significantly in late 2022 and early 2023. Overall, rental offer in Riga in early 2023 was slightly higher than in 2020–2021 on average, mainly due to a larger supply of standard apartments. The rise in rental prices in Riga has slowed down.¹⁸

¹⁸ In February 2023, rental prices (euro per square metre) in the new project segment were 1% lower year on year, while the rental prices of standard apartments were at the level of February 2022.

Box 1.2 Web scraping tool for automated collection of real estate advertisement data

Prepared by Jānis Strazdiņš, Tetiana Lem

Latvijas Banka has developed web scraping tools to collect and process real estate sales and rental advertisement data from major advertisement platforms¹⁹.

The data collection tools developed by Latvijas Banka are based on Python code and are run automatically daily. The tools collect data from advertisements on ss.com, city24.lv and inch.lv platforms by adhering to the principles of web scraping best practice²⁰. The data are processed by converting data with heterogeneous forms to heterogeneous and machine-readable forms. In case of using several data sources, advertisements and objects repeated in various sources or in time are identified and the unique data are selected to avoid double counting.

The **data obtained** with the help of the web scraping tools **allow to quickly monitor the dynamics of the Latvian housing market**, including analysing the number and average price of dwellings offered for sale in the advertisements by various breakdowns (e.g. geographical location, real estate type and building type).

In Charts 1.20 and 1.21, the advertisement data reflect a detailed dynamics of the apartment supply and average price respectively by apartment segments in Riga. Due to the sharp rise in energy prices, **in the second half of 2022, the number of (energy-inefficient) standard and special project apartment sale advertisements in Riga increased substantially** (see Chart 1.20). In early 2023, the supply of such apartments decreased slightly but is still larger than in 2021. As compared to 2021, the number of advertisements offering various apartments and private homes for sale in the regions and cities of Latvia has also grown slightly. **Due to increased supply, the sales prices of standard and special project apartments in Riga have declined** (see Chart 1.21).

Housing advertisements mainly provide information on the apartment supply in the market and the seller's desired price, rather than the transactions concluded. However, **the dynamics of the price indices derived from advertisements are very close to the actual price and activity indices of the housing market; furthermore, it serves as a leading indicator of developments in the real estate market.** The SLS price index dynamics is similar to changes in advertisement price indices, while a slight deviation between the indices can be explained by the time between the publishing of the advertisement in portals and the actual closing of the

Chart 1.20
Number of Latvia's dwelling sale advertisements by region

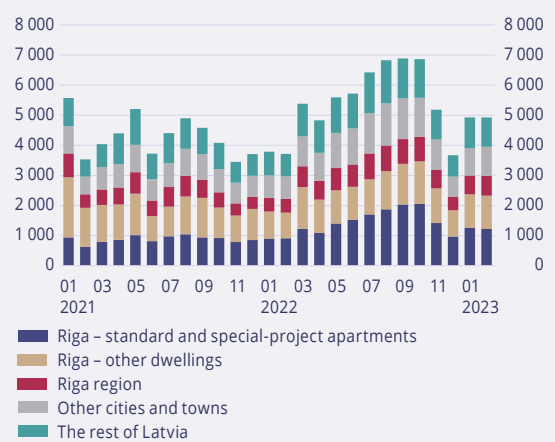
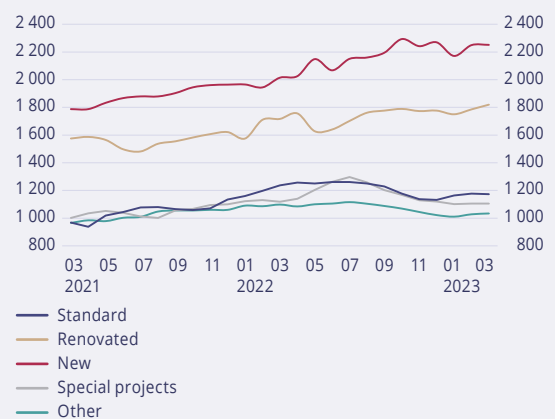


Chart 1.21
Monthly price changes of Riga's apartment advertisements depending on the apartment segment (EUR/m²)



¹⁹ For more information, see the article: <https://www.makroekonomika.lv/ka-cenas-sludinajumos-var-veidot-izpratni-par-nekustamo-ipasumu-tirgu>.

²⁰ The tools used do not encumber the operation of the platforms; the website's owners are informed of data collection.

transaction (see Chart 1.22). For example, the SLS data show a slight drop in prices between July and September 2021, while the peak is reached in June 2022. In the advertisement data, a corresponding reduction in housing prices in 2021 is observed in March–April, while the highest point is in March 2022.

When comparing the data on housing price dynamics obtained from advertisements and collected with quarterly housing price index created by the CSB, the differences in trends seen in Chart 1.23 (a lag of about one quarter) can also be explained by the time elapsed between the publishing of the advertisement and the conclusion of the transaction.

Chart 1.22
SLS and advertisement price indices for all real estate
(December 2020=100)

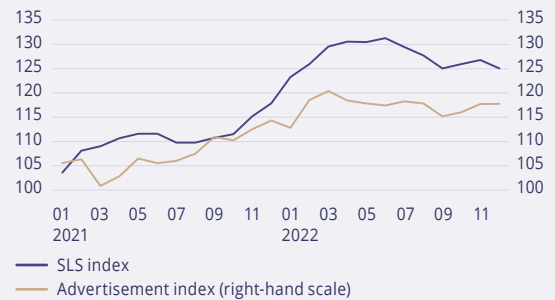


Chart 1.23
Quarterly changes in CSB and housing advertisement price indices in Latvia
(%)



Box 1.3 Assessment of the affordability of new dwellings and creditworthiness of borrowers

Prepared by Andrejs Semjonovs

The affordability of new dwellings is deteriorating significantly because creditworthiness of the potential borrowers has decreased: the wage growth is considerably outpaced by the increase in new dwelling prices, and the rise in interest rates on housing loans drives up loan servicing costs. According to the assessment by SIA ARCO REAL ESTATE, in 2022, the average price²¹ of new dwellings available for purchase in Riga grew by 18.0% year on year. For comparison, the average net wage in the country in the respective period grew by 7.0%, while in real terms it fell by 8.8%. Meanwhile, according to the statistics compiled by Latvijas Banka, the average interest rate on new housing loans from January 2022 to January 2023 increased by 2.4 percentage points.

In late 2022, the borrowers' creditworthiness was still relatively sound, yet in 2023, the affordability of average-sized and large new housing in Riga is deteriorating. According to a simplified assessment²², considering a dwelling to be affordable if the debt servicing costs of debt acquired for purchasing the dwelling do not exceed 40% of net income, those households with a total income equivalent to two average net wages

²¹ The supply price or the price of dwellings available for purchase reflects the affordability of newly built dwelling in a more timely manner than the transaction price. Currently, a significant part of new housing is reserved during the construction stage, and the total housing price fixed at the time of reservation is reflected in the transaction data with a delay of up to 1–1.5 years.

²² Assumptions: 1. The borrower's liabilities are subject to an even payment schedule of 30 years, and the borrower pays the first instalment of 15%. 2. After March 2023, EURIBOR increases according to the financial market expectations on 27 April 2023 (3, 6, 12-month EURIBOR will increase to around 3.7–3.8% until the autumn of 2023 and then will decrease gradually). 3. Household income is equivalent to two average net wages in Latvia and in 2023, it grows in accordance with the forecasts by Latvijas Banka about the rise in the annual wage. 4. The calculation uses the average price of new housing supply in Riga in the respective period. In 2023, apartment prices will increase at a pace equal to the 2022 average.

in the country were able to purchase an apartment with an area of 111.6 m² in a new dwelling in Riga with a housing loan in January 2021 (see Chart 1.24). In the fourth quarter of 2022, the area of a new apartment affordable for such a household decreased to 86.0 m². With the housing prices and EURIBOR continuing to grow in 2023, in mid-2023, households with average income will be able to purchase an apartment with an area of less than 70 m². The declining affordability of new housing is also reflected by the fall in reservations of new housing and the drop in the activity in the new project apartment market in Riga at the beginning of 2023²³.

Larger apartments (such as those with three or four rooms) are becoming affordable to the wealthiest households only (see Chart 1.25).

Due to the sharp rise in new housing prices, the time necessary²⁵ for households to accrue the first instalment of the housing loan is increasing slightly.

For example, to pay the first instalment of 15% in order to purchase an apartment with the area of 80 m², a household with an average income in the country in January 2021 needed 3.6 years, while in September 2022 – 3.8 years (see Chart 1.26).

²³ According to the estimates by SIA Colliers International Advisors, 38% of the housing under construction in Riga and Riga region were reserved at the beginning of 2023. This is much less than in 2021 and 2022 (50–52%). According to the estimates by SIA ARCO REAL ESTATE, the number of transactions in the new apartment market in Riga in the first quarter of 2023 was 36% lower than in the fourth quarter of 2022 and 35% lower than in the first quarter of 2022.

²⁴ The calculation uses housing loan conditions listed in note 22.

²⁵ The calculation uses the assumptions listed in note 22. In addition, it is assumed that the household accrues 30% of its income each month for the first instalment of the housing loan.

Chart 1.24
Assessment of the area of a new apartment in Riga available for households with average income in the country (m²)

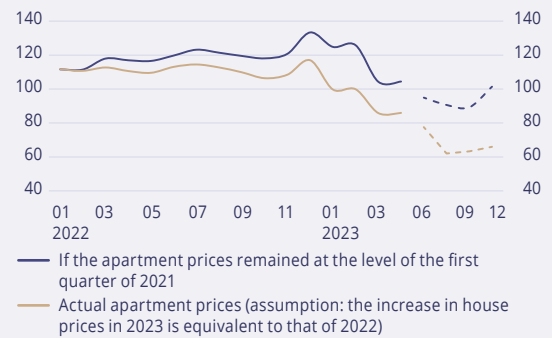


Chart 1.25
Total monthly net income necessary²⁴ to purchase a new apartment in Riga to avoid excessive debt service costs (euro)

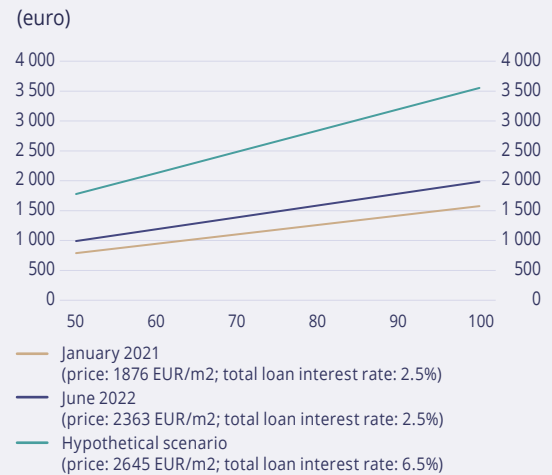
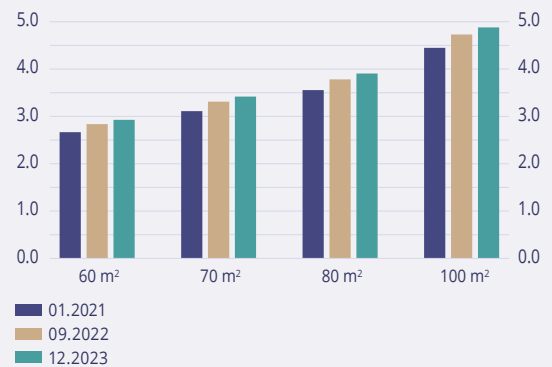


Chart 1.26
The time necessary to accrue the first instalment of 15% of the housing loan for households with average income in the country depending on the area of housing (years)



Note. 12.2023 – projected values.

Commercial real estate market

Prepared by Jekaterina Petkeviča

The rising costs of funding increase the investors' borrowing costs and adversely affect the value of real estate and investments. In the commercial real estate market, the demand for energy-inefficient premises is falling gradually. Deteriorating household purchasing power limits the income of the trade segment.

High uncertainty and a rise in the costs of funding after the pandemic and the adverse effect caused by energy prices **restrict the recovery prospects of the commercial real estate market**, and the risks remain elevated.

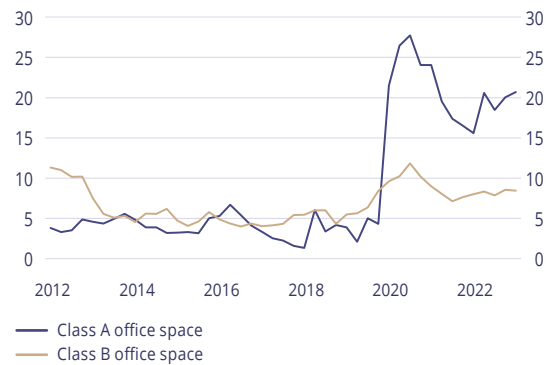
Good offers are currently lacking, and the amount of investments has decreased in the commercial real estate market. According to the data by SIA Colliers International Advisors, in 2022, investments mainly consisted of small transactions (77% of the number of transactions) entered into by the investors of the Baltic States (64% of the total volume of transactions). The cautiousness of the investors is driven by several factors: weakening of the economic growth, rising construction costs, increase in energy prices and interest rate rise.

The interest rate rise adversely affects the investors' borrowing costs and the real estate prices. Increasing costs of funding in the commercial real estate segment reduce return on equity and may accordingly cause a substantial upward pressure on the expected yield. With the yield rising and the rent rates not increasing, a downward pressure on the real estate value occurs²⁶.

Price adjustment in the Latvian commercial real estate market is slow, as the volume and number of transactions is small. Commercial real estates are usually revalued with a certain time interval; therefore, a situation may occur where in the balance sheet of the financial market participant (e. g. a real estate fund) the real estate is still accounted with a higher value than the value that would have been determined by the market situation. A risk emerges that, should the financial market participant decide to remove the funds from the project or the fund, it will not be possible to sell the real estate soon, as, first, liquidity is lacking in

²⁶ Accordingly, to obtain a higher return, the property is to be acquired at a lower price.

Chart 1.27
Share of vacant Class A and B office space in Riga (%)



the commercial real estate market and, second, the actual sales price may be lower than the book value. **Reduction in the real estate prices, tighter financing conditions and a non-liquid and shallow real estate market may cause difficulties in loan refinancing.**

With the value of real estate decreasing, the loan-to-value ratio grows and the value of the investment part of the real estate owner falls. A credit institution may request an additional collateral for the borrower to be able to fulfil the condition of the loan-to-value ratio.

Owners of commercial real estate perform indexation of the rent in order to compensate for the increase in costs amid the high price and cost inflation. In market segments with a higher share on non-occupied space, tenants have the possibility to agree on a partial indexation.

In the office segment, the demand for commercial real estate premises of a lower energy efficiency class is decreasing. The share of non-occupied office premises is high (11% according to the estimates by SIA Colliers International Advisors; see Chart 1.27). This increases the competition among the owners of new and old office buildings for tenants – not only in terms of the rent rates, but also in terms of the tenants considering the utility payments which are lower in energy-efficient premises. With a part of employees continuing to work remotely, office tenants frequently move to new, more energy-efficient and smaller-spaced offices. In order to attract new tenants and retain the existing ones, the owners of older buildings do not perform a full indexation of the rent, while the owners of newer offices and those of the buildings under construction offer more favourable conditions for anchor tenants.

It is expected that the share of non-occupied premises in the offices segment, especially Class A offices, will grow in late 2023 when Class A projects which are under construction will be commissioned: the total amount of reservations of the buildings under construction is around 20%. The ever-increasing construction costs, delay in the delivery of construction materials and rising costs of funding slow down the implementation and commissioning of office construction projects thereby driving the projects costs up.

The decreasing purchasing power of households and the change in the household shopping habits which occurred during the pandemic reduce the income of the trade segment. Although shopping centres have achieved the attendance and turnover indicators observed prior to the pandemic, the share of non-occupied premises in the trade segment remains at the level of the pandemic (7.4%, see Chart 1.28). The owners of commercial space only partially manage to compensate for the rise in costs with an increase in the rent, as for part of the tenants which were affected by the growing energy costs or the previous restrictions related to the pandemic a partial indexation of the rent has been performed.

The demand for industry and warehouse premises remains constantly high. The share of the non-occupied premises is still low – 0.8%. This is driven by the lack of new commissioned projects in the market. Meanwhile, the projects close to completion have already been rented out completely. The tenants of industrial and warehouse premises, as compared to tenants in other segments, are more often subject to a full rent indexation. Taking into account the low supply in the market, it is expected that for the new buildings the ceiling of the rent will increase. This will also be affected by the rising construction costs and interest rates, as well as the environmental, social and management requirements.

Insolvency risks in the hotel segment decrease slowly alongside the gradual recovery of the tourism sector. They are still high in general, since the hotel occupancy rate in Riga and Latvia in 2022 was approximately 20% lower than in 2019.

The data from Latvijas Banka's Credit Register show that **credit institution exposure to commercial real estate, including to the commercial real estate segments most affected by the downturn, are generally assessed as moderate.** The loans granted by credit

Chart 1.28
Share of vacant space and rent rate for retail premises in Riga
(%, per month; euro per m²)

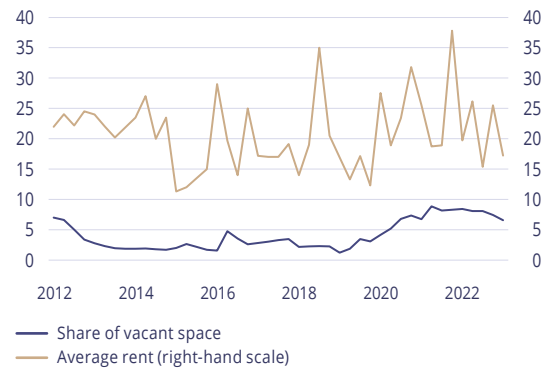
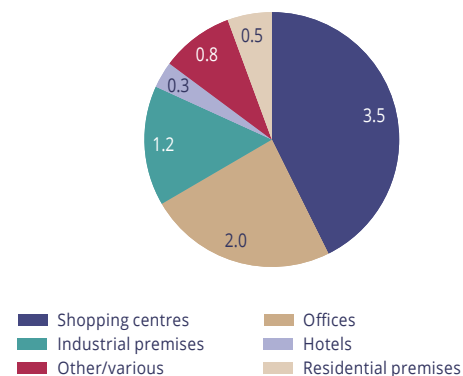


Chart 1.29
Loans granted to the 91 largest borrowers in the real estate sector
(% of the total credit institutions' loan portfolio)



Note. The sample of the largest borrowers in the real estate sector in March 2023 with the total credit portfolio of 1225.8 million euro. The sample is drawn from borrowers with loan commitments of at least 5 million euro.

institutions to 91 largest borrowers of the real estate sector²⁷ amount to 61.7% of the total loans granted by credit institutions to the real estate sector or 8.2% of the total credit institution loan portfolio.

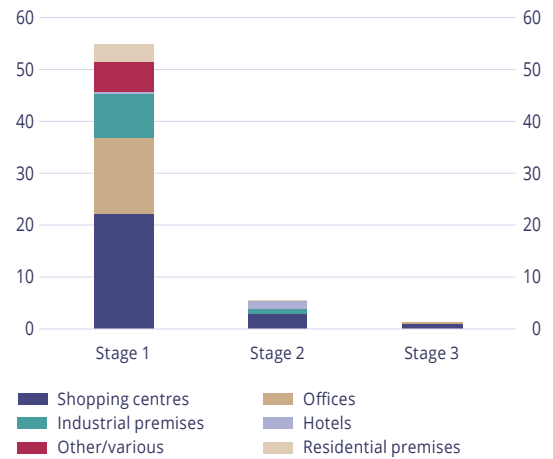
The sample portfolio of the largest borrowers consists mainly of loans to shopping centres (see Chart 1.29). 523.0 million euro or 3.5% of the total credit institution loan portfolio have been granted for the financing of 33 shopping centres. The second group consists of 22 office renters. The loans granted to them amount to 293.3 million euro or 2.0% of the total credit institution loan portfolio. 16 industrial premise and warehouse renters have also been identified in the sample loan

²⁷ The sample portfolio covers the largest real estate borrowers, with their loan portfolio totalling 1225.8 million euro in March 2023. The sample is drawn from borrowers with loan commitments of at least 5 million euro.

portfolio. The credit institution loans granted to these renters amount to 186.5 million euro or 1.2% of the total credit institution loan portfolio. The hotel loan portfolio is insignificant totalling 41.3 million euro or 0.3% of the credit institution loan portfolio.

The quality of credit institution loans granted to the large borrowers of the real estate sector is good. For only two borrowers (one shopping centre and one office centre), the granted loans are non-performing, and their total amount is 1.3% of the real estate sector loan portfolio, which also corresponds to the breakdown of granted loans in Stage 3 (see Chart 1.30). The share of the loans granted to the borrowers of the real estate market in Stage 2 and Stage 3 loans has decreased as compared to the respective indicators during the pandemic period.

Chart 1.30
Quality of the loans granted to the 91 largest borrowers in the real estate sector
 (% of the total loan portfolio issued by credit institutions to the real estate sector)



2. Development and risks of the credit institution sector

Lending development

Domestic lending has improved slightly. This was largely on account of an increase in the short-term loans granted to NFCs. At the same time, signs of reduction in the activity are observed in household lending. Higher interest rates, weak economic activity and elevated inflation are starting to decrease the willingness of the companies and households to take risks. Besides, lending continues to be affected by several structural factors. In general, the amount of financing for the economy is still small, and investments in the economy are insufficient. Non-bank lending continues to grow.

Lending by credit institutions

Prepared by Andrejs Kurbatskis

Since 2022, the trends in lending have been volatile, mainly due to the fluctuating dynamics in NFC lending. However, overall credit growth is on the rise. In November 2022, the annual growth of the credit institution domestic loan portfolio reached 8.0%²⁸; however, in the following months, the amount of new loans decreased markedly, and also **the annual growth rate of domestic loans decreased to 6.3%** (in March 2023; see Chart 2.1). At the same time, amid very high inflation, the domestic loan portfolio continues to decrease substantially in real terms²⁹.

After a prolonged drop, the NFC lending activity has increased; however, over the last months, the annual growth rate of loans to domestic NFCs has moved down slightly. After the global financial crisis, enterprise lending in Latvia was very weak, and short-term growth was observed only in some periods, mainly due to large transactions. Still in mid-2022, the annual rate of change in loans granted to NFCs was negative. Meanwhile, in the second half of the year, **NFC lending started to increase, which was largely driven by a higher demand of the companies for short-term**

²⁸ Hereinafter in this section (including in Charts), for the purposes of comparison, the one-off effects associated with the structural changes in the banking sector and sectoral reclassification have been excluded.

²⁹ Deflating with a GDP deflator.

Chart 2.1
Annual rate of change in loans to domestic NFCs and households
(%)

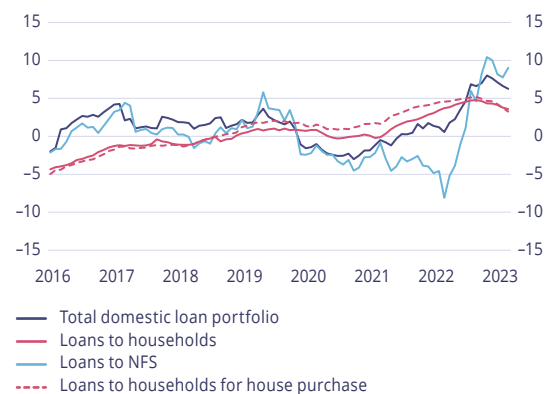
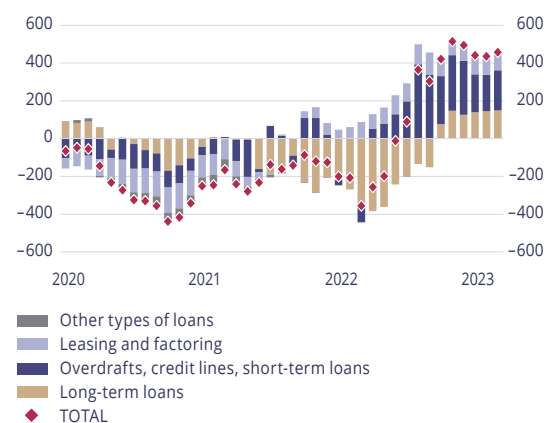


Chart 2.2
Annual changes in the domestic NFC loan portfolio of banks and the related leasing companies
(millions of euro)



financing of working capital amid high inflation and substantial rise in energy prices. Long-term lending to corporates also grew moderately. In March 2023, the annual growth of loans granted to NFCs was 9.0%. Leasing continues to contribute to lending to enterprises (see Chart 2.2).

The NFC lending dynamics vary by both loan type and sector. A more substantial increase in overdrafts, credit lines and short-term loans can be observed in manufacturing and energy; furthermore, in energy, most of the short-term loans for increasing the current assets (mainly for the purchase of gas prior to the start of the

heating season) have already been repaid at the beginning of 2023 (see Chart 2.3). A rise in long-term loans is mainly observed in real estate activities after a significant drop in the previous periods (especially in late 2021 and early 2022). Several real estate companies (including public and local government companies) were granted new medium and large-sized loans. This can partially be explained by the construction of energy-efficient commercial real estate. A slight increase in long-term loans is also observed in other sectors (see Chart 2.4). More than a half of the growth in leasing and factoring consists of loans to the agricultural sector.

Household lending is showing a decline in activity.

The annual rate of change in the household loan portfolio remains positive (3.6% in March 2023); however, **the amount of new loans is decreasing**, which is mainly driven by the dynamics of housing loans. The interest rate rise and shrinking real income start to affect the housing affordability, especially for more expensive apartments in new projects (see Box 1.3 "Assessment of the affordability of new housing and creditworthiness of borrowers").

Reduction in new housing loans is observed in all loan size categories, while a more notable reduction is seen in the more common loan groups in terms of size – of 50–100 and 100–200 thousand euro (see Chart 2.5).

The average new housing loan in Latvia is relatively small – around 50 thousand euro (or 85 thousand euro, excluding loans up to 20 thousand euro which make up a rather insignificant part of new loans and mainly consist of loans for home renovation) (see Chart 2.5). **This could mainly be explained by the fact that there is still a large share of cheaper standard apartments in the housing market.**

The support programme for housing purchase continues to significantly facilitate household lending, although its role has slightly decreased in 2022. In 2022, 40% of new housing loans were granted under this programme. The loans with a state guarantee comprise 32% in the total housing loan stock. Improvements in the programme are still relevant, so that a targeted state support can be provided.³⁰

The interest rate rise implemented by central banks to fight the high inflation translates into a significant boost in lending rates. In Latvia and other Baltic States,

Chart 2.3

Annual changes in the overdrafts, credit lines and short-term loans issued to NFCs by banks and the related leasing companies
(millions of euro)

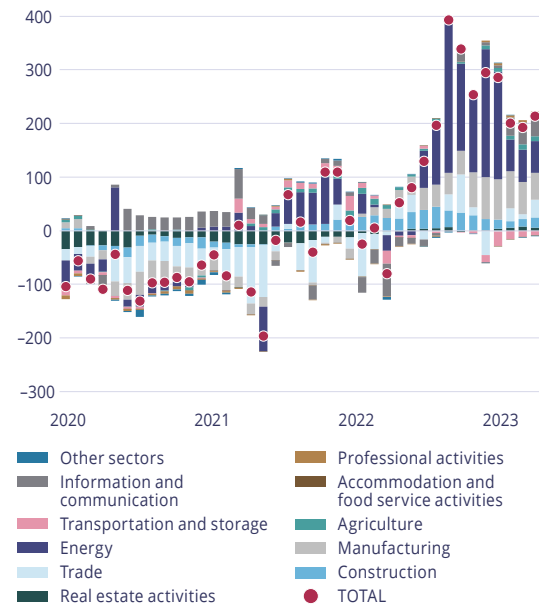
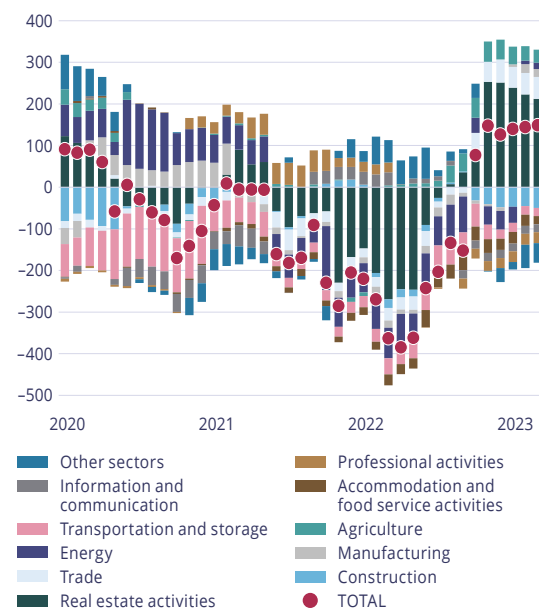


Chart 2.4

Annual changes in the long-term loans issued to NFCs by banks and the related leasing companies
(millions of euro)



these rates are still among the highest in the euro area (see Chart 2.6). **Higher interest rates, weak economic activity and elevated inflation reduce both the companies' and the households' risk appetite to take on**

³⁰ See Latvijas Banka's [Financial Stability Report 2022](#), p. 28.

large long-term liabilities. At the same time, **banks have also become more cautious.** The results of the bank lending survey show that in 2022 banks tightened their lending standards, and the number of rejected applications slightly climbed in general.

Despite more active lending, **the domestic bank loan-to-GDP ratio remains very low** (35% of GDP at the end of 2022) **and continues to decline**, with the household and NFC debt burden increasing at a much slower pace than that of the economy as a whole.

The inadequacy of the current level of financing of the economy to match the level of financing needed for sustainable economic development, due to demand and supply factors, remains a pressing and systemically important issue, given both the persistently weak NFC lending and investments to date, an acute need to make large investments for energy efficiency improvement, as well as the co-financing necessary for the implementation of opportunities provided by NextGenerationEU.

The insufficient lending and the relatively high loan interest rates are affected by both demand and supply factors (e.g. insufficient competition in certain market segments). **In order to build a base for more active lending to NFCs, it is also important to make structural improvements in the business and investment environment**, e.g. to improve the effectiveness of public and local government authorities (including in cooperation with the private sector) and reduce the high uncertainty around the decisions taken by the state policy-makers (including in sustainability policy), reduce the informal economy, gaps in corporate governance, financial literacy, address labour availability issues, make more effective investments in human capital (education, health, demography) and the development of infrastructure (including the digital infrastructure), strengthen the legal environment, as well as reduce obstacles to the development of the construction sector.

Lending by the non-bank financial sector

Prepared by Kārlis Ločmelis

Non-bank lending continues to grow. In 2022, the domestic household and NFC loan portfolio of non-bank lenders expanded by 10.5%. This was facilitated by the recovery of the economic activity, purchases postponed to the time period after the lifting of Covid-19

Chart 2.5
New housing loans by size (millions of euro) and the average loan size (thousands of euro)

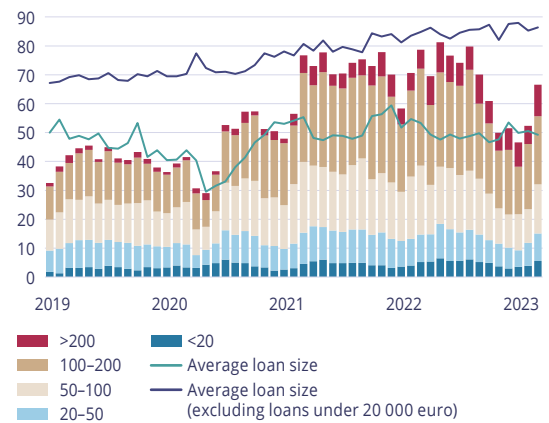
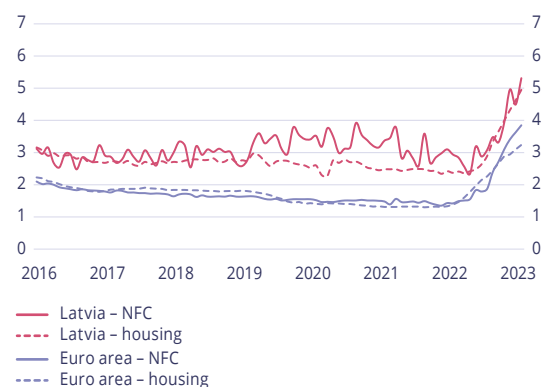


Chart 2.6
Interest rates on new loans (%)



restrictions, active promotion of brand names of other lending service providers and inflation of car prices.

The total loan portfolio of credit institutions and non-bank domestic NFCs and households grew by 7.8% in 2022.

In 2022, the loans granted to domestic NFCs by leasing companies rose by 5.5% year on year. This was stimulated by a strong growth in new leasing loans granted to NFCs. At the same time, in the fourth quarter of 2022, the principal leasing loan repayments also increased substantially exceeding the new leasing loans granted to NFCs. Thus, net new leasing loans granted to NFCs were negative in the fourth quarter of 2022. Although these data still represent one quarter, with the financial cycle being at an inflection point and rising interest rates, these data could mark a new trend by NFCs to reduce debt liabilities. A similar trend is also seen in household leasing loans: in late 2022, the principal

leasing loan repayments increased. Thus, also in the household segment, the annual growth rate of leasing loans decreased to 6.0% in 2022 (12.9% in 2021).

Inflation has affected the car market and reduced the credit risk of car leasing portfolio, while raising the credit risk of new car leasing loans. Since the beginning of 2020, the prices of both new and used cars have increased substantially in the euro area³¹, including Latvia. The growing car prices affect the leasing loan portfolio risk in two ways. They reduce the risk of the existing leasing loan portfolio, as the value of collateral increases. Meanwhile, the risk of new leasing loans rises, since the average amount of funding for the purchase of a car and loan servicing costs are higher. Similar trends are also witnessed in the commercial transport sector.

Loans granted by other non-bank financial sector companies, except leasing companies, to households continue to increase rapidly (19.9% in 2022). This can be explained by the economic recovery after lifting the Covid-19 restrictions, rise in average loans granted to individuals and active promotion of brand names. Although advertising of lending services targeted at consumers is prohibited since 2019, some brand name advertisements include the word "loan" or "borrowing", which, in essence, is a lending advertisement.

A part of other loans offered by the non-bank financial sector cause the risk for the consumers to fall into a debt trap. This is connected with the conversion of the lending product from a short-term bullet loans into credit lines. A part of these non-bank lenders **offer credit lines where the minimum monthly payment can be lower than the accrued monthly interest.** In this case, the principal amount of the loan increases, since the minimum payment only covers a part of the interest amount. This effect is more pronounced when the minimum monthly payment is set substantially lower than the accrued monthly interest, and also when the initial amount of the loan is large.

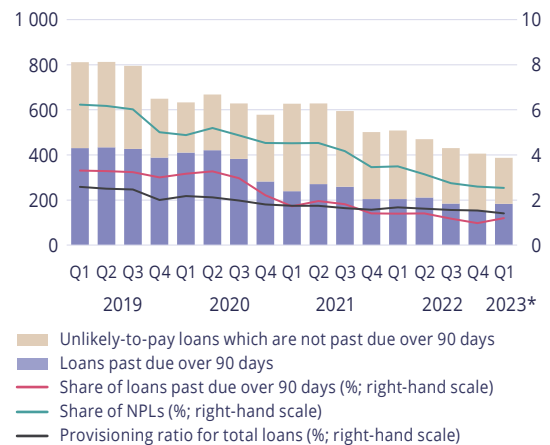
Credit risk

Prepared by Andrejs Kurbatskis

Due to the weakening economic activity and the

³¹ In the euro area countries, car prices grew by 14.1% on average (at the beginning of November 2022 as compared to the beginning of January 2020).

Chart 2.7
NPLs and the share of NPLs and provisions in the total credit institution loan portfolio
(millions of euro)



* Non-consolidated data for the first quarter of 2023 are not fully comparable with previous observations.

persistently high inflation, the credit risk in the banking sector loan portfolio remains elevated. At the same time, the main credit risk indicators of banks have not deteriorated overall. Although the shallow economic recession has been overcome, the credit risk may materialise with a time lag. However, the overall high profitability and capitalisation of credit institutions increase their resilience to a potential deterioration in the quality of the loan portfolio.

The NPLs - both the long past due and the unlikely-to-pay loans - and their share continue to decrease (see Chart 2.7). Despite the weakening economic growth, the borrowers' solvency has not worsened in general. This was underpinned by the state support to households and companies to cope with the rise in energy prices, as well as the savings made by the borrowers during the pandemic. In March 2022, the share of NPLs decreased to 2.5% (including 1.6% in the domestic loan portfolio), which is the lowest level since the crisis of 2008. Meanwhile, amount of loan loss provisions has not changed significantly, thus the NPL coverage ratio improved. This reduces the vulnerability of the banking sector in the case of a potential deterioration in the quality of the loan portfolio.

For the present, improvement in the quality of the loan portfolio can be observed for most of the sectors and also in the household loan portfolio. The generally stable financial indicators of NFCs and the small debt burden allow them to continue servicing

debt without significant problems. NPLs decreased substantially in the sectors affected by the restrictions related to the Covid-19 pandemic, for which the quality of loans deteriorated during the pandemic (accommodation and food service activities where a negligible share of the loan portfolio is concentrated, as well as the transport sector).

The quality of the loan portfolio has slightly worsened in construction and manufacturing only (see Chart 2.8). So far, the deterioration in credit quality affects a very narrow range of related companies and may be explained by specific problems encountered by one group companies. These companies operate in construction and construction-related manufacturing industries.

The financial situation of construction companies has been deteriorating already since 2021 (see the section on NFC solvency), thus the quality of the loan portfolio in construction may continue to worsen. Nevertheless, bank risks are limited by their low exposure to the construction sector. Overall, loans to the construction sector make up only 0.9% of the total loan portfolio, while for construction and two construction-related manufacturing sub-sectors, where deterioration in the quality of the loan portfolio is already observed, – 1.0%.

Stage 2 loans³² continue to decrease. After a temporary increase in March 2022, the share of Stage 2 loans declined quite substantially in the following months (see Chart 2.9). Positively, provisions for Stage 2 loans increased slightly, thus the provisioning ratio of these loans rose from 2.4% in March 2022 to 3.8% in March 2023 and currently is similar to the average in EU countries.

The total amount of provisions and capital adjustments³³ made in the banking sector has grown thereby mitigating the risk of under-provisioning for NPLs and Stage 3 loans. Provisions for problem loans have been relatively low for a long time, and special attention was paid to the adequacy thereof (see also Financial Stability Report 2022). Since the beginning of 2022, the coverage of such loans with provisions has improved slightly; besides, a significant additional

³² Stage 2 loans are loans whose credit risk has risen significantly since the initial recognition, but they are not yet credit-impaired within the meaning of the International Financial Reporting Standard (IFRS) 9.

³³ CET1 capital reduction in accordance with Article 3 of the Capital Requirements Regulation (CRR). Some credit institutions in Latvia make capital adjustments for an insufficient amount of provisions for credit risk.

Chart 2.8
Structure of the loan portfolio and the share of NPLs in the respective loan portfolio
(%)

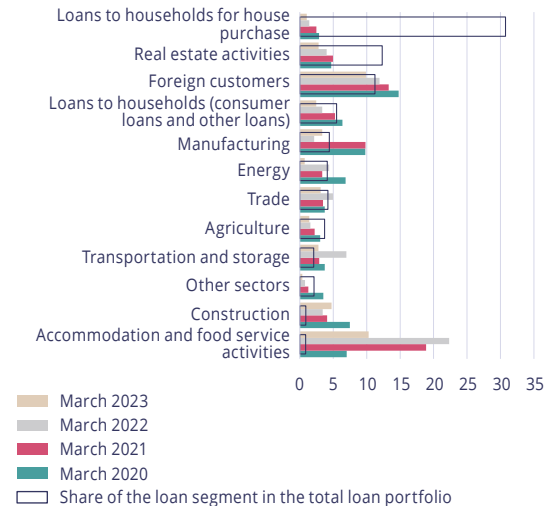
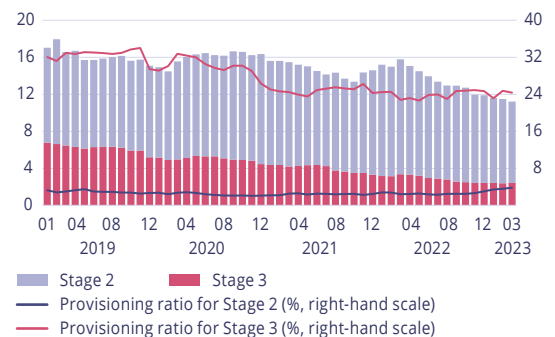


Chart 2.9
Stage 2 and Stage 3 loans and the ratio of provisions to these loans
(% of the loan portfolio)



capital adjustment of 6.5% of the NPLs was made in 2022. Taking into account the still probable risk of deterioration in the quality of loan portfolio, **credit risk needs to continue to be carefully assessed, problem credits need to be recognised early and adequate provisions need to be made.**

The share of forborne loans has not grown either. One of early signs of deterioration in the quality of loan portfolio is an increase in forborne loans, but the share of forborne loans continues to fall. In March 2023, the share of forborne loans which are not past due over 90 days was 2.4% (3.6% in the corresponding period of the previous year).

The maturity of loans to households for house purchase is extended slightly more often than before, while the

amount of **loans with an extended maturity is still insignificant, reflecting an overall good financial resilience of borrowers to the high inflation and higher loan interest rates.** Extending loan maturity may help limit the growth in monthly payments amid rising interest rates. Maturity is usually extended for loans for house purchase, as it is on average greater than for other types of loans, and monthly payments are more affected by changes in interest rates. Compared to the beginning of 2022, the flow of loans with an extended maturity increased slightly, while the share of such loans is low (0.3% of household loan stock in the first quarter of 2023) (see Chart 2.10).

In contrast, a sharp rise in interest rates and a substantial increase in monthly loan payments motivate households with savings to make partial repayment of their loan obligations early. Thus, in the first quarter of 2023, the maturity was shortened for 1.6% of the existing loans for house purchase, which is more than in the previous years on average³⁴ (see Chart 2.10).

Amid high inflation and rising interest rates, there are risks that a part of borrowers may face difficulties in servicing their debts, and the quality of the bank loan portfolio may deteriorate. At the same time, in a scenario of a sustained sharp growth in prices and rising interest rates, only a small part of households is expected to have a significant increase in solvency risks. Meanwhile, the debt servicing capacity of firms in a few sectors would be significantly affected (see Appendix 2 "Borrowers' ability to withstand rises in costs and interest rates"). It should be noted that **in general, the high profitability and capitalisation indicate that banks have a good ability to absorb a potential increase in NPLs** (see the sections on profitability and capitalisation).

Although the credit risk of the foreign customer loan portfolio is still relatively high, the loans to Russian, Belarusian and Ukrainian borrowers are small and continue to decrease. In March 2023, loans to borrowers of the countries engaged in the warfare (without risk transfer according to the residence of the beneficial owner) made up only 0.8% of the banking sector's total loan portfolio (1.1% in March 2022). These loans are concentrated in credit institutions with an insignificant role in domestic lending. A part of other

³⁴ Early repayment may not affect loan maturity, but may take the form of a further reduction of the monthly payment. This calculation only includes loans with a shortened maturity.

Chart 2.10
Housing loans the maturity of which has been changed in the respective quarter
(outstanding amount; millions of euro)

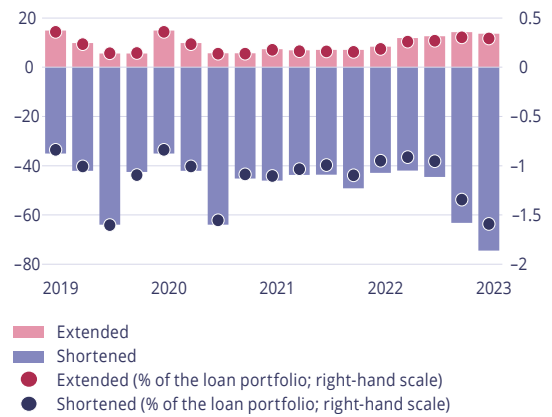
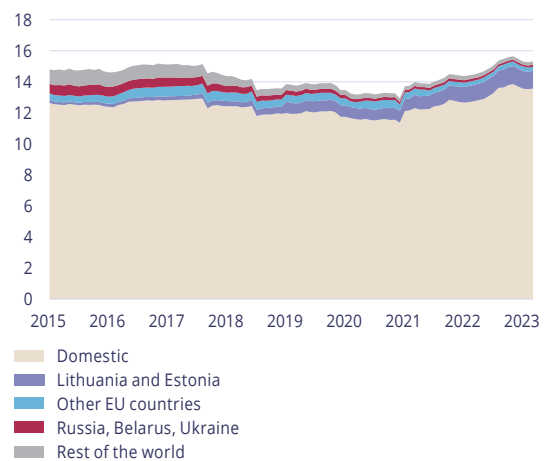


Chart 2.11
Loan portfolio by borrowers' country
(outstanding amount; billions of euro)



foreign customers (except Lithuanian and Estonian customers) could also be related to the CIS countries; however, the total loan portfolio, except Lithuanian and Estonian customers, is also relatively small and continues to decrease: from 4.6% of the total loan portfolio in March 2022 to 3.9% in March 2023 (see Chart 2.11).

Funding and liquidity risks

Prepared by Mārcis Risbergs

Funding and liquidity risks for Latvian credit institutions remains low in general, as domestic deposits exceed issued loans significantly. Credit institutions hold significant funds within central banks and have an overall small portfolio of liquid securities. A large part of securities is held to maturity; however, these

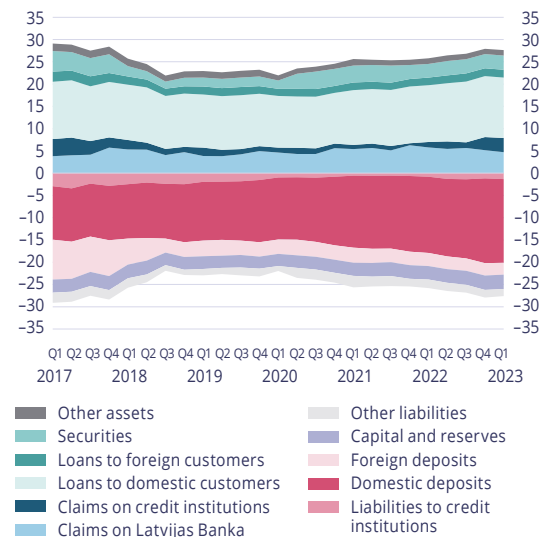
are mainly liquid securities with a sufficiently short maturity. Credit institutions repay gradually the funding raised in the ECB's targeted longer-term refinancing operations (TLTRO III). In general, Latvian credit institutions currently have no need to attract financing from the financial markets. The subsidiaries of the Nordic banks lend a part of their excess liquidity to the parent banks.

The total size of balance sheet of the credit institution sector has increased: in the first quarter of 2023, the annual rise stood at 9.6%. This was mainly facilitated by a small increase in lending activity by the domestic NFCs, while on the liability side, a rapid growth in the domestic deposits was observed. However, it should be noted that the high inflation is a significant factor in the increase in the nominal value of the indicators.

Some changes have occurred in the structure of the credit institution balance sheet. First, the ECB's decision to swiftly increase the interest rates allows credit institutions to make sufficiently beneficial risk-free deposits with Latvijas Banka. Thus, credit institutions still retain a significant amount of liquid assets. Second, subsidiaries of the Nordic banks lent a part of the liquid assets to their parent banks, which translated into tightened requirements for credit institutions (see Chart 2.12). The domestic deposits substantially exceed the domestic loan portfolio of credit institutions; therefore, under centralised management of funds, the funds raised domestically are partially managed within parent banks intragroup level.

The credit institution financing continues to be dominated by the domestic deposits which reached 80.5% of the total amount of financing in March 2023 (a slight increase year on year). The annual rise in domestic deposits was 9.3%. This was mainly ensured by the strong annual increase in NFC deposits (19.2%). The annual growth rate of household deposits has continued to slow down over the last months (3.3% in March 2023). The drop in the growth rate of household deposits is affected by the high inflation, as well as higher bills and other regular payments for various obligations. In addition, with interest rate payments increasing significantly, a part of the household borrowers switched their savings for a partial early repayment of loan obligations. At the same time, household deposits remain the largest and most stable part of the financing (44.0%). Besides, a strong state support significantly contributed to the capacity of both households and NFCs to meet their

Chart 2.12
Structure of credit institution assets and liabilities (billions of euro)



obligations in 2022 as well and thereby facilitated the accumulation of financial resources on accounts with credit institutions³⁵. Changes to the amounts of deposits of other domestic customers are largely driven by the short-term placement of the Treasury's funds with credit institutions.

Despite the sharp rise in the interest rate of the ECB's main refinancing operations, deposit rates offered by credit institutions grow slowly. As a result, the increase in the share of term deposits (including deposits with a notice period for withdrawal up to 3 months or the so-called savings accounts) with credit institutions is insignificant in general. A more significant rise in the share of term deposits was only observed for NFC deposits (9% of the total NFC deposits; 2% – a year ago), as the large NFCs availed themselves of the possibility to deposit funds on a short-term basis (see Chart 2.13). Thus, **the price of the financing raised by credit institutions has not yet grown substantially**, which is reflected in the increase in the credit institution profit (see the section on profitability). Competition to attract household deposits may be facilitated by the Treasury's savings bonds with an interest rate in line with the financial market prevailing interest rates. They are becoming increasingly popular; however, at present, households deposit smaller funds in savings bonds than in term

³⁵ The state support for limiting the spread of the pandemic and compensating households and NFCs for energy prices was 1.1 billion euro in 2022, and most of this support was allocated to the NFCs.

deposits with credit institutions, and in March 2023, total savings bonds made up only 3.7% as compared to the term deposits with credit institutions.

Deposits from foreign customers continue on a downward trend. In March 2023, their share in the total deposits had dropped to 12.2% (including from non-EU countries – 4.3%; see Chart 2.14). Attraction of deposits from high-risk jurisdictions continues to decrease.

Latvian credit institutions have no need to attract additional financing from the financial markets.

Credit institutions are gradually repaying the financing attracted from the ECB for TLTRO III operations, and at the end of March 2023, it accounted for 1.5% of the total amount of the financing of credit institutions. Also, domestic loan-to-deposit ratio remains below 80%, and the four largest credit institutions were able to finance the domestic loan portfolio with domestic deposits (see Chart 2.15). When including the deposits attracted in the euro area countries (mainly from deposit platforms) in the calculation, it can be concluded that all credit institutions are able to finance the domestic loans with the attracted deposits, except for small branches of foreign credit institutions which traditionally use the financing of a parent bank in Latvia. At the same time, there are credit institutions in the Baltic States which regularly attract funds from the financial markets, and their branches also operate in Latvia.

The liquidity ratios of credit institutions remain high.

In the second half of 2022, the liquidity ratios – LCR and NSFR – decreased slightly, yet they are still well above the euro area average and substantially exceed the minimum requirements (see Chart 2.16). The decrease in the particularly ample liquidity observed in the largest credit institutions for many years can be explained by a moderate growth in domestic lending in 2022, as well as by the transfer of a part of the attracted financing to Sweden under the centralised liquidity management of the bank group.

In general, Latvian credit institutions have small investments in securities (8% of the total assets), but for some credit institutions they are substantial and represent up to 50% of their assets (including 38% of those held to maturity; see Chart 2.17). In early 2023, a large amount of liquid securities held at amortised cost was one of the reasons why individual, relatively small US banks experienced liquidity problems. The maturity

Chart 2.13
Developments in domestic customer deposits
(billions of euro)

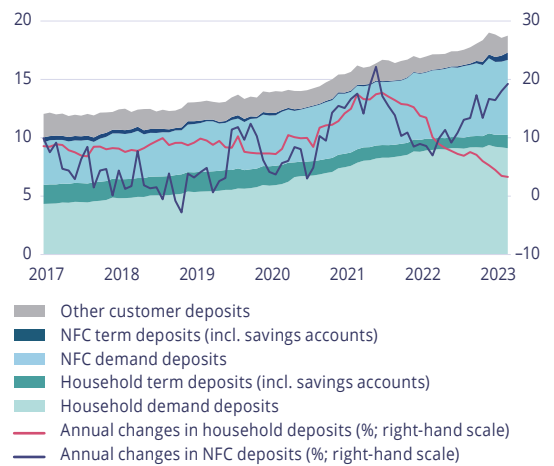


Chart 2.14
Structure of deposits attracted by credit institutions by country
(%)

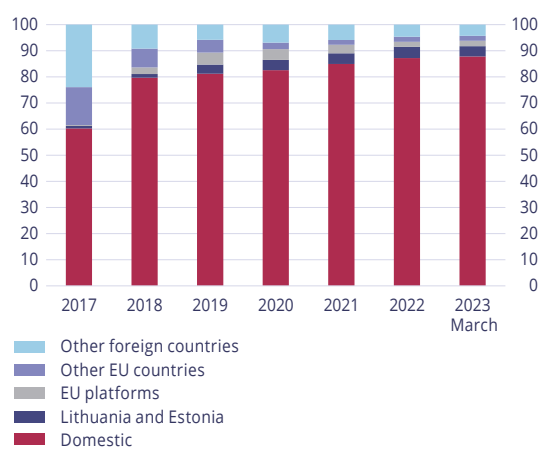
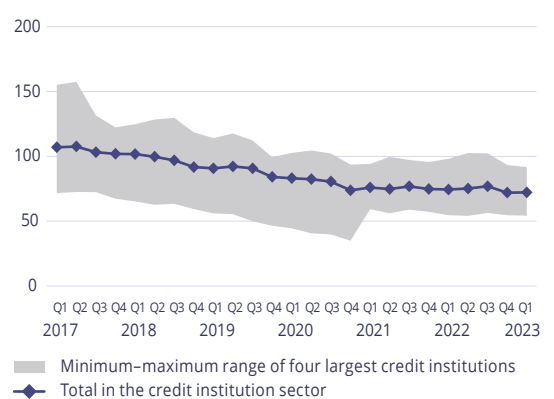


Chart 2.15
Domestic loan-to-deposit ratio of credit institutions
(%)



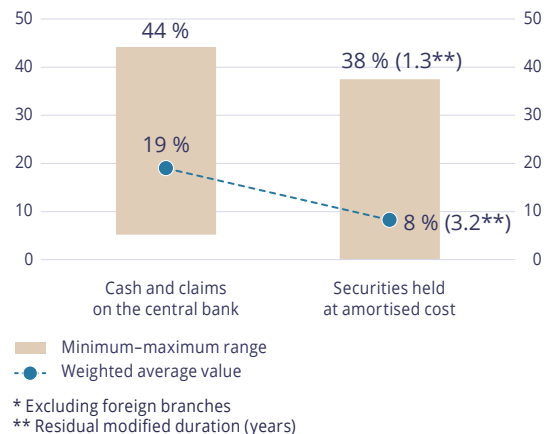
of the liquid securities of these banks was very long, but the market value of their immediate sale was much lower. Thus, investments in securities involve certain risks (see the section on credit risk and market risk shock absorption capacity stress tests). For their part, **Latvian credit institutions invest in highly liquid securities, mostly of the euro area countries and of the US government, with a relatively short maturity** (the average modified duration of the credit institution security portfolio is 3.2 years; see Chart 2.17). **An additional advantage consists of the possibility to use these securities as a collateral in the Eurosystem's monetary operations and inter-bank repo operations. Risks are mitigated by the significant amount of liquidity with the central bank**, which varies for credit institutions from 5% to 44% of the assets or 19% of the banking sector's assets on average.

Chart 2.16
LCR and NSFR of credit institutions
(%)



* EBA Dashboard, December 2022.

Chart 2.17
Credit institutions'* funds with Latvijas Banka and securities held at amortised cost (at the end of March 2023; % of credit institutions' assets)



* Excluding foreign branches
** Residual modified duration (years)

Box 2.1 Potential effect of the digital euro on the deposits by credit institutions

Prepared by Mārcis Risbergs and Reinis Vecbaštiks

The ECB and the national central banks of the euro area launched the investigation phase of the digital euro project in October 2021. The investigation phase seeks to address the main challenges and problem issues related to the functional framework or "design" of the potential digital euro. This phase of the project will be completed in the autumn of 2023 when the ECB will decide whether to launch the next preparation phase. Only after this phase the final decision will be taken, and **in case of a positive decision, the digital euro is to be introduced in the euro area no sooner than in 2026.**

The potential introduction of the digital euro poses many questions not only about its use but also about the effect on the financial sector in general. **One of the main questions is the potential changes in bank deposits.**³⁶

³⁶ For a more detailed analysis, see <https://www.makroekonomika.lv/vertejam-digitala-eiro-potencialo-ietekmi-uz-banku-noguldijumiem>.

The digital euro is intended as a retail payment instrument, not as a store of value. Therefore, **to limit a potential outflow of bank deposits, the Eurosystem considers the possibility to set a holding limit for digital euro accounts.**

Should domestic households transfer a certain amount of their deposits to a digital euro account, deposits with banks will decrease. Under a theoretical scenario where all households transfer all the available outstanding amount up to 5000 euro (viewed as a very extreme assumption), it can be concluded that the maximum amount of funds households could transfer from a bank account to a digital euro account would be lower than 10% of the total domestic non-bank deposits³⁷ (see Chart 2.18). Even if domestic deposits decreased to such an extent, the largest bank domestic loan-to-deposit ratio would remain below 100% (see Chart 2.19). Most probably, only a part of households would transfer the entire available amount of deposits to the digital euro, and the effect of the introduction of the digital euro on the banking sector would be much less pronounced.

Thus, if the current financial structure of the banking sector persists, **after the introduction of the digital euro all major banks would still be able to fully finance the domestic loan portfolios with the attracted domestic non-bank deposits, and the reduction in deposits would have no critical impact on the bank operation.**

³⁷ Survey of the largest banks on the distribution of the number of customers at the end of 2022.

Profitability

Prepared by Mikus Āriņš

The profitability of credit institutions is good, and it is expected to increase significantly in 2023. Due to the sharp rise in interest rates, the net interest income of credit institutions grows substantially, since loans have mostly been granted with floating interest rates. At the same time, the increase in the financing costs is smaller. Credit institutions have the resources to absorb a potential materialisation of credit risk.

The profitability prospects of credit institutions are very good. In 2022, the profit of the currently active

Chart 2.18
Potential reduction in domestic non-bank deposits with banks depending on the ceiling of the digital euro account and its public prevalence*
(% of deposits as at the end of 2022)

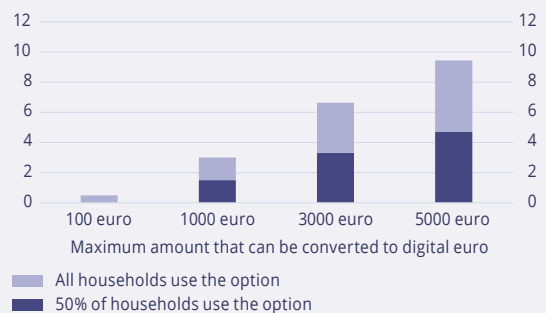
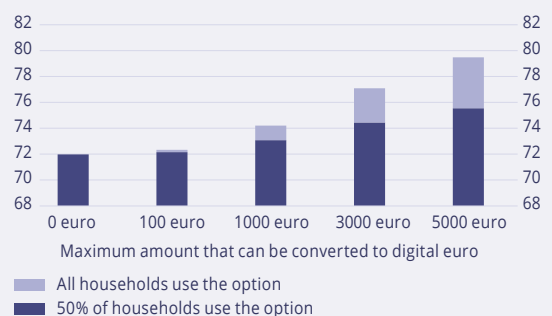


Chart 2.19
Ratio of domestic non-bank loan-to-deposit ratio depending on the ceiling of the digital euro account and its public prevalence*
(%)



credit institutions³⁸ reached 353.3 million euro (18.9% more than in the previous year) (see Chart 2.20). The average ROE increased to 10.4%, while the average ROA – to 1.37% (see Chart 2.21). Meanwhile, the average cost-to-income ratio fell to 50.7% (56.2% in the previous year).

³⁸ In this section, all data reflecting profitability contain only the credit institutions operating at the time of preparing this report. The credit institutions whose licences were revoked by 31 March 2023 have been excluded from the sample. The impact of the following one-off effects has also been excluded from the sample: the sale of VISA Europe Limited shares has been excluded from 2016 data, and the impact of the establishment of Luminor Bank AS group and the deferred tax asset write-offs of AS Citadele banka and Signet Bank AS due to the amendments to the Law on Corporate Income Tax have been excluded from 2017 data, as well as the impact experienced in 2022 from the merger of Signet Bank AS and AS Expobank. For unadjusted profitability indicators characterising all credit institution sets, see Appendix 4 "Performance indicators of credit institutions".

The rapid transition from the low interest rate environment to an inflation-mitigating interest rate environment is an important driver of profitability.

Most of the loans by the Latvian credit institutions have been issued with floating interest rates³⁹; therefore, the rising interest rates affect a significant share of borrowers almost instantaneously, increasing their interest payments and, simultaneously, the interest income of credit institutions (see Chart 2.22). The rise in interest income will continue also in 2023, since loan interest rates change according to the maturity of the reference interest rates used (usually every 3, 6 or 12 months). At the same time, the increase in the cost of funding is considerably lower. Although the term deposit rates also grow, the share of term deposits in the total deposits is rather small and increases slowly. For the credit institutions which use the market funding, its costs are also increasing. However, the share of the market funding in the credit institutions' funding structure is low overall due to the low level of the loan-to deposit ratio. With the rise in interest income substantially exceeding the growth in interest costs, the largest lenders benefit from a significant increase in net interest income and profit.

Although the sharp rise in interest rates and inflation has increased the borrowers' solvency risk, the loan quality has not yet deteriorated. Credit institutions have slightly increased the provisions, and additional expense for loan loss provisions may also be necessary in 2023 as the worsening of the borrowers' solvency is currently the most important risk factor for the profitability of credit institutions. At the same time, the rise in income allows the credit institutions to make provisions, as well as provides the opportunity to provide support to the borrowers facing temporary solvency problems.

The rise in inflation has not yet significantly affected the administrative expenses of credit institutions, and in 2022, administrative expenses in the active credit institutions remained broadly stable. This can be partly explained by the reduction in the total number of employees in credit institutions. Yet also in other components of administrative expenses only a slight increase can be observed. It is probable that, with the wages in the economy rising and inflation not falling sufficiently quickly, the pressure to increase administrative expenses in 2023 and 2024 will be more pronounced.

³⁹ At the end of 2022, 91% of loans to households and NFCs were variable rate loans.

Chart 2.20
Consolidated profit of credit institutions before taxes and components thereof
(millions of euro)

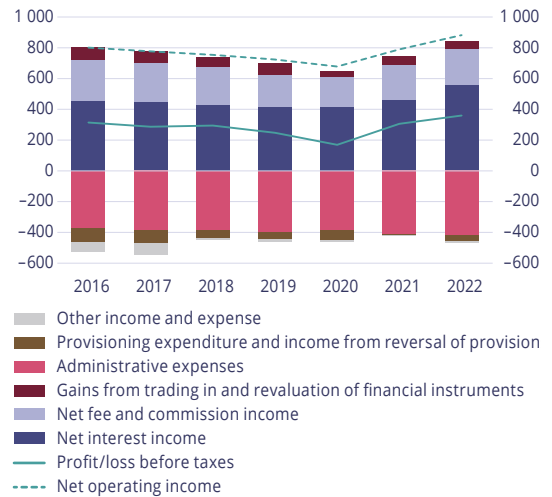
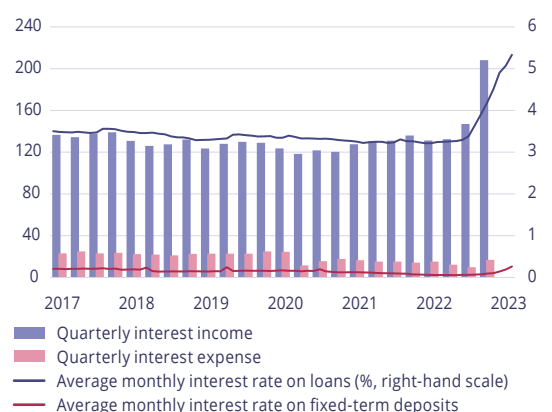


Chart 2.21
Average ROE and ROA of credit institutions
(%)



Chart 2.22
Credit institutions' interest income, interest expense and average interest rates on loans and fixed-term deposits for households and NFCs
(millions of euro)



In the first three months of 2023, credit institutions' total net interest income was comparable to that of the net interest income recorded in the first half of 2022, while for some credit institutions – even to the income recorded in the first nine months. Should this trend continue, **the profit of credit institutions in 2023 will most likely significantly exceed the profit in the previous year.** This creates good preconditions for credit institutions for increasing their resilience to risks (e.g. by sufficiently provisioning for expected loan losses, planning improvement or replacement of outdated parts of information and communication systems and strengthening the resilience to cybersecurity risks) and for their development (e.g. by improving the existing services and developing new products, including services and products aimed at environmental sustainability, facilitating customers' financial literacy and increasing the number of potentially creditworthy customers), as well as for supporting the existing customers who face temporary solvency issues.

Capitalisation

Prepared by Ilze Vilka

The significant credit institutions have sufficient voluntary capital buffers to absorb unexpected shocks and continue lending in the current phase of the business cycle. Voluntary capital buffers of other credit institutions are generally good as well. During the bank consolidation process, the weakest participants have left the market. The significant increase in the profits improves credit institutions' possibilities to strengthen capitalisation and build risk appropriate provisioning.

Overall, capitalisation of Latvian credit institutions⁴⁰ is good. In 2022, capitalisation indicators decreased slightly, but this was mainly driven by a sharper increase in assets. The total risk exposure amount (TREA) increased by 1041 million euro or 11.7%, while the amount of own funds increased by 23 million euro or 1.0% (see Chart 2.23). In late 2022, the average total capital ratio (TC) of credit institutions was 23.3% on a consolidated basis, the CET1 capital ratio – 22.3%, and the leverage ratio – 9.4%⁴¹. By way of comparison, at the end of 2022, the average TC ratio of the significant EU

⁴⁰ Capitalisation calculations and charts include only the currently active credit institutions, excluding from the sample the credit institutions whose licences were cancelled by 31 March 2023.

⁴¹ In 2021 – 25.7%, 24.7% and 10.3% respectively.

Chart 2.23

Capital ratio numerator and denominator (Q1 2018 = 100)

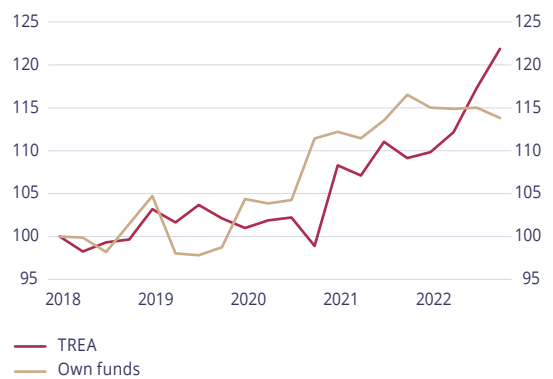
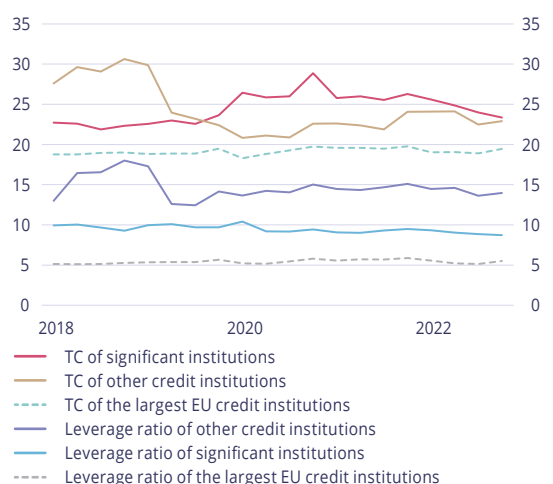


Chart 2.24

Capitalisation ratios of credit institutions on a consolidated basis (% of TREA)



banks reached 19.4%, while their leverage ratio stood at 5.5%⁴² (see Chart 2.24).

The voluntary capital buffers of the significant credit institutions (7.6% of TREA on average) are sufficient to absorb the potential losses which might occur due to borrowers' solvency and other shocks (see the section on credit risk and market risk shock-absorption capacity stress tests). For other credit institutions⁴³, the voluntary capital buffers reached 7.3% of TREA on average at the end of 2022 (see Chart 2.25).

The weakest players have left the banking sector. In 2022, consolidation of the small financial market

⁴² EBA risk dashboard of the fourth quarter of 2022. [EBA Risk Dashboard, Data as of Q4 2022 \(for publication.pdf\), europa.eu.](https://www.eba.europa.eu/en/risk-dashboard/data-as-of-q4-2022-for-publication)

⁴³ The share of other credit institutions' assets in total assets of the credit institution sector stands at 12.0%.

players continued – over 17 months, credit institution licence was cancelled for four market participants. Already before the Covid-19 pandemic, some of these credit institutions suffered from low profitability, unrecognised losses or persistent difficulties in meeting capital requirements. The most profitable parts of the business of the two exiting players were taken over by the stronger remaining small financial market players, thereby expanding their profitability base.

Taking into account the prevailing practice of floating rates in Latvia, **banks' net interest income has grown significantly** along with an upward trend in interest rates of the money market. **This increases credit institutions' possibilities to strengthen capitalisation and make risk-adjusted provisions.** Even after dividend payouts, credit institutions still have possibilities to increase the voluntary capital buffers in 2023.

Part of credit institutions have reverted to the traditional practice of profit distribution by making dividend payments constituting on average half of the profit of the previous financial year. Until March 2023, the amount of dividend payouts represented 1% of the 2022 TREA (1.2% in the previous corresponding period).

Taking into account the market turbulence caused by the US bank SVB in March 2023, which highlighted the issue of revaluation of security portfolios held at amortised cost, the impact of the potential losses from revaluation of securities held at amortised cost to their market value on capitalisation of Latvian credit institutions was assessed. Calculations show that the impact would not exceed 1.8% of TREA on average (see Chart 2.26), thus **Latvian credit institutions have sufficient reserves to withstand the revaluation of securities held at amortised cost.**

With the conclusion of the transitional period, the minimum requirement for own funds and eligible liabilities (MREL) will be fully binding on institutions as of 2024. If the resolution strategy for a bank is liquidation, the MREL is only set at institution's loss absorption capacity in the amount which corresponds to the sum of Pillar 1 and Pillar 2 capital buffer requirements. By contrast, if the institution's resolution strategy provides for restoration of operation, the institution also has to additionally comply with the recapitalisation requirement to which the resolution authority may also apply an adjustment called the "market confidence charge" (MCC). The MCC consists of the combined buffer requirement (CBR) minus

Chart 2.25
Credit institutions' voluntary capital buffers and profit on a consolidated basis
(% of TREA)

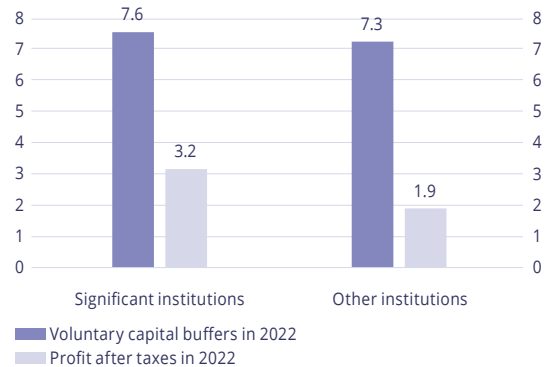
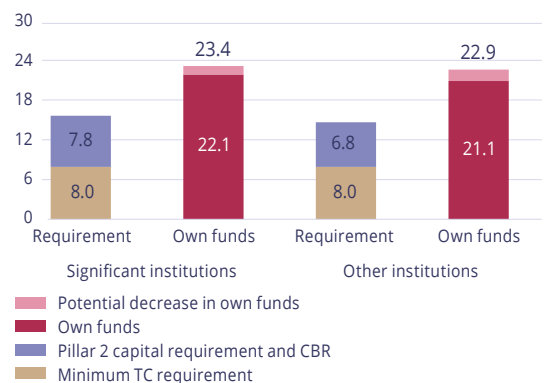


Chart 2.26
Meeting capital requirements by making 100% provisions for losses from revaluation of the portfolio of securities held at amortised cost to the market value (% of TREA)



the institution-specific CCyB requirement⁴⁴. The MREL requirement is set on the basis of both TREA and leverage ratio exposure measure (LRE), and the institution has to meet the highest of these requirements. Currently, the MREL, which is higher than the loss absorption capacity, is only set for the significant institutions that additionally have to meet a higher leverage ratio requirement. Taking into account the level of credit institutions' voluntary capital buffers and their possibilities to still capitalise profit, it is expected that no significant institution will have difficulties in meeting the MREL.

⁴⁴ The Single Resolution Board (SRB) implements a gradual transition of the MCC formula from the previous formula (CBR minus 125 basis points) to the new regulation formula (CBR minus bank-specific CCyB). In 2020, the MCC was set at CBR minus the greater of the bank-specific CCyB and 93.75 basis points. In 2021, the MCC was set by deducting from CBR the greater bank-specific CCyB and 62.5 basis points, while in 2022 – by deducting from CBR the greater bank-specific CCyB and 31.25 basis points. As of 2023, a new formula is in force whereby the MCC is set at CBR minus the bank-specific CCyB.

3. Credit institutions' stress tests

Credit risk and market risk shock absorption capacity stress tests

Prepared by Nadežda Siņenko, Ilze Vilka, Jānis Strazdiņš

Macroeconomic stress test results suggest that the resilience of significant credit institutions⁴⁵ to potential shocks is good. It is expected that the banking sector's shock absorption capacity will continue to improve in 2023, since the credit institutions' resilience will be strengthened by the projected significant increase in profits. The stress test results of other credit institutions have also improved overall, as institutions have increased provisions for credit risk and the share of NPLs in balance sheets has decreased. The resilience of credit institutions to market risk, including revaluation of securities held at amortised cost to the current market value, is good in general.

Latvijas Banka conducts the sensitivity analysis⁴⁶ and macroeconomic stress tests⁴⁷ of credit institutions on a regular basis. The macroeconomic stress test calculations are based on the consolidated data of credit institutions as at the end of 2022, and the assessment covers the period up to the end of 2023. The thresholds used for the stress tests are as follows: the total capital ratio of 8.0%, the Tier 1 capital ratio of 6.0% and the CET1 capital ratio of 4.5%⁴⁸. A failure to meet any of the

⁴⁵ The significant credit institutions are Swedbank AS, AS Citadele banka and AS SEB banka – all supervised by the ECB.

⁴⁶ A credit risk sensitivity analysis provides an indication of the magnitude of an increase in loans past due over 90 days a credit institution would be able to absorb before its capital adequacy ratios fall below the minimum capital requirements. The sensitivity analysis assumes that a credit institution has to build provisions in the amount of at least 50% for its portfolio of loans past due over 90 days and make additional provisions totalling 50% of the increase in the loans past due over 90 days; unlikely-to-pay loans have to be provisioned by at least 35%. Credit institutions' capital and the TREA are reduced by the amount of the additional provisions.

⁴⁷ Macroeconomic stress tests measure the resilience of Latvian credit institutions to adverse macroeconomic shocks whose materialisation is plausible, yet their probability is low. The results of the credit risk and market risk stress tests allow assessing whether credit institutions have sufficient capital for absorbing losses which might occur in particularly severe and even extreme macroeconomic stress circumstances without additional capital injections.

⁴⁸ A characteristic feature of the capital structure of Latvian credit institutions is the fact that the Tier 1 capital requirement is met with CET1 capital; therefore, compliance with the Tier 1 capital requirement automatically means the compliance with the CET1 capital requirement as well. As a result, a relatively high stress test threshold is applied to high quality capital.

minimum capital requirements is considered a failure to meet overall capital requirements.

Taking into account the high share of collateralised loans in the loan portfolio of Latvian credit institutions, the weighted average loss given default (LGD) of each credit institution is used instead of the previous single provisioning rate as of 2022. The weighted average LGD is calculated for each resident loan group described separately in the scenarios, as well as for larger industries. Its calculation is based on the data on collaterals of individual loans available in Latvijas Banka's Credit Register. When making this calculation, the state guarantees, currency and deposits are taken in full amount. For real estate, a differentiated haircut is applied depending on scenario assumptions, while for physical collateral a haircut of 30% is applied.

Latvijas Banka continues to improve its stress testing framework. In 2023, Latvijas Banka's credit institution **stress test includes a profit projection before tax, provisioning expenses for loans and securities** (according to each scenario).

The sensitivity analysis results suggest that the capacity of the significant credit institutions to absorb potential future losses remained good. According to the data as at the end of 2022, the major lenders, on a consolidated basis, would have been able to absorb a potential rise in credit risk, which would result in an increase in the share of loans past due over 90 days by 17.0 percentage points (19.0 percentage points at the end of 2021), without any additional capital investments. The small banks' resilience to credit risk growth is also high – they would be able to withstand an increase in the share of loans past due over 90 days by more than 20.0 percentage points.

Macroeconomic stress test results suggest that the resilience of credit institutions to potential shocks is good overall. It is expected to improve further in 2023 as credit institutions' resilience buffers grow. The capacity of significant credit institutions to absorb potential future losses improved compared to the end of 2021, since credit institutions' net interest income increased. Resilience of other credit institutions also improved.

It should be noted that the assumptions made in **the baseline scenario are quite conservative, thus the**

stress test results in this scenario should not be regarded as a forecast of capital ratios.

In the stress test market risk component, the data on each credit institution's securities portfolio, including the securities measured at fair value through profit or loss, securities measured at fair value through other comprehensive income and securities held at amortised cost, have been used. This stress test methodology applies market shocks to all securities in order to assess the overall economic effect of the changes in the securities portfolio market value on capital assuming that the securities' value changes will need to be recognised regardless of their accounting treatment. Taking into account the turbulence experienced by the US regional bank sector at the beginning of the year (see the section on the external macrofinancial environment), **in the stress scenario all securities held at amortised cost are already revalued to the current market value before applying the shock.** Although theoretically, in a situation of a bank's liquidity crisis such revaluation of securities may take place (a credit institution is forced to sell the securities at a lower market price), such risks are very low for Latvian credit institutions, as their liquidity level is high.

Since data of individual credit institutions' securities portfolios are available at the highest level of detail, the analysis was based on these data, while at group level the securities portfolio was extrapolated assuming that it is structurally similar to that of a credit institution's level.

Each credit institution's bond portfolio securities have been grouped by major risk category, e.g. euro area and US bond yields of different maturities, credit rating and sector, according to expert assessment. Taking account of their share in the portfolio, bonds of the three largest issuers have been reported separately. The modified duration of each bond is set using Refinitiv data or, in case of lack of data, using the residual maturity of the bond as an approximation. The modified duration is used to calculate the impact of the interest rate shock scenario. The foreign exchange risk has been reported separately from the valuation effect, and the shock scenario is applied to the open foreign exchange position in US dollars and Russian roubles.

The macroeconomic stress test has been carried out to assess the capability of credit institutions to absorb a potential increase in credit risk and market risk caused by a deterioration of the domestic macrofinancial environment. In the stress scenario,

the most significant risks are persistently sharp rise in prices and tight financial conditions, which, combined with an unexpected external shock, could affect banks' customers and asset quality and may hamper the recovery of economic growth.

Stress test scenarios

Tables 3.1–3.5 provide a summary of the stress test parameters.

Under the baseline scenario, the evolution of domestic loan portfolio is based on Latvijas Banka's forecasts of June 2023: in 2023, Latvia's GDP will increase by 1.2% (seasonally adjusted), and inflation will remain high (8.5%).

Under the baseline scenario, when calculating the loss given default, a haircut applied to real estate collaterals reflects the depreciation in the value of the collateral as a result of a firesale⁴⁹. Under the stress scenario, the haircuts applied to real estate values are higher than under the baseline scenario, reflecting the risk of a decrease in value due to both a firesale and falling real estate prices. Under both scenarios, the haircuts applied to the commercial real estate are larger than those applied to the residential segment (see Table 3.1).

In the stress test, the overall increase in NPLs (see Table 3.1) is assessed according to the credit risk model results. However, the assessment of NPL growth varies for different credit groups according to expert assumptions about the credit risk of each credit group or industry (see Tables 3.2–3.4).

- The construction sector has an increased PD – the financial position of companies operating in this sector has been deteriorating since 2021 due to the sharp rise in construction costs, supply problems related to construction materials (metallic materials in particular) and labour shortage.
- The PD also remains high in the transport sector; nevertheless, its credit risk is smaller due to the fact that the major companies of this sector are state-owned and may apply for government support.

Table 3.2 shows the assumptions about the PD in various groups of loans under the baseline scenario.

⁴⁹ Under the baseline scenario, a haircut does not represent a forecast of price dynamics in the real estate market.

Table 3.1

Parameters of the macroeconomic stress test

(%; percentage points)

Macroeconomic and credit risk parameters	Baseline scenario	Stress scenario
Latvia		
Annual changes in Latvia's GDP in 2023	1.2	-5.8
3-month EURIBOR forecast ⁵⁰	3.3	3.3
Probability for a performing loan or a loan that is past due less than 90 days and is not forborne to become a loan past due over 90 days within a period of one year	2.3	5.9 ⁵¹
Probability for an unlikely-to-pay loan to become a loan past due over 90 days within a period of one year	9.2	21.6
Share of the forborne loans that are not NPLs and that will migrate to the category of loans past due over 90 days within a period of one year (%)	2.3	100.0
Increase in the share of loans past due over 90 days in the domestic customers' loan portfolio at the end of 2023 ⁵² (percentage points)	2.4	9.1
Haircut applied to commercial real estate	20%	40%
Haircut applied to residential real estate	10%	30%

⁵⁰ Annual average of 3-month EURIBOR by the end of 2023; Eurex Exchange, 31.3.2023

⁵¹ For groups of loans without any specific assumptions about the PD.

⁵² Loans that have migrated from the category of "performing loans or loans past due less than 90 days" and from the categories of "unlikely-to-pay loans" and "forborne loans that are not NPLs" to the category "loans past due over 90 days" have been added up.

Both the baseline scenario and the stress scenario assume that all loans issued to Russian, Belarusian and Ukrainian residents become NPLs (as well as all loans for which Russia, Belarus and Ukraine have been indicated as risk transfer countries⁵³). However, when writing them off, account has been taken of previously accumulated provisions and real estate collaterals located in Latvia or in other EU countries, to which haircut was applied according to scenario assumptions (see Table 3.1). Overall, investments made by significant credit institutions in Russia, Belarus and Ukraine are small, and their write-off has no significant effect on institutions' capitalisation.

⁵³ I.e. an indirect exposure to the risk related to Russia and Belarus has also been taken into account.

Assumptions regarding credit risk for customers of other countries are reflected in Table 3.3. The PD on loans to the borrowers from the Baltic countries is the same as the PD on loans to domestic customers, but the provisioning rate is 60%. The PD on loans to customers from other countries is larger than to customers of the Baltic countries, whereas the LGD has been set at 75%.

To ensure a more accurate reflection of the potential losses arising from investments in the CIS countries, the amount of investments made in these countries has been adjusted according to the Credit Register data on the country risk transfer.

Table 3.2

Credit risk parameters by loan group under the baseline scenario

(%)

Loans to residents of Latvia	Loans to households	Loans to NFCs	
		Construction, transportation and storage	Other sectors
Probability for a performing loan or a loan past due less than 90 days to become a loan past due over 90 days within a period of one year (PD)	2.3	5	2.3
Probability for an unlikely-to-pay loan to become a loan past due over 90 days within a period of one year	9.2	20	9.2
Probability for a performing loan or a loan past due less than 90 days to become an unlikely-to-pay loan within a period of one year	2.3	5	2.3

Table 3.3

Assumptions regarding loans to foreign customers under the baseline scenario

(%)

Loans to foreign customers	PD	LGD	Expected loss rate
Customers from Lithuania and Estonia	2.3	60	1.4
Customers from other countries	5	75	3.8

The **market risk component** under the baseline scenario does not assume significant shocks and losses from changes in the securities portfolio, assuming that even in case of turmoil in securities markets, they will return to the previous states over the stress test horizon.

The stress scenario was first time developed, employing the growth-at-risk (GaR) model forecasts which reflect the **5th percentile** of probability distribution of the future GDP growth rates, taking into account the latest available GDP and deflated composite cyclical risk indicator. **According to the calculations, in the stress scenario, GDP could decrease by 5.8% in 2023.**

Also, in the stress scenario, the assessment of NPL growth for different credit groups differs according to experts' assumptions about the credit risk of each credit group or sector, which are reflected in Table 3.4. Under the stress scenario, the distribution of the different vulnerability of sectors remains unchanged. Larger macroeconomic shocks aggravate the situation across sectors, especially in vulnerable industries.

In 2022, amount of forborne loans decreased on banks' balance sheets (at the end of 2022, they accounted for 3.3% of total loans). However, **amid weak economic activity and rising interest rates, the quality of forborne loans may deteriorate.** To reflect this risk, the stress scenario assumes the migration of these loans to the "past due over 90 days" category. **The rise in NLPs projected by the scenario is applied after the migration.**

Table 3.4

Credit risk parameters by loan group under the stress scenario

(%)

Loans to residents of Latvia	Loans to households	Loans to NFCs	
		Construction, transportation and storage	Other sectors
Probability for a performing loan or a loan past due less than 90 days to become a loan past due over 90 days within a period of one year (PD)	5.9	10	5.9
Probability for an unlikely-to-pay loan to become a loan past due over 90 days within a period of one year	23.6	40	23.6
Probability for a performing loan or a loan past due less than 90 days to become a doubtful loan within a period of one year	5.9	10	5.6

The stress scenario assumptions with respect to foreign investments are reflected in Table 3.5.

The stress scenario for the **market risk component** has been developed by using the securities portfolio as at the end of December 2022 as a reference point. For the market risk, a **global market shock scenario has been modelled under the stress scenario⁵⁴ (see Table 3.6) where significant shocks have been applied to government and corporate securities' risk premia**, and smaller shocks – to stock indices. Constant initial amounts of securities have been assumed for impact calculations. **The discount rate of 100% (due to the war) has been applied to the value of securities issued by Russian issuers**, and these securities have been reported separately.

⁵⁴ Under the stress scenario, shock parameters have been set for the debt securities portfolio, mostly using the historic monthly changes in indices corresponding to each risk factor (market data since 2006 have been used) and assuming that the current investments in securities remain unchanged. 1% of cases or months with the largest estimated hypothetical losses of the credit institution aggregate portfolio are calculated. The average values of the identified cases are used in the scenario. In view of the fact that the stock and funds portfolio of Latvian credit institutions is rather small and notably lacks market data, the shock scenario applied to this portfolio uses a simple parameter of a percentage fall in the portfolio value, corresponding to 1% of the most adverse changes in the S&P 500 stock index value since 2006.

Financial derivatives comprise a range of various types of financial assets, characterised by lack of market price and liquidity, as well as relatively high risk. Thus, based on experts' opinion, a plain percentage value shock of 50% has been applied to these instruments.

Table 3.5

Stress scenario assumptions with respect to foreign investments

(%)

Loans to foreign customers	PD	LGD	Expected loss rate
CIS customers ⁵⁵	20	75	15
Customers from Lithuania and Estonia	5.9	60	3.6
Customers from other countries	10	75	7.5

Table 3.6

Parameters of market risk stress test under the stress scenario

Instrument	Original value (%)	Stress scenario (changes; basis points)
Benchmark yield curve		
Securities in euro (1 month–10 years)	1.4 to 2.7	–48 to 17
Securities in US dollars (1 month–10 years)	3.8 to 4.8	–81 to –15
Risk premium of the key categories ⁵⁶		
Investment class (government, corporate sector)	1.0 to 1.9	88 to 167
High yield class (government, corporates)	5.4 to 6.3	207 to 436
Risk premium of three major issuers	0 to 1.6	–22 to 136
Other market shocks		Stress scenario changes (% compared to the baseline value)
USD/EUR		–2.4
RUB/EUR		4.7
Equities, funds and other instruments (excluding financial derivatives)		–9
Financial derivatives		–50

⁵⁵ Excluding customers from Russia, Belarus and Ukraine.

⁵⁶ Difference between the yields on securities and the respective currency's benchmark rate. No risk premium shock is applied to German and US government bonds.

Stress test results

Stress test results are summarised in Table 3.7.

Under the conservative baseline scenario assumptions, it is expected that the estimated total losses could reach 195.0 million euro or 0.9% of the total credit institutions assets. The losses in the baseline scenario are basically driven by losses arising from investments in the countries affected by the warfare (53.9%). These losses are concentrated in individual non-significant credit institutions, and writing these assets off balancesheets would cause no problems to comply with capital requirements under the stress scenario as well. The remaining losses are determined by the necessary additional provisions for the resident portfolio and that of other countries.

Under the stress scenario, the share of loans past

due over 90 days in the domestic loan portfolio would increase by 9.1 percentage points by the end of 2023. In the event of the stress scenario materialising, the estimated total losses could reach 804.4 million euro or 3.6% of the total credit institutions assets. Losses arising from market risk would constitute 41.1% of the total losses (19.1% would be losses from market risk shocks and the rest 22.0% – losses from revaluation of securities held at amortised cost to their actual market value), while losses from investments in Russia, Belarus and Ukraine would amount to 13.2%⁵⁷. Meanwhile, losses from domestic loans and loans to customers from other countries would account for 45.7% (Table 3.1 reflects changes in the banking sector's Tier 1 capital ratio under the stress scenario). Under the stress scenario, one small credit institution (the share of its assets in the total assets of the credit institution sector is less

⁵⁷ Losses arising from investments in securities and shares of these countries have been included.

Table 3.7

Aggregated macroeconomic stress test results

Indicator	Baseline scenario	Stress scenario
Estimated losses (millions of euro)	195.0	804.4
Additionally required provisions (% of total credit institution assets)	0.9	3.6
Total capital ratio		
Number of credit institutions with the total capital ratio below 8%	0	1
Additionally required capital (millions of euro)	0	1.7
Tier 1 capital ratio		
Number of credit institutions with Tier 1 capital ratio below 6%	0	1
Additionally required capital (millions of euro)	0	1.9
CET1 capital ratio		
Number of credit institutions with CET1 capital ratio below 4.5%	0	1
Additionally required capital (millions of euro)	0	1.8

than 2%) experiences capital deficit (Chart 3.2 reflects the amount of the weighted average total capital ratio in significant and other credit institutions). **It is worth stressing that the assumption that customers from Russia and Belarus, as well as those whose country risk has been transferred to Russia and Belarus, will fail to fulfill their obligations in full is rather conservative.** First, in the event of direct investments in Russia and Belarus, the transfer of the country risk to other countries is not taken into account, e.g. there are a number of loans whose risk is transferred to Latvia (e.g. a firm's economic activity takes place in Latvia), thus reducing the default risk. Second, it has been assumed under the stress scenario that all loans, whose country risk has been transferred to Russia and Belarus, are also not repaid. The country risk has been transferred also taking account of factors such as the country where the collateral is registered and the country where the guarantor is situated. Indeed, the location of the collateral or guarantor in Russia or Belarus increases the risk of losses, but the PD might turn out to be lower than 100%.

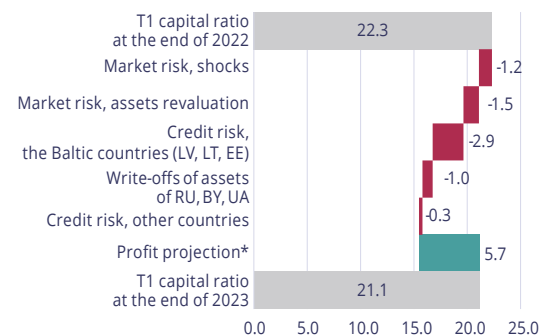
Stress test of credit institutions' liquidity

Prepared by Mārcis Risbergs

The stress tests of credit institutions' liquidity conducted by Latvijas Banka suggest that their capacity to absorb the shocks caused by potential financing outflows remains high.

Chart 3.1

Changes in Tier 1 capital ratio under the stress scenario (%)



* Profit projection before taxes, provisioning expenses for loans and securities

Liquidity stress tests are used to evaluate the significance of the potential consequences of funding outflows. They have been performed on the basis of data available at the end of March 2023 and by using consolidated-level data on the liquid assets and liabilities up to 30 days⁵⁸. The tests have been carried out to calculate the liquidity ratio⁵⁹, which would be equivalent to the previously used liquidity ratio for the purposes of bank supervision, and whose minimum requirement of 30% was binding on all credit institutions before the LCR requirements took effect in full.

⁵⁸ According to the requirements of the common reporting framework (COREP), a report on additional liquidity monitoring metrics (ALMM) has been prepared on a consolidated basis or, if a bank does not provide reports on a consolidated basis, on an individual bank level.

⁵⁹ The ratio of unencumbered liquid assets to the total of credit institutions' current liabilities with residual maturity under 30 days.

The methodology from the previous years is still used to conduct short-term liquidity stress tests, since the obtained stress test results are more informative if liquidity ratios are high and more resilient to fluctuations of short-term liabilities, as compared with a case where the LCR is used. The liquidity ratio used in stress tests differs greatly from the LCR, i.e. short-term liabilities are not reduced by inflows expected over the next 30 days for up to 75% of the liabilities. Meanwhile, the numerator uses a counterbalancing capacity item to which claims on credit institutions with maturity of up to 30 days are added. The counterbalancing capacity item shows the available assets at market value and is defined somewhat broader than liquid assets in the LCR calculation. The stress test results obtained by using the the previous methodology⁶⁰ for calculating the liquidity ratio do not differ substantially from those produced by employing the adapted new methodology.

The results of the stress tests indicate the tolerance of credit institutions to the outflows of domestic non-MFI customer deposits and of foreign non-MFI customer deposits before their liquidity ratio (and thus the amount of their liquid assets) would decrease to 0, assuming that credit institutions have no access to additional resources to offset the funding outflows.

According to the stress test results (see Chart 3.3), **all credit institutions would be able to withstand the outflows of up to 30% of domestic customer deposits or the outflows of more than 60% of foreign customer deposits.** The stress test results have not changed significantly compared to the end of March 2022. The ability of the largest credit institutions, mainly subsidiaries of Nordic banks with centralised liquidity management and good possibilities to obtain additional liquidity from their parent banks in case of need, to withstand the outflows of domestic customer deposits is lower.

Additional stress tests involving two particularly adverse scenarios were performed.

According to the assumptions of the first adverse scenario, it is impossible to pledge or sell the securities portfolio, except euro area government securities with a credit rating no lower than A- and those issued by countries' governments where at least one of the long-term ratings by three international credit rating agencies is AAA. As to euro area government securities, it

⁶⁰ See Financial Stability Report 2022.

Chart 3.2
Total capital ratios under stress test scenarios (%)

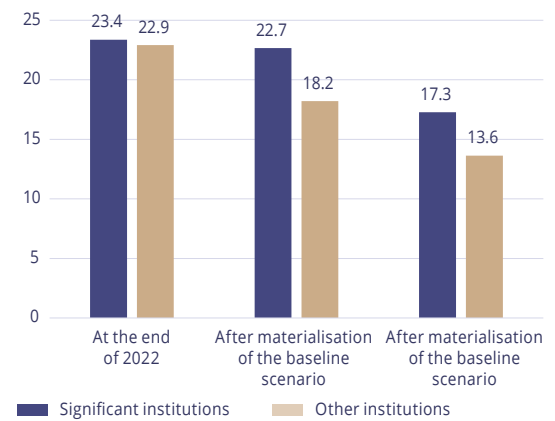
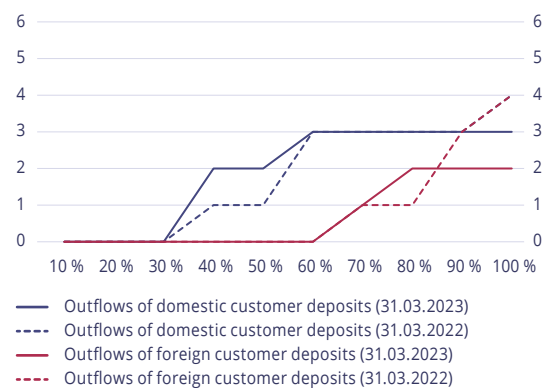


Chart 3.3
Results of liquidity stress tests (number of illiquid credit institutions⁶¹)



is assumed that they would lose 15% of their value under the first adverse scenario, and, applying a 3.0% discount, they could be used in the Eurosystem's monetary policy operations.

In the second adverse scenario, in addition to the assumptions of the first adverse scenario, it is provided that no credit institution has access to overnight claims on credit institutions from a country on whose credit institutions the specific credit institution has the highest volume of overnight claims⁶² (including claims on the credit institutions within the group).

The application of the first adverse scenario yields slightly worse results than the standard test, as the liquid assets of several credit institutions partly consist of foreign

⁶¹ Only banks active at the end of March 2023 (9 credit institutions).
⁶² For example, if the value of the security portfolio decreases substantially due to turmoil in the global financial markets, the repayment of overnight claims to a credit institution from another foreign credit institution is delayed.

securities of a slightly lower liquidity. Nevertheless, **they would be able to withstand the outflows of no less than 20% of domestic non-MFI customer deposits or 30% of foreign non-MFI customer deposits** (see Chart 3.4). **The application of the second adverse scenario does not notably deteriorate the ability to withstand the outflows of non-MFI deposits** (see Chart 3.5). In year-on-year terms, the reduction in overnight claims in some banks slightly improved the results. **Credit institutions would be able to withstand outflows of no less than 20% of domestic non-MFI customer deposits or 30% of foreign non-MFI customer deposits.**

Climate risk stress tests: flood risk

Prepared by Jānis Strazdiņš, Nadežda Siņenko

Latvijas Banka has carried out a flood risk assessment for Latvian banking sector at the level of individual loans and collaterals. Almost 2% of the number of real estate collaterals and collateralised loans are subject to flood or wind surges. Even under a rather pessimistic risk scenario, the effect of flood risk on banks' assets is small – only 0.2% of banks' total domestic loan portfolio and 0.1% of banks' total assets would be affected.

The assessments carried out so far show the flood risk⁶³ as the most significant of physical climate change risks in Latvia (including in the ECB's 2021 climate risk stress test⁶⁴). To further develop the analysis of the effect of climate change on the banking sector, Latvijas Banka has used improved data sources and has carried out a flood risk assessment at the level of individual loans and collaterals⁶⁵.

Flood maps and selection of scenarios

In order to identify the real estate objects subject to the flood risk, the study uses flood risk maps developed by the Latvian Environment, Geology and Meteorology

⁶³ According to the flood risk management plans of 2015, floodplains covering more than 2000 km² (3.4% of the country's territory) are listed in Latvia. Catastrophic floods can occur in part of this territory. Rather densely populated areas and appropriate infrastructure are among the floodplains.

⁶⁴ <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op281-05a7735b1c.en.pdf>, p. 30.

⁶⁵ For the article on the description of the methodology, see <https://www.makroekonomika.lv/klimata-riska-stresa-testi-fokusa-pludu-riska>. The analysis in this section is supplemented by the latest data from Latvijas Banka's Credit Register and differentiated flood depth maps.

Chart 3.4
Results of the first adverse scenario stress tests
(number of illiquid credit institutions⁶¹)

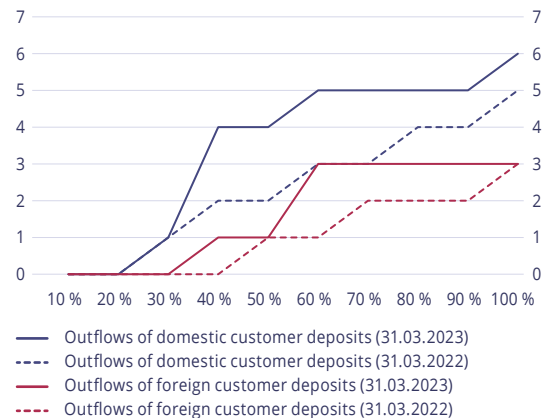
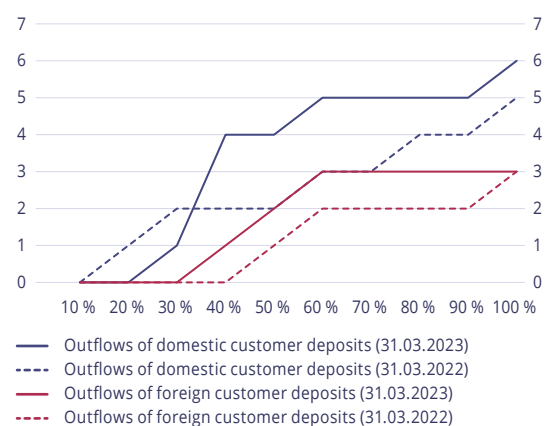


Chart 3.5
Results of the second adverse scenario stress tests
(number of illiquid credit institutions⁶¹)



Centre (LEGMC). The LEGMC produces individual spring flood and sea wind surges maps for three flood risk scenarios:

- low-probability floods – extraordinary, extreme floods that occur once every 200 years or less;
- medium-probability floods – floods that occur once every 100 years or less;
- high-probability floods – frequent floods that occur once every 10 years or more.

The models used in the development of maps are built on the basis of historical observation data and without taking account of future climate change scenarios, as such scenarios have not yet been developed. Flood risk maps for floods caused by precipitation or human activity are not available as well. At the same time, a significant advantage of the LEGMC's maps lies in their level of detail⁶⁶ and the high grid resolution which allows identifying the flood risks of every building.

⁶⁶ https://videscentrs.lv/gmc.lv/files/Udens/Noderiga_informacija/Metodika_pludu_zaudejumu_aprekiniem_LVGMC_2020.pdf, p. 9.

With climate change continuing, it is expected that extreme weather events will occur more frequently, In order to assess the effect of a very significant and, at the same time, also a plausible and probable shock to credit institutions' loan portfolio, the stress test scenario has been calibrated very conservatively: it assumes that both types of floods under consideration occur over the next year with the probability of occurrence once every 200 years (the broadest projected impact).

Exposure of credit portfolios of Latvian banks to flood risks

The analysis identified banks' risks which may affect banks through loan collaterals exposed to the flood risk.

The analysis uses three raw data sets the merging of which is schematically presented in Chart 3.6.

The SLS's Cadastre Register database provides the coordinates of the properties included therein. These coordinates have been compared to the LEGMC's flood maps for spring floods and sea wind surges. The risk of flooding has been determined for each address. The calculations show that, if the risk scenario materialises, **only 4.8% of all the 539 thousand addresses included in the address register would be exposed to the risk of flooding.** Thus, even in the case of rather extreme scenarios this risk is generally low.

Flood risk in banks' loan portfolios

In order to identify the risk to Latvian banks' loan portfolio due to the flooding of loan collaterals, the cadastral numbers of all loan portfolio collaterals were selected in Latvijas Banka's Credit Register, which were linked to the respective real estate objects and their location on the flood maps, and the risk of flooding was determined for each of them.

The share of loans exposed to the flood risk in all loans with a real estate collateral recorded in Latvijas Banka's Credit Register turned out to be even lower than for all real estate objects in Latvia – 1.8% respectively (see Chart 3.7). This means that loan portfolio collaterals are less exposed to the flood risk, possibly, as a result of banks' risk management.

The impact of the flood risk mainly materialises through two impact channels: increasing loss given default (LGD) and probability of default (PD). The

Chart 3.6
Diagram of merging three data sources

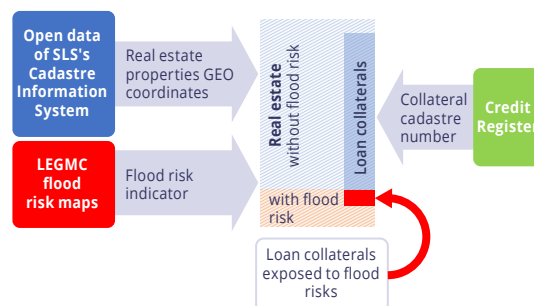
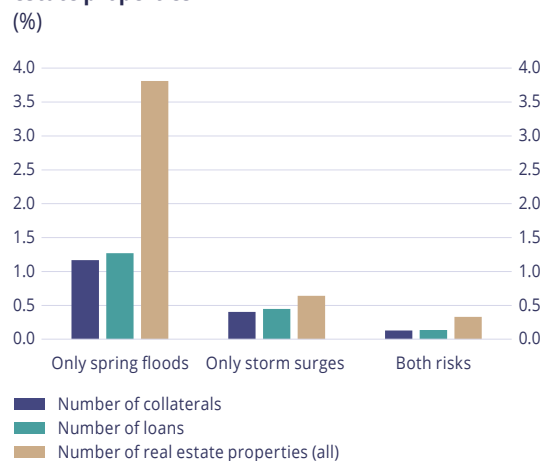


Chart 3.7
Total share of loans and loan collaterals exposed to flood risk in all loans secured by a real estate collateral and registered with Latvijas Banka's Credit Register and the respective share of flood-prone real estate properties in all real estate properties



LGD increases as the value of collateral in the flooded area decreases. Both the direct damage caused by floods and impairment of the market value in such a territory should be taken into account. The damage is influenced by inundation depth (also the floor of the building if the real estate is an apartment). Damages can be expressed by the property restoration costs, as well as by the damage factor. The amount of loss is also influenced by the insurance coverage. In turn, the PD increases when the borrower's ability (if the borrower incurs losses as a result of floods) and willingness (if the collateral value falls below the amount of the loan) to repay the loan decreases.

Methodology for calculating losses

Loss of collateral value was applied depending on the modelled inundation depth for each collateral using

the damage factors used in the LEGMC's study⁶⁷ (see Chart 3.8).

After applying the damage factor to the collaterals located in flood zones, the total LGD value of the loan is calculated by adding the total amount of all collaterals⁶⁸ (including those which are not located in flood zones) and applying the resulting collateral value to the loan balance.

Then, applying the most pessimistic scenario, it is assumed that all loans with at least 30% of the total real estate collateral exposed to the flood risk, have a PD equal to 1, i.e. for all the loans significantly affected by the flood risk the borrower becomes unable to cover its obligations, hence they are settled using the available collateral. This is an extremely conservative assumption aimed at demonstrating an upper bound of the potential losses. Moreover, it is assumed that the flood risk is not insured in these cases, i.e. insurance does not reduce the expected loss for borrowers. The approach is similar in the case of both NFCs and households. The calculations have been carried out using the data of December 2022 to compare the assessment of this risk with the regular bank stress test.

Potential bank losses from flood scenarios

Overall, **the losses caused by the flood risk are relatively small** compared to the results of the regular stress test under the stress scenario (see Chart 3.9) – **the potential losses for banks amount to 0.1% of their total assets** as opposed to 3.6% in the regular stress test (see the section on credit risk and market risk shock absorption capacity stress tests).

As regards the corporate loan portfolio, losses incurred by one small bank would slightly exceed 3% of its total NFC portfolio.

In the household loan portfolio (only loans with a real estate collateral are considered, therefore, it can be actually called a mortgage loan portfolio) losses are even less significant. For only one bank, losses would exceed 1% of the household loan portfolio (its share in the total household loan portfolio of the banking

⁶⁷ See note 66.

⁶⁸ When calculating the collateral value, account is also taken of the collateral allocated value, which differs from the full collateral value if one and the same collateral has been used as collateral for several obligations.

Chart 3.8
Damage factor for buildings depending on inundation depth

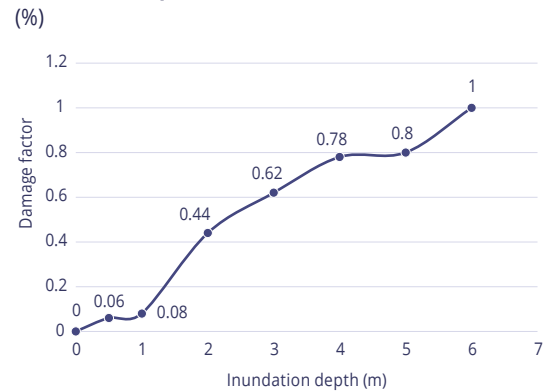
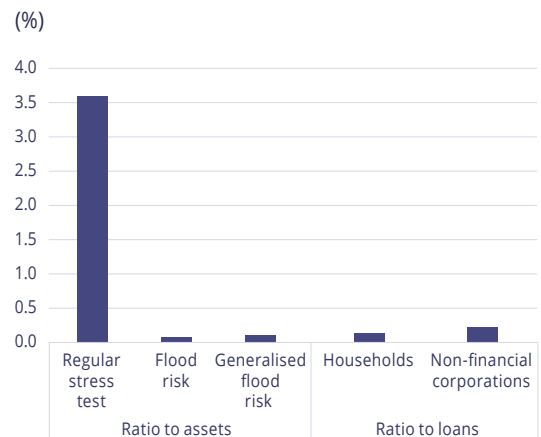


Chart 3.9
Potential losses incurred by the banking sector due to flood as compared to the regular stress test results



Note. Generalised flood risk – all loans (including unsecured loans) to companies having at least one loan with a real estate collateral exposed to flood risk are analysed.

sector is negligible – only 0.1%). **The losses caused by floods represent only 0.2% of the banks' total domestic household mortgage loan portfolio, thus, the impact of the flood risk may be assessed as insignificant, especially given the conservative nature of this scenario.**

The above analysis takes into account only mortgage-backed corporate loans, i.e. only loans directly threatened by floods. In cases where a company has at least one loan with a real estate collateral exposed to floods, when considering all other (non-collateralised) loans of this company, it is concluded that the number of such loans is small, and the loans exposed to the risk would increase only by 0.03 percentage points (see Chart 3.9 where the losses from collateralised and non-collateralised loans of the affected companies are referred to as the "generalised flood risk").

Options for developing the flood risk stress test scenario

As more data becomes available on other types of floods (rainfall floods and other floods resulting from climate change), this analysis may be developed by increasing the scope as regards the flood risk. In addition, not only the impact on the collateral but also the threat caused by the flood risk to a company's economic activity can be modelled, as the company loans whose collateral is not subject to the flood risk are not yet considered. The impact on these loans may arise from the company's business units exposed to floods. When comparing the share of loans calculated in the previous analysis⁶⁹ according to the exposure of business units to the flood risk, the loans (amounting to 114 million euro) of the companies that had no flood-prone real estate collateral, but whose potential credit risk would increase if their business operations were disrupted by floods, should be further assessed.

Transition risk stress test

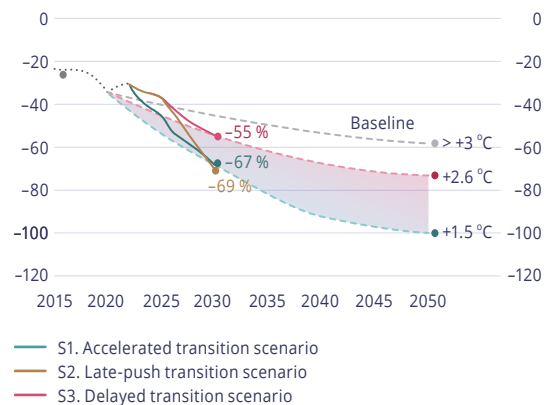
Prepared by Nadežda Siņenko

Over the medium term, the green transition increases the expected losses of banks driven by the need to adapt to and limit climate change. However, the impact of transition risks on the loan portfolio issued to NFCs by Latvian banking sector is limited due to relatively small investments of Latvian banks in carbon-intensive industries.

Transition to a less carbon-intensive economy may cause inflationary pressure, as one of the main policy instruments for facilitating the green transition is carbon pricing. Considering that the transition is already delayed, economic transformation of the economy will have to be implemented within a shorter period of time. A higher price of fossil energy may cause transport and electricity price hikes and hence also an extensive rise in production costs. Industries that are heavily dependent on non-renewable or highly polluting resources will be affected most. The transition risk is associated with losses incurred in the transition process of adapting to climate change or seeking to limit it, i.e. negative impact that the implementation of low-carbon climate policies can have on individual high-emitting companies. **In the financial sector, the transition risk may take the**

⁶⁹ <https://www.makroekonomika.lv/latvijas-uznemumu-paklautiba-klimata-fiziskajiem-riskiem>

Chart 3.10
EU GHG emission reduction scenarios (%)



form of a decrease in the value of assets associated with investments in industries with a high level of emissions.

The initial assessment of the impact of climate risks on the Latvian financial sector was carried out in 2020⁷⁰. This assessment evaluated the exposure to transition risks, but did not estimate potential bank losses. In 2022–2023, Latvijas Banka continued to improve the climate risk impact analysis by carrying out stress tests of transition risks and physical risks in the banking sector, as well as an assessment of the physical risks on the insurance sector (see the section on "Climate risk stress tests: flood risk" and Appendix 2 "Impact of physical climate risks on the insurance sector of Latvia").

Stress test scenarios and assumptions

To assess the impact of the transition risks on the banking sector of Latvia, the scenarios developed by the ECB for the latest climate stress test⁷¹ and the results of the modelling of the increase in the credit risk were used. The above EU-level climate stress test was conducted in 2023, and it evaluates the impact of three possible transition scenarios on the real economy and the financial system over the next eight years (the stress test covers the period up to the end of 2030). The three scenarios vary in terms of the emission reduction intensity by 2030, leading to a different projected temperature increase at the end of the century (see Chart 3.10).

⁷⁰ See Appendix 4 of Latvijas Banka's Financial Stability Report 2020 (https://datnes.latvijasbanka.lv/fsp/FSP_2020_en.pdf).

⁷¹ See Special Feature C of the ECB's Financial Stability Review of May 2023.

S1. The **accelerated transition** scenario envisages an immediate start of the transition which swiftly directs the economy towards the optimal "net zero by 2050" transition path outlined by the NGFS in the orderly transition scenario.

S2. In the **late-push transition** scenario, the recent geopolitical and macroeconomic developments lead to a different transition time profile, and the transition intensifies in 2026 only, but it is sufficiently strong to allow achieving emission reductions comparable to those of S1.

S3. The **delayed transition** scenario assumes a similar transition period but less determined policy action, fewer investments and hence smaller emission reductions by 2030⁷².

In the assessment of the ECB, the energy price, energy mix and energy consumption are the main transition risk factors. In the short term, the profitability of companies is affected by energy price shocks which cause an increase in companies' operational costs.

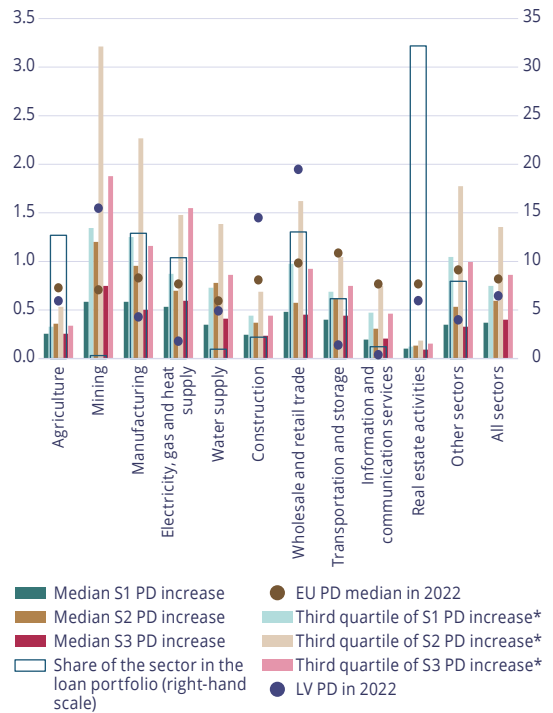
Macroeconomic and transition-related developments increase companies' probability of default (PD). When comparing the results of different scenarios, the accelerated transition and delayed transition result in similar (and lower) credit risk levels in 2030; however, the latter scenario involves a substantially higher long-term transition risk and the physical risk. The largest increase in credit risk at the end of the stress test horizon is in the late-push transition scenario (see Chart 3.11). The median corporate PD is slightly below 1% at the starting point of the stress test (2022) and doubles in 2030 in the late-push transition scenario. The increase in the PD depends on the carbon-intensity of sectors – the largest rise is expected in the mining industry and manufacturing.

When carrying out the transition risk stress test for the Latvian banking sector, the weighted average industry PD estimates were used as the starting points, to which the PD increases assessed in the ECB's stress tests were applied (both the median increase and the 3rd quartile of the increase). The weighted average loss given default

⁷² This scenario corresponds to the NGFS's orderly transition scenario starting later, in 2026 only.

Chart 3.11

PD increase in 2030 compared to 2022 in three scenarios by sector and the share of sectors in the credit institutions' NFC loan portfolio
(in percentage points, %)



* For 75% of the sample companies the PD increase is equal to or below this value (for each sector and scenario).

(LGD) rates⁷³ for banking sector loans in each industry were used as loss given default.

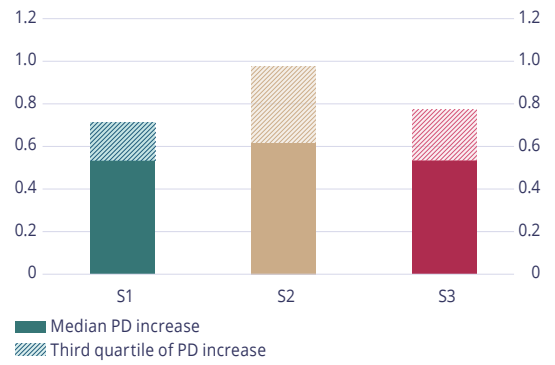
Stress test results

The impact of transition risks on the loan portfolio of Latvian banks is limited. Transition risks increase companies' credit risk and hence also losses incurred by banks, yet the losses are small. Chart 3.12 shows the potential losses of the Latvian banking sector in 2030 (expressed as a ratio to the domestic NFC loan portfolio) in each of the scenarios, using the median PD increase and the 3rd quartile of the PD increase in the calculations. Even in the scenario with the largest

⁷³ The average weighted LGD is calculated for each sector distinguished in the stress test description. The calculation is based on the data on collaterals of individual loans available in Latvijas Banka's Credit Register. When making this calculation, the state guarantees, currency and deposits are taken in full amount, the 30% value of the reduction is applied to the physical collateral, while a discount is applied to real estate along the same lines as in the credit risk absorption capacity stress test in the stress scenario, reflecting the potential reduction in real estate prices for energy-inefficient buildings in case of an increase in the prices of fossil fuel and electricity.

impact (the late-push transition scenario, S2), the annual losses do not exceed 1% of the domestic NFC loan portfolio. This rather small impact can be explained by generally small PD increases in the scenarios and the structure of Latvian loan portfolio. The industry with the largest PD increase (mining) accounts for a negligible 0.3% of the NFC loan portfolio, while the real estate operations industry, which has the lowest PD increase in all scenarios, also has the lowest LGDs due to the presence of real estate collateral, accounts for the largest share of the loan portfolio (32.2%).

Chart 3.12
Share of losses in the NFC loan portfolio in 2030 (%)



4. Macroprudential policy

Prepared by Dace Antuža

The macroprudential institutional framework in Latvia has changed since integration of the FCMC into Latvijas Banka. The macroprudential policy stance corresponds to the level of systemic risks, lending development and the macrofinancial situation. Taking account of the changes in the identified O-SII systemic importance indicators, higher O-SII capital buffer requirements have entered into force for three O-SIIs. Other macroprudential policy instruments have remained unchanged. Possible adjustments to the regulation of measures aimed at borrowers are assessed, as well as possibilities

to incorporate motivating aspects in it to ensure a structural move towards a more energy-efficient housing stock are considered.

The macroprudential institutional framework has changed in Latvia since the beginning of 2023 when the FCMC was integrated into Latvijas Banka. Amendments to the Law on Latvijas Banka have been introduced in this regard. They stipulate that Latvijas Banka defines and implements the macroprudential policy, including the application of macroprudential instruments. These changes will allow for implementing the macroprudential policy even more efficiently (see Box. 4.1 "Changes in Latvia's macroprudential institutional framework").

Box 4.1 Changes in Latvia's macroprudential institutional framework

Prepared by Dace Antuža

As of 1 January 2023, the financial and capital market supervisory authority FCMC has been integrated into Latvijas Banka. The functions of Latvijas Banka now also include supervision of financial and capital market players, resolution and other tasks for which the FCMC was previously responsible, also including application of macroprudential instruments.

Up to 2023, macroprudential tasks were shared by the FCMC and Latvijas Banka. Pursuant to the Credit Institution Law, the FCMC was in charge for the application of macroprudential instruments, and the FCMC Board took decisions on macroprudential instruments. Meanwhile, Latvijas Banka analysed and assessed systemic risks to financial stability, issued recommendations and, assisted in the implementation of the required macroprudential measures to support the overall financial stability⁷⁴.

In addition, Latvijas Banka, the FCMC and the Ministry of Finance cooperated within the Macroprudential Council – a collegial advisory forum established by the above institutions in 2013 for mutual cooperation to foster the stability of the financial system as a whole. In the Macroprudential Council, the parties hold consultations about the assessment of the financial sector's systemic risks and the measures to mitigate them, as well as exchange information, while having regard to their independence in decision-making within their respective areas of responsibility.

Along with the integration of the FCMC into Latvijas Banka, the Law on Latvijas Banka was amended to lay down clearly the macroprudential mandate of Latvijas Banka. Section 45 of the Law states that "Latvijas Banka shall determine and implement the macroprudential policy". Decisions on the application of macroprudential decisions shall be taken by the Council of Latvijas Banka.

When establishing and implementing the macroprudential policy, Latvijas Banka:

- analyses and assesses the overall stability of the financial system as well as identifies, monitors and assesses its systemic risks;

⁷⁴ Section 41 of the Law "On Latvijas Banka" stated that "Latvijas Banka shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system".

- implements the macroprudential policy measures provided for in the legal acts of the EU and Latvia and is entitled to apply the regulatory requirements to the financial market and its participants in order to mitigate the systemic risks and to strengthen the resilience of Latvia's financial system to shocks;
- may issue recommendations on the measures needed to strengthen the resilience of the financial system to shocks and limit the build-up of systemic risks;
- may establish measures with respect to the financial market participants to promote the sustainability of the financial system.

Taking into account the institutional changes, the cooperation agreement with the Ministry of Finance was also amended accordingly, transforming it into bilateral cooperation between Latvijas Banka and the Ministry of Finance in the Macroprudential Council⁷⁵.

Prior to the integration of the FCMC into Latvijas Banka, a thorough analysis of the benefits and drawbacks of the integration was performed which concluded that the benefits outweigh the potential drawbacks. **In the macroprudential field, the benefits are a explicit and enhanced macroprudential mandate, powers over the macroprudential instruments within one decision-making body, as well as synergy between macro-level and micro-level competences which will allow implementing macroprudential tasks in a more efficient manner.**

⁷⁵ The members of the Macroprudential Council comprise the Governor of Latvijas Banka, a member of the Council of Latvijas Banka who is responsible for macroprudential policy issues, a member of the Council of Latvijas Banka who is responsible for issues related to regulation and supervision of the operation of the financial market and its participants, the Minister for Finance and the Deputy State Secretary of the Ministry of Finance for financial policy issues.

Before describing the latest developments in the macroprudential policy of Latvia, it is important to provide an insight into the macroprudential policy trends on a wider EU scale. **The EU conditions for making macroprudential policy decisions are generally ambiguous and complicated.** In several countries, the accrued imbalances in relation to overrated real estate prices and private sector indebtedness are high. At the same time, the economic growth is subdued, uncertainty is high, lending activity decreases, and signs of a downward turn are present in the financial cycle. Taking into account the macrofinancial conditions, the probability that the accrued risks may materialise has increased. In addition to the unstable geopolitical background, the recent stress episodes observed in US and Swiss banks also reminded of the occurrence of unexpected shocks and potential insufficiency of resilience reserves.

Thus, **the macroprudential policy of EU countries is generally aimed at increasing the resilience of the banking sector.** Despite changes in the financial cycle phase, many countries continue to increase the CCyB requirements, including the positive neutral CCyB approach introduced in several countries (e.g. Estonia, Lithuania, the Netherlands, Cyprus, Ireland, Sweden). Finland has reintroduced the SyRB requirement which was abolished during the Covid-19 pandemic, while

Malta has set a sectoral SyRB requirement for exposures to natural persons which are secured by real estate.

Along with the rise in interest rates, borrower-based measures⁷⁶ (particularly DSTI) have become more restrictive, reducing access to loans for some borrowers. At present, however, **the overall position taken by EU countries is that the borrower-based measures are structural and have to be maintained throughout the cycle**, and the risk-mitigating effect of these measures manifests itself just when borrowers' solvency conditions show signs of deterioration. In most EU countries, these restrictions have been maintained unchanged, some countries (e.g. Austria, Finland) have even introduced new borrower-based measures, Iceland has tightened them, while, for example, Ireland and Slovakia have recalibrated them in a targeted manner.

It should be added that the bank stress episodes in the US and Switzerland, have highlighted such issues in the

⁷⁶ The measures affecting lending standards and increase the borrower's and lender's resilience to economic shocks, promote responsible borrowing and lending: loan-to-value (LTV); loan-to-income (LTI); debt-to-income (DTI); debt service-to-income (DSTI); borrowers' solvency sensitivity tests gauging the borrower's ability to repay the debt when the interest rate rises and/or the income decreases; maximum maturity limits for a loan; loan amortisation requirements.

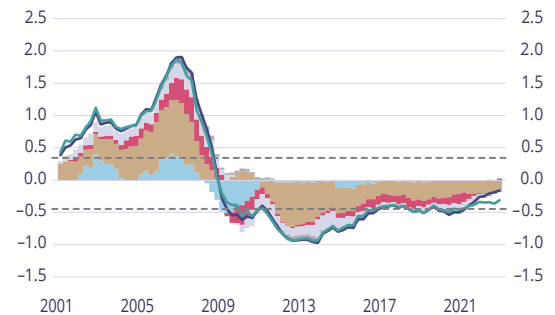
EU as the reduction in concentration, interest rates and liquidity risks, deposit insurance and bank resolution, as well as accounting of securities and valuation of investments in Treasury bills.

In Latvia, the macroprudential policy stance is consistent with the identified risks, lending developments, macrofinancial situation, as well as the degree of resilience of credit institutions. The situation in Latvia differs from the situation in many other EU countries in several aspects – lending has been slow and cautious for an extended period of time due to various structural factors. Thus, the private sector debt in Latvia is low, real estate prices have not been overvalued, and the economic growth forecasts are lower than in most other countries. At the same time, the resilience of credit institutions is good: voluntary capital buffers are among the largest overall (see Chart 4.1) and the risk weights – among the highest in the EU.

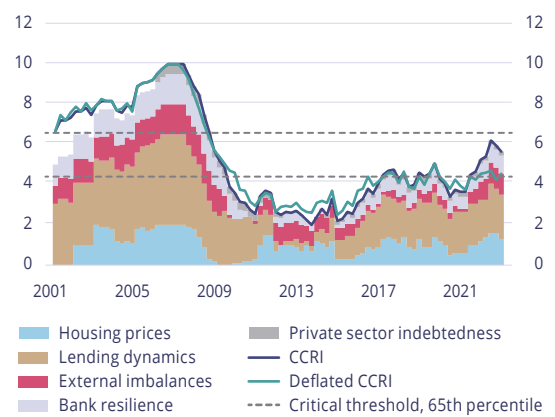
Accordingly, **additional macroprudential capital buffer requirements such as CCyB or SyRB have not yet been set in Latvia.** In the current circumstances, in order to reduce the negative effects of the potential materialisation of the credit risk, microprudential measures, i.e. building up appropriate provisions and timely reclassification of loans, are also important. **With the macroeconomic situation becoming more favourable and lending intensifying,** as well as considering the growing trend to strengthen the resilience of credit institutions in the EU in due time, **Latvia could also consider steps for timely strengthening of resilience** using macroprudential capital buffers. This can be done with smaller pro-cyclical effects in circumstances where credit institutions have sufficient voluntary capital buffers, good profitability and financing costs are not high.

The CCyB rate has been maintained at 0%, taking into account the low cyclical systemic risk – the weak economic growth and slow lending, rising loan costs, the low ratio of domestic loans to GDP, as well as slower activity in the real estate market. The deviation of the loan-to-GDP ratio from the long-term trend remains strongly negative. In late 2022, it was –12.5% according to the narrow definition of loans and –28.4% according to the broad definition of loans (for the purposes of the financial accounts). At the end of 2022, the composite cyclical risk indicator (CCRI) developed by Latvijas

Chart 4.1
Latvia's CCRI
(points)



Standardised CCRI
(standard deviations)



Banka and adjusted for inflation⁷⁷ reached 4.6 points (the maximum cyclical risk indicator value is 10). The standard deviation of the standardised CCRI was –0.35 relative to the maximum standard deviation of 1.7 in the first quarter of 2007 (see Chart 4.1).

Taking into account the changes in the identified O-SII systemic importance indicators, **O-SII capital buffer requirements were increased by 0.25 percentage year on year for three O-SIIs. They took effect at the beginning of 2023.** (see Chart 4.2 – 0.25% for BluOr Bank AS and 1.75% for AS Citadele banka and AS SEB banka). Taking into account the structural changes in the Swedbank Group and the financial holding company Swedbank Baltics AS established in Latvia, the O-SII capital buffer requirement of 2.0% was set both for Swedbank AS at subconsolidated and individual

⁷⁷ The housing price index included in the CCRI, as well as the ratio of this index to wages are adjusted by the consumer price index, while the rate of change in loans to the domestic private non-financial sector – by the GDP deflator. In the CCRI, the largest weight is attributed to lending and housing price dynamics indicators, which are significantly affected by inflation. The CCRI non-adjusted by inflation reached 5.7 points, while the standardised CCRI – –0.2 standard deviations at the end of the fourth quarter of 2022.

level and for Swedbank Baltics AS – at consolidated group level⁷⁸.

A summary of the macroprudential and microprudential capital requirements in force in Latvia is provided in Chart 4.3. In the supervisory review and evaluation process (SREP) of 2022, no significant changes in Pillar 2 capital buffer requirements for the significant institutions supervised by the ECB have been made. Meanwhile, for other institutions the requirements have been reduced from 3.1% on average to 3.0%, while the Pillar 2 guidance requirements were increased from 1.5% on average to 1.8% (see Chart 4.3).

Borrower-based measures have remained unchanged (see Table 4.1). With interest rates and inflation following an upward path, the substantial risk-mitigating preventive effect of these measures has proven to work, and the restrictive effect of these measures (especially DSTI) as regards the available amount of a loan has also become stronger (see Box 1.3 "Assessment of availability of new housing"). In the nearest future, **it is planned to assess the need for some adjustments in the borrower-based requirements** (e.g. to specify

⁷⁸ Taking into account the fact that Swedbank Baltics AS only serves as an intermediary between the parent bank in Sweden and subsidiary banks in the Baltics and that the top (Swedish) consolidation level of the Group has not changed, as well as the resolution provisions remain unchanged for the time being, the top consolidation level of the Swedbank Group in Latvia (Swedbank Baltics AS) is not relevant from the financial stability and macroprudential perspective; however, the application of the O-SII capital buffer requirement also to this consolidation level ensures a consistent application of requirements in Latvia and the Baltics, as well as the maintenance of an appropriate capital structure for the Swedbank Group.

Chart 4.2
Latvia's O-SIIs and their capital buffer requirements
(% of TREA)

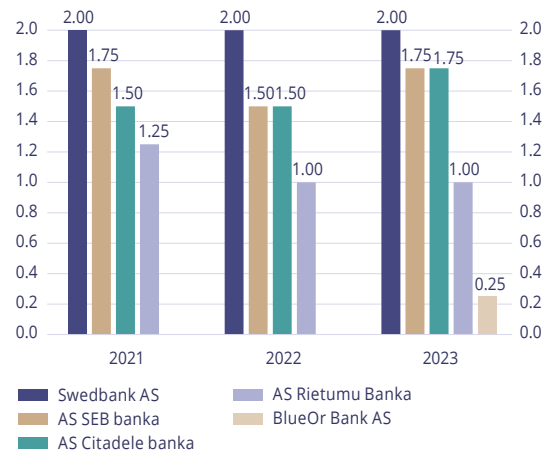
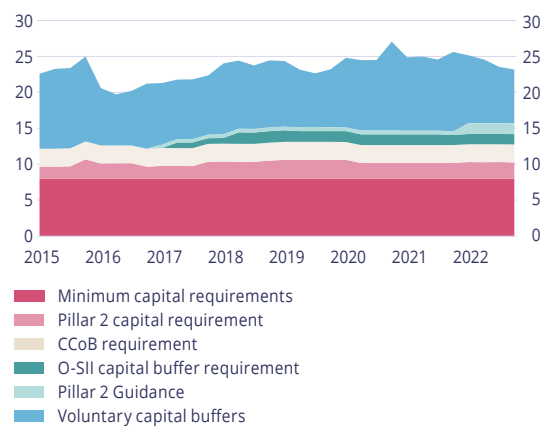


Chart 4.3
Credit institutions' capital requirements and voluntary capital buffers
(% of TREA)



the scope of these requirements, so that overlapping with similar borrower-based requirements set in other countries where Latvian credit institutions grant loans is eliminated), provide for more flexibility in granting buy-to-let loans, as well as to consider the possibilities of integrating motivating aspects for a structural move towards a more energy-efficient housing stock.

A summary of the macroprudential instruments in force in Latvia is provided in Table 4.1.

Table 4.1

Macroprudential instruments in force in Latvia

Instrument	Level
O-SII capital buffer	Swedbank AS – 2% (on a consolidated basis (Swedbank Baltics AS) and on an individual and sub-consolidated basis (Swedbank AS)) AS Citadele banka – 1.75% AS SEB banka – 1.75% AS Rietumu banka – 1% BluOr Bank AS – 0.25%
Loan-to-value (LTV) ratio	90% for all consumer lenders granting loans exceeding 100 minimum wages and secured by a mortgage on real estate, and 95% for loans secured by state guarantee in accordance with the Law on Assistance in Solving Apartment Matters. 70% for loans granted for house purchase for the purpose of generating income from real estate activities. 70% when according to the assessment of the borrower's creditworthiness, its income from real estate exceeds 20% of all income.
Total debt-to-income (DTI) ratio ⁷⁹	6 times
Debt service-to-income (DSTI) ratio ⁷⁹	40%
Other evaluation conditions of the borrower's solvency	As to loans granted for house purchase for the purpose of generating income from real estate activities, when assessing the borrower's creditworthiness, a maximum of 70% of the projected income from real estate may be considered.
Maximum maturity limit for loans to natural persons ⁷⁹	Mortgage loans with maturity of 30 years, consumer credits with maturity of 7 years

⁷⁹ Credit institutions have an option to apply a speed limit, i.e. the speed limit may not exceed 10% of the new loans to natural persons in any given calendar quarter.

5. Development and risks of the non-bank financial sector

Prepared by Kārlis Ločmelis, Kristīne Petrovska

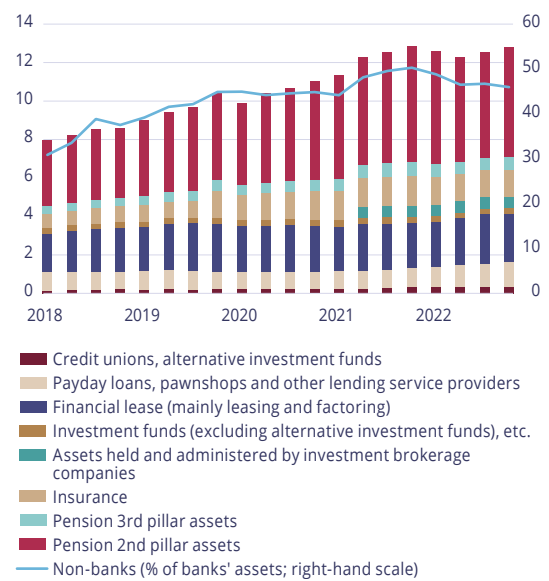
The adjustment of stock and bond prices has significantly affected the sub-sectors of non-bank savings service providers – the 2nd and 3rd pillar pension plans, investment funds and insurers. At the same time, solvency and liquidity indicators of insurance corporations remained stable. High inflation and low returns also increase the political risk, e.g. the risk that the SFPS could become voluntary, be terminated or that other objectives not related to raising the pension capital could be set for it thereby increasing the population's risk of poverty in old age. It is important to consider solutions to mitigate the risk that the retiree's entire 2nd pillar pension capital might be subject to adverse market fluctuations. Investment platforms continue to transform their business models from offering ceded loans to offering financial instruments. In Latvia, the number of the population purchasing crypto-assets, as well as the payments made with payment cards to invest in crypto-assets are decreasing.

In 2022, the growth of the non-bank financial sector stagnated, but different trends across sub-sectors were observed. Overall, the non-bank financial sector's assets decreased by 0.2% (see Chart 5.1.). The sectors subject to the share and other financial instrument price and interest rate risk – the 2nd and 3rd pillar pension assets, investment funds, as well as insurance corporations – were affected adversely. Meanwhile, non-bank lending sectors experienced significant growth in 2022: the assets of the providers of distance loan and other lending services increased by 23.6%, and the financial lease assets – by 10.9% (see the section on lending development).

The direct link of Latvia's non-bank financial sector with Latvia's credit institutions remains low. According to Latvijas Banka's financial account statistics, in 2022, participants of Latvia's non-bank financial sector represented 12.8% of the total assets in the credit institutions' assets (11.6% in 2021) and 10.3% in its liabilities (11% in 2021).

In Latvia's financial system, the continuity of accessibility

Chart 5.1
Assets of the non-bank financial sector by sub-sector and in relation to credit institutions' assets
(billions of euro)



of the services provided by the non-bank financial sector is high, as in the event of the withdrawal of a market participant, the services provided by it to ensure the functioning of Latvia's financial system may be replaced by other market participants. The role of Latvia's non-bank financial sector in the financial sector and the economy as compared to other euro area countries is still considerably less important. This is primarily due to the low level of long-term savings of the population: in Latvia they have accumulated over a shorter period of time compared to many other euro area countries.

Savings service providers

Household savings for retirement account for the largest share of the non-bank financial sector's assets. At the end of 2022, the funds accumulated under the state funded pension scheme amounted to 44.4%, while the assets of the 3rd pillar pension scheme – to 5.3% of the total assets of the non-bank financial sector.

In 2022, the market risk materialised, and, due to the value adjustment of financial instruments, profitability of the SFPS and the 3rd pension pillar

was -14.1% and -15.3% respectively. In order to limit the high inflation, central banks started to normalise monetary policy by both raising interest rates and stopping quantitative easing⁸⁰. The rise in interest rates not only caused a drop in prices of bonds but also brought down the value of stocks by limiting companies' possibilities to obtain cheap financing and increasing the discount rate of cash flows. Thus, due to the positive correlation between the stock prices and bond prices, it was hard to avoid the repricing risk of the securities market, as the possibility to diversify the stock price risk with bonds and vice versa was low.

For those who had to retire in the second half of 2022 and also soon thereafter, the impact of the reduction in the financial market price on the accrued SFPS capital was negative, as their pension capital had to be withdrawn when prices decreased.

Currently, when a person reaches the retirement age, the entire SFPS capital is transferred to the Special budget of state pensions in one instalment even if the securities market situation is unfavourable. Thus, it is important to consider solutions to mitigate this risk.

Inflation in Latvia represents a significant long-term risk to pension savings. At the end of 2022, the consumer prices were 20.8% higher than at the beginning of the year. According to Latvijas Banka's projections, the average inflation may reach 8.5% in 2023. It is hard to recover such a substantial decline in the purchasing power of savings. Inflation has a particularly negative impact on fixed-income instruments whose real fund flow is declining due to the low bond coupon rates and yields relative to the expected inflation.

High inflation and low returns also increase the political risk, e.g. the risk that the SFPS could become voluntary, be terminated or that other objectives not related to increasing the pension capital could be set for it thereby increasing the population's risk of poverty in old age.

Investment platforms

Investment platforms continue to transform⁸¹ their

⁸⁰ See note 1.

⁸¹ Investment platforms were licensed in Latvia in 2021. Investment brokerage licences were granted to them on a condition that investment platforms have to change their former business model, namely they have to stop offering investments in loans granted by lenders in the form of assignment contracts and start offering financial instruments to investors instead.

business models from offering ceded loans to offering financial instruments (securitised credit claims), as suggested by the steadily growing securitisation offer. In Latvia, securitised credit claims have been purchased by private (household) investors from Germany, Latvia, Spain, Czechia and other EU countries (91.4%); investors from the CIS countries owned only 0.2% of the total securitised financial instruments at the end of 2022.

The securitised credit claim risk has increased significantly. It is increased by the geopolitical risks, inflation shock, interest rate rise, weaker economic growth, change in the investors' sentiment and other factors. However, despite the increasing risks, **the amount of assets safeguarded and administered by investment platforms reached 611 million euro in 2022,** which is 6.6% more than a year ago. This could be explained by the fact that compared to other classes of assets (stocks and bonds), the yield of these securitised credit claims is positive, and investors are willing to maintain the purchasing power of savings amid high inflation. Thus, from the investor's perspective, these (although high-risk) investments have a diversification potential. Still, it should be taken into account that **a significant share of these assets is classified by being in the state of recovery and is not reflected in their return metrics.**

Also, the initial lender's pledge risk may not be insignificant, as this type of pledge has been provided to a significant share of the funds invested. This means that the pledge provided is not fulfilled completely which makes investors assess not only the risk of the investment itself but also the power of the lender's pledge which may not be assessed easily in all cases due to the unavailability of data.

Securitised credit claims also involve a significant liquidity risk, which translates into higher interest rates of the expected returns on investments. The investment can be liquidated by either waiting for its maturity or selling it on the secondary market. However, the liquidity of the secondary market varies and may be low in times of shock, preventing to convert the investment into cash quickly and easily. For part of investment platforms, the secondary market is not available, which also does not increase the liquidity of such investments.

The war in Ukraine has considerably worsened the quality of loans granted through investment platforms in Russia, considering the substantial changes in

the Russia's economy and its cooperation with the rest of the world. Due to the sanctions and the restrictions imposed by Russia itself, the possibilities of conducting payments have decreased, thus it is hard to recover investments from Russia; in the worst case scenario, they will have to be written off. This also means that investment platform investors have to assess not only the credit risk but also the risks of payments, sanctions, state and other risks. Although these risks are specified in securitised credit claim prospects, an objective and comprehensive assessment of such risks is time-consuming and requires specialised knowledge.

Overall, **there is a risk that investment platform investors will not be able to carry out such an analysis in all cases objectively and fully.**

Insurance corporations

Although the high inflation, uncertainty as regards the macroeconomic situation and the negative sentiment in the financial markets substantially affected the activity of insurance corporations in 2022, their solvency capital ratios (SCR)⁸² (see Chart 5.3) and liquidity indicators remained stable, and business ensured positive return on assets as a whole (see Table 5.1).

The negative return on investments of life insurance corporations can be explained by the negative revaluation of investments due to the rising market interest rates and substantially lower profit from the sale of investment assets. The life insurance investment portfolio depends on financial market fluctuations, as

Chart 5.2

Premiums written by Latvian insurance corporations and branches of foreign insurance corporations per year⁸³ (millions of euro)

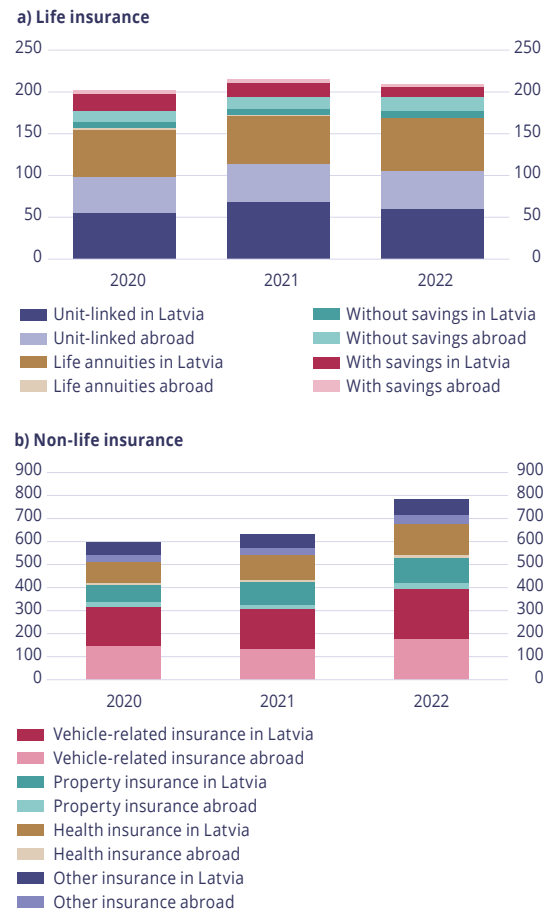


Table 5.1

Key indicators of insurance corporations

Indicator	2020	2021	2022
Assets (millions of euro)	1 472.7	1 507.9	1 391.8
Return on assets of life insurers (%)	0.4	1.9	1.0
Return on assets of non-life insurers (%)	7.3	2.9	3.0
Return on investments of life insurers (%)	9.3	18.2	-33.2
Return on investments of non-life insurers (%)	5.5	1.1	0.5

⁸² The available ratio of equity to the solvency capital requirement. The calculation of the solvency capital requirement is based on the assessment of all the risks an insurance corporation is exposed to, including the assessment of the insurance underwriting risk, the market risk, the credit risk and the operational risk. Each risk model is calibrated according to VaR method, using a 99.5% confidence level over a one-year time horizon; see <https://likumi.lv/ta/id/320109-apdrosinataju-un-parapdrosinataju-maksatspejas-kapitala-prasibas-un-pasu-kapitala-aprekinasanas-normativie-noteikumi>.

⁸³ Premiums underwritten abroad include both premiums underwritten by foreign branches of Latvian insurance corporations and those underwritten according to the principle of freedom to provide services.

well as the investors' risk tolerance, as a large part of portfolio consists of units of investment funds, as well as assets administered on behalf of customers, which are mostly units of investment funds as well. In 2022, the number of underwritten life insurance premiums decreased by 2.7% (see Chart 5.2, panel (a)). Notably smaller amounts were invested in life insurance: in 2022, the average contract value decreased by 13.3%. At the same time, a substantial increase in insurance compensation disbursements also was observed (in 2022, the ratio of disbursed compensations against the amount of the concluded premiums accounted for 122%). Such trends demonstrate not only a negative impact of the rising interest rates on the attractiveness of the life insurance product with an investment component (accumulative life insurance, market-linked life insurance), but also the overall negative sentiment of investors and revision of the consumption and investment basket.

In 2022, the amount of underwritten non-life insurance premiums increased by 23.8%⁸⁴ (see Chart 5.2, panel (b)). The growth was mainly driven by the sharp increase in vehicle-related insurance (the average value per contract increased by 12%), with the economic activity recovering after lifting the restrictions imposed due to COVID-19 and the inflation rising substantially. Growth is also seen in health insurance, where an increase in the underwritten premiums has been observed for a couple of years (in 2022, by 24.4%).

Cross-border operation is important to Latvian insurance corporations, same as to insurance corporations in other small markets, as it helps diversify and manage risks. At the end of 2022, the share of non-life insurance premiums underwritten abroad in the total amount of underwritten non-life insurance premiums accounted for 32.3%, while that of life insurance premiums underwritten abroad accounted for 31.5%.

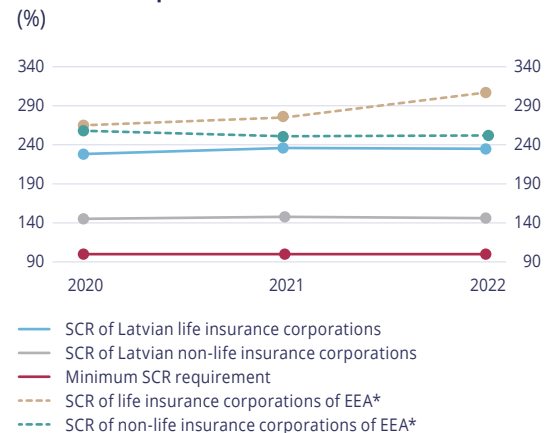
The liquidity structure of insurance corporations' assets has remained broadly unchanged. The cash component in total assets of life insurance corporations is 5.8%, while in total assets of non-life insurance companies – 6.8% (higher than the EEA average⁸⁵). The low share of mortgages and loans in balance sheets of non-life insurance corporations has decreased even further (2.7% of total assets).

⁸⁴ The trends characterizing the situation in the EEA are similar: quick recovery in non-life insurance (in Q2 2022, underwritten premiums in non-life insurance increased by 11.0% year-on-year), while in life insurance they decreased by 1%; see https://www.eiopa.europa.eu/publications/financial-stability-report-december-2022_en.

⁸⁵ https://www.eiopa.europa.eu/publications/financial-stability-report-december-2022_en.

Chart 5.3

Solvency capital ratio (SCR) of Latvian and EEA insurance corporations



* Data at the end of the second quarter of 2022.

The largest risks for the further activity of insurance corporations in Latvia are posed by the long-standing high inflation, fluctuations in financing markets and revision of the household and corporate expenditure basket, which may enhance the refusal from non-compulsory insurance services.

In the long term, the activity of insurance corporations is increasingly affected by climate change.

The study conducted by Latvijas Banka in 2022 on the effect of natural disasters on the insurance sector allows to assess, on a longer term basis, the ability of the insurance sector to absorb the physical shocks caused by the climate risks, incl. by modelling lower insurance level, higher adaptation level and national reinsurance scheme scenarios (see Annex 1 on the simulation of the effect of natural disasters on the economy and insurance sector of Latvia).

According to the assessment by the EIOPA, the main systemic risks to the insurance sector on an EU scale are the risk of rising interest rates, value adjustment on investments risk, underwriting profitability risk⁸⁶, as well as the total macroeconomic growth risk⁸⁷.

At the same time, the ability of insurance corporations to absorb potential shocks remains good as their **solvency capital ratios are still high** (see Chart 5.3), and none of insurance corporations uses

⁸⁶ The insurance underwriting profitability risk shall be understood as the risk that the insurer sets an improper amount of premium so that the amount of remuneration exceeds the amount of underwritten premiums. The compensation costs increase due to inflation, while the revision of premiums is limited by competition and the duration of the contracts concluded.

⁸⁷ https://www.eiopa.europa.eu/publications/financial-stability-report-december-2022_en.

the exemptions set out in the regulation⁸⁸ to improve their solvency capital ratio.

The risks are somewhat alleviated by the use of re-insurance. In 2022, the share of reinsurance premiums underwritten in non-life insurance accounted for 15.2%, while that in life insurance accounted for 1.7%⁸⁹. The Fund for the Protection of the Insured operates in Latvia (at the end of 2022, the value of the funds accumulated in the Fund amounted to 19.2 million euro, thus exceeding the previously specified minimum amount of funds accumulated for life insurance (5 million euro) and that for non-life insurance (11 million euro))⁹⁰. It is expected that the funds accumulated in the Fund will increase as interest rates rise and thus its yield on deposits will increase, too. The accumulated funds serve as an additional buffer in case of insolvency of the insurance corporation to cover the part of compensations that no longer can be covered by the insolvent insurance corporation itself.

Crypto-assets

The number of the people purchasing crypto-assets as well as making payments with payment cards to invest in crypto-assets in Latvia declines⁹¹. This can be explained by global developments such as the negative sentiment of investors, detected cases of fraud and cases of insolvency of large crypto-asset market players. According to the results of the survey conducted by Latvijas Banka and SIA LATVIJAS FAKTI, in February 2023, 4.0% of Latvian population had bought crypto-assets (in 2022, 8%).

In 2022, payments made by individuals with payment cards issued by Latvian credit institutions to holders of crypto-asset wallets reached 51.8 million euro (10.7 million euro in the first three months of 2023; see Chart 5.4). Payments were mostly made to payment accounts opened by crypto-asset companies in

⁸⁸ Exemptions cover, for example, the long-term guarantee assessment and the time premium of the long-term risk-free interest rate used to discount the technical reserves. Exemptions are used, for example, by Germany, Denmark, the Netherlands and Portugal.

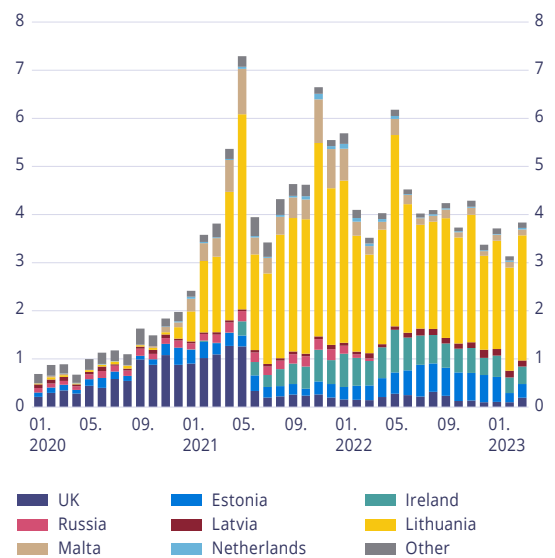
⁸⁹ The low ratio of reinsurance may be attributable to the fact that the investment risk is primarily undertaken by the insured rather than by the insurance corporation.

⁹⁰ Article 288 of the [Insurance and Reinsurance Law](#) provides that insurance payments are suspended if the accumulated amount of funds exceeds the minimum threshold of funds. The thresholds were last doubled in 2016 when the Solvency II Directive entered into force simultaneously.

⁹¹ For more information about the methodology and calculations, see [Prevalence of crypto-assets in Latvia: first steps of evaluation | Articles | Macroeconomics](#).

Chart 5.4

Payments made with payment cards issued by Latvian credit institutions by country of the crypto-wallet maintainer's account
(amount; millions of euro)



European countries (Lithuania, Estonia, Malta, Ireland) where the ecosystem of new financial technologies (including crypto technologies) is developing buoyantly. Payments to Lithuania prevail. This is partially explained by the activity of the popular crypto-currency exchange Binance in this neighbouring country and openness of various payment institutions to cooperation with maintainers of crypto wallets.

Since 2022, retail payments continue to prevail. 44% of payments do not exceed 60 euro, 97.5% of payments do not exceed 1000 euro. This means that Latvian population takes caution when investing in crypto-assets and spends relatively small amounts for this purpose.

The amount of payments made using payment card terminals onsite, e.g. in a shop (or ATM), to crypto-asset companies is still negligible, and in 2022, it varied on a monthly basis from 0.6% to 2.6% of the total payments made to crypto-asset companies. The majority of these consist of accounts opened with Latvian (91.9% in 2022) and Lithuanian (3.3% in 2022) institutions.

The main risks attributable to the crypto-asset market are related to unwise investments by consumers in risky and fraudulent assets, the increasing link of crypto-asset companies to the supervised financial sector participants, as well as involvement in money laundering and other illegal activities.

Appendix 1. Simulation of the effect of natural disasters on the economy and insurance sector of Latvia

Prepared by *Velga Ozoliņa, Kristīne Petrovska*

Having compiled the data on the insurance sector, climate conditions and natural disasters in Europe and in Latvia and having developed the Monte Carlo simulation model, the effect of natural disasters on the development of the Latvian economy and the insurance sector has been researched. Depending on the intensity of natural disasters, the simulated damages caused by natural disasters in 2023–2050 may reach 8% of GDP in particular years, thus reducing the GDP growth rate by 1.5 ppt in the respective year. With the effect of the damages caused by natural disasters accumulating over time, in 2050, the GDP value in Latvia could be up to 5% lower than the initially determined GDP value. The expected negative impact of natural disasters on the development of the economy and the insurance sector is smaller if climate change adaptation measures are implemented or an appropriate insurance scheme is developed.

Latvijas Banka continues to analyse the impact of climate risks on the financial sector. In order to assess the resilience of the financial sector to the physical climate risks, **a model has been developed which allows simulating the effect of natural disasters on the economy and the insurance sector of Latvia**⁹².

Assumptions about the damages caused by natural disasters and the share of the insured losses

The assumptions necessary for modelling are based on trends in natural disasters in the Eastern and Northern Europe⁹³, which have been assessed by using the Emergency Events Database (EM-DAT)⁹⁴ and several

local sources (on natural disasters, wind velocity, precipitation and water level in rivers)⁹⁵.

Assumptions about the maximum (occasional) losses are based on the following:

- according to the EM-DAT data, the storm Erwin (2005) caused damages of 356 million euro or 2.5% of GDP;
- according to the EU Solidarity fund⁹⁶ data, rain flood in Latgale (2017) caused damages of 380.5 million euro or 1.4% of GDP;
- according to the assessment carried out by the LEGMC⁹⁷ in 2019, damages caused by spring flood in case of extreme flood (which repeats once every 200 years) may reach 209.1 million euro or 0.7% of GDP.

The analysis is based on an assumption that the average damages that could be recorded each year in case of storms amount to 0.21% of GDP (according to 2019 data), in the case of rain flood – 0.06% of GDP (2015), while in the case of spring flood – 0.26% of GDP (2019). These assumptions are based on the assessment made by the LEGMC in 2019 and by the Ministry of Environmental Protection and Regional Development (MEPD)⁹⁸ in 2017 on losses caused by wind-induced flood, spring flood and wind and rain.

On the basis of the analysis of wind velocity, precipitation and river water level and taking into account the LEGMC's forecasts, by 2050, 1–2 large storms, 3–6 large rain floods and 7 spring floods are forecasted. Considering these probabilities and the possible amount of loss, simulation of natural disasters was performed using the Monte Carlo method. The results of one simulation are shown in Chart A1.1.

The assumptions on the losses and intensity of disasters

⁹² For a detailed description of the model, see: <https://www.makroekonomika.lv/natural-disaster-strikes-how-tame-loss-monster>.

⁹³ See <https://www.makroekonomika.lv/dabas-katastrofas-jau-klauve-pie-durvim> and <https://www.makroekonomika.lv/dabas-katastrofas-eiropa-vai-tiesam-redzam-draudigas-tendences>.

⁹⁴ The Emergency Events Database maintained by the Centre for Research on the Epidemiology of Disasters (CRED) of the Catholic University of Louvain (UCLouvain); see www.emdat.be.

⁹⁵ See <https://www.makroekonomika.lv/pludi-un-vetras-latvijas-skats-pagatne-un-nakotne>.

⁹⁶ For a list of interventions in case of natural disasters, see: https://ec.europa.eu/regional_policy/funding/solidarity-fund_en.

⁹⁷ For flood risk management plans, see: <https://videscentrs.lv/gmc.lv/lapas/udens-apsaimniekosana-un-pludu-parvaldiba>.

⁹⁸ For the results of the study, see: <https://www.varam.gov.lv/lv/petijumi-par-risku-un-ievainojamibas-novertesanu-un-pielagosanas-pasakumu-identificesanu>.

allow to conclude that in **2023–2050, the damages caused by natural disasters in Latvia may vary from 0.7% to 1.0% of GDP if the damage is small and average damages are recorded, and up to 5.7% to 7.6% of GDP if large disasters of all three types occur.**

Taking into account the insurance trends in other European countries, **it is assumed that the share of insured damages in case of a storm would increase from 18% to around 50%, in the case of rain flood – from 12% to 30%, while in the case of spring flood – from 2% to 10%.** When establishing the share of damages, the potential share of insured damages (in terms of value), the coverage of the respective risks in insurance policies and the share of rejected insurance claims have been considered. The assumptions are based on ERGO safety index⁹⁹ data and information by the Latvian Insurers Association (LIA). Currently insurers in Latvia reinsure all natural disaster risks.

Impact on GDP and the insurance sector: baseline scenario

To assess the impact of natural disasters and insurance on GDP growth, the results of the 2021 study by Rousova, L. et al.¹⁰⁰ have been used. The results suggest that **if a natural disaster causes losses amounting to 1% of GDP, it decreases the GDP growth rate by 0.25 ppts in the respective quarter** (the analysis covers 45 countries). Meanwhile, the insured losses allow to partially offset this reduction, as disbursed compensations provide financing for restoration works. Since the share of insured damages in Latvia is not large, the total impact of natural disasters is negative.

The histogram in Chart A1.2 shows that depending on when and how often natural disasters have occurred in Latvia, due to their caused accrued losses the simulated GDP value in 2050 is around 1–5% below the GDP value initially set¹⁰¹.

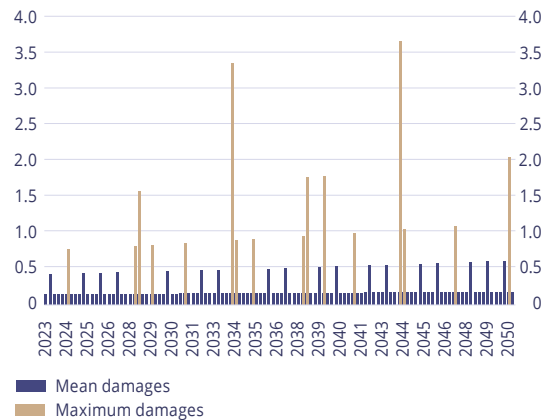
In order to be able to assess the development of the

⁹⁹ LIA ERGO Safety index (2022). <https://www.laa.lv/ergo-drosibas-indeks-s-vairak-neka-puse-latvijas-iedzivotaju-baidas-nonakt-nabadziba/>

¹⁰⁰ Rousova L. F. et al. *Climate Change, Catastrophes and the Macroeconomic Benefits of Insurance*, EIOPA, 2021.

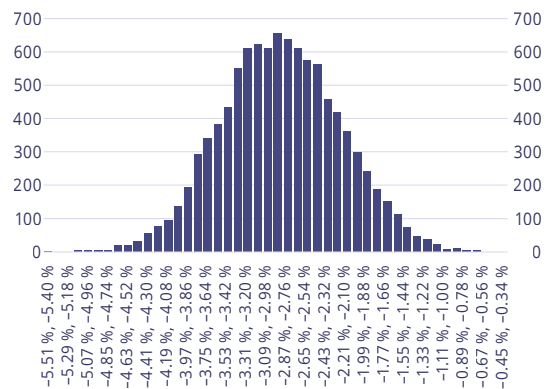
¹⁰¹ To determine the initial GDP value, the GDP forecasts by Latvijas Banka (in comparative prices, seasonally and calendar adjusted data) for the period until 2024 were used. For the further period covering 2025–2050, the GDP values of the NGFS's delayed transition scenario (obtained using the REMIND-MAGPIE 3.0-4.4 model) were used. See [NGFS Scenario Explorer](#).

Chart A1.1
Simulated natural disaster damages by quarter (% of GDP)



Note. One of 10 000 simulations.

Chart A1.2
Difference in the simulated and initial GDP in 2050 (number of simulations)



Note. Data for 10 000 simulations.

insurers' solvency capital ratio¹⁰², it is necessary to model their capital and solvency capital requirement dynamics. The assessment of capital takes into account the difference between premiums and compensations during the previous period, as well as the economic development in Latvia, the EU and the USA. Insurance premiums are modelled depending on GDP growth by taking into account seasonality and the impact of large

¹⁰² Solvency capital ratio is a rate of available capital to capital requirement. Solvency capital requirement is the requirement for ensuring the minimum solvency. The calculation of the indicator is based on the assessment of all the risks an insurance corporation is exposed to, including the assessment of the insurance underwriting risk, the market risk, the credit risk and the operational risk. Each risk model is calibrated according to VaR method, using a 99.5% confidence level over a one-year time horizon; see <https://likumi.lv/ta/id/320109-aprosinataju-un-paraprosinataju-maksatspejas-kapitala-prasibas-un-pasukapitala-aprekinasanas-normative-noteikumi>.

natural disasters observed previously. Part of the compensations are calculated in proportion to the amount of premiums in the previous year. The remaining part of compensations consists of insured damages.

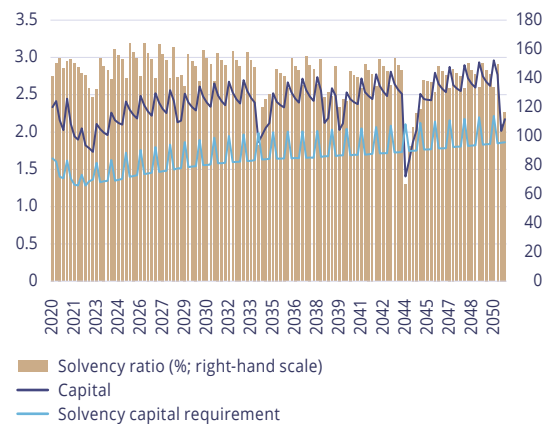
Based on the data of the EIOPA insurance statistics and Latvijas Banka's securities statistics, it is assumed that the economic development in Latvia affects 24% of the insurers' capital, in the EU – 73% of the insurers' capital, and in the USA – 3% of the insurers' capital. To assess the EU and USA future GDP values, forecasts by the Organisation for Economic Co-operation and Development (OECD) for the period up to 2025 on a quarterly basis and NGFS delayed transition scenario data (calculated using the REMIND-MAGPIE 3.0-4.4 model), which includes high chronic physical risk damage estimate, have been used. The model includes a condition that large natural disasters affect the GDP growth in the EU and the USA.

When assessing the solvency capital requirement, it was taken into account that it is related to various risks – underwriting risk¹⁰³, market risk, credit risk and operational risk. Thus, the solvency capital requirement is assessed depending on the economic development in Latvia, the EU and the USA, as well as on the amount of premiums and losses caused by large natural disasters. One of the options for development of capital, solvency capital requirement and solvency capital ratio is reflected in Chart A1.3. When looking at this Chart in conjunction with Chart A1.1, it can be seen that **one or several large natural disasters occurring shortly one after another**, for example, in 2044, **may cause a significant reduction in equity**, which results in a decrease of solvency of the insurance sector. Therefore, **it is essential to constantly ensure a higher capital level and monitor its resilience to potential cases of occurrence of the physical climate risks.**

With the aim of identifying the structural vulnerabilities which could arise from the physical climate risks, **the baseline scenario additionally assesses the probability of one of the insurers choosing to leave the market.** According to the assumptions, this might happen on the condition that the value of the sector's solvency capital ratio for two consecutive quarters is less than 105% (the average value between 100%, which is the minimum solvency capital ratio requirement, and 110%, when the sector should carry out additional resilience measures). After 10 000 simulations, the results of the

¹⁰³ Underwriting risk shall be understood as a risk that the insurer determines the amount of the premium inappropriately, so that the remuneration exceeds the underwritten premiums.

Chart A1.3
Simulation of capital and solvency capital requirement (% of GDP)



Notes. Data for 10 000 simulations. The solvency ratio is the ratio of the capital to solvency capital requirement

model most often (in 56% of the cases) show that this condition does not materialise, in another 30% of the cases it materialises once over the entire period considered, and in 14% of the cases it materialises two or more times.

Impact on GDP and the insurance sector: alternative scenarios

In addition to the baseline scenario, the following alternatives were analysed:

- a lower insurance level scenario – after large natural disasters the insurance cover decreases;
- a higher adaptation level scenario – the main assumptions are the same as in a lower insurance level scenario, while the total damages are smaller due to the adaptation to climate change¹⁰⁴;
- insurance scheme¹⁰⁵ introduction scenario – the fund for the disaster loss-covering scheme consists of instalments amounting to 12% of the value of premiums during 2030–2045 (the operation period of the scheme), and it covers 70% of the insured losses caused by large natural disasters.

In addition to alternative scenarios, also an extended model with the assumption of one insurer leaving the market if the solvency capital ratio for the first time is less than 105% for two consecutive quarters, has been

¹⁰⁴ For information on the possibilities for adaptation, see: <https://www.makroekonomika.lv/kadas-superspejas-var-izmantot-apdrosinataji-latvija-klimata-parmainu-bremzesana>.

¹⁰⁵ The fund acts as a reinsurer for natural disaster risks. Participation of insurers in the scheme is voluntary but it is attractive enough to cover up to 70% of the losses from large disasters, with the share of rejected insurance claims decreasing to 3%. For insurance schemes, see: <https://www.makroekonomika.lv/fizisko-klimata-risku-un-dabas-katastrofu-apdrosinasanas-shemas-kas-specigam-lacitim-ir-verda>.

developed. The basic model assumes that the group company of the respective insurer will carry out the necessary activities to cover all the obligations assumed by the insurer leaving the market and the situation in the market will remain unchanged. Meanwhile, the extended model assumes that the exit of an insurer from the market reduces competition and, in the short term, also the insurance level due to the rising prices, and may exacerbate the underwriting risk. Uncontrolled exit from the market may also raise concerns among the other insurers regarding the profitability and stability of the insurance market.

Results

The most adverse impact on the development of the economy is expected in a situation where the share of the insured properties decreases substantially.

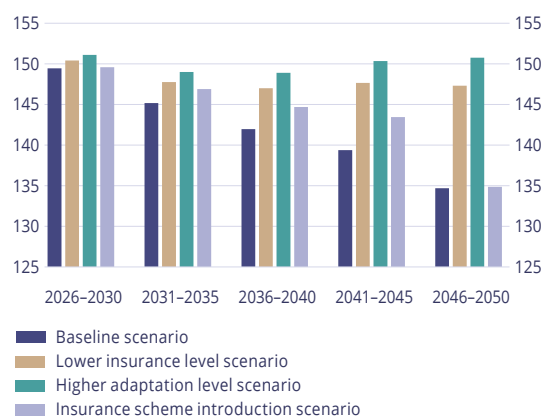
This impact can be reduced substantially if adaptation measures are carried out systematically. Also, an appropriate insurance scheme can mitigate the negative effect of natural disasters on GDP and increase the willingness to insure property. Similar results have been obtained using the base model and the extended model (Table A1.1).

The most significant differences between the model versions are evident in the case of the baseline scenario.

In the extended model, if one insurer exits the market, the share of insured damages and properties decreases, as some customers choose to abandon insurance due to the rising prices, while part of the customers of the insurer exiting the market is unwilling to cooperate with another insurer, which results in

Chart A1.4

Average value of the solvency ratio in the insurance sector (%)



Note. Average values from 10 000 simulations.

slightly higher uninsured damages. If the insurance level is high enough (the baseline scenario and the insurance scheme scenario), the possibility of one insurer exiting the market somewhat reduces the insolvency risk in the insurance sector.

The value of the solvency ratio of the insurance sector in the baseline scenario decreases gradually

(see Chart A1.4). This decline is slower if an insurance scheme is introduced. However, after the scheme ends, the value of the solvency ratio decreases sharply. Meanwhile, a lower share of insured properties provides a more stable value of the solvency ratio, especially if adaptation measures are also implemented. Then, the simulated and the initial GDP difference in 2046–2050 decreases on average by 0.5 percentage points as compared to the baseline scenario, while the solvency ratio of the

Table A1.1
Simulation results

	Base model				Extended model	
	Baseline scenario	Lower insurance level scenario	Higher adaptation level scenario	Insurance scheme scenario	Baseline scenario	Insurance scheme scenario
GDP difference in 2050 (%)	-2.9 (-3.9; -1.8)	-3.4 (-5.2; -1.9)	-2.3 (-3.6; -1.3)	-1.6 (-2.3; -0.9)	-3.0 (-4.4; -1.8)	-1.6 (-2.5; -0.9)
Uninsured damages, average in 2046–2050 (% of GDP)	1.3 (0.8; 2.0)	1.6 (0.9; 2.5)	0.8 (0.5; 1.4)	1.3 (0.8; 2.0)	1.4 (0.8; 2.2)	1.3 (0.8; 2.1)
Share of insured damages, average in 2046–2050 (%)	24.5 (18.2; 32.3)	9.0 (7.0; 11.2)	9.9 (7.9; 12.3)	25.3 (18.6; 33.1)	20.0 (10.5; 28.1)	23.7 (17.4; 30.7)
Share of insured properties at the end of 2050 (%)	73.3 (64.6; 80.0)	32.4 (26.7; 38.4)	32.4 (26.8; 38.7)	75.2 (66.2; 80.0)	55.9 (29.0; 78.6)	64.8 (34.6; 80.0)
Number of periods when the conditions are met for one insurer to potentially exit the market	0.6 (0; 2)	0.0 (0; 0)	0.0 (0; 0)	0.4 (0; 2)	0.4 (0; 1)	0.3 (0; 1)

Notes. The table shows mean values and the interval of the lowest and highest values of the 5% distribution in the brackets. The simulation results of the lower insurance level scenario and the higher adaptation level scenario are almost identical in both model versions.

insurance sector is 16 percentage points higher. The lower insurance level scenario shows a larger drop in GDP, since refurbishing works are to be financed from the savings of households and businesses and by limiting the funds allocated for the planned consumption and investments, or they are not performed in full, including the production capital is only restored partially.

The share of insured damages increases substantially during the operation of the insurance scheme (see Chart A1.5). Accordingly, also the value of uninsured damages decreases similarly as in the case of implementing adaptation measures. Nevertheless, it increases again when the scheme ends its operation.

At the beginning of the operation of the insurance scheme, there is a possibility that the insurance scheme fund does not accumulate enough resources to cover all the damages. However, in the following period, **the insurance scheme fund has enough resources to cover all the damages incurred with a 99% probability.**

Conclusions

The impact of natural disasters on the development of the Latvian economy and insurance sector largely depends on the intensity of disasters. In the period from 2023 to 2050, simulated damages caused by natural disasters can range from 0.7% of GDP to 1.0% of GDP each year if the usual (average) storms, rain floods and spring floods hit Latvia. Meanwhile, **if both a devastating storm and large spring and rain floods occur within one year, the damages over the 2023–2050 period may reach 5.7%–7.6% of GDP in the given year.**

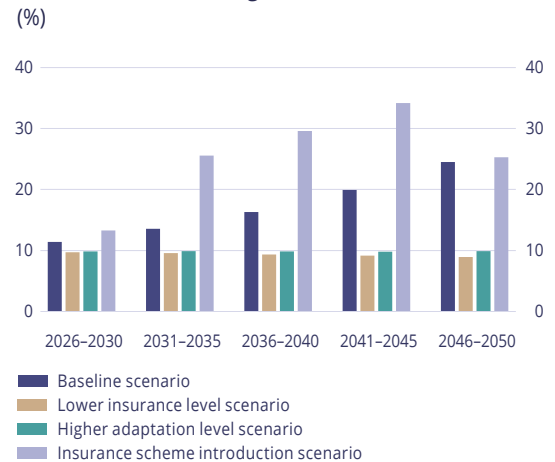
Latvia's GDP in 2050 may be 1%–5% lower than its initial value¹⁰⁶ due to the accumulation of the impact of the damages caused by natural disasters and a comparatively low share of insured damages.

If measures for adaptation to climate change are taken, natural disasters have a less negative impact on the development of the economy and the insurance sector.

An appropriately-developed insurance scheme can be self-sustained (except for a couple of years at the beginning of the operation of the scheme) and **facilitate the increase in the number of insured properties,**

Chart A1.5

Share of insured damages



Note. Average values from 10 000 simulations.

reducing the negative impact of natural disasters on economic growth. However, without a clear action plan in place, all the positive effects can fade away when the scheme ends its operation.

Proposals

- The government, insurers and interest groups should **raise public awareness of the physical climate risks.**
- The government, municipalities, businesses and society should **evaluate the available adaptation measures and plan their sequential introduction.**
- Households and businesses should gradually **relocate their properties to regions that are less exposed to physical risks and critically evaluate the purchase or development of their property in the risk areas.**
- When choosing insurance, customers should evaluate **which risks and to what extent are insured.**
- Policy makers should **analyse the benefits and shortcomings of different insurance scheme designs and evaluate the need for their introduction.**
- Insurer supervisors, policy makers and insurers should **facilitate the availability and smooth functioning of the insurance market.**
- Insurer supervisors should monitor whether the insurers' activities in the market do not change substantially by reducing supply or refusing to insure particular risks, in order to develop adequate policy measures in a timely manner for ensuring the functioning of the insurance market.
- Researchers should **develop models for evaluating the impact of physical climate risks on the economy and the insurance sector.**

¹⁰⁶ See footnote 101.

Appendix 2. Borrowers' ability to withstand an increase in the costs and interest rates

Prepared by Andrejs Semjonovs, Nadežda Siņenko, Mikus Āriņš, Jekaterina Petkeviča

The impact of interest rate rise on the overall solvency of households is moderate, while that of consumer price surges is significant. Due to the prolonged and swift price growth and the rising interest rates, the debt burden may become excessive (i.e. exceed 40% of income) for up to 12% of household borrowers. The price growth has a more adverse impact on the welfare of less wealthy household borrowers. A further increase in interest rates may have a significant impact on the debt servicing capacity of companies operating in certain sectors. Overall, the interest coverage ratio and profitability of NFCs would still remain healthy, as the indicators are at a sufficiently good level before the interest rate rise; however, on a sectoral level, the impact would be heterogeneous.

The Appendix **assesses the borrowers' financial resilience to the sharp and prolonged rise in costs and the rising interest rates on loans.** The resilience of household borrowers is assessed by analysing the data from Latvijas Banka's Credit Register and the data on household income, spending, loan commitments and saving collected by¹⁰⁷ Latvijas Banka's survey of household borrowers. The financial resilience of NFCs is assessed using Latvijas Banka's MFI interest rate statistics and the CSB data on the financial indicators of NFCs in 2022.

The assessment of the increase in the borrowers' debt servicing costs is based on the following assumptions:

- EURIBOR of all maturities¹⁰⁸ is 3.5%. In a more adverse scenario, interest rates increase to 5.0%. Until then, households continue to service their debt in accordance with the current repayment terms.
- Monthly loan service payments for loans issued to households other than housing loans remain unchanged in 2023.¹⁰⁹
- Household spending on utility payments in 2023 increases according to the growth in the energy component of the consumer price index, spending on food – in line with the increase in the food component, while other expenditure rises according to the growth in service prices or the total growth in consumer prices. Thus, the total household spending increases correspondingly to the total growth in consumer prices. Households do not change their consumer basket in 2023.
- Household income in 2023 increases in accordance with Latvijas Banka's forecast about the average wage growth in the country.
- NFCs' earnings before interest and taxes remain unchanged.
- In NFC interest payment calculations, the fixed component of the interest rate is 2.1% (according to the MFI interest rate statistics for 2022 compiled by Latvijas Banka), and EURIBOR is the variable rate.

¹⁰⁷ The survey was conducted from September 2020 to February 2021. Household income, including from benefits, and spending for 2021–2022 have been modelled in the same way as in the assessment of household borrowers in the Financial Stability Report 2022. For the household solvency assessment with respect to the situation at the beginning of 2023, which has been carried out using the survey data and the data from Latvijas Banka's Credit Register, see: <https://www.macroecconomics.lv/borrowers-midst-rising-costs-what-capacity-household-borrowers-withstand-sharp-increase-prices-and>.

¹⁰⁸ A simplified assumption has been made on an equal rise of EURIBOR of all maturities, since the household survey does not provide information about the EURIBOR maturity for all households' liabilities.

¹⁰⁹ A large part of household loans other than loans for house purchase are consumer loans. Such loans mostly have fixed interest rates.

Households

Impact of interest rate hikes

The impact of interest rate hikes on household solvency is moderate. According to the estimates based on the data from Latvijas Banka's Credit Register, the increase in the monthly debt service payment for most households has been relatively small until the beginning of 2023. **It is expected that the majority of households will face a relatively minor increase in the monthly loan payment also this year.** For more than a half of housing loans, the increase in monthly loan service payment was up to 60 euro per month, and it is expected that for more than a half of the loans, further increases will be up to 30 euro per month (see Chart A2.1, panel (a))¹¹⁰. In a more adverse scenario, with EURIBOR increasing to 5.0%, for most of housing loans (60%) the increase will be up to 60 euro per month.

The increase in the monthly debt payment is larger for housing loans issued in the recent years. For more than a half of the housing loans issued since 2020, the increase in the monthly loan service payment was up to 90 euro per month, while for more than a half of these loans, the future increase in payments is expected to be up to 60 euro per month (see Chart A2.1, panel (b)). In a more adverse scenario, the rise in payments for the majority of loans is expected to be up to 90 euro per month.

Impact of consumer price growth

Due to prolonged and swift consumer price growth, insolvency risks faced by household borrowers are increasing substantially. With consumer price growths exceeding the growth in employment income for the second consecutive year, the financial burden of households' daily spending increases, and savings shrink. At the beginning of 2022, the daily expenditure of household borrowers accounted for, on average, 62%, while the estimates assume that due to the sharp rise in consumer prices, it reaches, on average, 71% and 72% of income respectively in 2023 and 2024 (see Chart A2.2).

Spending on food and utility payments that represents a relatively larger share of total income for less wealthy households, is seeing a steeper surge than total spending in 2022 and 2023. **Thus, the financial burden for less wealthy household borrowers increases more rapidly.**

Chart A2.1
Distribution of the rise in monthly housing loan interest and principal payments
(euro and %)

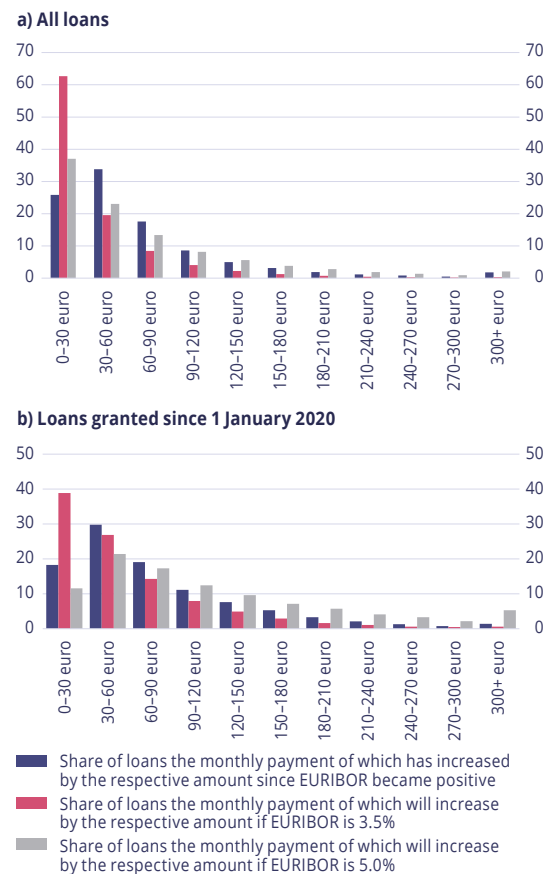
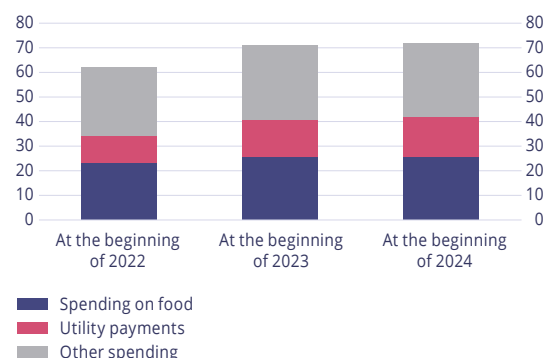


Chart A2.2
Share of daily expenditure of household borrowers
(% of their income)



¹¹⁰ The relatively small increase in the monthly payment for a large part of housing loans is also due to the fact that for most housing loans, the current outstanding loan balance is rather small, and these are loans issued a relatively long time ago and having a rather short residual maturity. In 2023, for half of housing loans the balance was less than 30 182 euro. Most of these loans have been issued until 2010, and their residual maturity is less than 8 years.

Assessment of the debt burden

It is expected that due to the increase in prices and interest rates the debt burden will become excessive for a relatively small share of households. After the increase in interest rates and expenditure, the debt service costs would exceed 40%¹¹¹ of income for up to 12%¹¹² of household borrowers (and the share of housing loans issued to these households in total loans for house purchase would be 11%; see Chart A2.3). In a more adverse scenario, with EURIBOR reaching 5.0%, the debt service costs would exceed 40% of income for 16% of households (the share of housing loans issued to these households in total loans for house purchase would be 15%). For comparison, Latvijas Banka's survey of household borrowers conducted in 2011 showed that the debt service costs exceeded 40% of income for 23% of households.

For borrowers with lower income, the debt burden would be heavier and would increase more sharply. After the rise in the costs and interest rates, up to 22%¹¹² of the first quintile household borrowers (20% of less wealthy household borrowers) would see their debt service payments exceeding 40% of their income (see Chart A2.4). The share of housing loans issued to them in the total household borrowers' portfolio would be 4%. In a more adverse scenario, with EURIBOR reaching 5.0%, the debt service costs for 28% of the first quintile household borrowers would exceed 40%¹¹¹ (the housing loans issued to them would represent 5% of the total household borrowers' portfolio). It is mostly the rise in utility payments and spending on food that makes the debt burden excessive. With EURIBOR reaching 5.0%, the borrowers' debt service costs would exceed 40% for up to 21% of households in the second quintile, 12% of households in the third and fourth quintiles, and 8% of households in the fifth quintile respectively.

Non-financial corporations

Impact of interest rate rises and assessment of the debt service capacity

According to the MFI interest rate statistics compiled by Latvijas Banka, in 2022, the weighted average interest rate on loans issued by NFCs was 3.0% (including the fixed part of 2.1%). With EURIBOR reaching 3.5%, in the baseline scenario the average interest rate increases to 5.6%, while in a more adverse scenario – to 7.1%.

¹¹¹ Debt service costs are considered to be potentially excessive if they exceed 40% of the borrower's income. This limit is incorporated into the section "Creditworthiness assessment of consumers" of Chapter V of Latvijas Banka's Regulatory Provision No 242 "Regulation on Credit Risk Management".

¹¹² The calculation is based on the assumption that households do not change their spending habits. When a significant number of households are able to cut their spending, the actual share of households with an excessive debt burden is lower. Thus, the calculated share of households is to be perceived as the upper limit of the share of households.

Chart A2.3

Distribution of debt service-to-income ratio by number and share of household loans at the beginning of 2024 if EURIBOR increases to 3.5% (%)

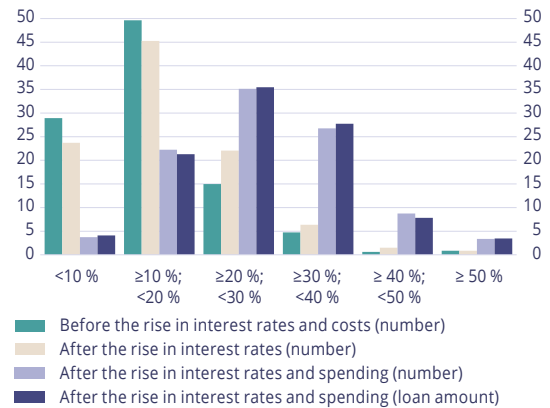
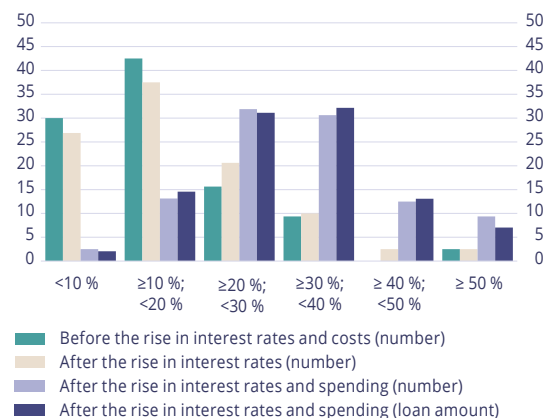


Chart A2.4

Distribution of the debt service-to-income ratio by number and share of housing loans at the beginning of 2024 for household borrowers with the lowest income (1st quintile) per household member if EURIBOR increases to 3.5% (%)



The rise in interest rates may have a significant impact on the debt servicing capacity of companies operating in certain sectors. According to the CSB data, in 2022, the overall interest coverage ratio was good, i.e. earnings before interest and taxes exceed interest payments 10.6 times. This is determined by a good average level of earnings and the ability to pass through higher costs to the end consumer. However, in the accommodation and food service activities sector this indicator is low. In the baseline scenario and a more adverse scenario with rising EURIBOR rates, the interest coverage ratio decreases to 5.7 and 4.5 times respectively (see Chart A2.5), but overall remains at a good level. The agriculture, forestry and fishing sectors, as well as the arts, entertainment and recreation sector are particularly sensitive to interest rate rises; nevertheless, the debt servicing capacity of these sectors is still relatively good. Meanwhile, the interest coverage ratio for the construction, transport and storage, and accommodation and food service activities sectors, as well as for the real estate activities sector decreases to a low level. For other sectors, the debt servicing capacity overall remains at a good level.

Profitability assessment

The impact of the rise in interest payments on the profitability of NFCs¹¹³ is overall rather limited. However, the profitability ratio of the real estate activities sector and the solvency of NFCs operating in the sector are sensitive to an increase in EURIBOR rates (see Chart A2.6), as interest payments on loans issued for financing real estate properties account for a large share in the cost structure of the companies operating in the real estate activities sector.

Chart A2.5
NFC interest payment coverage depending on EURIBOR with other conditions remaining unchanged in 2023

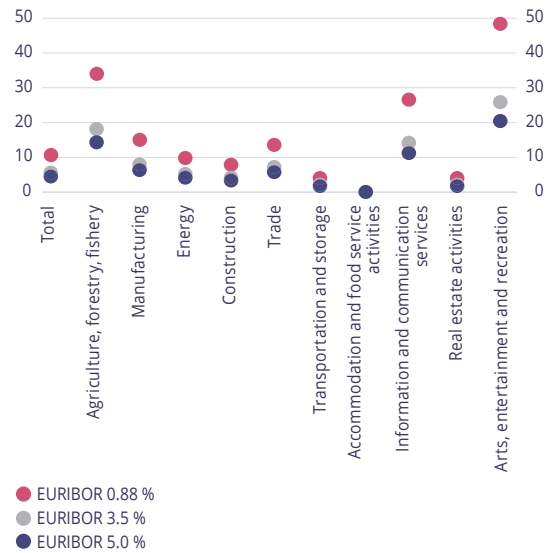
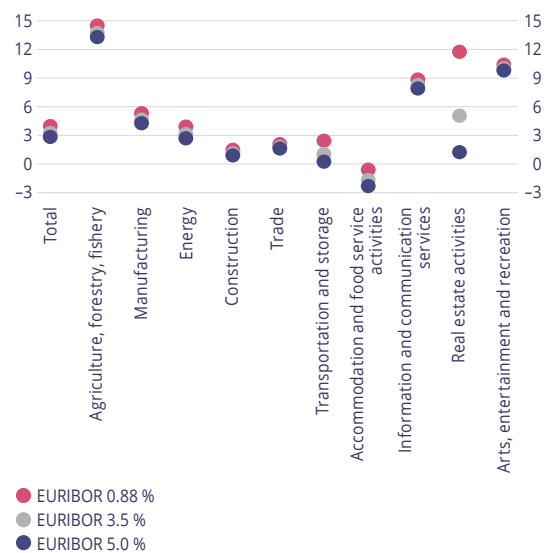


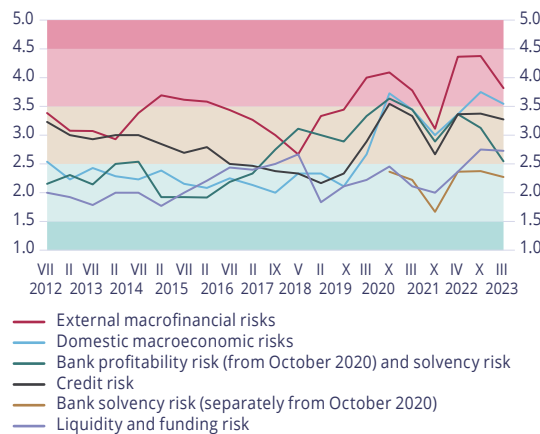
Chart A2.6
NFC profitability depending on EURIBOR with other conditions remaining unchanged in 2023 (%)



¹¹³ Income before taxes to turnover.

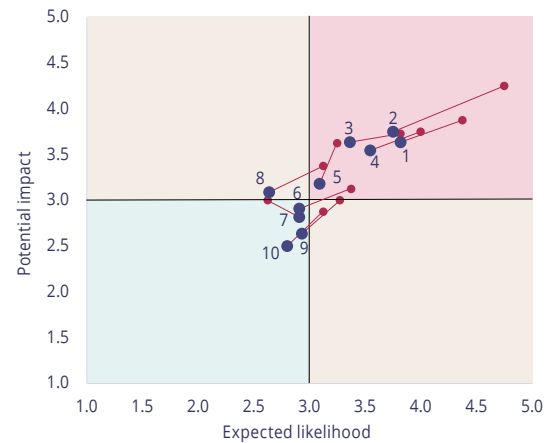
Appendix 3. Results of the credit institution survey on risks

Chart A3.1
Assessment of the key risk categories by credit institutions¹¹⁴ in terms of risk level over the coming year (taking account of the expected likelihood of a risk and the potential negative impact)



¹¹⁴ In March 2023, Latvijas Banka conducted a credit institution survey regarding their assessment of risks to Latvia's financial system. The survey respondents were Swedbank AS, AS SEB banka, Latvian branch of Luminor Bank AS, AS Citadele banka, AS BlueOr Bank, AS Regionāla investīciju banka, AS LPB Bank, Signet Bank AS, AS Rietumu Banka, AS Industra Bank and Latvian branch of OP Corporate Bank Plc.

Chart A3.2
Assessment of the risk factors provided by credit institutions in March 2023 over the coming year (in a scale from 1 to 5; potential impact)



Risk factors (in a descending order)

1. Deterioration of household solvency
2. Negative impact of significant deterioration of the external macro-financial environment on Latvian economy
3. Deterioration of Latvia's economic situation due to domestic factors
4. Deterioration of NFC solvency
5. IT security risk to Latvia's financial system (it is recommended to be filled in by IT specialists)
6. A significant fall in demand in commercial real estate market
7. Reputation risk and other risks related to financial crime (including fraud, AML/CFTP and circumvention of sanctions) in Latvia and the Baltics
8. Substantial changes in residential real estate prices
9. Impact of climate change physical and transition risks on Latvia's financial system (over the 5–7 years horizon)
10. Rising risks in parent banks of major Latvian banks or in their home countries (including rising macro-financial risks in their economies or increase in funding risks in the parent banks).

Appendix 4. Performance indicators of credit institutions

Table A.4. Overall performance indicators of credit institutions

Indicator	2017	2018	2019	2020	2021	2022	March 2023
Balance sheet indicators							
Number of credit institutions and branches of foreign credit institutions	21	20	19	16	16	14	13
Total assets (millions of euro)	28 387.7	22 870.5	23 202.9	24 558.1	25 447.2	27 875.6	27 490.1
Share of loans in assets (%)	50.9	59.3	58.1	52.7	56.7	55.4	55.6
Annual growth rate of domestic loans (%)	-2.8	-4.1	-1.5	-3.3	11.8	7.6	6.2
Share of deposits in total liabilities (%)	71.4	71.4	74.2	76.0	78.6	78.2	77.7
Annual growth rate of domestic deposits (%)	0.0	6.6	7.3	8.4	10.3	11.8	9.3
Share of liabilities to MFIs in total liabilities (%)	10.0	10.8	6.6	3.2	2.5	4.3	4.8
Domestic loan-to-deposit ratio (%)	101.9	91.7	84.1	73.8	74.8	72.0	72.2
Profitability¹¹⁵							
ROE (%) ¹¹⁶	6.3	9.7	3.1	5.3	10.0	10.4	-
ROA (%) ¹¹⁷	0.7	1.2	0.3	0.5	1.0	1.0	-
Cost-to-income ratio (%) ¹¹⁸	58.1	60.0	65.2	64.9	59.1	52.5	-
Capital adequacy¹¹⁹							
Own funds (millions of euro)	3 060.1	2 697.3	1 936.8	2 316.1	2 335.5	2 315.9	-
CET1 capital (millions of euro)	2 725.5	2 454.2	1 802.6	2 219.7	2 241.6	2 212.3	-
TREA (millions of euro)	14 716.4	12 091.3	9 188.8	8 624.5	9 216.5	10 055.9	-
Total capital ratio (%)	20.8	22.3	21.1	26.9	25.3	23.0	-
CET1 capital ratio (%)	18.5	20.3	19.6	25.7	24.3	22.0	-
Leverage ratio (%)	9.6	10.4	9.3	10.1	10.1	9.3	-
Liquidity¹²⁰							
Liquid assets to total assets ratio (%) ¹²¹	37.4	31.8	32.1	35.6	35.3	37.7	37.6
LCR (%)	313.4	252.9	286.3	353.7	288.7	211.1	215.7
NSFR (%) ¹²²	146.0	138.2	144.9	155.9	187.1	169.4	-
Asset quality¹²³							
Ratio of provisions for NPL's in the loan portfolio (%)	3.7	3.1	3.3	1.9	1.6	1.6	1.4
Share of loans past due over 90 days in the loan portfolio (%)	4.2	4.0	3.9	2.3	1.5	1.1	1.2
Share of NPLs in the loan portfolio (%)	8.5	7.5	7.1	4.7	3.6	2.7	2.5

¹¹⁵ Indicators for 2017–2022 have been calculated based on Latvijas Banka's consolidated-level data. The one-off effects referred to in Chapter 2 "Development and Risks of the Credit Institution Sector" have not been excluded from profitability ratios.

¹¹⁶ Annualised profit/loss ratio to average capital and reserves of the reporting period (excluding data of foreign credit institution subsidiaries).

¹¹⁷ Annualised profit/loss ratio to average assets of the reporting period.

¹¹⁸ Cost-to-income ratio = (administrative expenses + intangible and fixed asset depreciation and disposal)/(net interest income + income from dividends + net commissions and fees + profit/loss from trades of financial instruments + financial instrument revaluation result + net ordinary income + adjustment for impairment of available-for-sale financial assets) × 100.

¹¹⁹ Data are shown at the consolidated level.

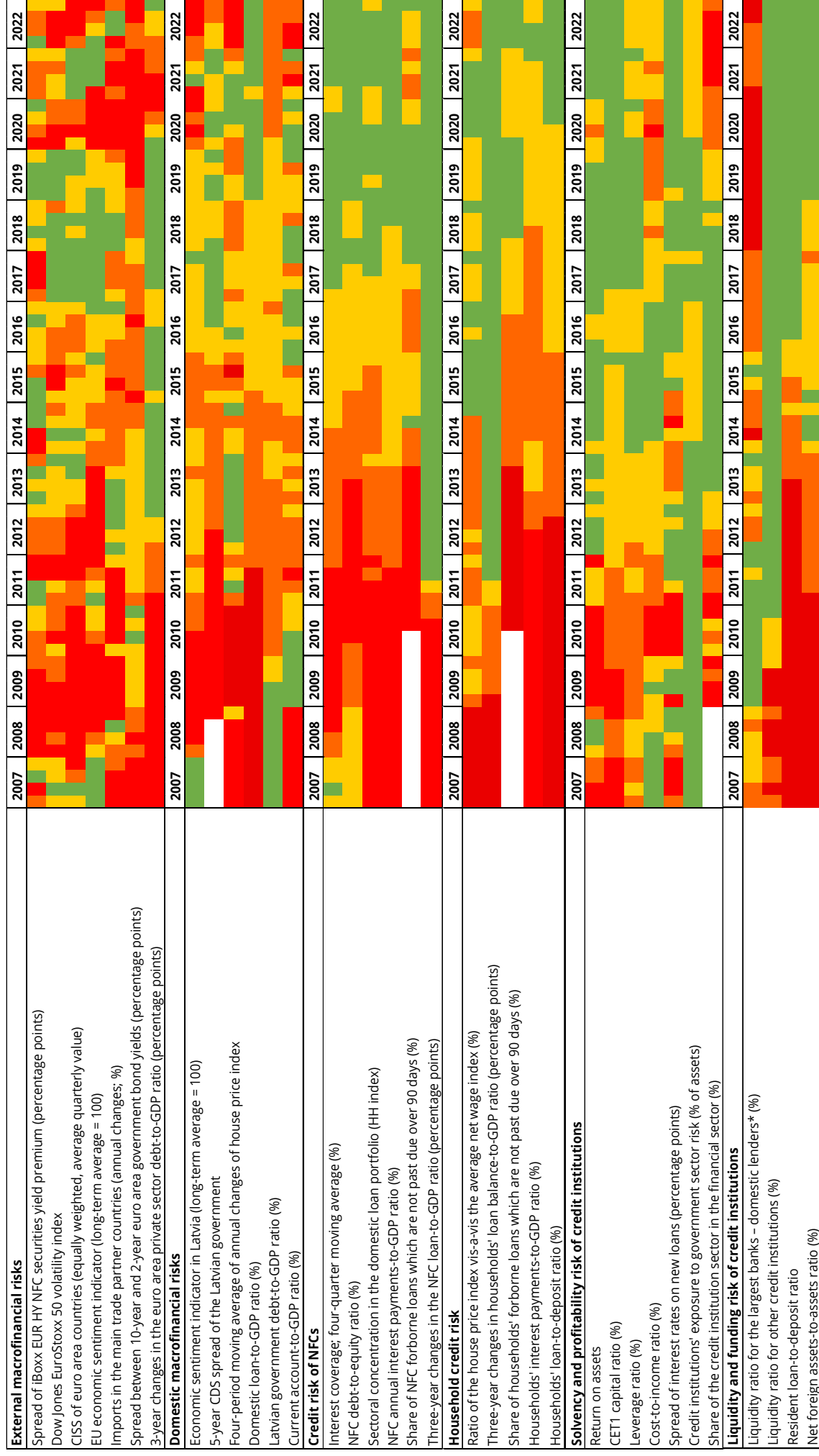
¹²⁰ Data are shown at the level of individual credit institutions.

¹²¹ Liquid assets = vault cash + claims on central banks and other credit institutions + central government fixed income debt securities (those having a regular, unlimited market, i.e. they can be sold in a short period of time without considerable loss or used as loan collateral).

¹²² Until 2021 – Latvijas Banka's estimate.

¹²³ The loan quality indicators for 2017–2022 have been calculated based on consolidated-level data for the credit institutions subject to consolidated supervision and on individual-level data for other credit institutions and branches of foreign banks (for the first quarter of 2023 – at the level of individual credit institutions). Credit risk ratios have been presented without excluding the one-off effects referred to in Chapter 2 "Development and Risks of the Credit Institution Sector".

Appendix 5. Heatmap of early warning indicators



* Data until 2019 and those for 2019 include four and three largest credit institutions respectively, since branches are excluded from the calculation of liquidity ratio. The liquidity ratio of this credit institution group is relatively lower, as liquidity of subsidiaries is managed at group level. The liquidity ratio is not a mandatory supervision requirement for these credit institutions; the liquidity ratio is employed for risk monitoring.

Notes: The heatmap is only one of the tools used by Latvijas Banka for the analysis of systemic financial stability risks. The assigned risk level should not be interpreted in absolute terms. Instead, it should be viewed in comparison with the historical benchmarks of the chosen indicators, warning of the build-up of risks. For the explanation of the heatmap methodology, see Appendix "Heatmap: analytical tool for the analysis of systemic financial stability risks in Latvia" of Latvijas Banka's "Financial Stability Report 2018".

The risk level arising from the ratio of the indicator to its average historical benchmark is indicated by colour:

